APPENDIX B
30% FIELD ACTIVITY REPORTS

APPENDIX B.1

GEOTECHNICAL INVESTIGATION REPORT

GEOTECHNICAL INVESTIGATION REPORT

PROJECT ID: PW77GOWAN
EXCAVATION & CAPPING OF FILLED
FIRST STREET TURNING BASIN, GOWANUS CANAL
BROOKLYN, NEW YORK

AKRF – KSE Joint Venture
440 Park Avenue South, 7th Floor
New York, NY 10016

MRCE
built on firm foundations

NEW YORK CITY | WASHINGTON, DC

November 15, 2017

built on firm foundations

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November 15, 2017

AKRF-KSE, Joint Venture
440 Park Ave South, 7th Floor
New York, NY 10016

Re: Geotechnical Investigation Report
Project ID: PW77GOWAN
Excavation and Capping of Filled First Street
Turning Basin, Gowanus Canal
Brooklyn, New York
MRCE File No. 12541

Dear Ms. Chu:

Mueser Rutledge Consulting Engineers (MRCE) has completed a subsurface geotechnical investigation at the First Street Turning Basin site. This report presents a summary of the investigation and our interpretation of the geotechnical subsurface conditions pertaining to the soils and groundwater levels encountered at the site.

EXHIBITS

The following exhibits are attached to illustrate our report:

Exhibit	Description
Figure S-1	Site Plan
Drawing B-1	Boring and Test Pit Location Plan
Drawing GS-1	Geologic Section A-A
Drawing GS-2	Geologic Section B-B
Drawing GS-3	Geologic Section C-C
Drawing GS-R	MRCE Geotechnical Reference Standards
Appendix A	MRCE Boring Logs
Appendix B	MRCE Test Pit Sketches
Appendix C	MRCE Test Pit Logs
Appendix D	TerraSense Laboratory Test Data
Appendix E	MRCE Groundwater Data

AVAILABLE INFORMATION

The following information was made available to MRCE to assist with the geotechnical investigation:

1. Boring Logs – Powerhouse Workshop Site, prepared by LANGAN, dated October 2016.

2. Subsurface Exploration Plan- Powerhouse Workshop Site, prepared by LANGAN, dated March 2017.
3. Well Construction Summary- Powerhouse Workshop Site, prepared by LANGAN, dated October 2016.
4. Monitoring Well 25 and 27 Construction and Borings, Gowanus Canal Superfund Site, prepared by Lockheed Martin/SERAS dated June 23, 2010.
5. Figure 1-9a – Equilibrium Sediment Benchmark Toxic Units for Shallow Groundwater Samples Brooklyn, New York, prepared by CH2MHILL, dated August 2011.
6. Final Remedial Design Work Plan, prepared by AKRF-KSE Joint Venture, dated August 2016.

SITE AND PROJECT DESCRIPTION

The First Street Turning Basin project site is located on the east bank of the Gowanus Canal in the Borough of Brooklyn, New York City, as shown on Figure S-1. The site is located in the block bounded by the Gowanus Canal to the west and 3rd Avenue to the east, 440 Carrol Street to the North and the Powerhouse site (322 3rd Avenue) to the south.

Site topography is highest at the east end of the site along Third Avenue and slopes downward to the west, towards the Gowanus Canal. Ground surface at the site ranges between approximately Elev. +9 and Elev. +16. Elevations in this report refer to the North American Datum of 1988 (NAVD88), where Elev. 0 is 1.447 feet below Brooklyn Highway Datum and 1.1 feet above Mean Sea Level at Sandy Hook, New Jersey in 1929 (National Geodetic Vertical Datum, NAVD29).

The United States Environmental Protection Agency (EPA) issued an administrative order for the remedial design of the Gowanus Canal Superfund site, which requires excavation and restoration of approximately 475 linear feet of the filled-in former First Street Turning Basin by reconstructing a multilayered cap to isolate and prevent the migration of contaminants into the Gowanus Canal.

SITE HISTORY

The Gowanus Canal is a brackish, tidal arm of the New York-New Jersey Harbor Estuary, extending approximately 1.7 miles through Brooklyn, New York (Figure 2-1). The approximately 100-foot-wide channel runs southwest from Butler Street to Gowanus Bay and Upper New York Bay. The former First Street Turning Basin was a part of the Gowanus Canal surface waterway system until it was filled between 1954 and 1966, based on aerial photographs of the area.

The former First Street Turning Basin was originally utilized to deliver coal via barges to an adjacent electric generating station (the Powerhouse) originally built to provide power to the former Brooklyn Rapid Transit Authority subway system, which was later incorporated into the NYC's Transit system in 1940. The Powerhouse began operation in 1904. During operations, it consumed large quantities of coal, fed from coal piles which surrounded the building and were located adjacent to the Gowanus Canal. The First Street Turning Basin was filled after the Powerhouse became obsolete and was removed from service. The Powerhouse itself was dismantled over the years, and by 1969 the existing section of the Powerhouse was the only part of the complex still standing. In 2012, the Powerhouse was purchased for potential re-development as non-profit artist studios and display space.

SUBSURFACE INVESTIGATION

MRCE conducted a geotechnical investigation program consisting of nine borings and six test pits at the First Street Turning Basin site to evaluate subsurface conditions and the permeability of soils in the proposed project area. Borings were conducted in the interior and exterior of the Turning Basin site, and test pits along the perimeter of the Turning Basin site. Boring MR-9 was removed from this investigation due to access issues. This investigation included the installation of one piezometer. As-drilled borings and test pit locations are shown on the Boring and Test Pit Location Plan, Drawing B-1.

Associated Environmental Services (AES) of Hauppauge, New York was retained by AKRF-KSE to advance the nine borings and excavate the six test pits. Seven borings were advanced to 75 feet below ground surface (bgs) and two borings were advanced to 100 feet bgs. Prior to the start of work, utility mark-outs were arranged by AES and AKRF-KSE, and all locations were arranged to be cleared for utilities by AKRF-KSE. The borings and test pits were performed between August 14, 2017 and September 22, 2017 under the continuous inspection of MRCE Resident Engineer, Ms. Ari Eslaminejad who prepared a field logs for each boring and test pit, along with a daily field reports. As-drilled boring locations and test pits were surveyed by B. Thayer Associates of Woodbury, New York. Borings locations not accessible for professional survey were field measured by dimensioning from existing surface features and structures.

Borings were performed using a Dietrich D120 truck-mounted drill rig, using wash-rotary drilling techniques with of drilling mud and casing, if needed, to stabilize boreholes. All borings were previously pre-cleared to a depth of 5 feet bgs prior to drilling. Continuous split-spoon samples were typically obtained between depths of 0 and 10 feet bgs, followed by intervals not exceeding 5 feet until boring termination depths were reached. A standard 2-inch split spoon sampler was driven through four 6-inch intervals with a 140 – pound hammer free falling 30 inches. The Standard Penetration Test (SPT) resistance, also termed N-Value, is calculated by summing the blows from the second and third 6 inch increments. Where soils were too dense for the sampler to penetrate the full 24 inches, the sampler was driven until 50 to 100 blows and the actual penetration of the sampler was measured and recorded. Where there was low or no recovery using the 2-inch split-spoon sampler, a 3-inch outside diameter split-spoon sampler was driven through the same interval to attempt to recover the soils. For some intervals, where only the 3-inch split spoon was used to recover samples it was indicated in the borings logs. Blow counts measured with the 3-inch diameter split spoon must be corrected for the greater end area of the larger diameter split spoon to calculate an equivalent N-value.

All soil samples recovered from split spoon sampling were placed in water-tight jars and sent to the MRCE laboratory for verification of field classifications. A summary of the Unified Soil Classification System (USCS) criteria is provided on Drawing GS-R, Geotechnical Reference Standards. All field soil samples were screened for volatile organic compounds (VOCs) using a photoionization detector (PID) by our MRCE inspector.

One undisturbed tube of organic clay was recovered from boring MR-10AU using a three-inch outer diameter tube and Shelby head in accordance with ASTM D1587. The sampler penetration length and sample recovery length of each undisturbed sample are recorded in the boring logs in Appendix A.

All boreholes, except MR-6P, were backfilled with a cement-bentonite grout by tremie method. Ground surfaces were restored to original conditions.

One piezometer was installed, outside of the turning basin, in the completed borehole MR-6P. The piezometer consisted of a 2-inch diameter polyvinyl chloride (PVC) standpipe extending to a depth of 30 feet bgs. A steel protective cover plate flush with the surrounding ground surface was installed at the

piezometer for protection and to facilitate future water level readings. Installation details and groundwater measurements are included with the boring log in Appendix A.

Following installation, the piezometer was developed by first flushing with water, and then pumping a minimum of 50-gallons from the well. During pumping, the submersible pump was raised and lowered within the slotted section of the pipe to alternate the flow of water and create a transition in gradation from the filter sand and surrounding natural soil. Pumping was continued until water from the well was clear and free of any soil particles.

MRCE monitored existing monitoring wells in the Turning Basin, installed by TWS Environmental, LLC of Wilmington, Delaware under the inspection of Preferred Environmental Services of North Merrick, New York between August 10, 2017 and August 18, 2017, and monitoring wells previously installed by Lockheed Martin/SERAS. Locations of existing wells (MW-3S, MW-3D, MW-4S, MW-4D, MW-5S, MW-5D, MW-27S, and MW-27I) are shown on Drawing B-1. Refer to Appendix E for well construction details and boring logs of the existing monitoring wells.

TEST PITS

Six test pits (TP-1 through TP-6) were excavated on the perimeter of the Turning Basin site, utilizing a combination of a rubber tracked mini excavator and hand tools. Upon completion, test pits were backfilled with excavated material in 12-inch lifts and compacted with the excavator bucket to existing conditions. Asphalt surfaces were restored upon completion of the investigation at TP-3 and TP-6.

Test pits were intended to determine the presence and condition of the existing buried bulkhead.

TP-1. Test Pit TP-1 was excavated on the western end of the Turning Basin site, along the Gowanus Canal, approximately 10 feet east of the embankment and 18 feet south of 430 Carroll Street (Lot 21). The test pit extended to a depth of approximately 8 feet bgs. Evidence of the existing bulkhead was not encountered. Refer to test pit log TP-1 of Appendix B and Photo Plate TP-1 of Appendix C for general fill conditions.

TP-2. Test Pit TP-2 was excavated on the southwest side of the Turning Basin site, along the perimeter of 322 3rd Avenue (Powerhouse), approximately 65 feet east of the western edge of the Powerhouse property. The test pit extended to a depth of about 9 feet bgs. A timber bulkhead was encountered at a depth of 4 feet bgs. The bulkhead consisted of approximately a 2 foot concrete cover on top of 3 layers of 12-inch deep timber sections. Steel 1-inch diameter spikes were observed in the top timber layer, unevenly spaced. Refer to test pit log TP-2 of Appendix B and Photo Plate TP-2 of Appendix C for general fill conditions.

TP-3. Test Pit TP-3 was excavated in the center of the north side of the Turning Basin site, in the parking lot, approximately 55 feet north of the Powerhouse property. The test pit extended to a depth of about 10.5 feet bgs. Evidence of the existing bulkhead was not encountered; however trace wood remains were encountered at the bottom of the test pit. Refer to test pit log TP-3 of Appendix B and to Photo Plate TP-3 of Appendix C for general fill conditions.

TP-4. Test Pit TP-4 was excavated in the eastern end of the Turning Basin site, approximately 12 feet north of 322 3rd Avenue (Powerhouse), and 7 feet south of 312 3rd Avenue (Extra Space Storage) fence line. The test pit extended to a depth of about 8 feet bgs. Timber remains were encountered at depth of 4.5 feet bgs. Evidence of the existing bulkhead was not encountered. Refer to test pit log TP-4 of Appendix B and Photo Plate TP-4 of Appendix C for general fill conditions.

TP-5. Test Pit TP-5 was excavated in the south western end of the Turning Basin site, approximately 40 feet east of the western edge of the building 430 Carroll Street (Lot 21). The test pit extended to a depth of about 7.5 feet bgs. A concrete grade beam was encountered from ground surface to 2.5 feet bgs, supported on a 2.5 foot thick concrete pile cap. The pile cap is supported by timber piles, approximately 10 to12 inches in diameter. Evidence of the existing bulkhead was not encountered. Refer to test pit log TP-5 of Appendix B and Photo Plate TP-5 of Appendix C for general fill conditions.

TP-6. Test Pit TP-6 was excavated at the south eastern end of the Turning Basin site, in the parking lot of 312 3rd Avenue (Extra Space Storage). The test pit was excavated approximately 10 feet east and 10 feet north of the chain link fence. The test pit extended to a depth of about 13 feet bgs. Two pipes, a 2-inch diameter steel pipe and a 6-inch diameter clay pipe, were encountered at approximately 5 feet bgs. The clay pipe shifted during excavation and was presumed to be abandoned since both ends were capped or plugged. The steel pipe remained intact during excavation. Evidence of the existing bulkhead was not encountered. Refer to test pit log TP-6 of Appendix B and Photo Plate TP-6 of Appendix C for general fill conditions.

LABORATORY TESTING

Upon completion of the investigation, all soil samples were delivered to MRCE's soils laboratory in New York City for verification of field classification for conformance with MRCE's Geotechnical Reference Standards and water contents of cohesive samples. The sample descriptions in boring logs, located in Appendix A, reflect the results of MRCE's laboratory review.

Laboratory testing was conducted by TerraSense, LLC of Totowa, New Jersey. Test results consisting of water contents, gradations, Atterberg limits, and undrained unconsolidated triaxial compression tests are summarized in Appendix D.

The following tests were performed in accordance with ASTM standards.

Water Content (ASTM D2216)

Natural water contents were measured for all cohesive soil samples and several granular samples. Results are shown on the boring logs in Appendix A and on the Laboratory Testing Data Summary in Appendix D.

Gradation (ASTM D422)

Grain size analysis were performed on samples from Strata O, S1, S2 and T. Multiple gradation tests, hydrometers and minus 200 fines content tests were performed on representative split-spoon samples to assist with soil classification. Results are presented on the Laboratory Testing Data Summary and shown graphically on the gradation curves in Appendix D.

Atterberg Limits (ASTM D4318)

Five Atterberg limits were performed for split spoon samples with appreciable plastic fines contents and undisturbed samples for which triaxial tests were assigned. Results are shown on the Laboratory Testing Data Summary in Appendix D.

Undrained Unconsolidated Triaxial Compression (ASTM D2850)

Two unconsolidated undrained (UU) triaxial tests were performed on undisturbed samples from Stratum O. The compressive strengths measured were 0.35 and 0.45 tons per square foot. Both specimens were collected from the same undisturbed sample at Elev. -16.4 and Elev. -17. Strength test results are provided in Appendix D.

SUBSURFACE GEOTECHNICAL CONDITIONS

Subsurface geotechnical conditions encountered in the borings are illustrated in Geologic Sections A-A, B-B, and C-C on Drawings GS-1 to GS-3. General descriptions of soil strata encountered in MRCE borings and their classification in accordance with the New York City Building Code are summarized below in order of their occurrence with depth. The soil consistencies discussed take into account SPT field N-Values.

Stratum F – Fill (NYC Class 7): The uppermost soil stratum encountered in each boring is a layer of miscellaneous man-made fill. It generally consists of loose to very compact brown to black fine to coarse sand with some to trace silt, gravel, brick, concrete, wood, metal, boulders, and various obstructions. The borings at MR-1, MR-3, and MR-10 were offset due to obstructions in the field. In the borings, the fill layer was encountered from 9 to 25 feet bgs. The N-values and blow counts range from 2 blows per foot to 100 blows for "x" inches.

Fill encountered during the test pit investigation consisted of debris, metal, tree roots, asphalt, concrete, boulders, rubble, cobbles, brick, loose silty sands, and loose gravelly sands. Refer to test pit sketches in Appendix C for detailed descriptions of the fill.

Stratum O – Organic Silty Clay (NYC Class 6): Below the fill stratum, five borings, MR-1A, MR-4, MR-5, MR-8 and MR-10AU, encountered a layer of organics. Stratum O typically consists of soft black organic silty clay with some to trace peat, fine to coarse sand, and wood. In the borings, Stratum O was encountered from 3 to 14 feet bgs. The N-values and blow counts range from weight of hammer to 23 blows per foot. Water contents varied between 46 and 116 percent. From the Atterberg limit tests, liquid limits ranged from 61 to 123 and plasticity index ranged from 26 to 54.

Stratum S1– Upper Sand (NYC Class 3b): Stratum S1 generally consists of loose to medium compact brown to red fine to coarse sand with some to trace silt and gravel. In borings MR-4, MR-5 and MR-6P clay seams consisting of medium brown and gray silty clay, some to trace fine and medium sand, trace gravel, and brown fine to medium sandy clay, trace black silt seams and gravel, were identified within Stratum S1. In the borings, Stratum S1 Upper Sand was encountered from 21 to 68 feet bgs. N-values and blow counts for Stratum S1 range from 8 to 29 blows per foot. Natural water contents varied from 16 to 24 percent. For the clay seams in this stratum, natural water contents were between 16 and 32 percent. From the Atterberg limit tests of the cohesive samples, liquid limits ranged from 22 to 37 and plasticity index ranged from 9 to 16.

Stratum S2– Lower Sand (NYC Class 3a): Stratum S2 generally consists of medium compact to very compact brown to gray fine to coarse sand with trace to some gravel and silt. In the borings, Stratum S2 Lower Sand was encountered 17 to 35 feet bgs. N-values and blow counts range from 22 to 80 blows per foot. Natural water contents ranged from 17 to 21 percent.

Stratum T – Glacial Till (NYC Class 3a): Till is characterized as a granular material which was likely deposited when ice flowed over the site during the last ice age. The till generally consists of very compact brown coarse to fine sand with some silt and gravel, and trace of mica. In the borings, the surface of the Stratum Till was encountered from Elev. -77 on the west side to Elev. -80 on the east side of the Turning Basin site. N-values and blow counts range from 92 blows per foot to 100 blows over 3 inches. The natural water content for the one sample tested in this stratum is 9 percent.

Groundwater: Water level measurements were made in Stratum S1 Upper Sand at piezometer MR-6P, installed outside of the Turning Basin. Falling and rising head permeability tests were attempted in the piezometer, but were not successful due to the high permeability of surrounding soils.

In addition, MRCE also measured groundwater levels in existing monitoring wells located inside the Turning Basin. Existing wells included MW-3S, MW-3D, MW-4S, MW-5S, MW-5D, MW-27S, and MW-27I which were previously installed by others. Existing monitoring well MW-4D was not measured during this investigation due to elevated PID readings from the casing.

Shallow monitoring wells set in the Fill Stratum, inside the Turning Basin site, indicated groundwater levels were affected by tidal influences from the Gowanus Canal. Groundwater elevations were encountered from approximately Elev. 0 at low tide events to Elev. +4 at high tide events. Deep monitoring wells set in the Upper Sand Stratum S1, indicated groundwater levels were less affected from tidal influences from the Gowanus Canal. Groundwater elevations were encountered from approximately Elev. +2 (low tide) to Elev. +3 (high tide). Groundwater levels outside of the Turning Basin showed trends similar to the deep monitoring wells inside the Turning Basin site, ranging from approximately Elev. +2 (low tide) to Elev. +3 (high tide). Fluctuations in groundwater levels should be expected based on tidal fluctuations in the Gowanus Canal and also seasonal variations which may vary from the elevations shown. All groundwater level data and well construction logs are summarized in Appendix E.

CLOSING

This report summarizes the geotechnical investigation information for the remediation of the First Street Turning Basin.

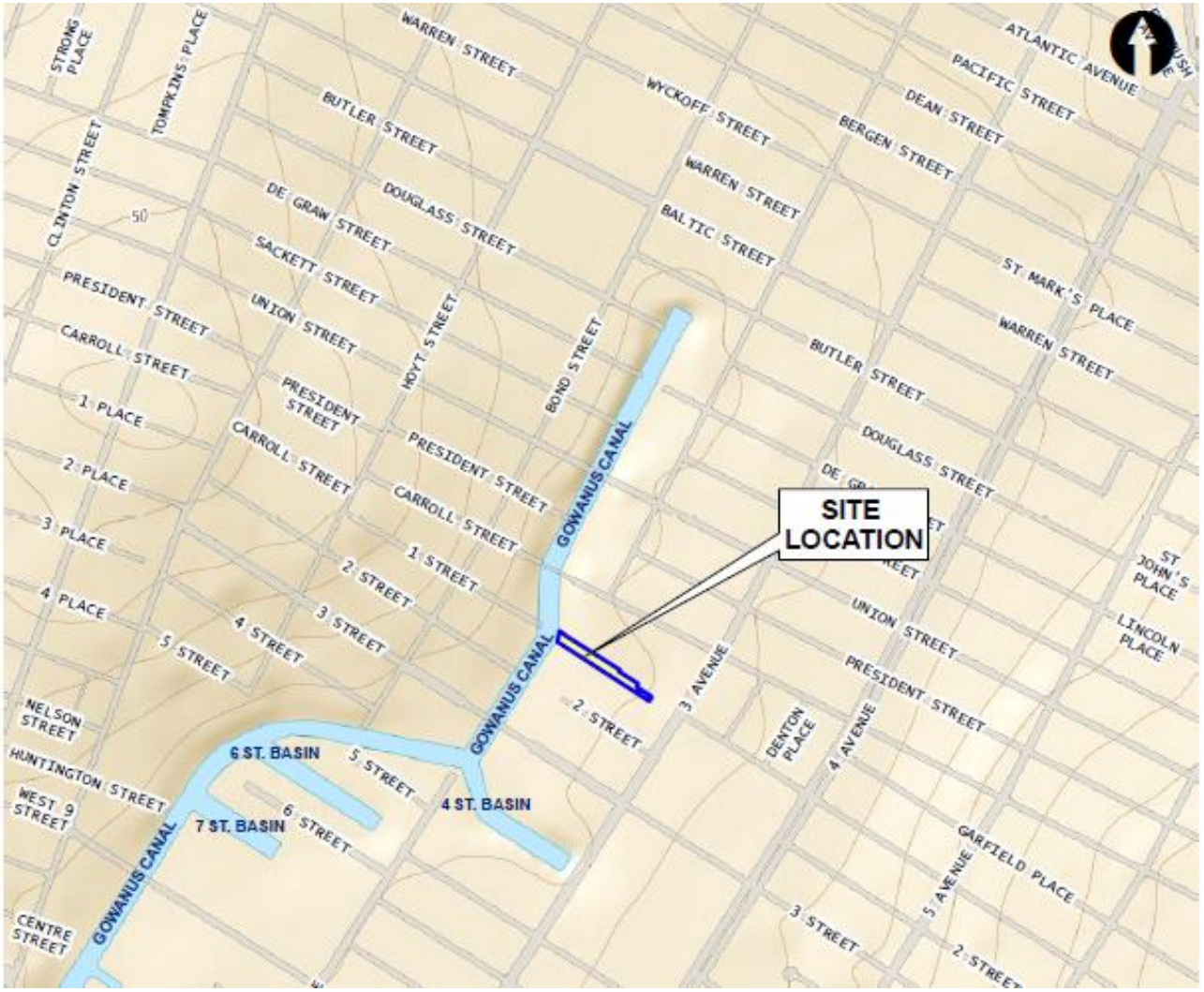
Please do not hesitate to call us with any questions.

Very truly yours,
MUESER RUTLEDGE CONSULTING ENGINEERS

Domenic D'Argenzio, PE

Athena DeNivo, PE

EXHIBITS



FIRST STREET TURNING BASIN			
BROOKLYN			NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
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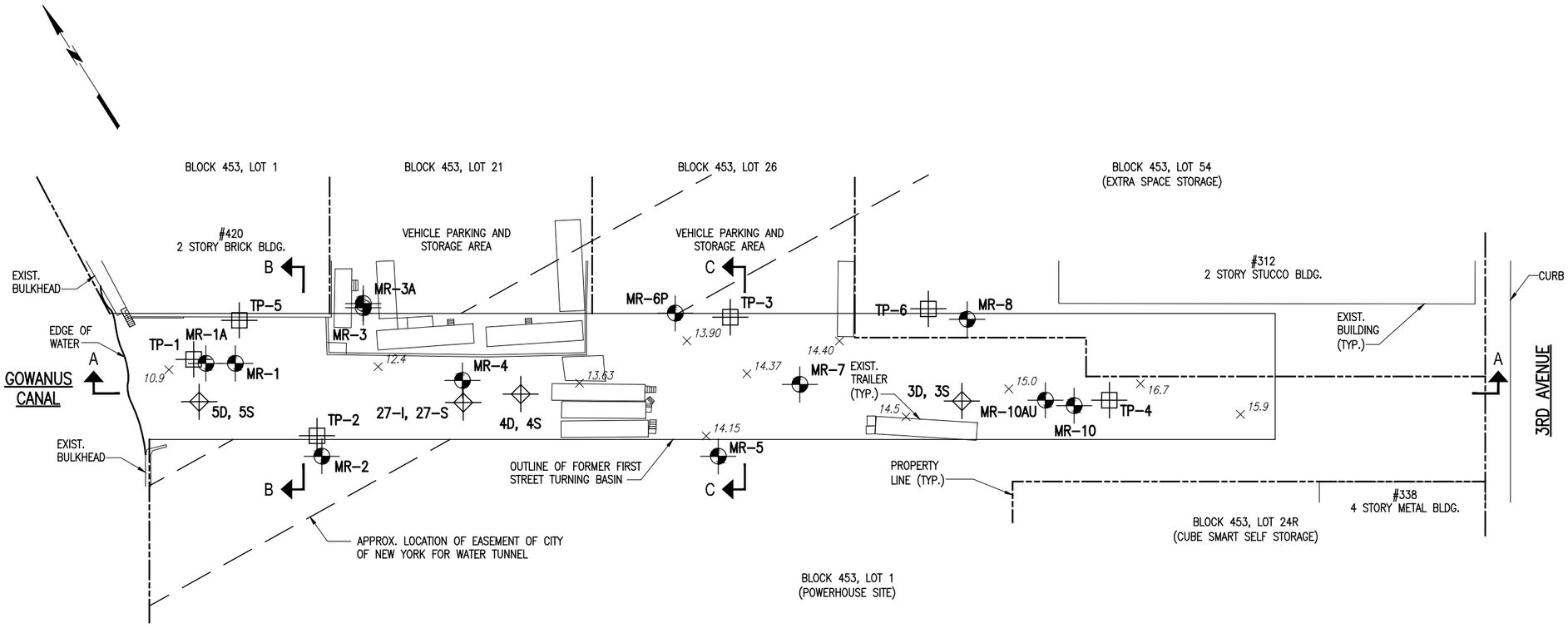
SITE PLAN			FIGURE S-1



P L A N

30' 20' 10' 0 30' 60'

NOTES:

1. BASE DRAWING TAKEN FROM SURVEY DRAWING BY B.THAYER ASSOCIATES DATED OCTOBER 10, 2017.
2. ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
3. BORINGS MR-1 TO MR-8 AND MR-10 AND TEST PITS TP-1 TO TP-6 WERE MADE BY ASSOCIATED ENVIRONMENTAL SERVICES LTD. BETWEEN AUGUST 14, 2017 AND SEPTEMBER 22, 2017 UNDER THE CONTINUOUS INSPECTION OF MRCE. BORING MR-9 WAS REMOVED FROM THIS INVESTIGATION DUE TO ACCESS ISSUES.
4. AS DRILLED LOCATIONS AND GROUND SURFACE ELEVATIONS FOR BORINGS MR-1 TO MR-8 AND MR-10 AND TEST PITS TP-1 TO TP-6 WERE SURVEYED BY B.THAYER ASSOCIATES ON SEPTEMBER 18, 2017 AND COMPLETED ON OCTOBER 4, 2017.
5. BORINGS MR-2 AND MR-5 WERE MEASURED OFF LOCATIONS OF EXISTING FEATURES. APPROXIMATE GROUND SURFACE ELEVATIONS WERE PROVIDED BY ROUX ASSOCIATES.
6. FOR GEOLOGIC SECTIONS A-A, B-B, AND C-C, SEE DRAWINGS GS-1 TO GS-3.
7. STRATIFICATIONS SHOWN ON THE GEOLOGIC SECTIONS ARE BASED ON NECESSARY INTERPOLATION BETWEEN BORINGS AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS.
8. SEE DRAWING NO. GS-R FOR BORING LEGEND AND SOIL CLASSIFICATION TERMINOLOGY.

LEGEND:

- MR-6P – MRCE BORING DRILLED IN 2017
  - "P" INDICATES PIEZOMETER
  - "A" INDICATES OFFSET
  - "U" INDICATES UNDISTURBED SAMPLES
- TP1 – MRCE TEST PIT PERFORMED IN 2017
- 3S, 3D – MONITORING WELL CLUSTER INSTALLED BY OTHERS (SEE APPENDIX E)
  - "S" SHALLOW MONITORING WELLS SET IN THE FILL STRATUM
  - "D" DEEP MONITORING WELLS SET IN THE UPPER SAND STRATUM
- × 10.9 – GROUND SURFACE SPOT ELEVATION

FIRST STREET TURNING BASIN

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NEW YORK NEW YORK

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14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: H.Y. DATE: 11-03-2017	FILE NUMBER
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BORING AND TEST PIT LOCATION PLAN

DRAWING NUMBER B-1

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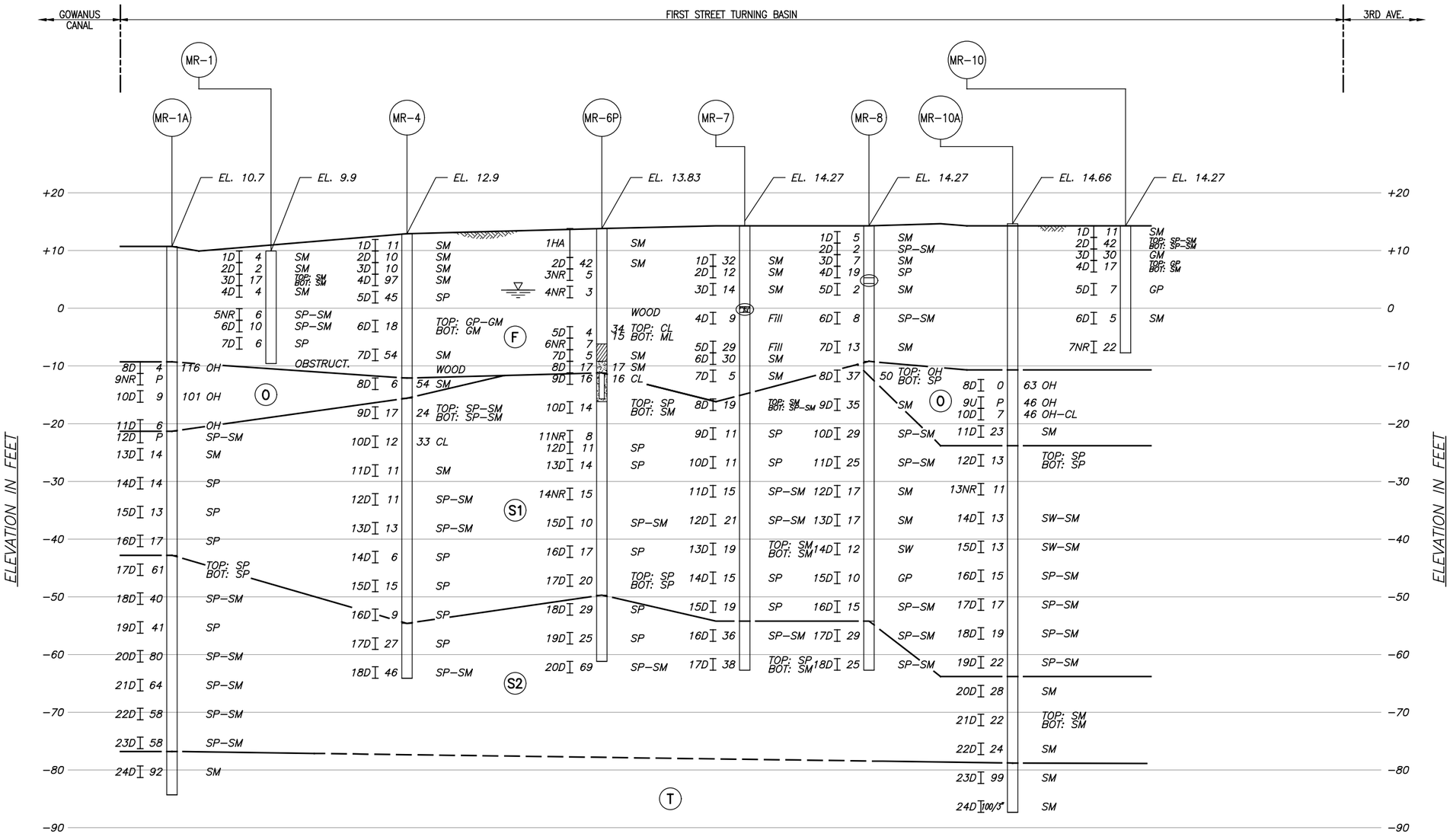
NOTES:

1. FOR GENERAL NOTES, SEE DRAWING NO. B–1.



SECTION A-A

GENERAL STRATA DESCRIPTIONS:

(F) **FILL** – LOOSE TO COMPACT BROWN TO BLACK FINE TO COARSE SAND, SOME TO TRACE SILT, GRAVEL, BRICK, CONCRETE, WOOD, METAL, BOULDERS AND VARIOUS OBSTRUCTIONS

(O) **ORGANIC SILTY CLAY** – SOFT BLACK ORGANIC SILTY CLAY, SOME TO TRACE PEAT, FINE TO COARSE SAND, AND WOOD

(S1) **LOWER SAND (S1)** – LOOSE TO MEDIUM COMPACT BROWN TO RED FINE TO COARSE SAND, SOME TO TRACE SILT AND GRAVEL

(S2) **UPPER SAND (S2)** – MEDIUM COMPACT TO VERY COMPACT BROWN TO GRAY FINE TO COARSE SAND, TRACE TO SOME GRAVEL AND SILT

(T) **TILL** – VERY COMPACT BROWN COARSE TO FINE SAND, SOME SILT AND GRAVEL, TRACE MICA

GRAPHIC SCALE

HORIZONTAL: 30' 20' 10' 0 30' 60'

VERTICAL: 10' 5' 0 10' 20'

FIRST STREET TURNING BASIN

BROOKLYN NEW YORK

AKRF – KSE
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14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: H.Y.	DATE: 11–03–2017	FILE NUMBER
GRAPHIC	CH'KD BY: A.E.	DATE: 11–14–2017	12541

GEOLOGIC SECTION A–A

DRAWING NUMBER GS–1

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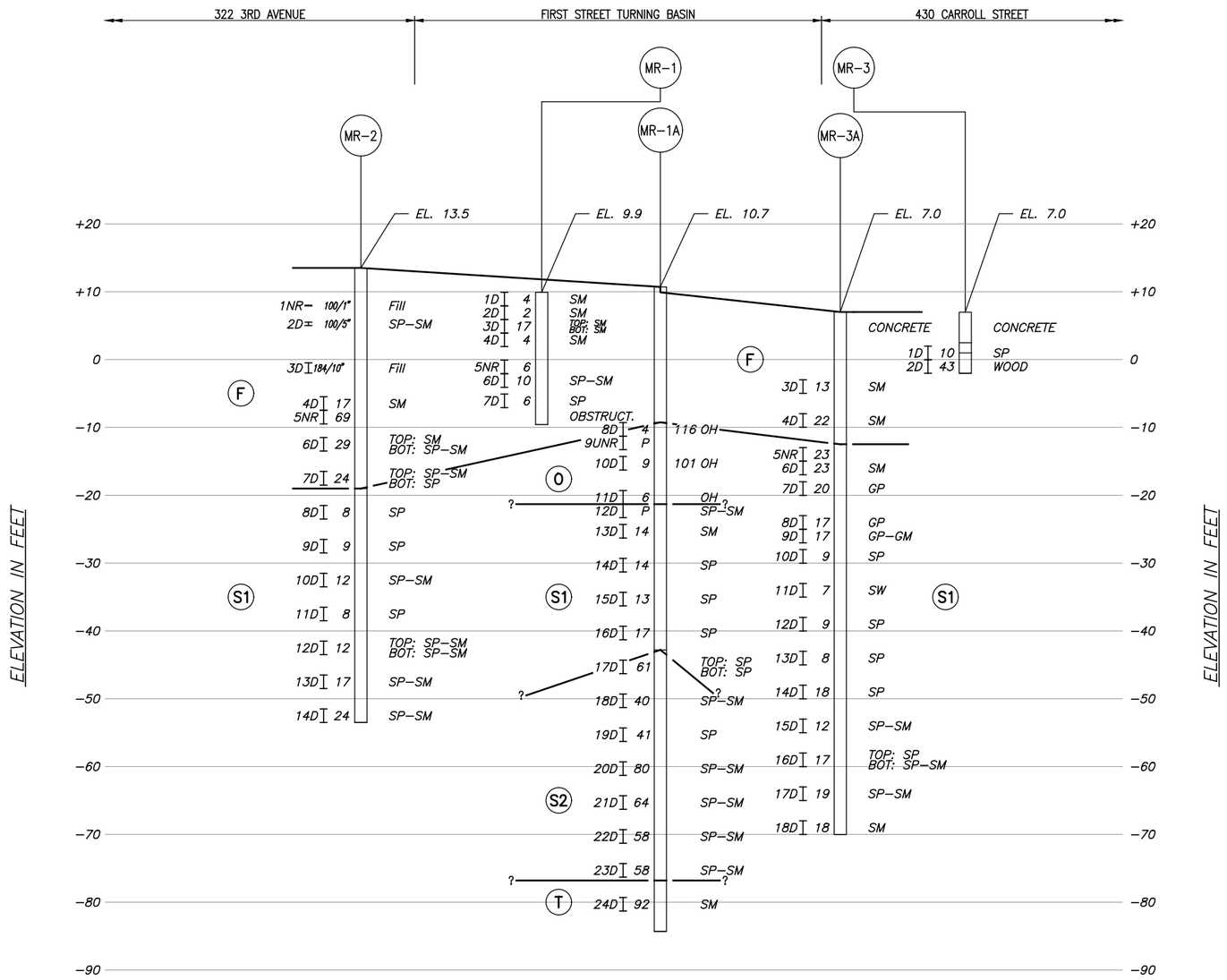
NOTES:

1. FOR GENERAL NOTES, SEE DRAWING NO. B–1.



SECTION B-B

GENERAL STRATA DESCRIPTIONS:

(F) **FILL** – LOOSE TO COMPACT BROWN TO BLACK FINE TO COARSE SAND, SOME TO TRACE SILT, GRAVEL, BRICK, CONCRETE, WOOD, METAL, BOULDERS AND VARIOUS OBSTRUCTIONS

(O) **ORGANIC SILTY CLAY** – SOFT BLACK ORGANIC SILTY CLAY, SOME TO TRACE PEAT, FINE TO COARSE SAND, AND WOOD

(S1) **LOWER SAND (S1)** – LOOSE TO MEDIUM COMPACT BROWN TO RED FINE TO COARSE SAND, SOME TO TRACE SILT AND GRAVEL

(S2) **UPPER SAND (S2)** – MEDIUM COMPACT TO VERY COMPACT BROWN TO GRAY FINE TO COARSE SAND, TRACE TO SOME GRAVEL AND SILT

(T) **TILL** – VERY COMPACT BROWN COARSE TO FINE SAND, SOME SILT AND GRAVEL, TRACE MICA

GRAPHIC SCALE

HORIZONTAL: 30' 20' 10' 0 30' 60'

VERTICAL: 10' 5' 0 10' 20'

FIRST STREET TURNING BASIN

BROOKLYN NEW YORK

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JOINT VENTURE

NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS

14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: H.Y.	DATE: 11–03–2017	FILE NUMBER
GRAPHIC	CH'KD BY: A.E.	DATE: 11–14–2017	12541

GEOLOGIC SECTION B–B

DRAWING NUMBER

GS–2

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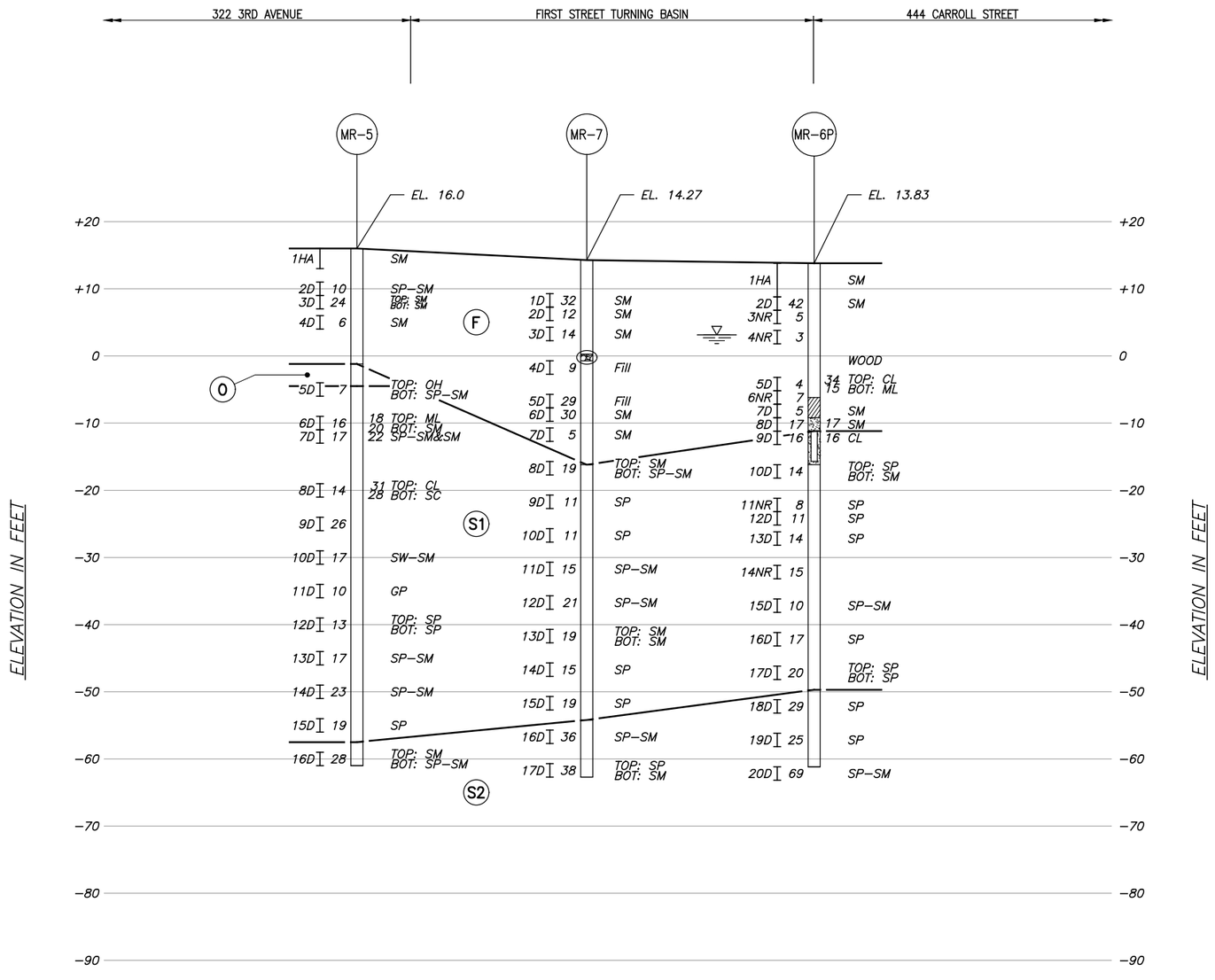
NOTES:

1. FOR GENERAL NOTES, SEE DRAWING NO. B–1.



SECTION C-C

GENERAL STRATA DESCRIPTIONS:

(F) **FILL** – LOOSE TO COMPACT BROWN TO BLACK FINE TO COARSE SAND, SOME TO TRACE SILT, GRAVEL, BRICK, CONCRETE, WOOD, METAL, BOULDERS AND VARIOUS OBSTRUCTIONS

(O) **ORGANIC SILTY CLAY** – SOFT BLACK ORGANIC SILTY CLAY, SOME TO TRACE PEAT, FINE TO COARSE SAND, AND WOOD

(S1) **LOWER SAND (S1)** – LOOSE TO MEDIUM COMPACT BROWN TO RED FINE TO COARSE SAND, SOME TO TRACE SILT AND GRAVEL

(S2) **UPPER SAND (S2)** – MEDIUM COMPACT TO VERY COMPACT BROWN TO GRAY FINE TO COARSE SAND, TRACE TO SOME GRAVEL AND SILT

(T) **TILL** – VERY COMPACT BROWN COARSE TO FINE SAND, SOME SILT AND GRAVEL, TRACE MICA

GRAPHIC SCALE

HORIZONTAL: 30' 20' 10' 0 30' 60'

VERTICAL: 10' 5' 0 10' 20'

FIRST STREET TURNING BASIN

BROOKLYN NEW YORK

AKRF – KSE
JOINT VENTURE

NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS

14 PENN PLAZA – 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: H.Y.	DATE: 11–03–2017	FILE NUMBER
GRAPHIC	CH'KD BY: A.E.	DATE: 11–14–2017	12541

GEOLOGIC SECTION C–C

DRAWING NUMBER **GS–3**

Last saved by: hyang on Wednesday, Nov 15, 2017 – 8:55:46 AM
Printed on: Wednesday, Nov 15, 2017 – 08:57:38 AM
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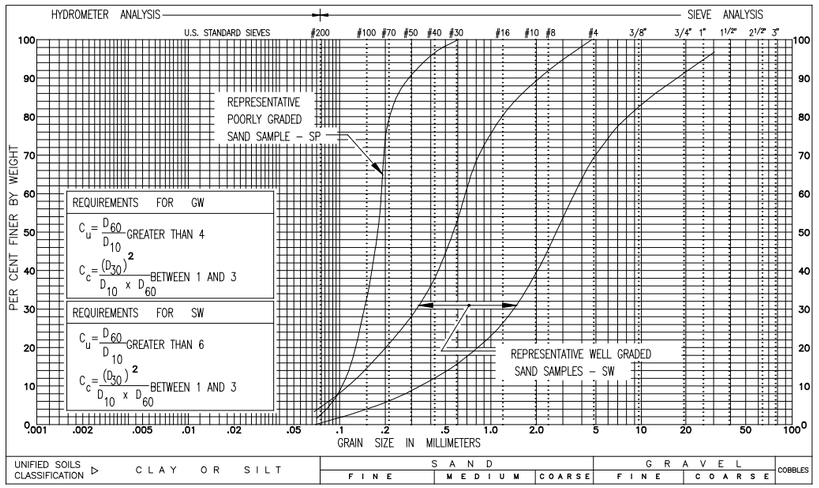
UNIFIED SOIL CLASSIFICATION (INCLUDING IDENTIFICATION AND DESCRIPTION)

1 MAJOR DIVISIONS	2		3 GROUP SYMBOLS	4 TYPICAL NAMES	5 FIELD IDENTIFICATION PROCEDURES (EXCLUDING PARTICLES LARGER THAN 3 IN. AND BASING FRACTIONS ON ESTIMATED WEIGHTS)
COARSE-GRAINED SOILS — MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE — MORE THAN HALF OF MATERIAL IS ABOUT THE SMALLEST PARTICLE VISIBLE TO THE NAKED EYE	GRAVELS — MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE. (FOR VISUAL CLASSIFICATION, THE 1/4 -IN. SIZE MAY BE USED AS EQUIVALENT TO THE NO. 4 SIEVE SIZE)	CLEAN GRAVELS (LITTLE OR NO FINES)	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.	WIDE RANGE IN GRAIN SIZES AND SUBSTANTIAL AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES.
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.	PREDOMINANTLY ONE SIZE OR A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	GM	SILTY GRAVELS, GRAVEL-SAND-SILT-MIXTURES.	NONPLASTIC FINES OR FINES WITH LOW PLASTICITY (FOR IDENTIFICATION PROCEDURES SEE ML BELOW)
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES.	PLASTIC FINES (FOR IDENTIFICATION PROCEDURES SEE CL BELOW)
	SANDS — MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE.	CLEAN SANDS (LITTLE OR NO FINES)	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.	WIDE RANGE IN GRAIN SIZES AND SUBSTANTIAL AMOUNTS OF ALL INTERMEDIATE PARTICLE SIZES.
			SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.	PREDOMINANTLY ONE SIZE OR A RANGE OF SIZES WITH SOME INTERMEDIATE SIZES MISSING.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	SM	SILTY SANDS, SAND-SILT-MIXTURES.	NONPLASTIC FINES OR FINES WITH LOW PLASTICITY (FOR IDENTIFICATION PROCEDURES SEE ML BELOW)
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES.	PLASTIC FINES (FOR IDENTIFICATION PROCEDURES SEE CL BELOW)
FINE-GRAINED SOILS — MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE — THE NO. 200 SIEVE SIZE IS ABOUT					IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN NO. 40 SIEVE SIZE
					DRY STRENGTH (CRUSHING CHARACTERISTICS) / DILATANCY (REACTION TO SHAKING) / TOUGHNESS (CONSISTENCY NEAR PL)
	SILTS AND CLAYS — LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS, SANDY SILTS, ROCK FLOUR, OR CLAYEY SILTS WITH SLIGHT PLASTICITY.	NONE TO SLIGHT / QUICK TO SLOW / NONE
			CL	INORGANIC CLAYS, OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.	MEDIUM TO HIGH / NONE TO VERY SLOW / MEDIUM
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.	SLIGHT TO MEDIUM / SLOW / SLIGHT
	SILTS AND CLAYS — LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS.	SLIGHT TO MEDIUM / SLOW TO NONE / SLIGHT TO MEDIUM
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.	HIGH TO VERY HIGH / NONE / HIGH
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS.	MEDIUM TO HIGH / NONE TO VERY SLOW / SLIGHT TO MEDIUM
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS.	READILY IDENTIFIED BY COLOR, ODOR, SPONGY FEEL AND FREQUENTLY BY FIBROUS TEXTURE.

BOUNDARY CLASSIFICATIONS: SOILS POSSESSING CHARACTERISTICS OF TWO GROUPS ARE DESIGNATED BY COMBINATIONS OF GROUP SYMBOLS, I.E.: SP-SC POORLY GRADED SAND WITH CLAY BINDER.

LABORATORY CLASSIFICATION CRITERIA

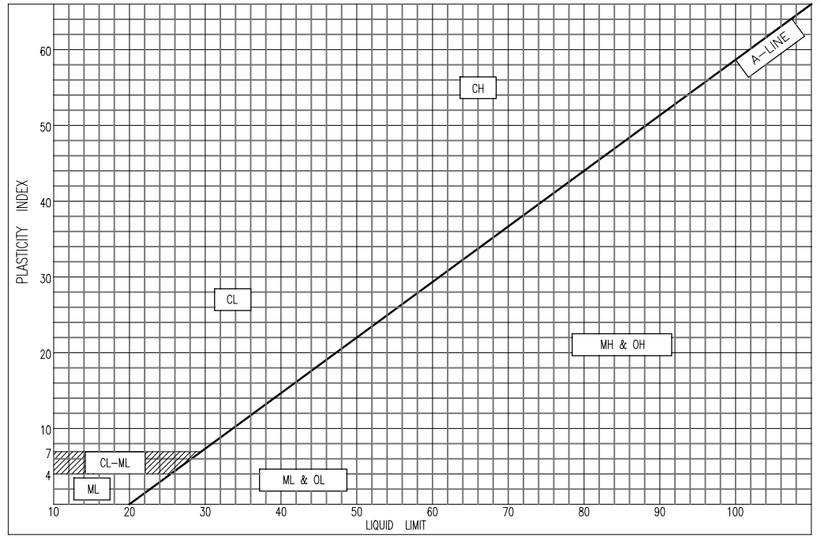


GRAIN SIZE PLOT

COBBLE 3-12"
BOULDER > 12"

DEPENDING ON PERCENTAGE OF FINES (FRACTION SMALLER THAN NO. 200 SIEVE SIZE) COARSE GRAINED SOILS ARE CLASSIFIED AS FOLLOWS:

LESS THAN 5%	GW, GP, SW, SP
MORE THAN 12%	GM, GC, SM, SC
5% TO 12%	BORDERLINE CASES REQUIRING USE OF DUAL SYMBOLS, I.E.: SP-SM, GP-GM.



PLASTICITY CHART FOR CLASSIFICATION OF FINE GRAINED SOILS

TERMINOLOGY USED IN MRCE SOIL DESCRIPTIONS

DEGREE OF COMPACTION FOR NON-PLASTIC SOIL

DEGREE OF COMPACTION	BLOWS* PER FOOT
LOOSE	0 TO 10
MEDIUM COMPACT	11 TO 29
COMPACT	30 TO 50
VERY COMPACT	GREATER THAN 50

* STANDARD PENETRATION RESISTANCE USING 140 LB. HAMMER FREE FALLING 30 INCHES TO DRIVE A 2 INCH O.D. SPLIT-SPOON SAMPLER.

CONSISTENCY OF CLAY AND CLAYEY SILT+

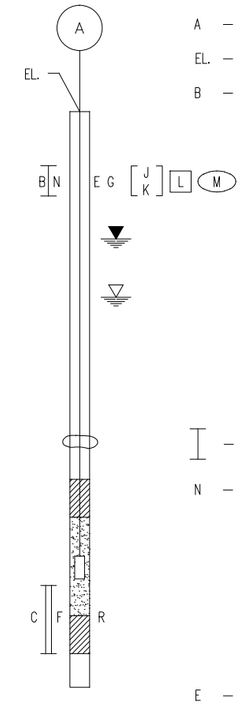
CONSISTENCY	UNCONFINED COMPRESSIVE STRENGTH (TSF)	IDENTIFICATION CHARACTERISTICS
SOFT	LESS THAN 0.5	EASILY REMOLDED WITH SLIGHT FINGER PRESSURE
MEDIUM	0.5 TO 1.0	REQUIRES SUBSTANTIAL PRESSURE FOR REMOLDING
STIFF	1.0 TO 4.0	DIFFICULT TO REMOLD WITH FINGERS
HARD	GREATER THAN 4.0	CANNOT BE REMOLDED WITH FINGERS

\+ NONPLASTIC SILTS ARE DESCRIBED USING DEGREE OF COMPACTION AS PRESENTED FOR NON-PLASTIC SOIL.

DESCRIPTION OF CONSTITUENT PERCENTAGES AS USED IN SOIL SAMPLE CLASSIFICATIONS

- 1% TO 12% - "TRACE"
- 13% TO 30% - "SOME"
- 31% TO 49% - ADJECTIVE FORM OF SOIL GROUP (EG. SANDY)
- EQUAL AMOUNT - "AND" (EG. SAND AND GRAVEL)

BORING LEGEND



- A — NUMBER, TYPE AND LOCATION OF BORING
- EL. — GROUND SURFACE ELEVATION AT BORING
- B — NUMBER AND TYPE OF SAMPLE
  - HA - HAND AUGER SAMPLE
  - D - DRY SAMPLE TAKEN WITH 2 INCH O.D. SPLIT SPOON
  - U - UNDISTURBED SAMPLE TAKEN WITH 3 INCH O.D. FIXED PISTON TYPE SAMPLER
  - UD - UNDISTURBED SAMPLE EXTRUDED IN FIELD AND PLACED IN JAR DUE TO POOR RECOVERY OR DISTURBANCE
  - S - THIN TUBE SAMPLE TAKEN WITH SHELBY TUBE SAMPLER
  - N - THIN TUBE SAMPLE TAKEN WITH DENISON BARREL SAMPLER
  - P - THIN TUBE SAMPLE TAKEN WITH PITCHER BARREL SAMPLER
  - NR - NO RECOVERY
- | — LENGTH OF SAMPLE ATTEMPT
- N — STANDARD PENETRATION RESISTANCE. NUMBER OF BLOWS FROM 140 LB. HAMMER FREE FALLING 30 INCHES REQUIRED TO DRIVE 2 INCH O.D. SPLIT SPOON SAMPLER ONE FOOT AFTER INITIAL PENETRATION OF 6 INCHES, UNLESS A SPECIFIC PENETRATION IS INDICATED.
  - P - PRESSED OR PUSH SAMPLE
  - WH - SAMPLE TAKEN UNDER WEIGHT OF HAMMER AND RODS
  - WR - SAMPLE TAKEN UNDER WEIGHT OF RODS
- E — AVERAGE NATURAL WATER CONTENT OF SAMPLE, IN PERCENT OF DRY WEIGHT
- G — UNIFIED SOIL CLASSIFICATON GROUP SYMBOL OF SAMPLE
- [J / K] = ATTERBERG LIQUID LIMIT VALUE / ATTERBERG PLASTIC LIMIT VALUE
- [L] — COMPRESSIVE STRENGTH IN TSF DETERMINED FROM UNCONFINED COMPRESSION TEST
- (M) — COMPRESSIVE STRENGTH IN TSF DETERMINED FROM UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST
- ▼ — GROUNDWATER LEVEL OBSERVED IN BORING
  - * - MUD LEVEL
- ▽ — GROUNDWATER LEVEL OBSERVED IN PIEZOMETER
- C — ROCK CORE NUMBER
- | — LENGTH OF CORE RUN
- F — LENGTH OF CORE RECOVERED EXPRESSED AS A PERCENT OF THE LENGTH OF CORE RUN
- R — ROCK QUALITY DESIGNATION-THE SUM OF THE LENGTHS OF PIECES OF RECOVERED CORE WHICH ARE EQUAL TO OR GREATER THAN FOUR INCHES IN LENGTH, EXPRESSED AS A PERCENTAGE OF THE TOTAL LENGTH OF CORE RUN. LENGTHS ARE MEASURED BETWEEN IN-SITU SEPARATIONS AND MECHANICAL BREAKS RESULTING FROM CORING ARE IGNORED.
- IMPERVIOUS SEAL
- SAND FILTER SURROUNDING PIEZOMETER INTAKE ELEMENT
- INTAKE ELEMENT
- COBBLE OR BOULDER

REVISED 10-25-2012

MUESER RUTLEDGE CONSULTING ENGINEERS
225 WEST 34th STREET - 14 PENN PLAZA
NEW YORK, NY 10122

GEOTECHNICAL REFERENCE STANDARDS

DRAWING NO. GS-R

APPENDIX A

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-1
SHEET 1 OF 2
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +9.90
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:30	1D	0.0	2-2	Brown fine sand, some silt, trace medium to			DRILLED	PID=0.0
08-31-17		2.0	2-2	coarse sand, gravel (SM)			AHEAD	REC=5"
Thursday	2D	2.0	1-1	Brown fine sand, some silt, trace medium to			4"	PID=0.0
81°F		4.0	1-1	coarse sand, gravel (SM)				REC=4"
	3D	4.0	6-6	Top 4": Brn silty f-c sand, sm brick, gravel (SM)		**5**		Soft dig to 5'.
		6.0	11-5	Bot 3": Gray si f-m sand, sm cl, tr c sa, gvl (SM)				3D Top: PID=0.0
	4D	6.0	1-1	Brown fine to medium sand, some silt, brick,				3D Bot: PID=0.0
		8.0	3-5	gravel, black silt pockets (SM)				4D: PID=0.0
					F	**10**		
	5NR	10.0	4-4	No recovery				PID=0.0
		12.0	2-2					Plastic debris in tip
	6D	12.0	3*-5*	Brown fine to coarse sand, some brick, concrete,				5NR: 3" Split spoon.
		14.0	5*-6*	trace silt, gravel (SP-SM)				6D: 3" Split spoon.
						15		6D: PID=0.0
	7D	15.0	5*-4*	Wood debris, some brown medium to coarse				Concrete piece in tip.
		17.0	2*-7*	sand, trace silty gravel (SP)				7D: PID=35.1
								3" Split spoon.
								REC=4"
15:30						**19.5**		Wood; loosing water;
								mix mud.
								Borehole terminated
								due to obstruction
								at 19.5'.
						25		*3" Split spoon blow
								counts.
								PID=Photoionization
								Detector.
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-1
SHEET 2 **OF** 2

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +9.90
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
09-05-17	07:45	27	20	5	OVERWEEKEND MUD LEVEL READING.
09-07-17	07:30	57	50	8	OVERNIGHT MUD LEVEL READING.
09-08-17	07:00	82	80	6	OVERNIGHT MUD LEVEL READING.

5*-4*
2*-1*

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-01-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-1A
SHEET 1 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** 10.7
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:15							DRILLED	Offset 10' west from
09-01-17							AHEAD	Boring MR-1.
Friday							4"	
Sunny								
70°F						**5**		
					F	**10**		
						15		
								Color change black.
						19.5		Loosing water.
	8D	20.0	4*-3*	Black organic silty clay, some wood, organics,				WC=116, PID=6.2
		22.0	1*-2*	trace fine sand (OH)				2" & 2nd attempt 3"
	9UNR	22.0	PUSH=24"	No recovery				split spoon; no
		24.0	REC=0"					recovery.
						25		
	10D	25.0	4*-5*	Black organic silty clay, some fine sand, wood,	**O**			WC=101, PID=18.7
		27.0	4*-4*	organics (OH)				
14:30						**30**		11D-24D: 3" Split
07:30	11D	30.0	3*-3*	Black organic silty clay, some gravel, wood,				spoon.
09-05-17		32.0	3*-3*	trace debris (OH)		**32**		11D: PID=19; clean
Tuesday	12UD	32.0	PUSH=24"	Black medium to coarse sand, some medium				black silt towards tip.
Sunny		34.0	REC=0"	to coarse gravel, trace silt (SP-SM)				12D: PID=0.0
85°F						**35**		Cobble in tip of tube;
	13D	35.0	8*-7*	Black coarse to fine sand, some silt, gravel				tube bent; 3" split spoon.
		37.0	7*-6*	(SM)				Mix mud at 34'.
								13D: PID=0.0
						40		
	14D	40.0	12*-8*	Brown gravelly coarse to medium sand, trace				PID=0.0
		42.0	6*-6*	fine sand, silt (SP)	**S1**			
						45		
	15D	45.0	7*-6*	Do 14D (SP)				PID=0.0
		47.0	7*-7*					
						50		
	16D	50.0	24*-10*	Do 14D (SP)				PID=0.0
		52.0	7*-6*				▼	

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-1A
SHEET 2 OF 3
FILE NO. 12541
SURFACE ELEV. 10.7
RES. ENGR. ARI ESLAMINEJAD

PROJECT: FIRST STREET TURNING BASIN
LOCATION: BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd							DRILLED	
09-05-17					S1		AHEAD	
Tuesday							4"	
Sunny						**53.5**		
15:00						**55**		
07:30	17D	55.0	10*-27*	Top 8": Dark gray fine to coarse sand, trace				17D Top: PID=20.8
09-07-17		57.0	34*-29*	gravel, silt (SP)				17D Bot: PID=0.0
Thursday				Bot 8": Brown gravelly fine to coarse sand, trace				Loosing mud.
Sunny				silt (SP)				
74°F						**60**		
	18D	60.0	24*-21*	Brown fine to coarse sand, some gravel, brick,				PID=3.0
		62.0	19*-20*	trace silt (NAPL) (SP-SM)				
						65		
	19D	65.0	17*-19*	Brown medium to fine sand, some gravel, trace				PID=0.0
		67.0	22*-25*	cobble, silt (SP)				2.5" Cobble top of
								3" spilt spoon.
								4" Cobble at 67'.
						70		
	20D	70.0	30*-45*	Brown gravelly fine to coarse sand, trace silt	S2			PID=0.0
		72.0	35*-46*	(SP-SM)				
								Gravel in tip; wash.
								Rig chatter from 72' to
						75		75'.
	21D	75.0	6*-25*	Brown gravelly fine to coarse sand, trace silt				PID=0.0
		77.0	39*-48*	(SP-SM)				
								Loosing mud.
						80		
	22D	80.0	24*-28*	Brown gravelly coarse to fine sand, trace silt				PID=0.0
		82.0	30*-28*	(SP-SM)				
15:30						**85**		
06:30	23D	85.0	23*-27*	Do 22D (SP-SM)				PID=0.5
09-08-17		87.0	31-31					
Friday								
Sunny						**88.5**		*3" Split spoon blow
77°F						**90**		counts.
	24D	90.0	33*-36*	Brown fine to medium sand, some silt, gravel,				PID=0.0
		92.0	56*-55*	trace coarse sand (SM)	T			
								Rig chatter from 93' to
								94'.
10:45						**95**		Hard drilling from 94' to
								95'.
								End of Boring at 95'.
								WC=Water Content
								in percent of dry
						100		weight.
								PID=Photoionization
								Detector.

MRCE Form BL-1

BORING NO. MR-1A

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-1A
SHEET 3 **OF** 3

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. 10.7
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO 85
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
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09-07-17	07:30	57	50	8	OVERNIGHT MUD LEVEL READING.
09-08-17	07:00	82	80	6	OVERNIGHT MUD LEVEL READING.

PIEZOMETER INSTALLED [ ] YES [X] NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-01-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-2
SHEET 1 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** 13.5
RES. ENGR. K. BARBAGIANIS/A. ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
09:15							DRILLED	Slight water loss from
08-21-17							AHEAD	1' to 23'.
Monday							4"	
Partly Cloudy								
80°F						**5**		Rig chatter & hard
	1NR	5.5	100/1"	Wash, wood				drilling from 4.5' to 5.5'.
		5.6						1NR: PID=0.7
								Wood observed in
	2D	8.0	100/5.5"	Black fine to coarse sand, trace silt, gravel				wash.
		8.5		(Fill) (SP-SM)		**10**		Hard drilling from 5.7'
								to 6.3'.
								2D: PID=0.0
								REC=5.5"
								Hard drilling & rig
	3D	14.0	17-84	Wood, trace fine to coarse sand, silt (Fill)		**15**		chatter from 11' to 14'.
		15.5	100/4"					3D: PID=0.0
					F			Rig chatter from 15.5'
								to 17.5'.
	4D	19.0	11-7	Dark brown fine to coarse sand, some gravel,		**20**		PID=0.0
		21.0	10-10	silt, trace wood (Fill) (SM)				
	5NR	21.0	20-19	No recovery				PID=0.0
15:40		23.0	50-38					
07:15								
08-22-17						**25**		Water loss.
Tuesday	6D	25.0	16-14	Top 5": Wood				Introduce mud at 27'.
Sunny		27.0	15-14	Bot 8": Brown fine to coarse sand, some silt,				
88°F				gravel (SM)				
						30		
	7D	30.0	14-12	Top 2": Wood				
		32.0	12-9	Bot 5": Brown fine to coarse sand, some gravel,				7D Bot: PID=0.0
				trace silt, brick (SP-SM)		**32.5**		
						35		
	8D	35.0	6/12"	Brown coarse to fine sand, some gravel, trace				PID=0.0
		37.0	2-3	silt (SP)				No positive head.
						40		
	9D	40.0	4-4	Do 8D (SP)				PID=5.9
		42.0	5-6					
					S1			
						45		
	10D	45.0	7-5	Brown fine to medium sand, trace silt, gravel,				PID=0.0
		47.0	7-6	coarse sand (SP-SM)				
						50		
	11D	50.0	5-4	Brown fine to coarse sand, trace silt, gravel				PID=0.0
		52.0	4-4	(SP)				

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-2
SHEET 2 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** 13.5
RES. ENGR. K. BARBAGIANIS/A. ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
08-22-17								
Tuesday								
Sunny								
						55		
	12D	55.0	5-5	Top 7": Brown fine sand, trace silt (SP-SM)				12D Top: PID=0.0
15:15		57.0	7-8	Bot 8": Brown fine to medium sand, trace silt (SP-SM)				12D Bot: PID=0.0
06:45								
08-23-17					**S1**			
Wednesday						**60**		
Partly Cloudy	13D	60.0	11-8	Brown fine to coarse sand, some gravel, trace				PID=0.0
84°F		62.0	9-9	silt (SP-SM)				Mud loss.
								Rig chatter from 64' to
						65		65'.
	14D	65.0	13-13	Brown fine to coarse sand, trace gravel, silty				No recovery 1st
10:00		67.0	11-12	gravel (SP-SM)		**67**		attempt.
								2nd attempt, REC=4".
								14D: PID=0.0
						70		End of Boring at 67'.
								PID=Photoionization
								Detector.
						75		
						80		
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-2
SHEET 3 **OF** 3

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. 13.5
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	23
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN. 3-7/8
TYPE OF DRILLING MUD SUPER GEL-X

AUGER USED YES X NO
TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
08-22-17	07:30	27	23	12	OVERNIGHT MUD LEVEL READING.
08-23-17	06:45	57	23	14	OVERNIGHT MUD LEVEL READING.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS WOOD FOUND IN CASING AT 17' ON 08-21-17; AFTER IT HAD BEEN DRILLED OUT.
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 08-23-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-3
SHEET 1 OF 2

PROJECT: FIRST STREET TURNING BASIN
FILE NO. 12541

LOCATION: BROOKLYN, NEW YORK
SURFACE ELEV. +7.0

RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
07:10							DRILLED	Concrete & reinforced
09-21-17							AHEAD	concrete to 4.5'.
Thursday					**CONC**		4"	
Sunny								
80°F						**4.5**		
	1D	5.0	3-2	Brown coarse to fine sand, trace gravel, silt	**F**	**6**		PID=0.0; liner.
		7.0	8-50/3"	(SP)				
	2D	7.0	11-29	Wood, trace medium to coarse sand, silt	**WOOD**			PID=0.0
09:15		9.0	14-13			**9**		Bottom 5" wood.
						10		
								Borehole terminated
								due to 4" casing not
								plumb.
						15		End of Boring at 9'.
								PID=Photoionization
								Detector.
						20		
						25		
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-3
SHEET 2 **OF** 2

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +7.0
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM		TO
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-22-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-3A
SHEET 1 OF 4
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +7.0
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
07:10							DRILLED	Offset 2' north from
09-21-17							AHEAD	Boring MR-3.
Thursday					**CONC**		4" 3"	
80°F							↓	
						4.5	↓	
						10		
	3D	10.0	3-6	Brown silty fine to medium sand, some gravel				PID=0.0; liner.
		12.0	7-8	(SM)				Wash color white.
					F			Wash color brown.
						15		
	4D	15.0	10-10	Gray brown fine to coarse sand, some gravel,				PID=0.0; liner.
		17.0	12-15	silt, trace wood (SM)				
						19.5		
	5NR	20.0	11-12	No recovery				PID=0.0
		22.0	11-12					2 Attempts; REC=0".
	6D	22.0	6-11	Gray fine to coarse sand, some silt, gravel (SM)				Loosing water.
		24.0	12-15					6D: PID=0.0
						25		Gravel in shoe.
	7D	25.0	10-10	Brown fine to coarse gravelly medium to coarse				REC=5"
		27.0	10-17	sand, trace silt, pyrite (GP)				7D: PID=0.0
						30		
	8D	30.0	7-7	Gray brown gravel, trace coarse to fine sand,				PID=0.0; liner.
		32.0	10-8	silt (GP)				1st Attempt; REC=0".
	9D	32.0	10-8	Gray brown gravel, trace coarse to fine sand,				2nd Attempt; REC=3".
		34.0	9-15	silt (GP-GM)				9D: PID=0.0; liner.
14:30						**35**		REC=5"
09:20	10D	35.0	8-4	Brown fine to medium sand, some gravel, trace	**S1**			PID=0.0; liner.
09-22-17		37.0	5-5	silt (SP)				REC=4"
Friday								
80°F								
						40		
	11D	40.0	3-4	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		42.0	3-4	(SW)				
						45		
	12D	45.0	4-4	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		47.0	5-5	(SP)				REC=4"
						50		
	13D	50.0	3-4	Brown fine to coarse sand, trace silt (SP)				PID=0.0; liner.
		52.0	4-6				↓	REC=5"

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-3A
SHEET 2 OF 4
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +7.0
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd 09-22-17 Friday							DRILLED AHEAD 3"	
						55		
	14D	55.0	5-8	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		57.0	10-8	(SP)				REC=5"
						60		
	15D	60.0	5-6	Brown fine to medium sand, trace silt, coarse				PID=0.0; liner.
		62.0	6-7	sand (SP-SM)				REC=6"
					S1	**65**		
	16D	65.0	5-10	Top 3": Brown coarse to fine sand, trace gravel,				PID=0.0; liner.
		67.0	7-5	silt (SP)				
				Bot 6": Brown fine to medium sand, trace silt,				
				gravel (SP-SM)		**70**		
	17D	70.0	6-9	Brown fine to medium sand, trace silt, gravel,				PID=0.0; liner.
		72.0	10-10	coarse sand (SP-SM)				REC=6"
						75		
	18D	75.0	7-10	Brown fine to medium sand, some silt, trace				PID=0.0; liner.
14:30		77.0	8-9	coarse sand (SM)		**77**		REC=6"
								End of Boring at 77'.
						80		PID=Photoionization Detector.
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-3A
SHEET 4 **OF** 4

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +7.0
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO	
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	5
SKID		HYDRAULIC	X	DIA., IN.	3	DEPTH, FT. FROM	0	TO	70
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
09-22-17	09:30	30	30	5	OVERNIGHT MUD LEVEL READING.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-22-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-4
SHEET 1 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +12.9
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
09:00							DRILLED	
09-11-17	1D	1.0	3-3	Brown silty fine to coarse sand, some gravel,			AHEAD	PID=0.0
Monday		3.0	8-12	trace brick (SM)			4" 3"	
Sunny	2D	3.0	8-8	Brown silty fine to coarse sand, some gravel,	F			PID=0.0
75°F		5.0	2-8	brick (SM)		5		
	3D	5.0	6-5	Brown gravelly fine to coarse sand, some silt,				PID=0.0
		7.0	5-7	brick (SM)		7		2" Split spoon; no
	4D	7.0	24-47	Do 3D (SM)		8.1		recovery.
		9.0	50/2"		OBSTR.	9		3" Split spoon; REC=6".
						10		3D: Cobble in tip.
	5D	10.0	10*-18*	Brown gravelly coarse to fine sand, some brick,				4D-7D: 3" Split spoon.
		12.0	27*-18*	trace silt (SP)				4D: PID=0.0
								5D: PID=0.0
						15		
	6D	15.0	10*-6*	Top 2": Brown coarse to fine sandy gravel,	F			6D Top: PID=0.0
		17.0	12*-11*	some brick, trace silt (GP-GM)				6D Bot: PID=15.4
				Bot 6": Black gravel, some coarse sand, silt				Wood from 17' to 17.5';
				(GM)				loosing water.
						20	▼	
	7D	20.0	WH/6"*-4*	Black coarse to fine sand, some silt, wood,		21		PID=7.2
		22.0	50/3"*	trace brick, debris metal (SM)				Loosing water.
					WOOD			
								*3" Split spoon blow
						25		counts.
	8D	25.0	4-3	Soft black organic silty clay, some fine to	O			WC=54
14:00		27.0	3-5	medium sand, trace coarse sand, peat, wood				PID=6.7
08:00				(OH)		28.5		
09-12-17								
Tuesday						30		
Sunny	9D	30.0	5-8	Top 10": Black fine to medium sand, trace silt				9D Top: PID=2.0;
81°F		32.0	9-10	(SP-SM)				liner.
				Mid 3": Brown fine to medium sand, some silt				
				(SP-SM)				
				Bot 3": Brown silty fine sand (SM)		35		9D Bot: WC=24
	10D	35.0	3-5	Soft brown silty clay, trace fine sand (CL)				PID=0.0
		37.0	7-6					10D: WC=33, pp=0.7
					S1	40		Loosing water.
	11D	40.0	4-5	Brown fine to medium sand, some silt & black				PID=16.8
		42.0	6-8	fine to medium sand, trace silt, (NAPL) (SM)				
						45		
	12D	45.0	6-6	Brown fine to coarse sand, some gravel, trace				PID=0.0
		47.0	5-5	silt (SP-SM)				
						50		
	13D	50.0	5-6	Brown fine to coarse sand, trace silt (SP-SM)				PID=0.0; liner.
		52.0	7-7				▼	

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-4
SHEET 2 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +12.9
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							DRILLED	
09-12-17							AHEAD	
Tuesday							3"	
Sunny								
81°F						55		
	14D	55.0	4-2	Brown fine to coarse sand, trace silt, gravel (SP)				PID=0.0; liner.
		57.0	4-8					
					S1	60		
	15D	60.0	7-8	Brown coarse to fine sand, trace gravel, silt				PID=0.0; liner.
		62.0	7-8	(SP)				
						65		
	16D	65.0	3-4	Brown fine to coarse sand, some gravel, silt				PID=0.0; liner.
15:15		67.0	5-5	(SP)				
07:30								
09-13-17						68.5		
Wednesday						70		
Sunny	17D	70.0	14-13	Brown fine to coarse sand, trace silt, gravel				PID=0.0; liner.
83°F		72.0	14-14	(SP)				
					S2			
						75		
	18D	75.0	13-21	Brown fine to medium sand, trace gravel,				PID=0.0; liner.
08:30		77.0	25-27	coarse sand, silt (SP-SM)		77		End of Boring at 77'.
								WC=Water Content
						80		in percent of dry
								weight.
								pp=Pocket
								Penetrometer
						85		Unconfined Compres-
								sive Strength in tsf.
								PID=Photoionization
								Detector.
						90		
						95		
						100		

MRCE Form BL-1

BORING NO. MR-4

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-4
SHEET 3 **OF** 3

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +12.9
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO	
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.	3	DEPTH, FT. FROM	0	TO	70
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED YES X NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
09-12-17	06:30	27	25	14	OVERNIGHT MUD LEVEL READING.
09-13-17	07:10	67	65	9	OVERNIGHT MUD LEVEL READING.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-13-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-5
SHEET 1 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +16
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
13:30	1HA	0.0	HAND	Brown fine to coarse sand, some silt, gravel,			DRILLED	PID=0.0
08-23-17		3.0	AUGER	trace wood (SM)			AHEAD	Soft dig to 4'.
Monday							4" 3	Hand auger from 0' to
Sunny								3'.
84°F						5		Hand clear to 5'.
	2D	5.0	4-5	Brown coarse to fine sand, some brick, gravel,				PID=0.0
		7.0	5-4	trace silt (SP-SM)				
	3D	7.0	11-15	Top 6": Brown fine to coarse sand, some				3D Top: PID=0.0
		9.0	9-8	gravel, silt (SM)				3D Bot: PID=0.0
				Bot 4": Red brick	F	10		Wash color black.
	4D	10.0	4-4	Black fine to coarse sand, some silt, brick,				PID=0.0
		12.0	2-1	gravel (SM)				3" spoon, REC=2";
								loosing water.
								Wash color reddish
						15		brown at 12'.
						17.2		
					O			
						20		
	5D	20.0	17-2	Top 3": Black organic silty wood, some peat,		20.5		5D Top: PID=17.8
16:00		22.0	5-10	silt, organics (OH)				5D Bot: PID=3.0
06:30				Bot 6": Gray fine sand, trace silt (SP-SM)				5D Bot: Petroleum
08-24-17								odor.
Tuesday						25		Rig chatter from 23' to
Sunny	6D	25.0	5-7	Top 12": Brown fine to medium sandy silt (ML)				Rig chatter 23' to 24'.
83°F		27.0	9-11	Bot 6": Black silty fine sand (SM)				6D Top: WC=18,
	7D	27.0	9-8	Brown fine sandy silt, trace to black silty fine				PID=5.5
		29.0	9-10	to medium sand (SP-SM&SM)				6D Bot: WC=20,
						30		PID=0.5
								7D: WC=22, PID=6.1
						35		
	8D	35.0	6-7	Top 8': Medium Gray silty clay, some fine to				8D Top: WC=31,
		37.0	7-9	medium sand, trace gravel (CL)	S1			PID=0.0
				Bot 16": Medium Brown fine clayey sand, trace				8D Bot: WC=28,
				medium sand (SC)				PID=0.0
						40		Mix mud.
	9D	40.0	10-12	Brown fine to medium sand, trace silt, coarse				PID=0.0
		42.0	14-15	sand (SP)				
						45		
	10D	45.0	8-8	Brown coarse to fine sand, trace silt, gravel				PID=0.0
		47.0	9-8	(SW-SM)				3" Split spoon.
						50		
	11D	50.0	5-4	Brown gravelly coarse to fine sand (GP)				11D: PID=0.0
		52.0	6-8					Loosing mud.

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-5
SHEET 2 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +16
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd							DRILLED	
08-24-17							AHEAD	
Tuesday							3"	
Sunny								
83°F						**55**		
	12D	55.0	6-6	Top 3": Brown fine to coarse sand, trace gravel,				12D Top: PID=0.0
		57.0	7-7	silt (SP)				12D Bot: PID=0.0
				Bot 9": Brown fine to coarse sand, trace gravel,				
				silt (SP)				
						60		
	13D	60.0	6-8	Brown fine to coarse sand, trace gravel, silt				PID=0.0
		62.0	9-11	(SP-SM)	**S1**			Running sands 4'.
						65		
	14D	65.0	10-10	Brown fine to medium sand, trace silt, coarse				PID=0.0
		67.0	13-15	sand (SP-SM)				
						70		
	15D	70.0	9-9	Brown fine to medium sand, trace silt (SP)				PID=0.0
		72.0	10-12					
						73.5		
						75		
	16D	75.0	11-13	Top 7": Brown fine sand, some silt, trace	**S2**			16D Top: PID=0.0
15:15		77.0	15-21	gravel (SM)		**77**		
				Bot 10": Brown fine to coarse sand, trace silt,				16D Bot: PID=0.0
				gravel (SP-SM)				End of Boring at 77'.
						80		
								WC=Water Content
								in percent of dry
								weight.
						85		PID=Photoionization
								Detector.
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-5
SHEET 3 **OF** 3

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +16
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	35
SKID		HYDRAULIC	X	DIA., IN.	3	DEPTH, FT. FROM	0	TO	62
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED X YES NO

TYPE AND DIAMETER, IN. HAND AUGER

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
SAMPLER HAMMER, LBS. AVERAGE FALL, IN.
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
08-24-17	06:30	22	20	17	OVERNIGHT MUD LEVEL READING.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER: HAND AUGER	3'

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS MRCE OFFICE DIRECTED TO SAMPLE AT 10' INCREMENTS IN THE FILL.
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 08-24-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-6P
SHEET 1 OF 4
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +13.8
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
09:45	1HA	0.0	HAND	Brown gravelly fine to coarse sand, some silt,			DRILLED	Hand auger from 0' to
08-17-17		5.0	AUGER	trace brick (SM)			AHEAD	5'.
Thursday							4"	1HA: PID=0.0
Sunny								
84°F						**5**		
	2D	5.0	2-20	Brown fine to coarse sand, some silt, gravel	**F**			PID=0.0; brick.
		7.0	22-10	(SM)				
	3NR	7.0	2-2	No recovery				Gravel in 3" split spoon,
		9.0	3-1					REC=6"
						10		
	4NR	10.0	4-2	No recovery				3" Split spoon; no
		12.0	1-1			**12**		recovery.
					WOOD	**15**		*3" Split spoon blow
								counts.
						17		
	5D	17.0	2-2	Top: Dark gray silty clay, sm wood, tr f sand (ML)				5D Top: WC=34,
		19.0	2-3	Bot: Gray fine sandy silt, trace clay (ML)				PID=8.8
	6NR	19.0	9-4	No recovery		**20**		5D Bot: WC=15,
		21.0	3-4		**F**			PID=1.6
	7D	21.0	5-2	Gray silty fine sand, trace clay, wood (SM)				Loosing water.
		23.0	3-5					2" & 2nd Attempt 3"
	8D	23.0	4-9	Gray fine to medium sand, trace silt, coarse				split spoon; no
		25.0	8-7	sand, clay, wood (SM)		**25**		recovery.
	9D	25.0	6-8	Medium Brown fine to medium sandy clay, trace				Macro core; REC=5".
16:00		27.0	8-15	black silt seams, gravel (CL)				6NR: 2" & 2nd Attempt
07:30								3" split spoon; no
08-18-17								recovery.
Friday						**30**		Macro core; no
Rain	10D	30.0	6-7	Top: Brown fine to coarse sand, trace silt,				recovery.
84°F		32.0	7-7	gravel (SP)				7D: WC=17, PID=0.0
				Bot: Brown fine to medium sand, trace silt,				REC=6"
				coarse sand (SM)				Smell; black wash.
						35		8D: PID=0.0
	11NR	35.0	2-3	No recovery				9D: WC=16, PID=0.0
		37.0	5-5					10D Top: PID=0.0
	12D	37.0	7-6	Brown coarse to fine sand, some gravel, trace				10D Bot: PID=0.0
		39.0	5-4	silt (SP)	**S1**			11NR: Wash; 2" & 2nd
						40		attempt 3" split spoon;
	13D	40.0	14*-8*	Brown coarse to fine sand, trace gravel, silt				no recovery.
		42.0	6*-7*	(SP)				Gravel in tip.
								12D: PID=0.0
								REC=4"
						45		13D-15D: 3" Split
	14NR	45.0	12*-7*	No recovery				spoon.
		47.0	8*-8*					13D: PID=0.0
								14NR: PID=0.0
								Gravel in tip; wash.
						50		
	15D	50.0	10-5	Brown fine to coarse sand, trace silt, gravel				PID=0.0
14:30		52.0	5-5	(SP-SM)			▼	Wash.

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-6P
SHEET 2 OF 4
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +13.8
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12:30							DRILLED	
08-25-17							AHEAD	
Friday							4"	
Sunny							↓	
83°F						**55**	↓	
	16D	55.0	5-7	Brown fine to medium sand, trace gravel, coarse				PID=0.0
		57.0	10-10	sand (SP)	**S1**			
						60		
	17D	60.0	9-10	Top: Brown fine to coarse sand, trace silt (SP)				17D Top: PID=0.0
		62.0	10-12	Mid: Coarse to fine sand, some gravel, trace				17D Mid: PID=0.0
				silt (SP)				17D Bot: PID=0.0
				Bot: Brown fine to coarse sand, trace silt (SP)		**63.5**		
						65		
	18D	65.0	12-13	Brown fine to medium sand, trace silt, coarse				PID=0.0
		67.0	16-19	sand (SP)				
						70		
	19D	70.0	10-11	Brown fine to coarse sand, trace gravel, silt	**S2**			PID=0.0
		72.0	14-12	(SP)				
						75		
	20D	75.0	26-36	Brown coarse to fine sand, some gravel, trace				PID=0.0
15:30		77.0	33-26	silt (SP-SM)		**77**		End of Boring at 77'.
								WC=Water Content
						80		in percent of dry
								weight.
								PID=Photoionization
								Detector.
						85		
						90		
						95		
						100		

MRCE Form BL-1

BORING NO. MR-6P

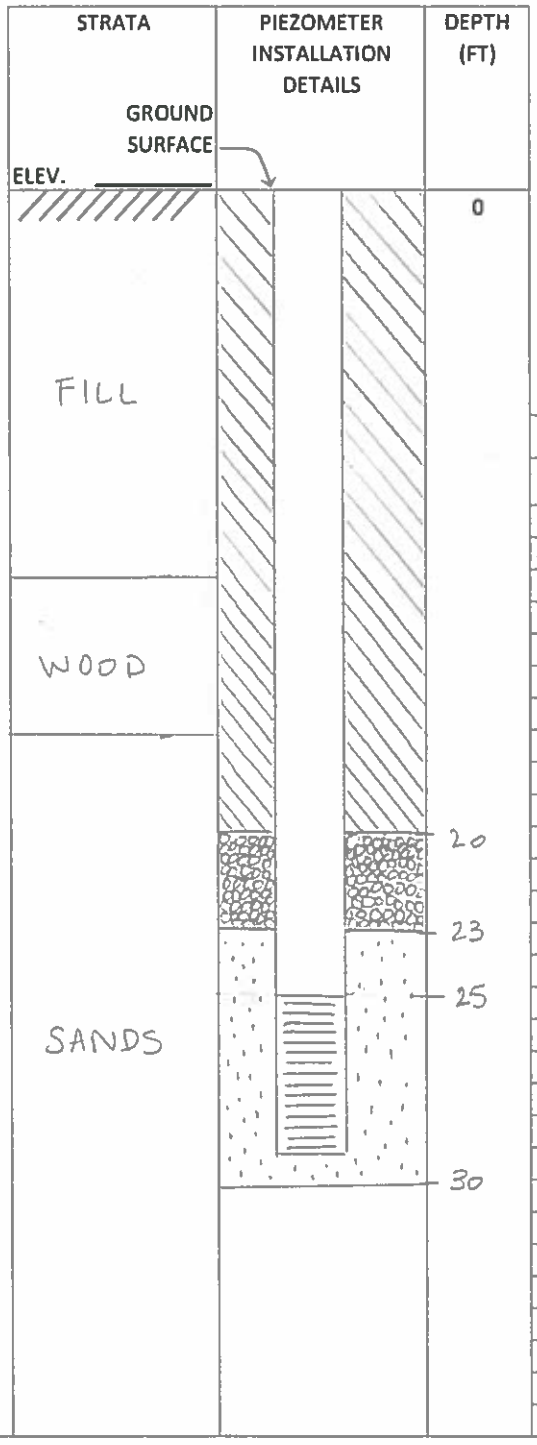
Mueser Rutledge Consulting Engineers
14 Penn Plaza - 225 West 34th Street
New York, NY 10122
T: 917 339-9300 F: 917 339-9400
www.mrce.com

PIEZOMETER RECORD

PIEZOMETER OR BORING NO. MR-6P
SHEET 3 OF 4
FILE NO. 12541
INSTALLATION DATE 9/13/17
RES ENGR. A. Eslamingad

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
PIEZOMETER LOCATION:

☐ SEE SKETCH ON BACK



PIEZOMETER TYPE Stand Pipe

INTAKE POINT
depth to bottom, ft = 30
depth to top, ft = 25
length, ft = 5 = L
diameter, in = 2", ft = .083 = 2R

STANDPIPE/RISER
elevation of rim, ft = 13.41
diameter, in = 2, ft = .17 = 2r

READING TIME		DEPTH – RIM TO WATER	ELEVATION OF WATER	REMARKS
DATE	CLOCK			
9/18/17	0710	10.73	+2.67	
9/18/17	0955	10.88	+2.52	
9/19/17	1056	10.71	+2.69	
9/19/17	1359	11.08	+2.32	
9/20/17	1455	11.01	+2.39	
9/21/17	1452	11.03	+2.37	
9/22/17	0635	10.87	+2.53	
9/22/17	1840	10.93	+2.47	

SAND
GRAVEL
BENTONITE
GROUT

GROUND SURFACE ELEV. +13.8

PIEZOMETER NO. MR-6P

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-6P
SHEET 4 **OF** 4

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +13.8
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	55
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO
DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED X YES NO
TYPE AND DIAMETER, IN. HAND AUGER

CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
08-18-17	07:30	27	24	4	OVERNIGHT READING.
08-28-17	08:00	77	50	12	OVER THE WEEKEND READING.

PIEZOMETER INSTALLED X YES NO **SKETCH SHOWN ON** SEE SHEET NO. 3

STANDPIPE:	TYPE	PVC	ID, IN.	2	LENGTH, FT.	30	TOP ELEV.		
INTAKE ELEMENT:	TYPE	SLOTTED PVC	OD, IN.	2	LENGTH, FT.	5	TIP ELEV.		
FILTER:	MATERIAL	FILTER SAND	OD, IN.	4	LENGTH, FT.	7	BOT. ELEV.		

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER: HAND AUGER	5'

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS PIEZOMETER INSTALLED.
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 08-25-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-7
SHEET 1 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +14.3
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
13:00							DRILLED	Soft dig to 5'.
09-14-17							AHEAD	
Thursday							4" 3"	
Cloudy								
85°F						**5**		
	1D	5.0	25-25	Brown fine to medium sand, some silt, gravel,				PID=0.0
		7.0	7-9	brick, trace coarse sand (SM)				
	2D	7.0	10-5	Brown gravelly fine to coarse sand, some silt	**F**			PID=0.0; liner.
		9.0	7-8	(SM)				REC=5"
						10		
	3D	10.0	5-9	Brick, fine to coarse sandy gravel, some silt (SM)				PID=0.0; liner.
		12.0	5-8					3" Split spoon.
								REC=5"
						14		Boulder from 14' to
15:00					**BLDR**	**15**		15'.
08:00	4D	15.0	6-5	Brick, gravel (Fill)				PID=0.0; liner.
09-15-17		17.0	4-12					3" Split spoon.
Friday								REC=3"
Sunny								
Partly Cloudy						**20**		
80°F	5D	20.0	7-2	Wood, some brick, coarse to fine sand, trace				PID=8.9; liner.
		22.0	27-16	silt (Fill)				
	6D	22.0	9-12	Black gravelly fine to coarse sand, some silt	**F**			PID=8.9
		24.0	18-16	(NAPL) (SM)				
						25		
	7D	25.0	5-2	Black fine sandy silt, some wood, gravel				PID=10.3; liner.
		27.0	3-3	(SM)				
						30		
	8D	30.0	6-9	Top 4": Black silty fine sand, some wood (SM)		**30.5**		8D Top: PID=10.5
		32.0	10-10	Bot 6": Brown fine to medium sand, trace silt,				
				schnene (SP-SM)				
12:00						**35**		
08:50	9D	35.0	4-5	Brown fine to medium sand, trace silt, coarse				PID=0.0; liner.
09-18-17		37.0	6-5	sand (SP)				
Monday								
Cloudy								
75°F						**40**		
	10D	40.0	5-5	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		42.0	6-6	(SP)	**S1**			
						45		Mix mud.
	11D	45.0	5-8	Brown medium to fine sand, trace silt (SP-SM)				PID=0.0; liner.
		47.0	7-6					
						50		
	12D	50.0	7-10	Brown fine to medium sand, trace silt (SP-SM)				PID=0.0; liner.
		52.0	11-11					

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-7
SHEET 2 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +14.3
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd							DRILLED	
09-18-17							AHEAD	
Monday							3"	
Cloudy								
75°F						**55**		
	13D	55.0	6-9	Top 6": Brown fine to coarse sand, some silt				13D Top: PID=0.0;
		57.0	10-11	(SM)				liner.
				Bot 10": Brown silty fine to medium sand (SM)				
					S1	**60**		
	14D	60.0	6-7	Brown fine to coarse sand, trace gravel, silt				PID=0.0; liner.
		62.0	8-7	(SP)				
						65		
	15D	65.0	7-9	Brown fine to coarse sand, trace silt (SP)				PID=0.0; liner.
		67.0	10-11					
						68.5		
						70	▼	
	16D	70.0	14-17	Brown fine to coarse sand, trace silt (SP-SM)				PID=0.0; liner.
		72.0	19-18					
					S2			
						75		
	17D	75.0	11-18	Top 12": Brown fine to coarse sand, trace				17D Top: PID=0.0
13:45		77.0	20-22	gravel, silt (SP)		**77**		End of Boring at 77'.
				Bot 4": Brown fine sand, some silt, trace				
				medium sand (SP-SM)				PID=Photoionization
						80		Detector.
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-7
SHEET 3 **OF** 3

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +14.3
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.	3	DEPTH, FT. FROM	0	TO	70
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-18-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-8
SHEET 1 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** 14.3
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
07:20							DRILLED	Soft dig to 5'.
09-19-17	1D	1.0	8-4	Brown fine to coarse sand, some silt, gravel,			AHEAD	PID=0.0; liner.
Tuesday		3.0	1-1	brick (SM)			4" 3"	
Cloudy	2D	3.0	2-1	Brown fine to coarse sand, trace silt, brick				PID=0.0; liner.
82°F		5.0	1-1	(SP-SM)	F	5		REC=5"
	3D	5.0	2-2	Brown medium to coarse sand, some silt,				PID=0.0; liner.
		7.0	5-8	gravel, trace brick (SM)				
	4D	7.0	7-11	Brown coarse to fine sand, gravel, some cinder,				PID=0.0; liner.
		9.0	8-8	trace silt (SP)		9		REC=4"
					BLDR	10		Obstruction at 10'.
	5D	10.0	2-1	Tan gravelly fine to coarse sand, some silt				PID=0.0
		12.0	1-5	(SM)				REC=4"; liner.
						15		
	6D	15.0	10-4	Tan fine to medium sand, some gravel, trace				PID=0.0; liner.
		17.0	4-1	silt, cinder (SP-SM)	F			
						20		
	7D	20.0	6-3	Black gravelly fine to coarse sand, some silt				PID=10.7
		22.0	10-8	(SM)				REC=4"
						23.5		3" Split spoon; gravel;
					O			liner.
						25		
	8D	25.0	8-13	Top 6": Soft black organic silty clay, trace fine		26		8D Top: WC=50,
		27.0	24-25	sand, gravel (OH)				PID=8.8
				Bot 10": Brown fine to medium sand, trace silt				8D Bot: PID=14.8;
				(SP)				NAPL
						30		
	9D	30.0	12-16	Brown fine to medium sand, some silt, trace				PID=2.0; liner.
		32.0	19-20	coarse sand, gravel (SM)				
						35		
	10D	35.0	11-14	Red brown fine to coarse sand, trace silt				PID=0.0; liner.
		37.0	15-16	(SP-SM)				
								Mixed mud.
					S1	40		
	11D	40.0	10-13	Do 10D (SP-SM)				PID=0.0; liner.
		42.0	12-12					
						45		
	12D	45.0	6-8	Red brown fine to medium sand, some silt,				PID=0.0; liner.
		47.0	9-8	trace coarse sand, gravel (SM)				
						50		
	13D	50.0	7-8	Do 12D (SM)				PID=0.0; liner.
		52.0	9-8					

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-8
SHEET 2 OF 3
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** 14.3
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd							DRILLED	
09-19-17							AHEAD	
Tuesday							3"	
Cloudy								
82°F						**55**		
	14D	55.0	5-6	Brown medium to fine sand, some silt, trace				PID=0.0; liner.
		57.0	6-6	coarse sand, gravel (SW)				
					S1	**60**		Loosing mud.
	15D	60.0	3-4	Gravel, some coarse to fine sand, trace silt				PID=0.0
13:30		62.0	6-5	(GP)				
9:55								
09-20-17								
Wednesday						**65**		
Cloudy	16D	65.0	7-8	Brown fine sand, trace silt, coarse to medium				PID=0.0; liner.
81°F		67.0	7-10	sand (SP-SM)				
						68.5		
						70		
	17D	70.0	13-14	Brown fine sand, trace silt (SP-SM)				PID=0.0; liner.
		72.0	15-16					
					S2			Loosing mud.
						75		
	18D	75.0	10-11	Brown fine to medium sand, trace silt (SP-SM)				PID=0.0; liner.
11:20		77.0	14-13			**77**		
								End of Boring at 77'.
						80		WC=Water Content
								in percent of dry
								weight.
								PID=Photoionization
						85		Detector.
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-8
SHEET 3 **OF** 3

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. 14.3
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.	3	DEPTH, FT. FROM	0	TO	70
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 09-20-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-10
SHEET 1 OF 2
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +14.3
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12:30	1D	0.0	4-5	Brown fine to coarse sand, some silt, brick,			DRILLED	PID=0.0
08-16-17		2.0	6-3	gravel (Fill) (SM)			AHEAD	Soft dig to 5'.
Wednesday	2D	2.0	5-5	Top 8": Red brown f-c sand, tr silt, gvl (SP-SM)			4"	PID=0.0
Sunny		4.0	37-37	Bot 9": Brown f-c sand, sm silt, gravel (SP-SM)				
88°F	3D	4.0	12-11	Red brown gravel, some silty fine to coarse		**5**		PID=0.0
		6.0	19-29	sand (GM)				REC=5"
	4D	6.0	15-10	Top: Gravel & brick, trace silty f-c sand (GP)				
		8.0	7-4	Bot: Black silty fine to coarse sand, trace gravel				
				(SM)				
						10		
	5D	10.0	4-5	Gravel & brick, trace coarse to fine sand (GP)				
		12.0	2-2		**F**			
						15		
	6D	15.0	9-3	Black fine to medium sand, some silt, trace				PID=0.0
		17.0	2-1	gravel, brick (SM)				REC=3"
						20		Wash color black.
	7NR	20.0	1-7	No recovery				Loosing water.
15:30		22.0	15-11			**22**		Spin shoe & 5' of
								casing lost. Hole
								abandoned.
						25		abandoned.
								End of Boring at 22'.
								PID=Photoionization
								Detector.
						30		
						35		
						40		
						45		
						50		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-10
SHEET 2 **OF** 2

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +14.3
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		X YES		NO	
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
					NO WATER LEVEL OBSERVATIONS MADE.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 08-16-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-10AU
SHEET 1 OF 4
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +14.7
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							DRILLED	Offset west from
							AHEAD	Boring MR-10.
							4" 3"	
						5		
						10		
					F	15		
						20		
10:15								
08-28-17								
Tuesday								
Sunny								
76°F						25		
		25.0	WH/24"					2" & 2nd Attempt 3"
		27.0						split spoon; no
	8D	27.0		Black organic silty clay, gravel, trace fine sand				recovery. Macro core
		29.0		(OH)				from 25' to 29'; smell.
						30		8D: WC=63, PID=42
	9U	30.0	PUSH=24"	Black organic silty clay, gravel, trace fine sand	O			WC=46, PID=13.1
		32.0	REC=24"	(OH)				Smell.
	10D	32.0	4-3	Black organic silty clay, some fine to coarse				WC=46, PID=11.3
		34.0	4-7	sand, gravel (OH-CL)				3" Split spoon; smell.
15:15						35		Rig chatter from 33' to
07:30	11D	35.0	14-15	Black fine to coarse sand, some silt, trace				34'.
08-29-17		37.0	8-9	gravel, brick (SM)	S1			11D: PID=0.0
Wednesday						38.5		3" Split spoon.
Cloudy								
70°F						40	▼	
	12D	40.0	3-7	Top 3": Brown fine to coarse sand, trace silt,				12D Top: PID=0.0
		42.0	6-7	brick (SP)				
				Bot 4": Brown coarse to fine sand, trace gravel,				
				silt (SP)				
						45		
	13NR	45.0	3-5	No recovery	S2			2" & 2nd Attempt 3"
		47.0	6-5					split spoon; no
								recovery; Macro core
								no recovery.
						50		14D: PID=0.0
	14D	50.0	6-6	Brown fine to medium sand, trace coarse				Casing moving.
		52.0	7-6	sand, silt (SW-SM)			▼	

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. MR-10AU
SHEET 2 OF 4
PROJECT: FIRST STREET TURNING BASIN **FILE NO.** 12541
LOCATION: BROOKLYN, NEW YORK **SURFACE ELEV.** +14.7
RES. ENGR. ARI ESLAMINEJAD

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd							DRILLED	
08-29-17							AHEAD	
Wednesday							3"	
Cloudy								
70°F						**55**		
	15D	55.0	7-6	Do 14D (SW-SM)				PID=0.0
		57.0	7-8					
						60		
	16D	60.0	5-7	Brown fine to medium sand, trace silt, mica				PID=0.0
		62.0	8-9	(SP-SM)				
					S1	**65**		
	17D	65.0	7-8	Brown fine to medium sand, trace silt, mica				PID=0.0
14:15		67.0	9-9	(SP-SM)				
08:30								
08-30-17								
Thursday						**70**		
Sunny	18D	70.0	7-8	Brown fine to medium sand, trace silt, trace				PID=0.0
80°F		72.0	11-12	coarse sand, mica (SP-SM)				
						75		
	19D	75.0	11-10	Do 18D (SP-SM)				PID=0.0
		77.0	12-14					
						78.5		
						80		
	20D	80.0	10-11	Brown silty fine sand, trace mica (SM)				PID=0.0
		82.0	17-20					
						85		
	21D	85.0	10-12	Top 12": Do 20D (SM)				21D Top: PID=0.0
		87.0	10-16	Bot 4": Brown silty fine sand, trace clay (SM)	**S2**			21D Bot: PID=0.0
								PID=Photoionization
						90		Detector.
	22D	90.0	7-11	Brown silty fine sand, trace clay (SM)				PID=0.0
		92.0	13-19					WC=Water Content
								in percent of dry
						93.5		weight.
						95		Obstruction from 94.5'
	23D	95.2	31-37	Brown silty coarse to fine sand, some gravel,				to 95.2'.
		97.2	62-55	trace mica (SM)				Gravel in tip of spoon.
					T			Hard from 97.2' to
								100'.
						100		Loosing water.
	24D	100.0	94-100/3"	Do 23D (SM)				
12:30		102.0				**102**		End of Boring at 102'.

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. MR-10AU
SHEET 4 **OF** 4

PROJECT FIRST STREET TURNING BASIN
FILE NO. 12541
LOCATION BROOKLYN, NEW YORK
SURFACE ELEV. +14.7
BORING LOCATION SEE BORING LOCATION PLAN
DATUM NAVD 88

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	X YES		NO		
TRUCK	DIETRICH D120	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	40
SKID		HYDRAULIC	X	DIA., IN.	3	DEPTH, FT. FROM	0	TO	60
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF

D-SAMPLER	2" & 3" O. D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	NWJ

DRILLING MUD USED X YES NO

DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD CETCO

AUGER USED YES X NO

TYPE AND DIAMETER, IN.

*CASING HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*HAMMER TYPE (DONUT/SAFETY/AUTOMATIC): AUTOMATIC

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE	DEPTH OF CASING	DEPTH TO WATER	CONDITIONS OF OBSERVATION
08-17-17	08:00	22	20	14.5	OVERNIGHT MUD LEVEL READING.
08-29-17	07:45	35	30	3.5	OVERNIGHT MUD LEVEL READING.
08-30-17	08:30	67	60	5	OVERNIGHT MUD LEVEL READING.

PIEZOMETER INSTALLED YES X NO **SKETCH SHOWN ON**

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	1
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR ASSOCIATED ENVIRONMENTAL SERVICES LTD.
DRILLER CHRIS SANCHEZ **HELPERS** JOSE GARCIA JR.
REMARKS
RESIDENT ENGINEER ARI ESLAMINEJAD **DATE** 08-30-17
CLASSIFICATION CHECK: CHERYL J. MOSS **TYPING CHECK:** ARI ESLAMINEJAD

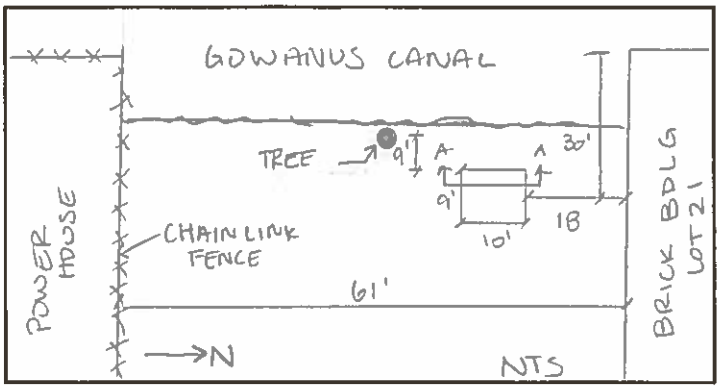
APPENDIX B

Mueser Rutledge Consulting Engineers
14 Penn Plaza - 225 West 34th Street
New York, NY 10122
T: 917 339-9300 F: 917 339-9400
www.mrce.com

TEST PIT LOG

TEST PIT NO. TP-1
FILE NO. 12541
DATE 8/16/17
RES ENGR. A.Eslamingrad
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT PC78MR-Mini Excavator



NOTES

Machine excavated
No ground water encountered
No tidal influence observed
TP-1 10'x9'x8' deep

Ground Surface Elevation +11.5 (NAVD88)

Sample Depth	Description	Depth
	SECTION A-A NTS	
	Drk brn silty f-m SA, sm roots, cobble, debris metal	0 1 2
F 2.5'		3
	Loose Brn f-m SA, sm Si, Cobble, roots, brk	4 5 6 7
F 5.5'		8
	↑ Bottom of exc.	

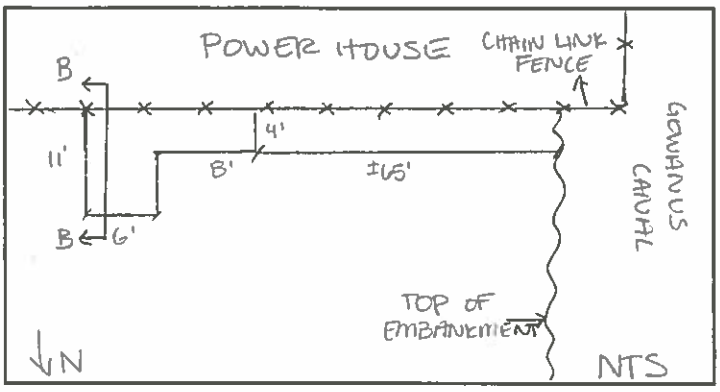
TEST PIT NO. TP-1

Mueser Rutledge Consulting Engineers
14 Penn Plaza - 225 West 34th Street
New York, NY 10122
T: 917 339-9300 F: 917 339-9400
www.mrce.com

TEST PIT LOG

TEST PIT NO. TP-2 Sht. 1/2
FILE NO. 12541
DATE 8/17/12
RES ENGR. A. Eslamingad
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT PC78MR Mini Excavator



NOTES

Machine excavated with PC78MR
Groundwater not encountered
Timbers with concrete cover encountered at 4' bgs. Refer to A-A
TP-2 11 X 6 X 8.75' deep
8 X 4 X 3.75 deep
Side walls benched

Ground Surface Elevation +14.62 (NAVD88)

Sample Depth	Description	Depth
	SECTION B-B NTS	
	FENCE POST	
	GROUND SURFACE	0
	CONCRETE	1
	F	2
5'	Loose Brn silty f-c SA, sm gvl, tr cobble, brk, roots	3
	F	4
	CONCRETE	5
	TIMBER	6
3.75'	Brn silty f-c SA, sm gvl, cobble, tr brk, roots	7
	F	8
	TIMBER	
	TIMBER	
	Bottom of excavation	

TEST PIT NO. TP-2

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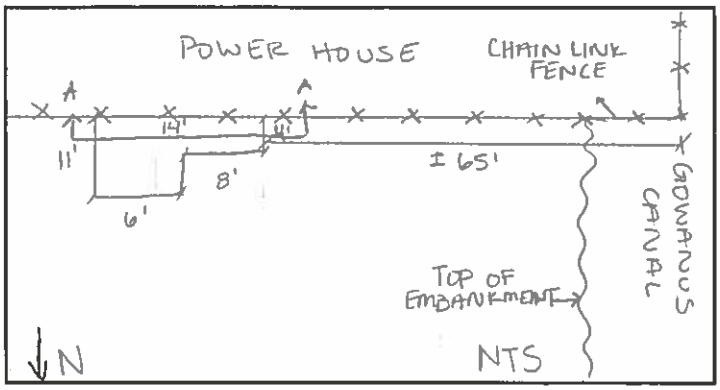
TEST PIT LOG

TEST PIT NO. TP-2 Sht. 2/2
FILE NO. 12541
DATE 8/17/17
RES ENGR. A. Eslamingyd
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT PC78MR - Mini Excavator



NOTES

Machine excavated with PC78MR
Ground water not encountered
Timbers with concrete cover encountered at 4' bgs
- 3 - 1 ft timber sections
- 3 ± 1" diameter spikes in top timber

TP2 11' x 6' x 8.75' deep
8 x 4' x 8.75' deep
Sidewalls benched, Fence posts 8.25 on center

Ground Surface Elevation +14.62 (NAVD88)

Sample Depth	Description	Depth
	SECTION A-A NTS ← FENCE POST Ground surface Loose Brn silty f-c SA, sm gvl, tr cobble, brk, roots (F) 4' 1.75' CONCRETE 2.75' 2.3' 1" SPIKES 1' TIMBER 1' TIMBER 1' TIMBER Bottom of exc.	0 1 2 3 4 5 6 7 8

TEST PIT NO. TP-2

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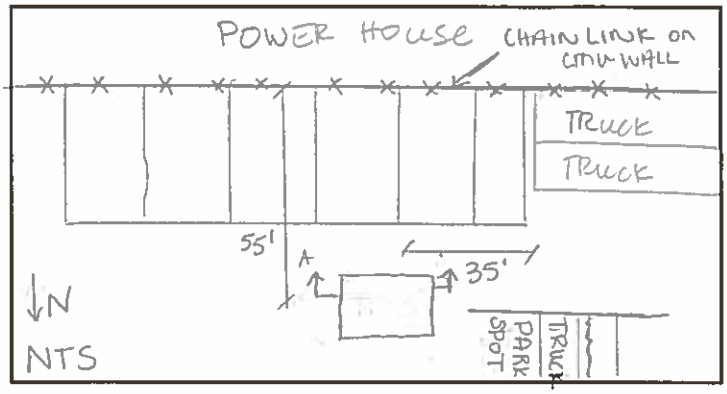
TEST PIT LOG

TEST PIT NO. TP-3
FILE NO. 12541
DATE 8/15/17
RES ENGR. AE
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, Gowanus
TEST/INSP. EQUIPMENT CAT 330



NOTES

MACHIN EXCAVATED 33"
NO GROUNDWATER
Timber remains At 10.5' bgs
TP-3 11'X8'X10.5' Deep
X - CHAIN LINK FENCE ON CMU WALL
& 3 BLOCKS HIGH

Ground Surface Elevation +14.33 (NAVD 88)

Sample Depth	Description	Depth
	Section A-A NTS	
0	.33' Asphalt	0
1	(F) 1.2' Brn/gy f-c silty Sand, sm brk cobble	1
	.25' ASPHALT	
2	(F) 1.25' Concrete rubble	2
3	(F) 1' Asphalt bedding	3
4		4
5	(F) 2.5' Brk mortar layer, Reddish orange m-c SA	5
6		6
7		7
8	(F) 4' Reddish brown f-c silty SA, sm brk, cobble, gvl tr organics (wood) at 10.5	8
9		9
10		10

TEST PIT NO. TP-3

Bottom of exc

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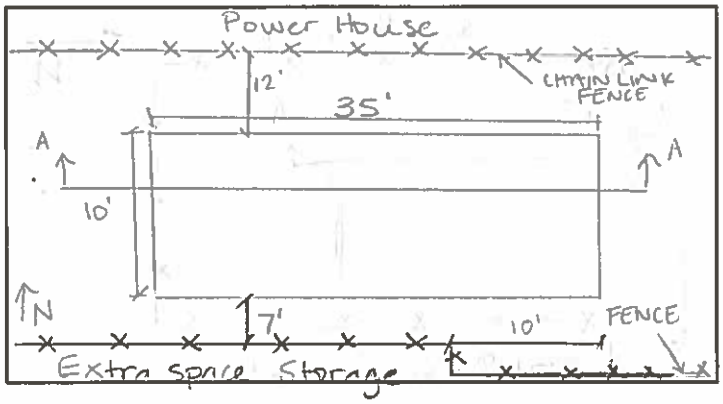
www.mrce.com

TEST PIT LOG

TEST PIT NO. TP-4
FILE NO. 12541
DATE 8/14/17
RES ENGR. A. Eshaminguid
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Gowanus - Brooklyn, New York
TEST/INSP. EQUIPMENT CAT 330



NOTES
- Machine excavated CAT 330
- Groundwater not encountered
- Timber remains encountered at 4.5' bgs
- TP 10'x35'x8' Deep

Ground Surface Elevation +15.07 (NAVD88)

Sample Depth	Description	Depth
	Section A-A NTS	
	GS	0
F	2.5'	1
		2
F	1'	3
		4
F	2.5'	5
		6
		7
F	1.5'	8
	Bottom of exc.	
	Brown f-c silty SA, tr sm gvl SP-SM	
	Brick	
	Brown, f-c silty SA, cobbles, sm gvl, tr rebar, wood SP-SM	
	Brown f-c silty SA, sm cobble, gvl, concrete debris SP-SM	

TEST PIT NO. TP-4

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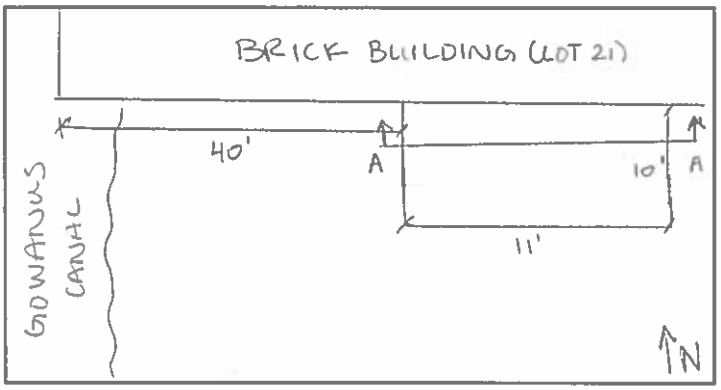
TEST PIT LOG

TEST PIT NO. TP-5 Sht 1/2
FILE NO. 12541
DATE 8/17/17
RES ENGR. A. Eslaminejad
REF. CODES/STDS

PROJECT: Fist Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT PC87MR-Mini Excavator



NOTES

Machine excavation with PC87MR
Excavation conducted in low tide
Tidal influence observed @ 7.5' bgs
2.5' concrete pile cap w/10-12" timber pile
Wooden formwork attached to pile cap
Ground surface at base of brick bldg
TP-5 10' x 11' x 7.5' Deep

Ground Surface Elevation +9 (NAVD88)

Sample Depth	Description	Depth
	SECTION A-A	
	BRICK BUILDING (LOT 21)	
	GS	0
	2.5' CONCRETE GRADE BEAM	1
		2
	2.5' CONCRETE PILE CAP 2.5'	3
	10"-12" TIMBER PILE	4
	(F) Brn gvlly C-f SA, sm cobbles, tr brk, boulders	5
		6
	BOTTOM OF EXC.	7

TEST PIT NO. TP-5

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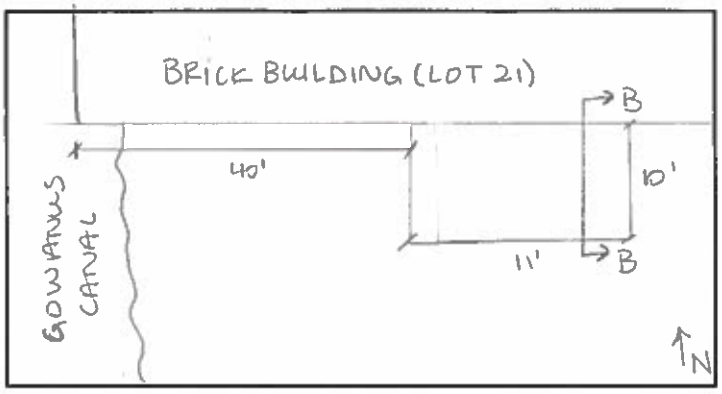
TEST PIT LOG

TEST PIT NO. TP-5 Sht. 2/2
FILE NO. 12541
DATE 8/17/17
RES ENGR. A. Eslamirad
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT PC87MR-Mini Excavator



NOTES

Machine excavated with PC87MR
Excavation conducted in low tide
Tidal influence at 7.5' bgs
TP-5 10'x11'x7.5' deep

Ground Surface Elevation +9 (NAVD 88)

SECTION B-B NTS

Sample Depth	Description	Depth
BRICK BLDG	GS	2
	Debris, Tree trunks, tires	1
CONCRETE GRADE BEAM	Ground Surface	0
2' (F)	Loose Brn silty f-c SA, sm gvl, roots (.5"-3" dia)	-1
.3' (F)	Dense beige f-c SA, tr silt, gvl	-2
.3' (F)	Concrete, rebar	-3
1.9' (F)	Brn, silty f-c SA, sm gvl, cobble, tr roots	-4
.2' (F)	Beige f-m sandy silt	-5
2.8' (F)	Brn silty f-c SA, sm brk, gvl, cobble	-6
	Bottom of exc.	-7

TEST PIT NO. TP-5

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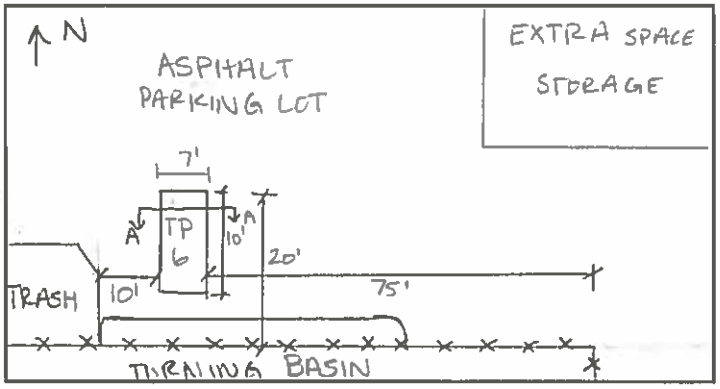
TEST PIT LOG

TEST PIT NO. TP-6 Sht. 1/2
FILE NO. 12541
DATE 8/21/17
RES ENGR. A. Eslamingad
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT PC87MR-Mini Excavator



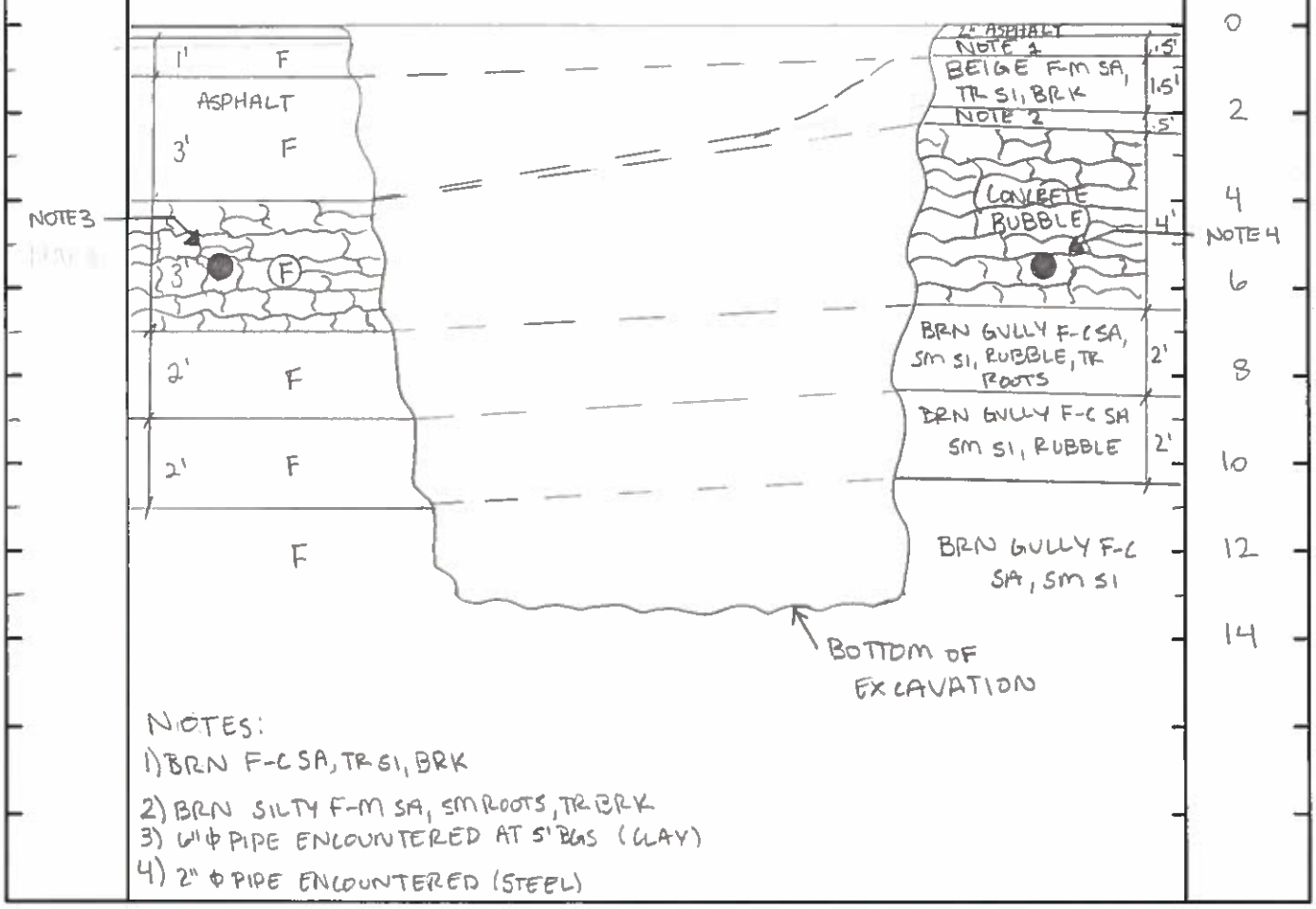
NOTES

Machine excavated
No ground water encountered
TP-6 7' x 10' x 13' Deep
(2) pipes encountered ≈ 5' bgs

Ground Surface Elevation +14.51 (NAVD88)

Sample Depth	Description	Depth

SECTION A-A



NOTES:
1) BRN F-C SA, TR SI, BRK
2) BRN SILTY F-M SA, SM ROOTS, TR BRK
3) 6" ϕ PIPE ENCOUNTERED AT 5' BGS (CLAY)
4) 2" ϕ PIPE ENCOUNTERED (STEEL)

TEST PIT NO. TP-6

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New York, NY 10122
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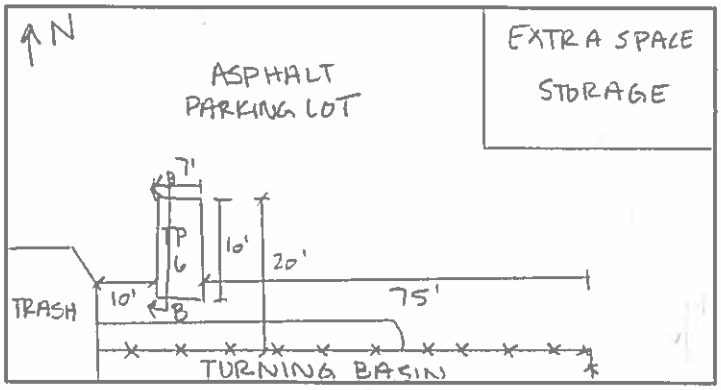
TEST PIT LOG

TEST PIT NO. TP6 Sht. 2/2
FILE NO. 12541
DATE 08/21/17
RES ENGR. A. Eslamineja
REF. CODES/STDS

PROJECT: First Street Turning Basin
LOCATION: Brooklyn, NY
TEST/INSP. EQUIPMENT CP78MR-Mini Excavator

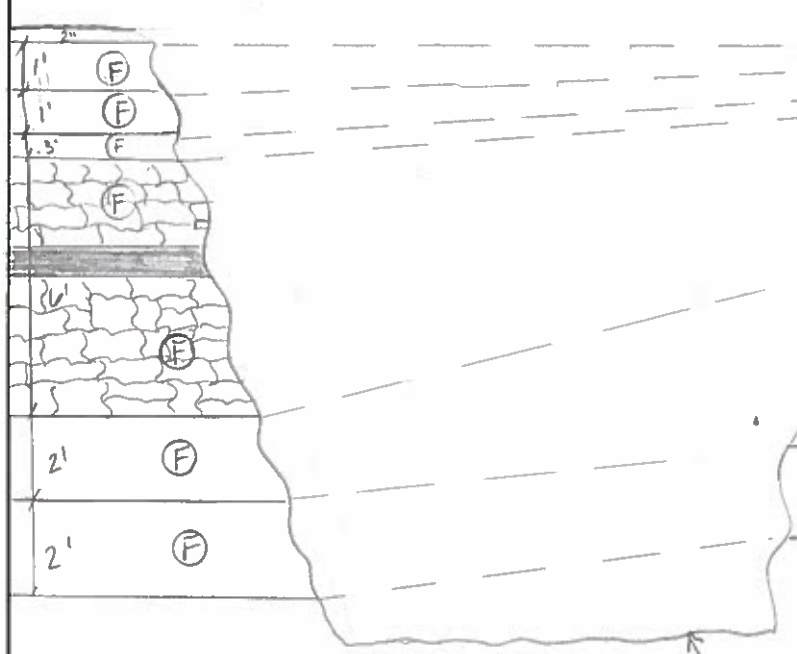


NOTES

Machine excavated
No ground water encountered
TP-6 7'x10'x13' Deep
(2) pipes encountered ≈ 5' bgs

Ground Surface Elevation +14.51 (NAVD 88)

Sample Depth	Description	Depth
	SECTION B-B	
	Ground Surface	0
	ASPHALT .5' NOTE 1 .5' NOTE 2 .3' NOTE 3	
	3' CONCRETE RUBBLE	2
	NOTE 4	4
	4' BRN GVLLY F-C SA, SM SI, RUBBLE, TR ROOTS	6
	2' BRN GVLLY F-C SA, SM SI, RUBBLE	8
	BRN GVLLY F-C SA, SM SI	10
	BOTTOM OF EXCAVATION	12
		14



NOTES:
1) BRN F-C SA, SM SI, GVL
2) BEIGE F-M SA, TR BRK
3) BRN SILTY F-C SA
4) 2" Ø PIPE ENCOUNTERED AT 5' BGS (STEEL)

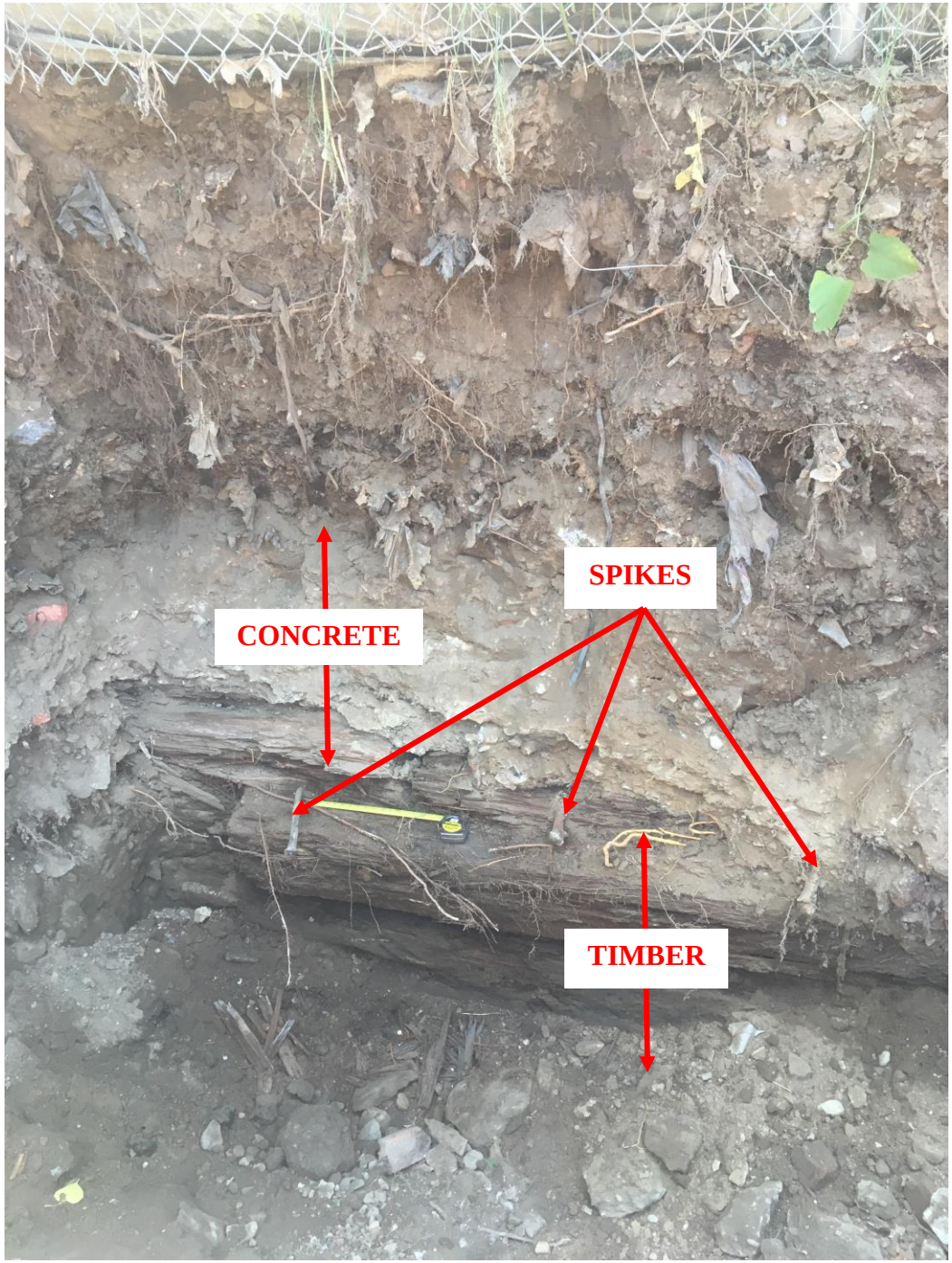
TEST PIT NO. TP-6

APPENDIX C

NOTES:

1. View of TP-1 west, towards Gowanus Canal.
2. TP-1 excavated to 8 ft below ground surface at the western end of the Turning Basin.
3. General Fill conditions encountered. See Test Pit log.

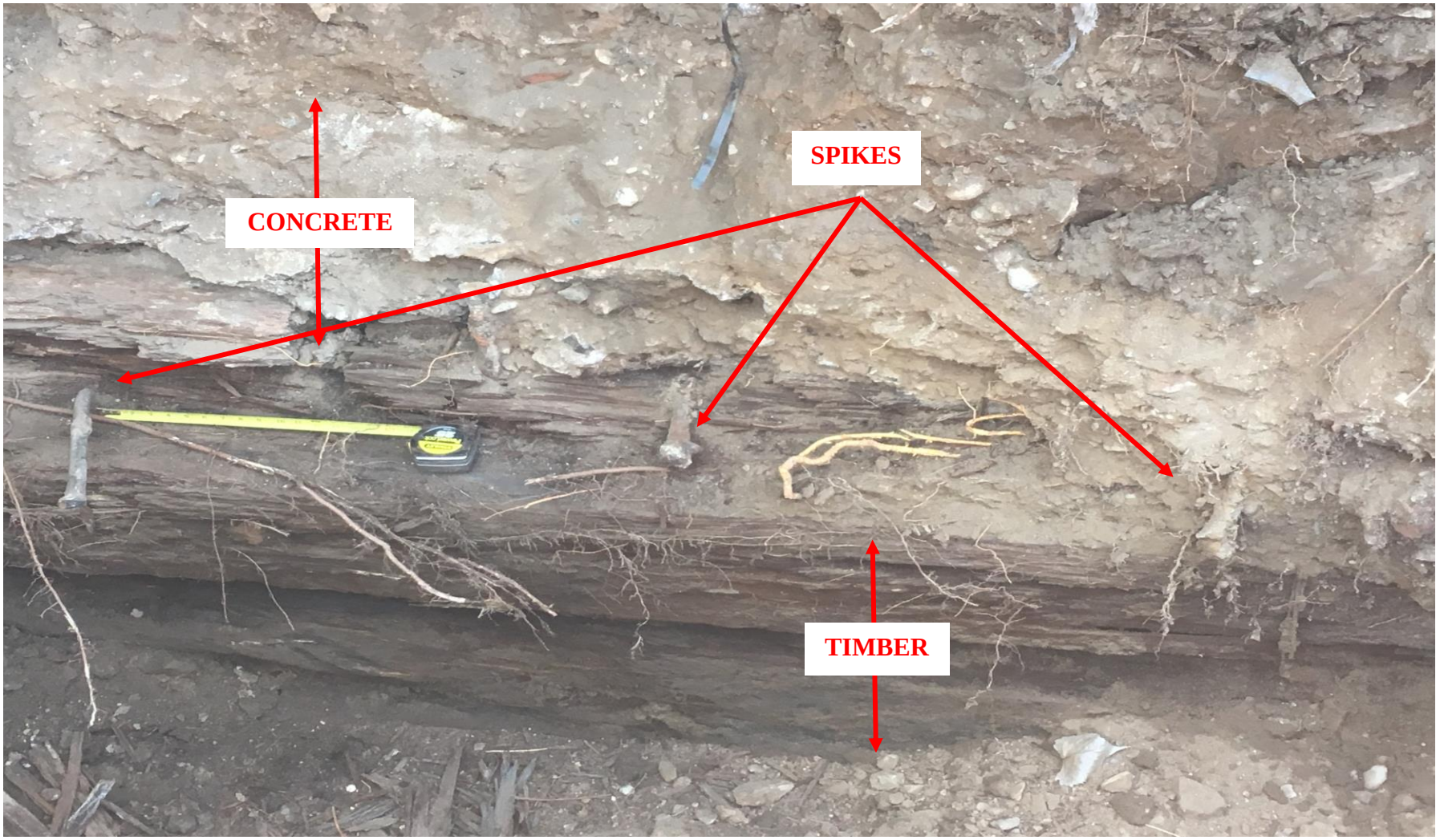
First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 1 PHOTO PLATE			PLATE TP-1



NOTES:

1. View of TP-2 facing south.
2. TP-2 excavated to 9 ft below ground surface at the south west end of the Turning Basin.
3. Timber cribbing encountered at approximately 4 ft below ground surface.
4. See test pit log.

First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 2 PHOTO PLATE			PLATE TP-2-A



NOTES:

1. View of TP-2 facing south.
2. TP-2 excavated to 9 ft below ground surface at the south west end of the Turning Basin.
3. Timber cribbing encountered at approximately 4 ft below ground surface.
4. See test pit log.

First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 2 PHOTO PLATE			PLATE TP-2-B

NOTES:

1. View of TP-3 facing south west.
2. TP-3 excavated to 10.5 ft below ground surface at the central north end of the Turning Basin.
3. General Fill conditions encountered. See Test Pit log.

First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS 14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE N/A	MADE BY: AE CH'KD BY:	DATE: 10-06-17 DATE:	FILE No. 12541
TEST PIT 3 PHOTO PLATE			PLATE TP-3

NOTES:

1. View of TP-4 facing south west.
2. TP-4 excavated to 8 ft below ground surface at the east end of the Turning Basin.
3. General Fill conditions encountered. See Test Pit log.

First Street Turning Basin

Brooklyn — New York

MUESER RUTLEDGE CONSULTING ENGINEERS

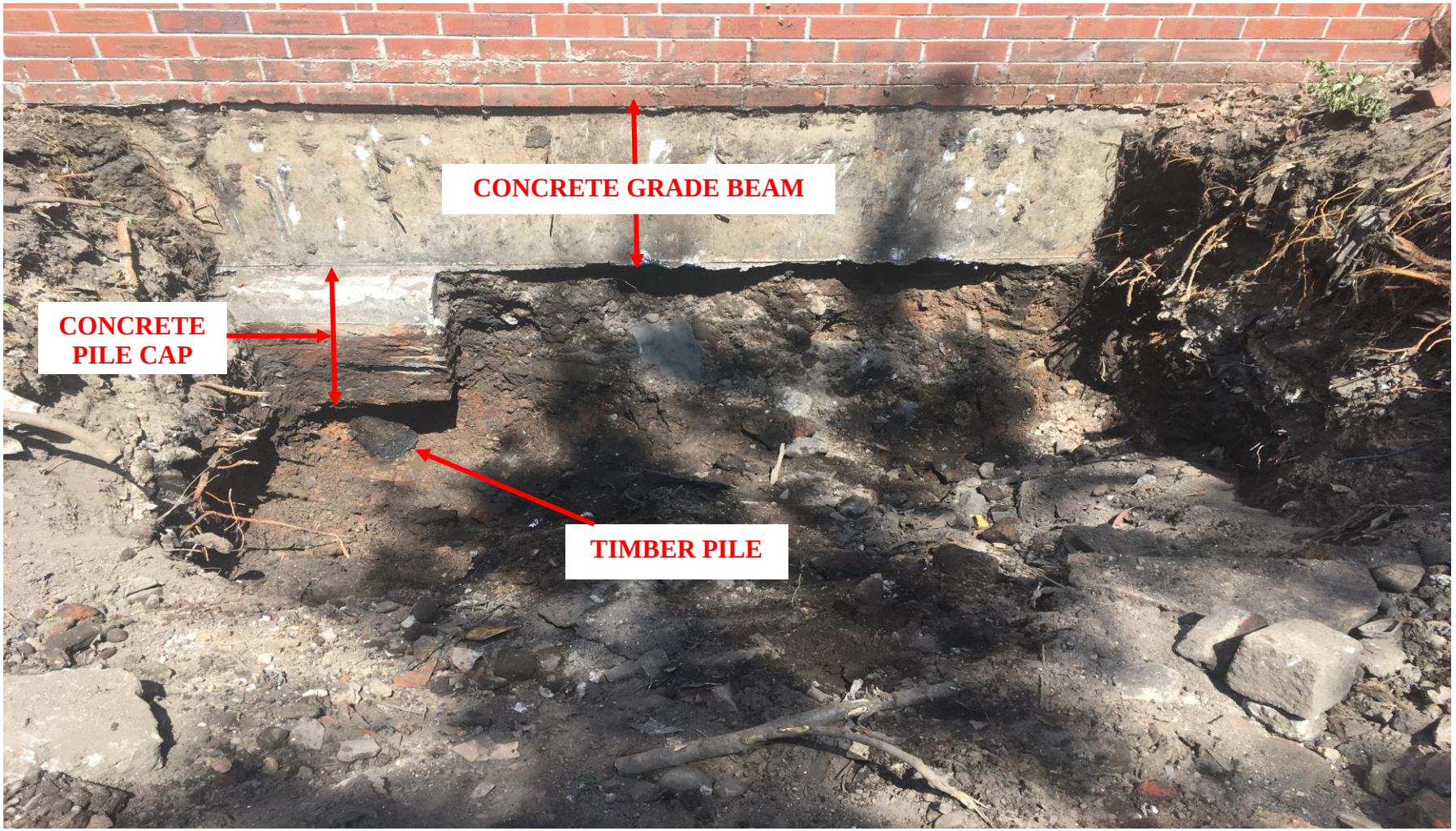
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122

SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 4 PHOTO PLATE			PLATE TP-4A

NOTES:

1. View of TP-4 facing south west.
2. TP-4 excavated to 8 ft below ground surface at the east end of the Turning Basin.
3. General Fill conditions encountered. See Test Pit log.

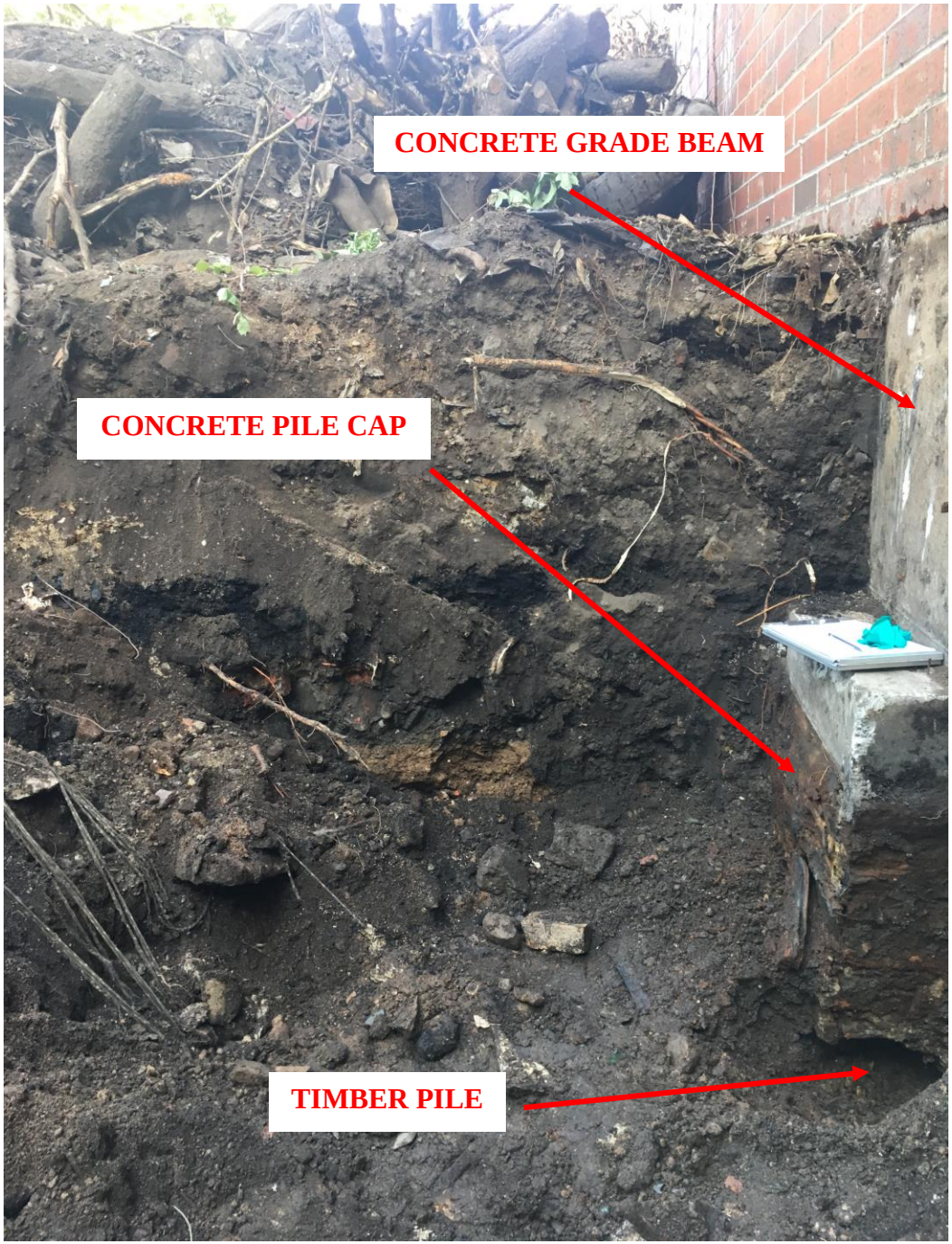
First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 4 PHOTO PLATE			PLATE TP-4B



NOTES:

1. View of TP-5 facing north.
2. TP-5 excavated to 7.5 ft below ground surface at the north west end of the Turning Basin adjacent to existing building.
3. Pile foundation for adjacent building on Lot 21 encountered.

First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 5 PHOTO PLATE			PLATE TP-5A



NOTES:

1. View of TP-5 facing west.
2. TP-5 excavated to 7.5 ft below ground surface at the north west end of the Turning Basin.
3. General Fill conditions encountered. See Test Pit log.
4. Pile foundation for adjacent building on Lot 21 encountered.

First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 5 PHOTO PLATE			PLATE TP-5B

NOTES:

1. View of TP-6 facing south.
2. TP-6 excavated to 13 ft below ground surface at the north east end of the Turning Basin.
3. General Fill conditions encountered. See Test Pit log.

First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 6 PHOTO PLATE			PLATE TP-6A

NOTES:

1. View of TP-6 facing south.
2. TP-6 excavated to 13 ft below ground surface at the north east end of the Turning Basin.
3. Two pipes were encountered at approximately 5 feet below ground surface.
4. General Fill conditions encountered. See Test Pit log.

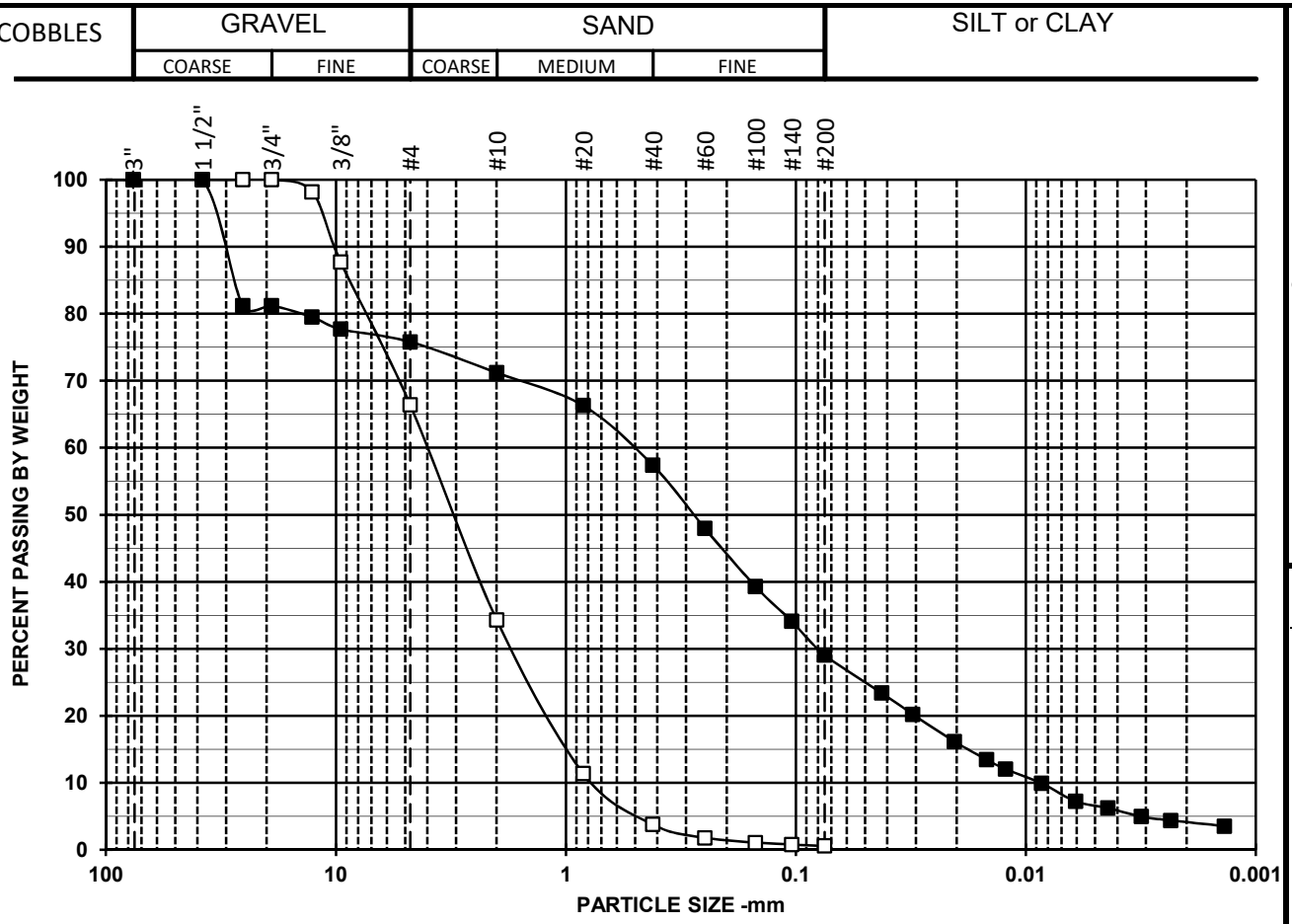
First Street Turning Basin			
Brooklyn			New York
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA – 225 W 34TH STREET, NEW YORK NY 10122			
SCALE	MADE BY: AE	DATE: 10-06-17	FILE No.
N/A	CH'KD BY:	DATE:	12541
TEST PIT 6 PHOTO PLATE			PLATE TP-6B

APPENDIX D

AKRF Engineering, P.C.
First Street Turning Basin
LABORATORY TESTING DATA SUMMARY

BORING	SAMPLE	DEPTH	IDENTIFICATION TESTS									STRENGTH			REMARKS
NO.	NO.		WATER CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLAS. INDEX	USCS SYMB. (1)	SIEVE MINUS NO. 200	HYDRO. % MINUS 2 μm	TOTAL UNIT WEIGHT	DRY UNIT WEIGHT	Type Test	PEAK DEVIATOR STRESS	AXIAL STRAIN @ PEAK STRESS	/ TEST ID
		(ft)	(%)	(-)	(-)	(-)		(%)	(%)	(pcf)	(pcf)		(tsf)	(%)	
MR-1A	S-8D	20-22	116.9	123	65	58	SM								
MR-1A	S-15D	45-47	17.5				SP	0.6							
MR-1A	S-24D	90-92	8.5				SM	29.1	4						
MR-2	S-9D	40-42	15.2				SP	3.8							
MR-2	S-10D	45-47	21.3				SP-SM	7.3							
MR-3	S-11D	40-42	15.6				SW	4.0							
MR-3	S-15D	60-62	19.3				SP-SM	5.7							
MR-3	S-16D	65-67	16.6				SP-SM	8.7	1						
MR-4	S-8D	25-27	43.3	61	35	26	SM								
MR-4	S-10D	35-37	32.1	37	21	16	CL								
MR-4	S-18D	75-77	16.7				SP-SM	6.0							
MR-5	S-8D TOP	35-37	27.2				CL								
MR-5	S-8D BOT	35-37	23.5				SC	48.0	11						
MR-5	S-10D	45-47	14.8				SW-SM	5.6							
MR-6	S-5D BOT	17-19	38.0				ML	71.6							
MR-6	S-9D	25-27	15.6	22	13	9	CL								
MR-6	S-16D	55-57	14.8				SP	2.6							
MR-7	S-11D	45-47	19.6				SP-SM	9.6							
MR-7	S-17D BOT	75-77	17.4				SM	21.6	2						
MR-8	S-13D	50-52	17.4				SM	13.2							
MR-8	S-14D	55-57	15.2				SW	4.4							
MR-8	S-16D	65-67	21.8				SP-SM	11.4	2						
MR-10A	S-9U	30-32								92.5					
MR-10A	S-9U	30.3	55.8												
MR-10A	S-9U	30.85	49.0												
MR-10A	S-9U	31.1	67.6				OH			90.8	54.2	UU@1.9	0.7	14.7	UU-j282a
MR-10A	S-9U	31.4	68.5												
MR-10A	S-9U	31.65	61.7	80	36	44	OH			92.2	57.0	UU@1.9	0.9	10.7	UU-j282b
MR-10A	S-15D	55-57	20.4				SW-SM	8.0							
MR-10A	S-21D TOP	85-87	20.6				SM	42.3							

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.



Symbol	□	■	○
Boring	MR-1A	MR-1A	
Sample	S-15D	S-24D	
Depth	45-47	90-92	
% +3"	0.0	0.0	
% Gravel	33.6	24.2	
% SAND	65.8	46.7	
%C SAND	32.1	4.6	
%M SAND	30.5	13.8	
%F SAND	3.2	28.3	
% FINES	0.6	29.1	
D_{100} (mm)	19.050	38.100	
D_{60} (mm)	3.997	0.514	
D_{30} (mm)	1.699	0.080	
D_{10} (mm)	0.740	0.009	
Cc	1.000	1.400	
Cu	5.4	59.4	

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	
4"	100.0	100.0	
3"	100.0	100.0	
1 1/2"	100.0	100.0	
1"	100.0	81.2	
3/4"	100.0	81.2	
1/2"	98.2	79.5	
3/8"	87.7	77.7	
#4	66.4	75.8	
#10	34.3	71.2	
#20	11.4	66.3	
#40	3.8	57.4	
#60	1.8	48.0	
#100	1.1	39.3	
#140	0.8	34.1	
#200	0.6	29.1	
5μ m		7	
2μ m		4	
1μ m		3	

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	17.5				SP		Black, Poorly graded sand with gravel	10/09/17
■	8.5				SM		Brown, Silty sand with gravel	10/16/17
○								

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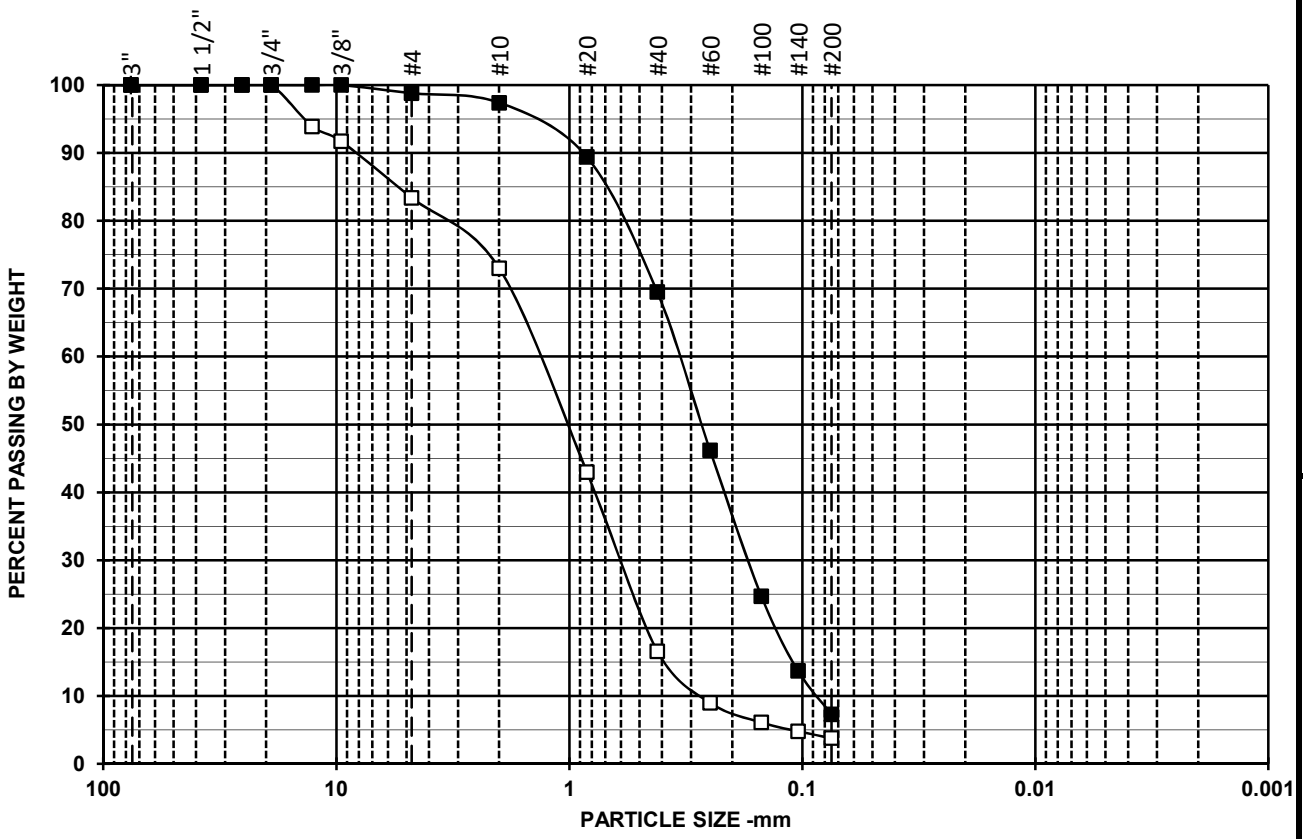
TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION



Symbol	□	■	○
Boring	MR-2	MR-2	
Sample	S-9D	S-10D	
Depth	40-42	45-47	
% +3"	0.0	0.0	
% Gravel	16.6	1.2	
% SAND	79.6	91.5	
%C SAND	10.4	1.4	
%M SAND	56.4	27.9	
%F SAND	12.8	62.2	
% FINES	3.8	7.3	
D_{100} (mm)	19.050	9.530	
D_{60} (mm)	1.373	0.339	
D_{30} (mm)	0.597	0.170	
D_{10} (mm)	0.267	0.086	
Cc	1.000	1.000	
Cu	5.2	3.9	

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	
4"	100.0	100.0	
3"	100.0	100.0	
1 1/2"	100.0	100.0	
1"	100.0	100.0	
3/4"	100.0	100.0	
1/2"	93.9	100.0	
3/8"	91.7	100.0	
#4	83.4	98.8	
#10	73.0	97.4	
#20	43.0	89.4	
#40	16.6	69.5	
#60	9.0	46.2	
#100	6.1	24.7	
#140	4.8	13.7	
#200	3.8	7.3	
5μ m			
2μ m			
1μ m			

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	15.2				SP		Brownish gray, Poorly graded sand with gravel	10/09/17
■	21.3				SP-SM		Brown, Poorly graded sand with silt	10/09/17
○								

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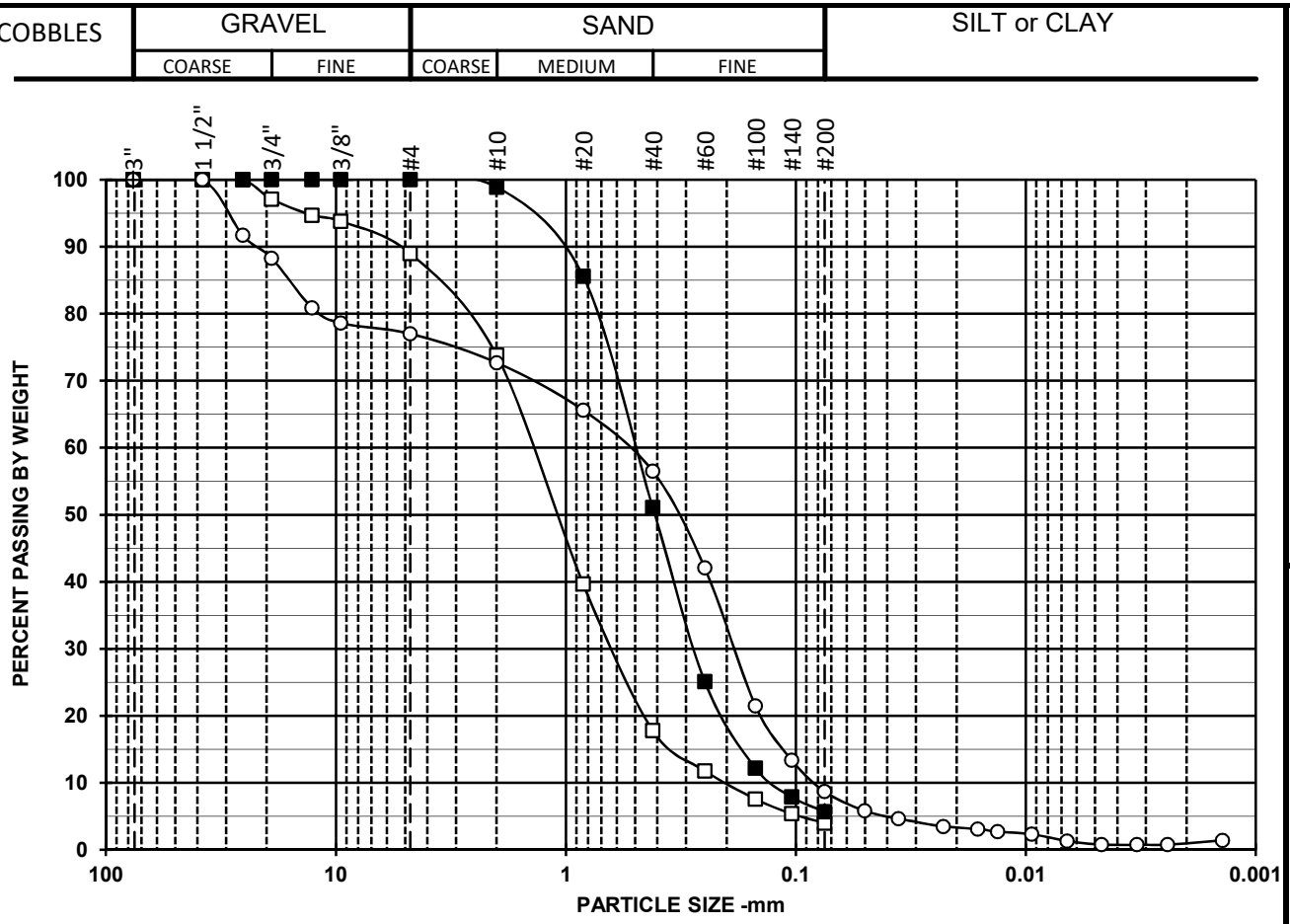
TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION



Symbol	□	■	○
Boring	MR-3	MR-3	MR-3
Sample	S-11D	S-15D	S-16D
Depth	40-42	60-62	65-67
% +3"	0.0	0.0	0.0
% Gravel	11.0	0.0	23.0
% SAND	85.0	94.3	68.3
%C SAND	15.2	1.1	4.3
%M SAND	56.0	47.8	16.2
%F SAND	13.8	45.4	47.8
% FINES	4.0	5.7	8.7
D_{100} (mm)	25.400	4.750	38.100
D_{60} (mm)	1.408	0.502	0.548
D_{30} (mm)	0.618	0.275	0.185
D_{10} (mm)	0.200	0.124	0.082
Cc	1.400	1.200	0.800
Cu	7.0	4.0	6.7

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	100.0
4"	100.0	100.0	100.0
3"	100.0	100.0	100.0
1 1/2"	100.0	100.0	100.0
1"	100.0	100.0	91.7
3/4"	97.1	100.0	88.3
1/2"	94.7	100.0	80.9
3/8"	93.8	100.0	78.6
#4	89.0	100.0	77.0
#10	73.8	98.9	72.7
#20	39.7	85.6	65.6
#40	17.8	51.1	56.5
#60	11.8	25.1	42.1
#100	7.6	12.2	21.5
#140	5.4	7.9	13.4
#200	4.0	5.7	8.7
5μ m			1
2μ m			1
1μ m			2

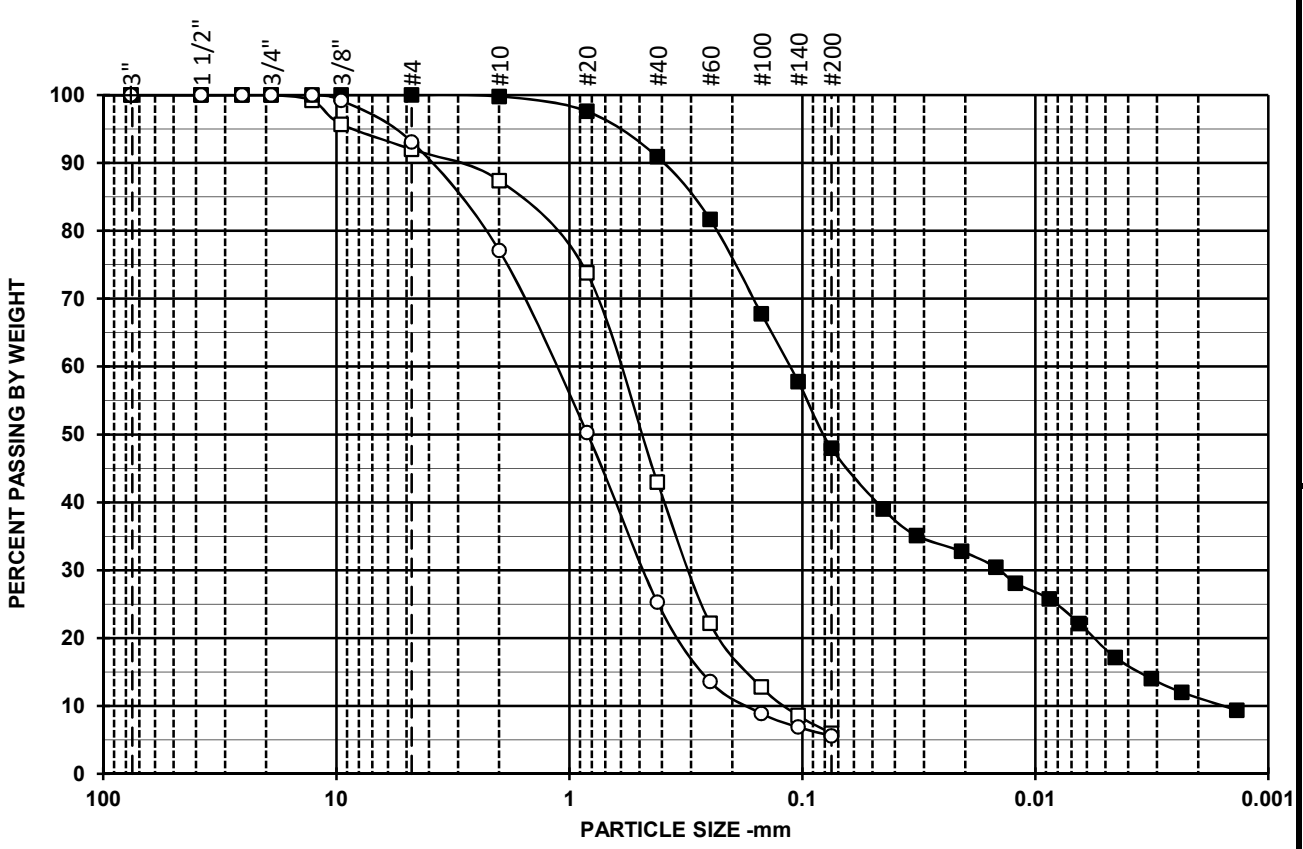
SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	15.6				SW		Brown, Well-graded sand	10/09/17
■	19.3				SP-SM		Brown, Poorly graded sand with silt	10/09/17
○	16.6				SP-SM		Brown, Poorly graded sand with silt and gravel	10/16/17

AKRF Engineering, P.C.

TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION



Symbol	□	■	○
Boring	MR-4	MR-5	MR-5
Sample	S-18D	S-8D BOT	S-10D
Depth	75-77	35-37	45-47
% +3"	0.0	0.0	0.0
% Gravel	8.0	0.0	6.9
% SAND	86.0	52.0	87.5
%C SAND	4.6	0.2	16.0
%M SAND	44.4	8.9	51.8
%F SAND	37.0	42.9	19.7
% FINES	6.0	48.0	5.6
D_{100} (mm)	19.050	4.750	12.700
D_{60} (mm)	0.615	0.113	1.150
D_{30} (mm)	0.303	0.014	0.478
D_{10} (mm)	0.118	0.002	0.169
Cc	1.300	1.200	1.200
Cu	5.2	72.6	6.8

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	100.0
4"	100.0	100.0	100.0
3"	100.0	100.0	100.0
1 1/2"	100.0	100.0	100.0
1"	100.0	100.0	100.0
3/4"	100.0	100.0	100.0
1/2"	99.2	100.0	100.0
3/8"	95.7	100.0	99.2
#4	92.0	100.0	93.1
#10	87.4	99.8	77.1
#20	73.8	97.6	50.3
#40	43.0	90.9	25.3
#60	22.2	81.7	13.6
#100	12.8	67.8	8.9
#140	8.6	57.8	6.9
#200	6.0	48.0	5.6
5μ m		19	
2μ m		11	
1μ m		8	

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	16.7				SP-SM		Brown, Poorly graded sand with silt	10/09/17
■	23.5				SC		Brownish gray, Clayey sand	10/16/17
○	14.8				SW-SM		Brownish gray, Well-graded sand with silt	10/09/17

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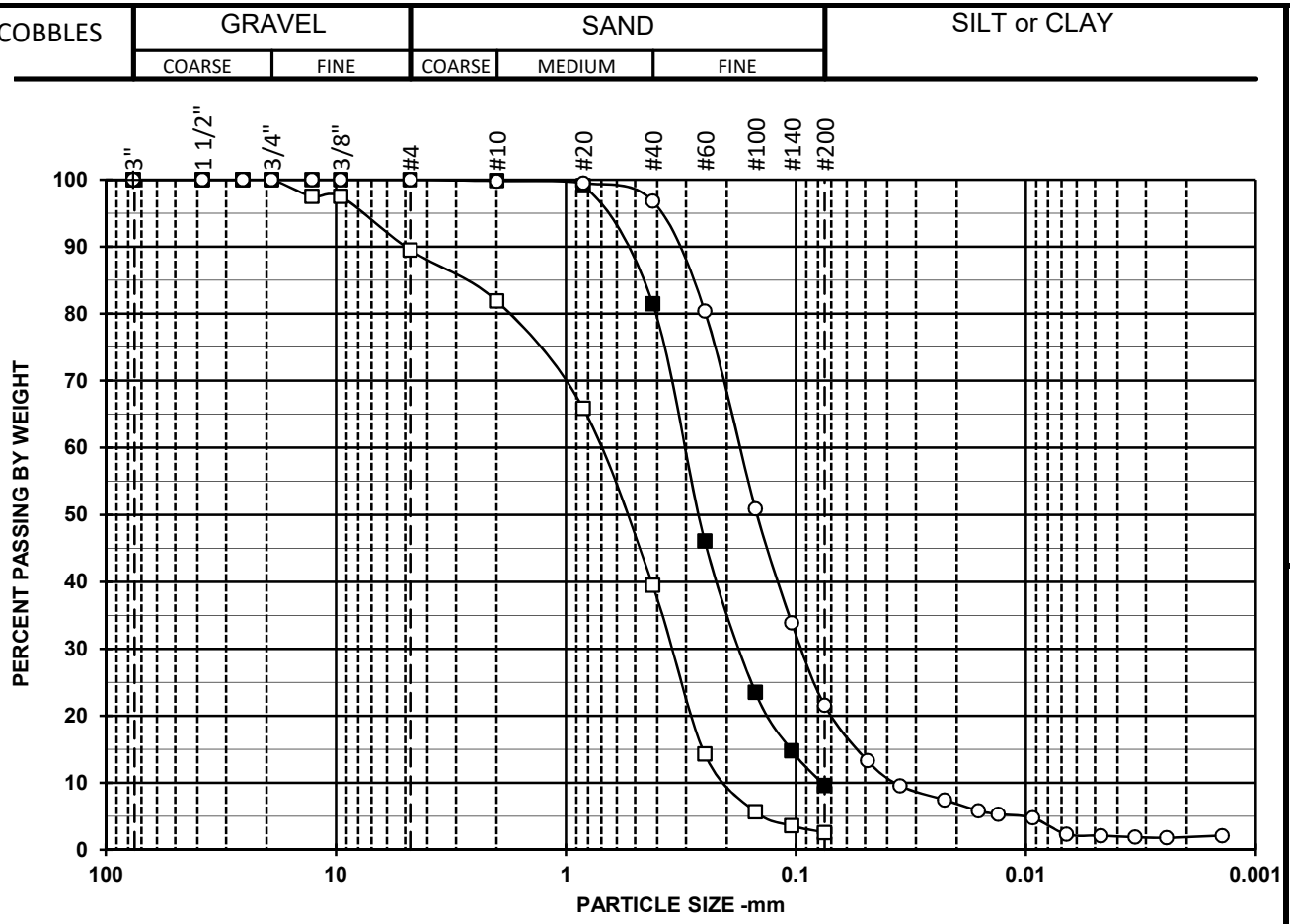
TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION



Symbol	□	■	○
Boring	MR-6	MR-7	MR-7
Sample	S-16D	S-11D	S-17D BOT
Depth	55-57	45-47	75-77
% +3"	0.0	0.0	0.0
% Gravel	10.5	0.0	0.0
% SAND	86.9	90.4	78.4
%C SAND	7.6	0.1	0.2
%M SAND	42.4	18.4	3.0
%F SAND	36.9	71.9	75.2
% FINES	2.6	9.6	21.6
D_{100} (mm)	19.050	4.750	4.750
D_{60} (mm)	0.720	0.305	0.175
D_{30} (mm)	0.344	0.173	0.094
D_{10} (mm)	0.193	0.077	0.037
Cc	0.900	1.300	1.400
Cu	3.7	4.0	4.8

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	100.0
4"	100.0	100.0	100.0
3"	100.0	100.0	100.0
1 1/2"	100.0	100.0	100.0
1"	100.0	100.0	100.0
3/4"	100.0	100.0	100.0
1/2"	97.5	100.0	100.0
3/8"	97.5	100.0	100.0
#4	89.5	100.0	100.0
#10	81.9	99.9	99.8
#20	65.9	99.1	99.5
#40	39.5	81.5	96.8
#60	14.3	46.1	80.4
#100	5.7	23.5	50.9
#140	3.6	14.8	33.9
#200	2.6	9.6	21.6
5μ m			2
2μ m			2
1μ m			2

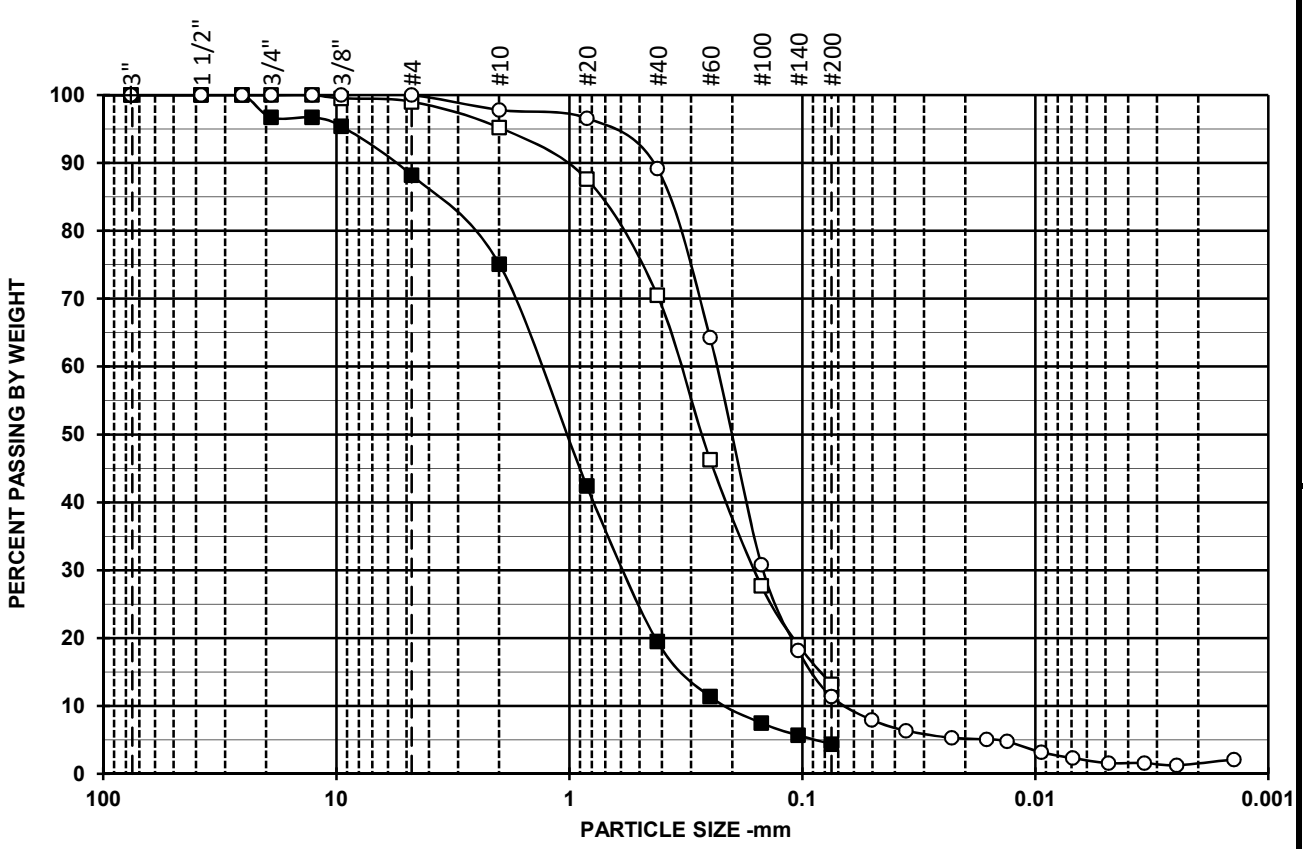
SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	14.8				SP		Brown, Poorly graded sand	10/09/17
■	19.6				SP-SM		Gray, Poorly graded sand with silt	10/09/17
○	17.4				SM		Brown, Silty sand	10/16/17

AKRF Engineering, P.C.

TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION



Symbol	□	■	○
Boring	MR-8	MR-8	MR-8
Sample	S-13D	S-14D	S-16D
Depth	50-52	55-57	65-67
% +3"	0.0	0.0	0.0
% Gravel	1.0	11.8	0.0
% SAND	85.8	83.8	88.6
%C SAND	3.8	13.1	2.2
%M SAND	24.7	55.6	8.6
%F SAND	57.3	15.1	77.8
% FINES	13.2	4.4	11.4
D_{100} (mm)	12.700	25.400	4.750
D_{60} (mm)	0.334	1.340	0.233
D_{30} (mm)	0.160	0.577	0.146
D_{10} (mm)		0.207	0.064
Cc		1.200	1.400
Cu		6.5	3.7

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	100.0
4"	100.0	100.0	100.0
3"	100.0	100.0	100.0
1 1/2"	100.0	100.0	100.0
1"	100.0	100.0	100.0
3/4"	100.0	96.7	100.0
1/2"	100.0	96.7	100.0
3/8"	99.5	95.4	100.0
#4	99.0	88.2	100.0
#10	95.2	75.1	97.8
#20	87.6	42.4	96.6
#40	70.5	19.5	89.2
#60	46.3	11.4	64.3
#100	27.7	7.5	30.8
#140	19.0	5.7	18.2
#200	13.2	4.4	11.4
5μ m			2
2μ m			2
1μ m			3

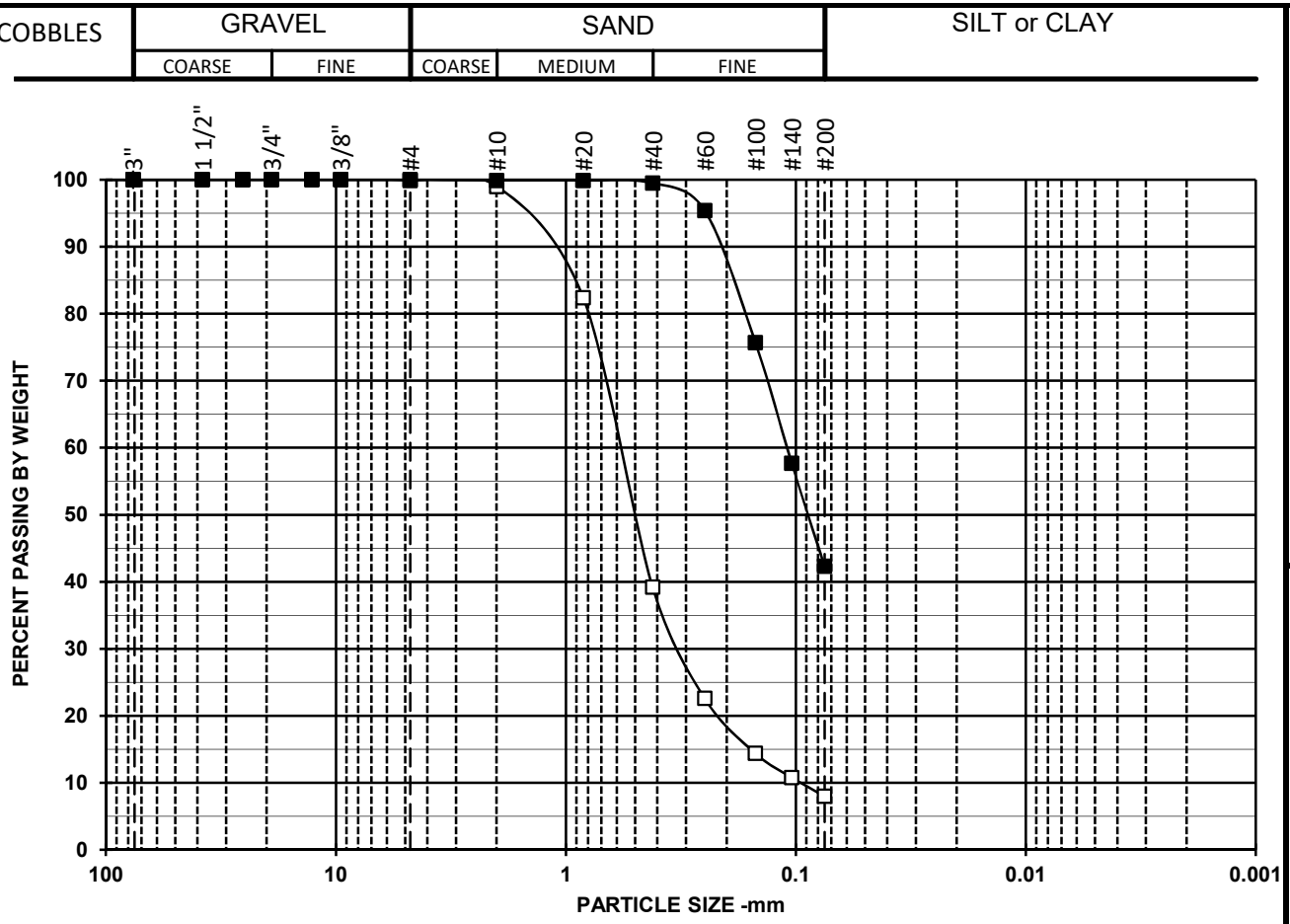
SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	17.4				SM		Brown, Silty sand	10/09/17
■	15.2				SW		Brownish gray, Well-graded sand	10/09/17
○	21.8				SP-SM		Brown, Poorly graded sand with silt	10/16/17

AKRF Engineering, P.C.

TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION



Symbol	□	■	○
Boring	MR-10	MR-10A	
Sample	S-15D	S-21D TOP	
Depth	55-57	85-87	
% +3"	0.0	0.0	
% Gravel	0.1	0.0	
% SAND	91.9	57.7	
%C SAND	0.9	0.1	
%M SAND	59.8	0.4	
%F SAND	31.2	57.2	
% FINES	8.0	42.3	
D_{100} (mm)	9.530	4.750	
D_{60} (mm)	0.586	0.109	
D_{30} (mm)	0.314		
D_{10} (mm)	0.095		
Cc	1.800		
Cu	6.2		

Sieve Size/ID #	Percent Finer Data		
6"	100.0	100.0	
4"	100.0	100.0	
3"	100.0	100.0	
1 1/2"	100.0	100.0	
1"	100.0	100.0	
3/4"	100.0	100.0	
1/2"	100.0	100.0	
3/8"	100.0	100.0	
#4	99.9	100.0	
#10	99.0	99.9	
#20	82.4	99.9	
#40	39.2	99.5	
#60	22.6	95.4	
#100	14.4	75.7	
#140	10.8	57.7	
#200	8.0	42.3	
5μ m			
2μ m			
1μ m			

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□	20.4				SW-SM		Brown, Well-graded sand with silt	10/09/17
■	20.6				SM		Brown, Silty sand	10/09/17
○								

AKRF Engineering, P.C.

TerraSense, LLC #8089-17007

First Street Turning Basin

PARTICLE SIZE DISTRIBUTION

First Street Turning Basin
AKRF Engineering, P.C.
SUMMARY FOR UU TRIAXIAL TESTS

MR-10A Series Summary

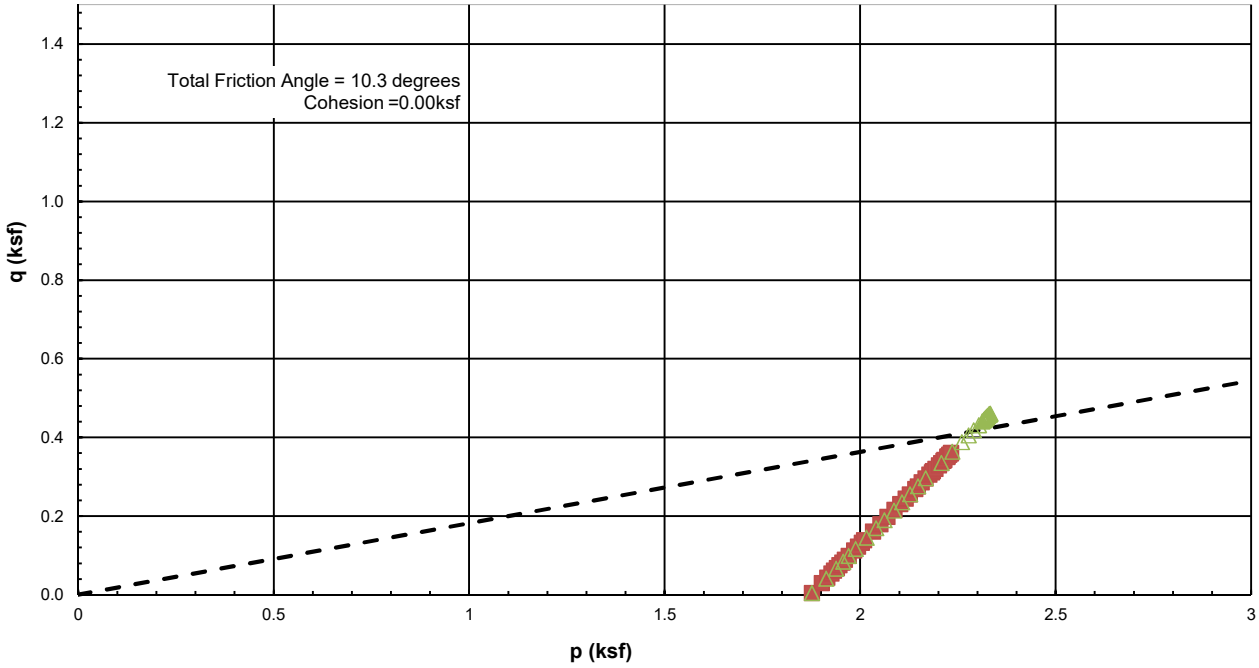
Test No	Boring No	Depth (ft)	w_o (%)	$\gamma_{t,o}$ (pcf)	$\gamma_{d,o}$ (pcf)	σ_c (ksf)	ε_{rate} (%/min)	at Peak Deviator Stress	
								ε_a (%)	$\sigma_1 - \sigma_3$ (ksf)
117J282a	MR-10A	31.1	67.6	90.8	54.2	1.87	0.7	14.7	0.70
117J282b	MR-10A	31.65	61.7	92.2	57.0	1.87	0.7	10.7	0.92

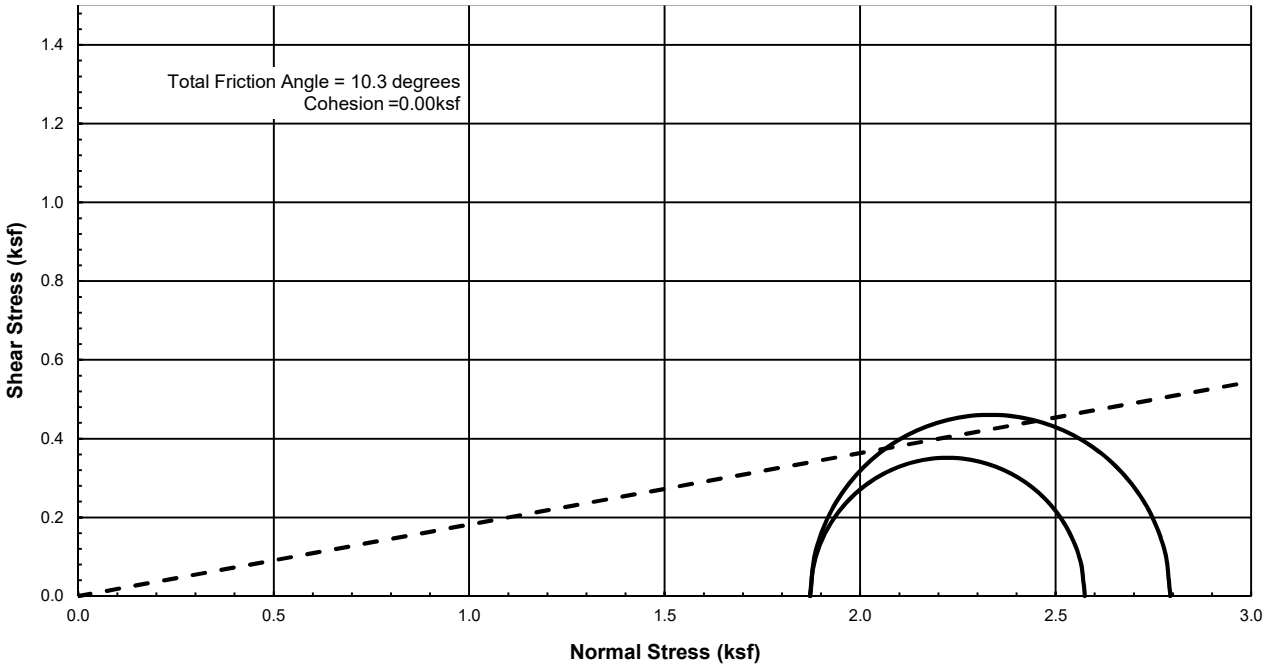
Test No	Description of Material Tested and Remarks
117J282a	OH, black organic clay trace f gravel
117J282b	OH, black organic clay trace shells and wood chips

Series Strength Envelope Summary		
ϕ	10.3	(deg)
c	0.0	(ksf)

First Street Turning Basin		Sample: MR-10A 9U Depth:
AKRF Engineering, P.C.	PW77GOWAN	Unconsolidated Undrained Triaxial Test Series Summary
TerraSense, LLC	Project No.: 8089-1700	

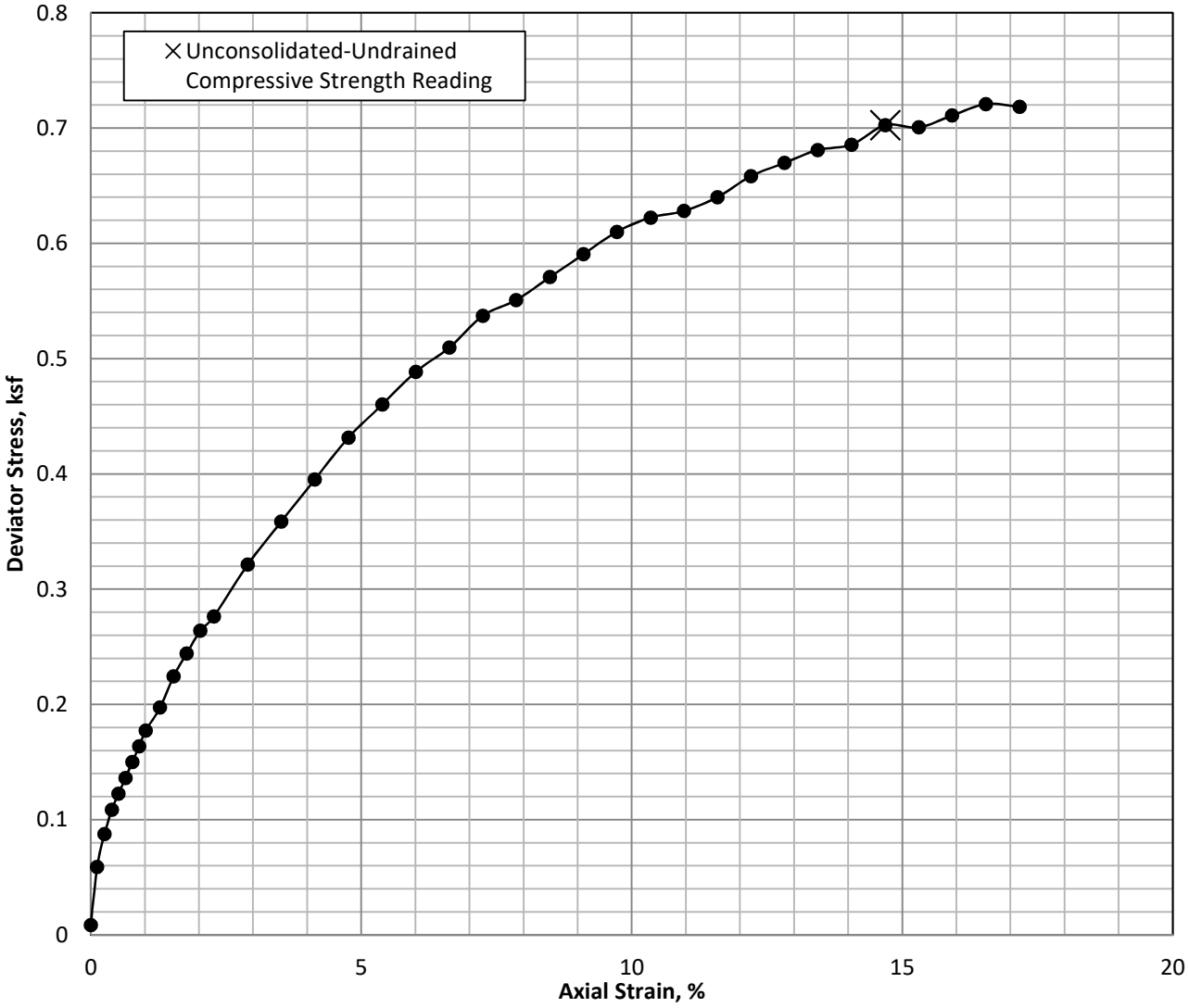
Reviewed By: GET





Project No. **8089-17007**	**First Street Turning Basin** **AKRF Engineering, P.C.**	**Total Stress Paths and Mohr Circles at Peak** **UU Triaxial Test** **MR-10A Series Summary**	
TerraSense, LLC			**October 2017**

UNCONSOLIDATED-UNDRAINED COMPRESSIVE STRENGTH TEST, ASTM METHOD D2850



Specimen and Material Property Information

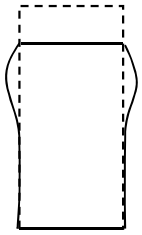
Sample Type: Intact tube sample

Description and/or Classification: OH, black organic clay trace f gravel

Cell Pressure (ksf)	Water [1] Content (%)	Wet Unit Weight (pcf)	Dry Unit [1] Weight (pcf)	Void Ratio (-)	Saturation [2] (%)	Length (inch)	Diameter (inch)	L/D (-)	LL/ PL (-)	PI (-)	Specific [2] Gravity (-)
0 (Initial)	67.6	90.8	54.2	1.49	98.0	6.010	2.856	2.1			2.16
1.9	67.6	91.9	54.8	1.46	100.0	5.987	2.845	2.1			

Failure Summary

U-U Compressive Strength (ksf)	U-U Shear Strength, s_u (ksf)	Strain to Peak (%)	Strain Rate (%/min)
0.7	0.35	14.7	0.75



FAILURE SKETCH

Remarks and Notes:

(1) Water Content determined after shear from partial specimen.

(2) Assumed specific gravity

Tested by: BB Reviewed by: GET

Test Date: 10/9/2017 Review Date: 10/26/20017

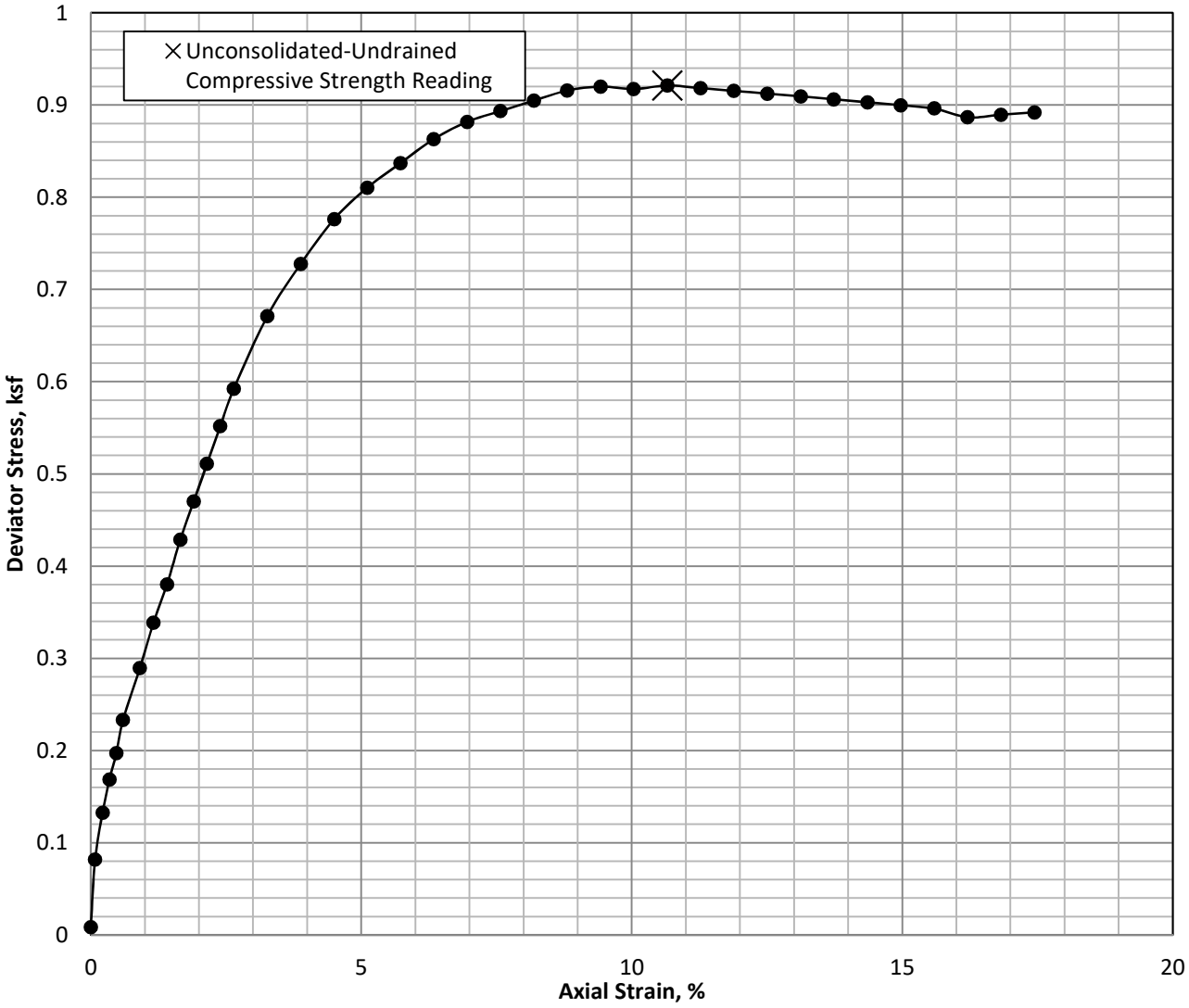
AKRF Engineering, P.C. **Project # PW77GOWAN**	**First Street Turning Basin**	**UNCONSOLIDATED-UNDRAINED COMPRESSION TEST**
TerraSense, LLC **Project # 8089-17007**		**Boring: MR-10A Sample: 9U** **Section: B Depth: 31.1 ft.**

Initial

After Shear

AKRF Engineering, P.C.	**First Street Turning Basin**	**PHOTOS OF UNCONSOLIDATED UNDRAINED (UU) COMPRESSION TESTING**
TerraSense, LLC **Project # 8089-17007**		**Boring: MR-10A Sample: 9U** **Depth: 31.1 ft.**

UNCONSOLIDATED-UNDRAINED COMPRESSIVE STRENGTH TEST, ASTM METHOD D2850



Specimen and Material Property Information

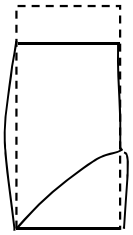
Sample Type: Intact tube sample

Description and/or Classification: OH, black organic clay trace shells and wood chips

Cell Pressure (ksf)	Water [1] Content (%)	Wet Unit Weight (pcf)	Dry Unit [1] Weight (pcf)	Void Ratio (-)	Saturation [2] (%)	Length (inch)	Diameter (inch)	L/D (-)	LL/ PL (-)	PI (-)	Specific [2] Gravity (-)
0 (Initial)	61.7	92.2	57.0	1.35	97.9	6.018	2.842	2.1	80	44	2.15
1.9	61.7	93.0	57.6	1.33	99.5	5.999	2.833	2.1	36		

Failure Summary

U-U Compressive Strength (ksf)	U-U Shear Strength, s_u (ksf)	Strain to Peak (%)	Strain Rate (%/min)
0.92	0.46	10.7	0.74



FAILURE SKETCH

Remarks and Notes:

(1) Water Content determined after shear from partial specimen.

(2) Assumed specific gravity

Tested by: BB Reviewed by: GET

Test Date: 10/9/2017 Review Date: 10/26/2017

AKRF Engineering, P.C. **Project # PW77GOWAN**	**First Street Turning Basin**	**UNCONSOLIDATED-UNDRAINED COMPRESSION TEST**
TerraSense, LLC **Project # 8089-17007**		**Boring: MR-10A Sample: 9U** **Section: C Depth: 31.65 ft.**

Initial

After Shear

AKRF Engineering, P.C.	**First Street Turning Basin**	**PHOTOS OF UNCONSOLIDATED UNDRAINED (UU) COMPRESSION TESTING**
TerraSense, LLC **Project # 8089-17007**		**Boring: MR-10A Sample: 9U** **Depth: 31.65 ft.**

APPENDIX E

Monitoring Wells [3]		MR-6P			MW- 3S			MW-3D			MW-4S [1]		
		Casing Elev.		13.4	Casing Elev.		14.9	Casing Elev.		15.0	Casing Elev.		13.4
Tide	Date	Depth to water below top of casing (ft)	Water Elev.	Time	Depth to water below top of casing (ft)	Water Elev.	Time	Depth to water below top of casing (ft)	Water Elev.	Time	Depth to water below top of casing (ft)	Water Elev.	Time
High	9/18/2017	10.7	2.67	710	12.2	2.7	710	12.3	2.7	713	10.4	3.0	720
Mid	9/18/2017	10.9	2.52	955	12.7	2.2	958	12.4	2.6	959	11.8	1.6	1001
Mid	9/19/2017	10.7	2.69	1056	12.2	2.7	1058	12.2	2.8	1058	11.2	2.2	1102
Low	9/19/2017	11.1	2.32	1359	14.3	0.6	1356	12.8	2.3	1357	13.9	-0.5	1403
High	9/20/2017	11.6	1.79	913	11.1	3.8	916	11.9	3.1	917	9.5	3.8	922
Low	9/20/2017	11.0	2.39	1455	14.4	0.5	1451	12.8	2.2	14.53	14.0	-0.6	1457
Mid	9/21/2017	11.0	2.37	1452	14.2	0.7	1446	12.8	2.2	1448	13.4	0.0	1454
Mid	9/22/2017	10.9	2.53	635	15.1	-0.3	626	12.9	2.1	627	13.2	0.2	629
Mid	9/22/2017	10.9	2.47	1840	15.1	-0.2	1826	13.0	2.0	1827	13.8	-0.4	1831

Monitoring Wells [3]		MW-5S			MW-5D			MW-27S			MW-27I		
		Casing Elev.		14.0	Casing Elev.		14.0	Casing Elev.		17.4	Casing Elev.		17.5
Tide	Date	Depth to water below top of casing (ft)	Water Elev.	Time	Depth to water below top of casing (ft)	Water Elev.	Time	Depth to water below top of casing (ft)	Water Elev.	Time	Depth to water below top of casing (ft)	Water Elev.	Time
High	9/18/2017	10.8	3.3	726	11.2	2.8	727	14.3	3.1	722	14.3	3.2	723
Mid	9/18/2017	12.8	1.2	1005	11.5	2.5	1006	15.9	1.6	1002	15.6	1.9	1003
Mid	9/19/2017	11.2	2.8	1107	11.2	2.8	1108	15.1	2.4	1104	15.1	2.4	1105
Low	9/19/2017	14.4	-0.4	1408	11.8	2.2	1409	17.9	-0.5	1405	17.1	0.4	1406
High	9/20/2017	10.0	4.0	929	12.0	2.0	930	13.2	4.2	925	13.4	4.1	927
Low	9/20/2017	14.4	-0.4	1503	11.9	2.1	1504	18.0	-0.6	1500	17.3	0.2	1501
Mid	9/21/2017	14.4	-0.3	1457	11.8	2.2	1458						
Mid	9/22/2017	13.5	0.5	632	11.6	2.4	631						
Mid	9/22/2017	14.1	-0.1	1835	11.7	2.3	1836						

Note:
1. MW-4D was not monitored due to elevated PID readings from casing.
2. Depth below ground surface (bgs).
3. Refer to Appendix E for Monitoring Well Construction Logs and Borings

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/7/17

SOIL BORING LOG

Soil Boring ID: SB-1

SHEET 1 OF 1

BORING LOCATION: 40.6765809°; -073.9877102°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION:

MEASURING POINT ELEVATION: N/A

START DATE: 8/7/17

DRILLING CO.: TWS

FINISH DATE: 8/7/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling.
5	5-7	3	0.0		Fill: Gray, poorly graded fine to medium sand with gravel and construction and demolition debris, no staining or odors.
	7-8				Fill: Tan and black poorly graded fine to medium sand and gravel with glass, no staining or odors.
10	8-10				Fill: Black ash, construction and demolition debris, no staining or odors.
	10-12	1.5	0.0		Fill: Dark gray poorly graded fine to medium sand and silt with wood, no staining or odors.
	12-13		4.3		
	13-14	4.5	18.3		Fill: Concrete, wood, and debris with staining and heavy petroleum odors. Wet at 13 feet below grade surface.
15	14-15		79.8		Fill: Black, poorly graded fine to coarse sand and silt with gravel and debris.
	15-16		80.3		
	16-17		11.2		Fill: Brown and gray poorly graded fine to coarse sand and silt with gravel and debris, petroleum odor and staining.
18	17-18		35.8		Fill: Gray brown poorly graded fine to coarse sand and gravel with wood, heavy petroleum odor and non-aqueous phase liquid present.
					End of Boring at 18 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material
PT	Peat, Humus, Swamp Soils with High Organic Contents

Notes: Composite samples collected from SB-1: (0'-10'); (10'-18'). Grab samples collected from SB-1: (9.5'-10'); (14'-14.5').

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/8/17

SOIL BORING LOG

Soil Boring ID: SB-2

SHEET 1 OF 1

BORING LOCATION: 40.6769160° -073.9882869°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION: N/A

MEASURING POINT ELEVATION: N/A

START DATE: 8/8/17

DRILLING CO.: TWS

FINISH DATE: 8/8/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10	2.5	0		Fill: Brown to gray poorly sorted fine to medium sand and silt with construction and demolition debris, no odors or staining.
10	10-11	1	1.8		Fill: Brown/Black construction and demolition debris with silt and wood, chemical odor, no staining. Wet at 11 feet below grade surface.
	11-12	4.5	3.6		
	12-13		4.5		
	13-14		59.8		Fill: Black wood with fine sand and silt, chemical odor, no staining.
15	14-15		10.3		
	15-16		8.3		
	16-20		N/A		No Recovery
20	20-20.5	5	21.3		OL: Black clay with trace organics, chemical odor, no staining.
	20.5-21		11.6		GW: Black well graded coarse sand with gravel, chemical odor, no staining.
	21-22		186		OL: Black clay with trace organics, chemical odor and staining.
	22-23		205		
	23-24		287		
25	24-25		187		
	25-26.5		119		
	26.5-27	3	143		OL: Black poorly graded fine to coarse sand with gravel and silt, heavy petroleum odor and staining.
	27-28		81.3		GM: Gray poorly graded fine to coarse sand and gravel with silt, heavy petroleum odor and staining, non-aqueous phase liquid present.
	28-29	4.5	80.6		
30	29-30		60.2		
	30-31		25.4		GM: Gray poorly graded fine to coarse sand and gravel with silt, heavy petroleum odor and staining.
	31-32		7.0		
	32-33		3.2		
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-2: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-2: (7.5'-8'); (13.5'-14'); (23'-23.5').

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/8/17

SOIL BORING LOG

Soil Boring ID: SB-3

SHEET 1 OF 1

BORING LOCATION: 40.6766820° -073.9879056°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION: N/A

MEASURING POINT ELEVATION: N/A

START DATE: 8/8/17

DRILLING CO.: TWS

FINISH DATE: 8/8/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0		Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10		N/A		No Recovery.
10	10-13	5	0.0		Fill: Construction and demolition debris (crushed brick), no odors or staining.
	13-15				Fill: Construction and demolition debris (crushed gray concrete), no odors or staining.
15	15-18	2.5	4.3		Fill: Construction and demolition debris (crushed brick), no odors or staining.
	18-20		5.7		Fill: Construction and demolition debris (crushed gray concrete), no odors or staining, wet at 18 feet below grade surface.
20	20-21	3	2.3		Fill: Black clay with organics and glass, chemical odor, no staining.
	21-22		35.7		
	22-23		29.6		
	23-23.5	5	80.7		GW: Black well graded coarse sand with gravel, chemical odor, no staining.
	23.5-24		53.6		OL: Black, low plasticity clay with wood and organics, heavy petroleum odor and staining.
25	24-25		35.8		
	25-26		24.3		
	26-27		25.8		
	27-28		14.6		
	28-29	5	18.8		OH: Black medium plasticity clay, heavy petroleum odor and staining, non-aqueous phase liquid present.
30	29-30		11.7		
	30-31		8.2		
	31-32		2.4		GM: Gray poorly graded fine to medium sand with silt and gravel, heavy petroleum odor and staining.
	32-33		2.2		GM: Gray poorly graded fine to medium sand with silt and gravel, heavy petroleum odor and staining.
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-3: (10'-20'); (20'-33'). Grab samples collected from SB-3: (18'-18.5'); (23'-23.5'). Soil boring SB-3 completed as MW-3D and MW-3S. MW-3S was unable to be utilized as a monitoring well due to collapse of the screen. MW-3S was re-drilled approximately 3 feet east of MW-3D.

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/18/17

SOIL BORING LOG

Soil Boring ID: SB-3/MW-3S

SHEET 1 OF 1

BORING LOCATION: 40.6766693° -073.9879169°	**LOGGED BY:** Dan Prisco-Buxbaum, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/18/17	**DRILLING CO.:** TWS
FINISH DATE: 8/18/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5	3	0.7		Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no staining.
5	5-6	0.5	0.6		Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no staining.
	6-7	0.5	0.5		
	7-8	0.5	0.6		
	8-9	0.5	0.8		
10	9-10	0.5	0.5		
	10-15	3	0.4		Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no staining.
15					
	15-20	1	0.5		SM: Gray/brown sandy silt with construction and demolition debris, chemical odors, no staining. Wet at 16 feet below grade surface.
20					End of boring at 20 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite sample collected from SB-3: (0'-10'). Grab sample collected from SB-3: (8.5'-9'). Soil boring SB-3 completed as MW-3S.

	PROJECT: PW77GOWAN **LOCATION:** First-Street Turning Basin **DATE:** 8/09/17	**SOIL BORING LOG** **Soil Boring ID:** SB-4 **SHEET** 1 **OF** 1

BORING LOCATION: 40.6770076° -073.9885535°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/09/17	**DRILLING CO.:** TWS
FINISH DATE: 8/09/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5			N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5					
	5-7	3.5	0.0		Fill: Brown poorly graded fine to coarse sand with silt and construction and demolition debris, no odors or staining.
	7-8				Fill: Construction and demolition debris (crushed brick), no odors or staining.
10	8-10				Fill: Brown poorly graded fine-coarse sand with gravel with construction and demolition debris, (crushed concrete), no odors or staining.
	10-11	4.5	1.4		Fill: Brown poorly graded fine to coarse sand and gravel with construction and demolition debris (brick), no odors or staining.
	11-14		0.0		Fill: Brown poorly graded fine to coarse sand with silt, no odors or staining.
15	14-15				Fill: Construction and demolition debris (crushed concrete with wood), no odors or staining.
	15-16	5	1.8		Fill: Brown poorly graded fine to coarse sand with silt and wood, no odors or staining. Wet at 15 feet below grade surface.
	16-17		6.8		
	17-18		13.4		Fill: Gray clay and fine sand and crushed rock, no odors or staining.
	18-19		2.4		
20	19-20		206.3		Fill: Construction and demolition debris (wood) with chemical odor and staining.
	20-21	4.5	36.2		Fill: Construction and demolition debris (bricks).
	21-22		103.7		
	22-23		55.4		GC: Black poorly graded fine to coarse sand silt, chemical odor and staining.
	23-24		78.6		GC: Black poorly graded fine to medium sand with gravel, petroleum odor and staining, non-aqueous phase liquid present.
25	24-25		192.7		
	25-26	3	204.3		OH: Black low plasticity clay with organics, chemical odor and staining.
	26-27		190.6		
	27-28		76.8		
	28-29	5	45.6		GC: Black poorly graded fine to coarse sands with clay, chemical odor and staining, non-aqueous phase liquid present.
30	29-30		47.7		
	30-31		34.3		OH: Gray high plasticity clay, chemical odor and staining, non-aqueous phase liquid present.
	31-32		76.8		SP: Gray poorly graded fine to medium sands, chemical odor and staining, non-aqueous phase liquid present.
	32-33		19.4		
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
	GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
	GM	Silty Gravels, Gravel - Sand - Silt Mixtures
	GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
	SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
	SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
	SM	Silty Sands, Sand - Silt Mixtures
	SC	Clayey Sands, Sand - Clay Mixtures
	ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
	CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
	OL	Organic Silts and Organic Silty Clays of Low Plasticity
	MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
	CH	Inorganic class of High Plasticity
	OH	Organic Clays of Medium to High Plasticity, Organic Silts
	PT	Peat, Humus, Swamp Soils with High Organic Contents
	FILL	Fill Material

Notes: Composite samples collected from SB-4: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-4: (5.5'-6'); (19.5'-20'); (25.5'-26'). Soil boring SB-3 as MW-4S and MW-4D.

	PROJECT: PW77GOWAN **LOCATION:** First-Street Turning Basin **DATE:** 8/10/17	**SOIL BORING LOG** **Soil Boring ID:** SB-5 **SHEET** 1 **OF** 1

BORING LOCATION: 40.6772239° -073.9888338°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION:	**MEASURING POINT ELEVATION:**
START DATE: 8/10/17	**DRILLING CO.:** TWS
FINISH DATE: 8/10/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10	2	0.0		Fill: Brown poorly graded fine to medium sand with silt, construction and demolition debris and trash, no odors or staining.
10	10-11	4	0.0		Fill: Brown poorly graded fine to medium sand with silt, construction and demolition debris and trash, no odors or staining. Wet at 11 feet below grade surface.
	11-13				
	13-15				Fill: Brown/gray poorly sorted fine to medium sand with silt, gravel and construction and demolition debris (brick), no odors or staining.
15	15-16	5	4.5		Fill: Black silt with fine sand, and organics (plant matter), sheen noted on groundwater, organic odor.
	16-17		9.6		
	17-18		29.6		Fill: Black silty low plasticity clay, chemical odor and staining.
	18-19		113.6		
20	19-20		38.5		
	20-21	5	84.6		
	21-22		46.5		
	22-23		73.6		Fill: Black silty clay with poorly graded fine to medium sand, chemical odor and staining.
	23-24		86.5		
25	24-25		58.3		
	25-26	3	13.8		Fill: Black silt with poorly graded fine to coarse sand, sheen noted on groundwater and chemical odor.
	26-27		9.6		Fill: Black poorly graded fine to coarse sand with silt, gravel and C&D (brick).
	27-28		6.7		
	28-29	N/A	N/A		No recovery from 28-33 feet below grade surface.
30	30-31				
	31-32				
	32-33				
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-5: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-5: (7.5'-8'); (18.5'-19'); (23'-23.5'). Soil boring SB-5 as MW-5S and MW-5D.

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/11/17

SOIL BORING LOG

Soil Boring ID: SB-6

SHEET 1 **OF** 1

BORING LOCATION: 40.6772117° -073.9888628°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/11/17	**DRILLING CO.:** TWS
FINISH DATE: 8/11/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT.)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10		0.0	N/A	No Recovery.
10	10-11	5	0.0		Fill: Brown poorly graded fine to medium sand with gravel, no odor or staining.
	11-12				
	12-13		7.8		Fill: Brown/black poorly graded fine to medium sands with silt, sheen noted on groundwater, no odors. Wet at 13 feet below grade surface.
	13-14		20.8		Fill: Black poorly graded fine to coarse sand with silt, no odors or staining.
15	14-15		31.6		Fill: Black construction and demolition debris (trash/wood), no odors or staining.
	15-16	2	56.8		
	16-17		84.0		Fill: Black silty high plasticity clay, no odors or staining.
18	17-18		104.0		Fill: Black silt with construction and demolition debris (wood/debris), no odors or staining.
					End of boring at 18 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-6: (10'-18'). Grab samples collected from SB-6: (17.5'-18').

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/18/17

SOIL BORING LOG

Soil Boring ID: SB-7

SHEET 1 OF 1

BORING LOCATION: 40.6771292° -073.9888345°	**LOGGED BY:** Dan Prisco-Buxbaum, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/18/17	**DRILLING CO.:** TWS
FINISH DATE: 8/18/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5	3	0.3		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris, no odors or staining.
5	5-6	0.5	9.6		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odor, no staining.
	6-7	0.5	10.8		
	7-8	0.5	94.8		
	8-9	0.5	81.2		
10	9-10	0.5	76.4		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris (wood), chemical odor, no staining.
	10-11	3	70.3		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odor, no staining.
	11-12		62.4		
	12-13		19.5		Fill: Gray/black poorly sorted sand with silt, cobbles and construction and demolition debris (wood), chemical odor, no staining. Wet at 12 feet below grade surface.
	13-14		32.5		
15	14-15		29.3		
	15-33		N/A		No recovery from 15 to 33 feet below grade surface.
33					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite sample collected from SB-7: (0'-10'); (10'-15'). Grab sample collected from SB-7: (7.5'-8'); (11'-11.5'). SB-7 was re-drilled after hitting refusal atapproximately 12 feet below grade surface.

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/14/17

SOIL BORING LOG

Soil Boring ID: SB-8

SHEET 1 OF 1

BORING LOCATION: 40.6768319° -073.9880485°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION: N/A

MEASURING POINT ELEVATION: N/A

START DATE: 8/14/17

DRILLING CO.: TWS

FINISH DATE: 8/14/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

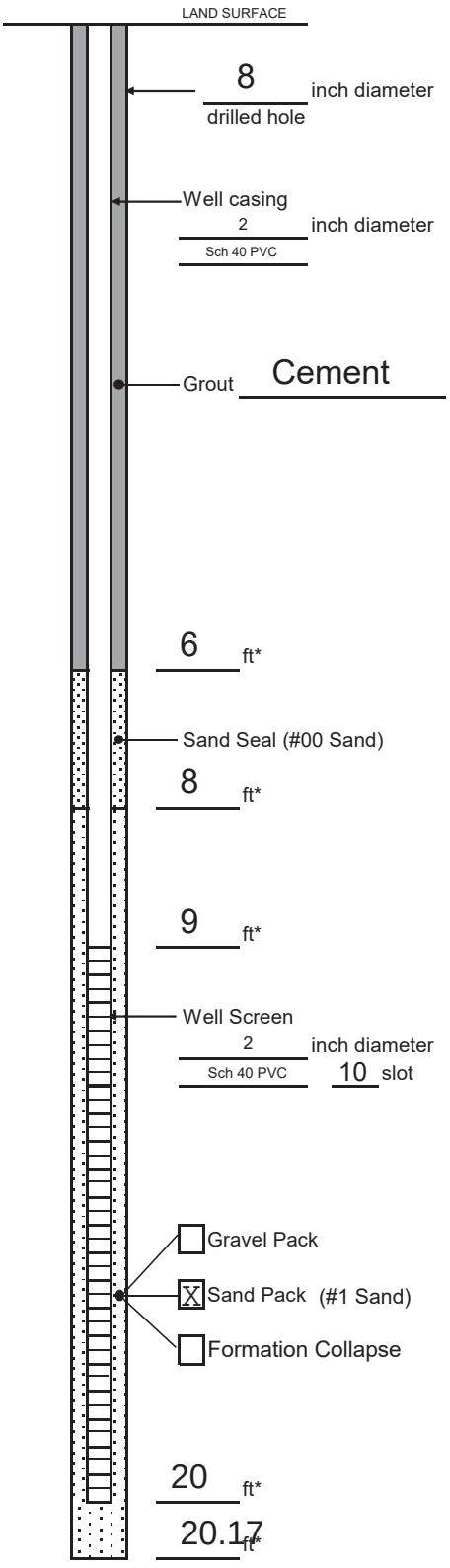
DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT.)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		N/A	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odor or staining.
5	5-10	4	0.0		Fill: Brown poorly sorted fine to medium sand and silt with construction and demolition debris (bricks), no odor or staining.
10	10-12	4	5.0		Fill: Red construction and demolition debris (crushed brick) with poorly sorted fine to medium sand, silt and clay, no odor or staining. Wet at 11 feet below garade surface.
	12-13		7.8		
	13-14		12.9		Fill: Black/gray construction and demolition debris (concrete) with poorly sorted fine to medium sand and silt, petroleum odor, no staining.
15	14-15		14.8		
	15-16	3	10.2		
	16-17		0.4		Fill: Red/brown poorly graded fine to medium sand with silt and construction and demolition debris, no odor or staining.
18	17-18		0.0		
					End of boring at 18 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-8: (0'-10'); (10'-18'). Grab samples collected from SB-8: (7.5'-8'); (12.5'-13').

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-3S

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 15.2 feet ☑ Surveyed

Measuring Point: 14.87 feet ☐ Estimated

Installation Date(s): August 18, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 28, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 16.43 feet below M.P.

Water Removed During Development: 40 gallons

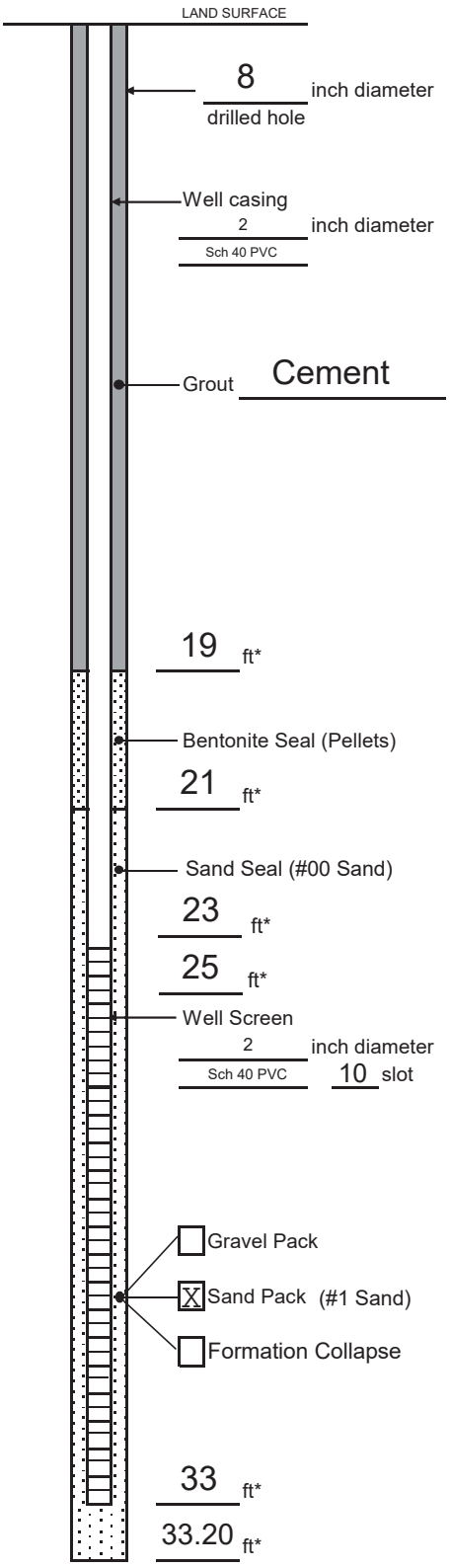
Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-3S was installed as a cluster well, alongside MW-3D in an 8-inch diameter borehole. The original MW-3S was installed on 8/9/17, but the screen was damaged so MW-3S was re-drilled adjacent to MW-3D on 8/18/17.

Prepared by: D. Prisco-Buxbaum, Preferred Environmental Services

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-3D

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 15.31 feet ☑ Surveyed

Measuring Point: 15.01 feet ☐ Estimated

Installation Date(s): August 9, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 11, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 12.71 feet below M.P.

Water Removed During Development: 15 gallons

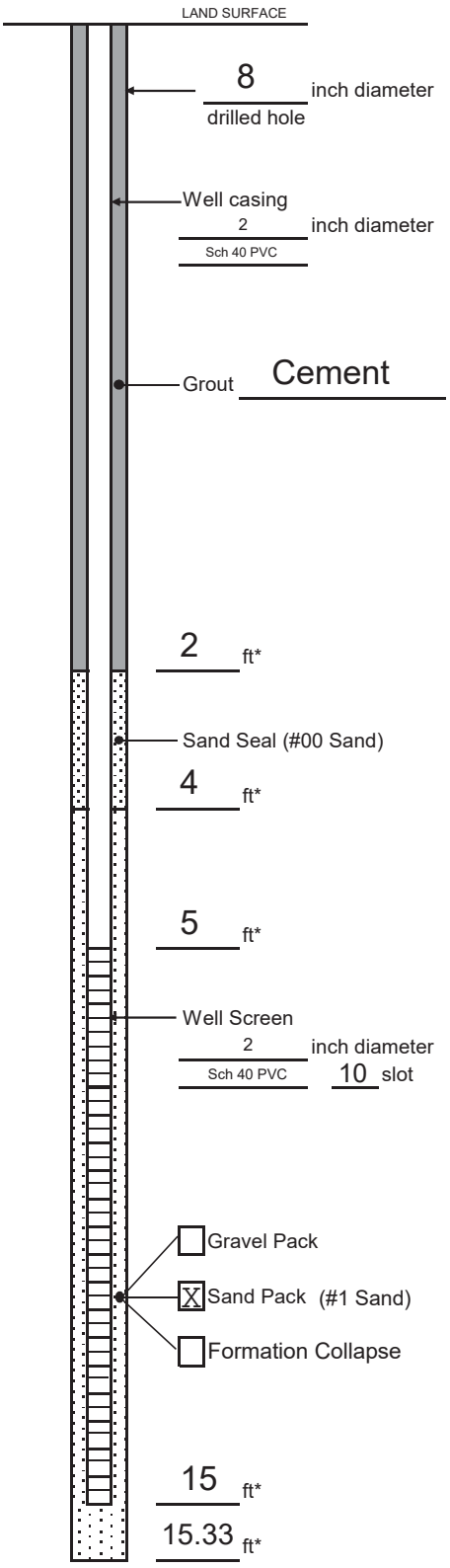
Pumping Duration: 0.83 hours

Well Purpose: Monitoring Well

Remarks: MW-3D was installed as a cluster well, alongside MW-3S in an 8-inch diameter borehole. The original MW-3S was installed on 8/9/17, but the screen was damaged so MW-3S was re-drilled adjacent to MW-3D on 8/18/17.

Prepared by: B. Comey, Preferred Environmental Services

WELL CONSTRUCTION LOG



Project: First Street Turning Basin Well: MW-4S

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 13.84 feet ☑ Surveyed

Measuring Point: 13.38 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 11, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 11.69 feet below M.P.

Water Removed During Development: 12 gallons

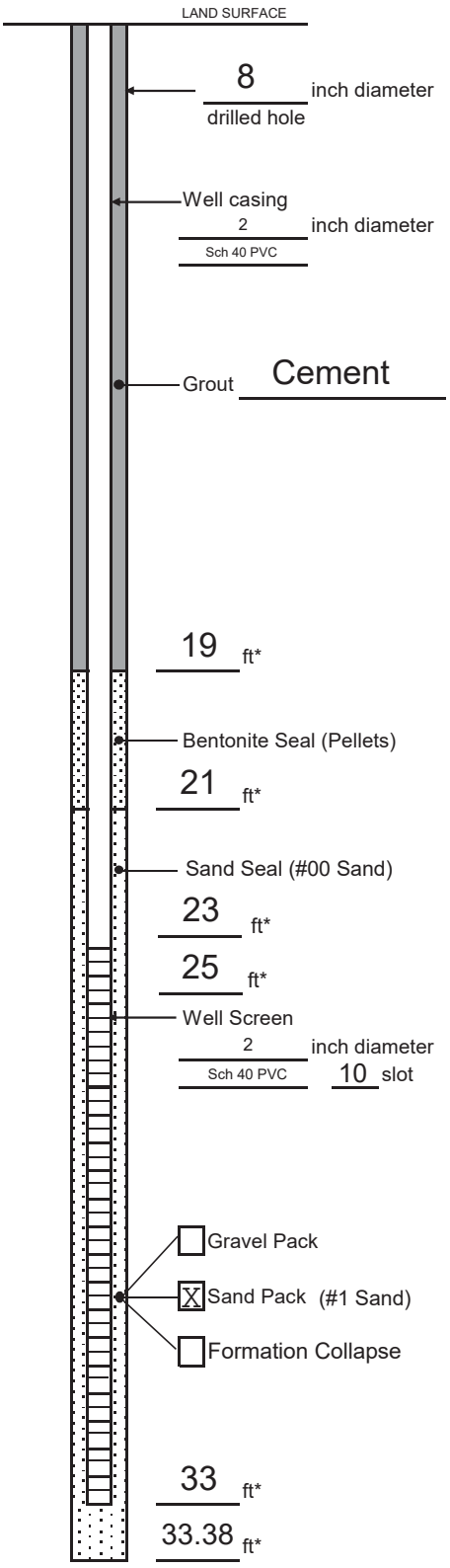
Pumping Duration: 0.83 hours

Well Purpose: Monitoring Well

Remarks: MW-4S was installed as a cluster well alongside MW-4D in an 8-inch diameter borehole.

Prepared by: D. Prisco-Buxbaum, Preferred Environmental Services

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-4D

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 13.84 feet ☑ Surveyed

Measuring Point: 13.38 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 11, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 11.54 feet below M.P.

Water Removed During Development: 20 gallons

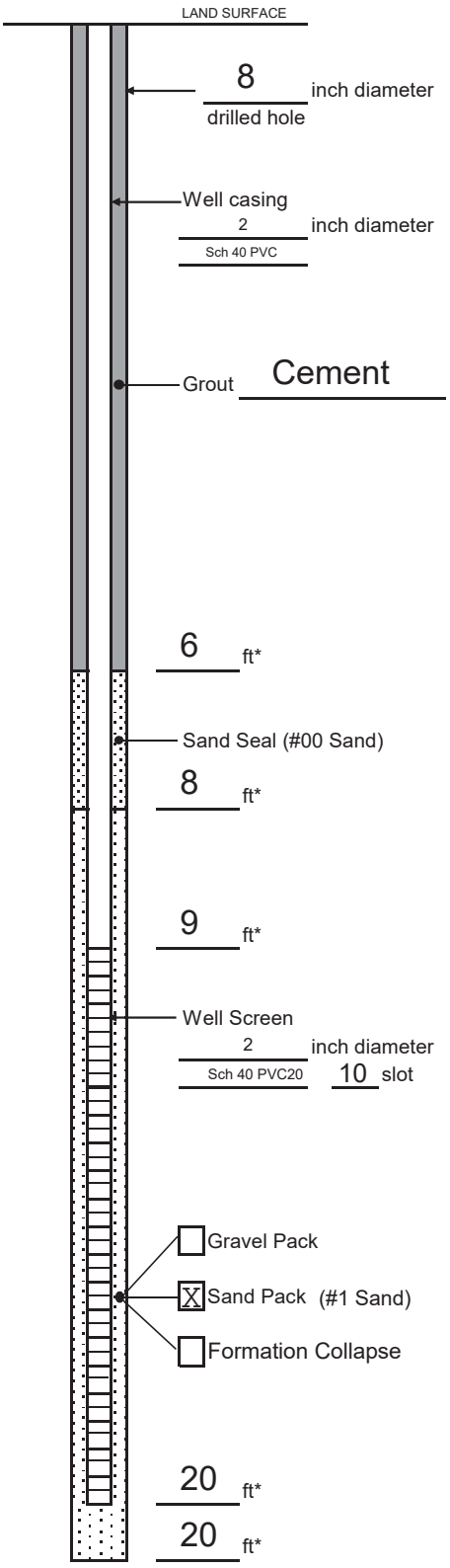
Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-4D was installed as a cluster well alongside MW-4S in an 8-inch diameter borehole.

Prepared by: B. Comey, Preferred Environmental Services

WELL CONSTRUCTION LOG



Project: First Street Turning Basin Well: MW-5S

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 10.75 feet ☑ Surveyed

Measuring Point: 14.01 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 17, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 11.98 feet below M.P.

Water Removed During Development: 12 gallons

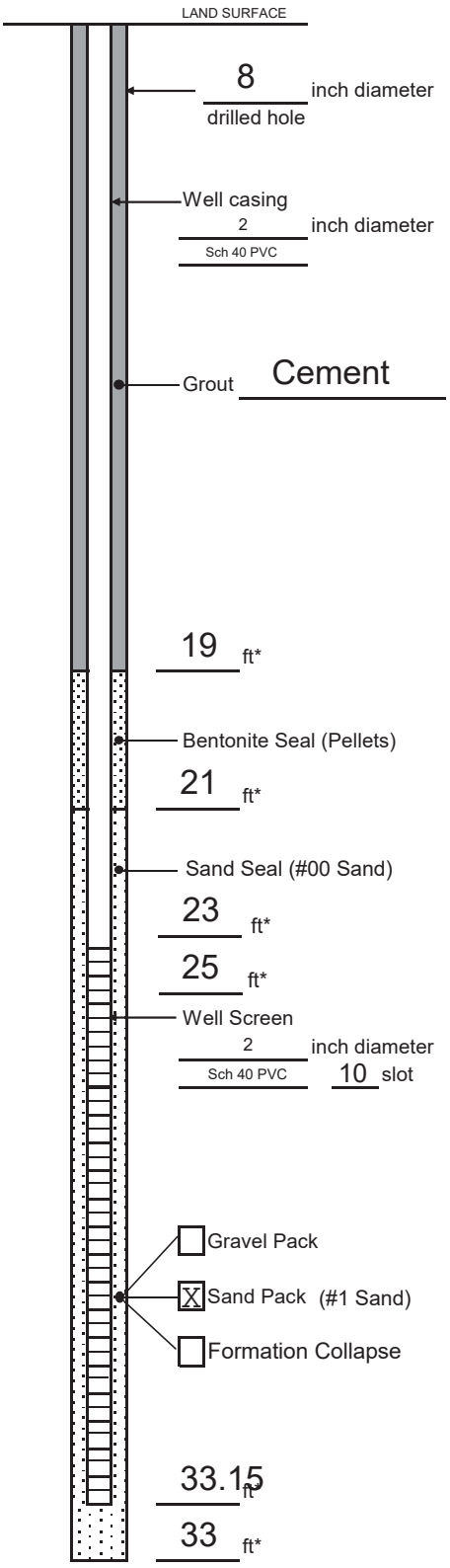
Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-5S was installed as a cluster well alongside MW-5D in an 8-inch diameter borehole.

Prepared by: B. Comey, Preferred Environmental Services

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-5D

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 10.75 feet ☑ Surveyed

Measuring Point: 14.01 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 17, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 9.02 feet below M.P.

Water Removed During Development: 16 gallons

Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-5D was installed as a cluster well, alongside MW-5S in an 8-inch diameter borehole.

Prepared by: B. Comey, Preferred Environmental Services

APPENDIX B.2

ENVIRONMENTAL SAMPLING AND ANALYSIS SUMMARY REPORT

Environmental Sampling and Analysis 30% Field Activity Summary Report

Excavation and Capping of the Filled First Street Turning Basin, Gowanus Canal

Borough of Brooklyn, New York

Project ID: PW77GOWAN
Contract No. HWDRCW02

Prepared for:

NYC DDC Department of Design and Construction

Submitted by:

AKRF | KSE
The AKRF-KSE JV

NOVEMBER 2017

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

List of Acronyms	
AES	Associated Environmental Services, Ltd
AQTESOLV	AQuifer TEst SOLVer
AWQS	Ambient Water Quality Standards and Guidance Values
BRT	Brooklyn Rapid Transit
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm/sec	centimeters per second
COC	chain of custody
DOT	Department of Transportation
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
GRO	gasoline range organics
HASP	Health and Safety Plan
LNAPL	light non-aqueous phase liquid
MDL	method detection limit
NAPL	non-aqueous phase liquid
NAVD	North American Vertical Datum of 1988
NJDEP	New Jersey Department of Environmental Protection
NOAA	National Oceanic and Atmospheric Administration
NPL	National Priorities List
NTU	nephelometric turbidity units
NYC	New York City
NYCDDC	New York City Department of Design and Construction
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
ORP	oxidation-reduction potential
PCB	polychlorinated biphenyls
PID	photoionization detector
PPM	parts per million
PVC	polyvinyl chloride
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RCU	Restricted-Commercial Use
RI	Remedial Investigation
ROD	Record of Decision
SCC	Soil Cleanup Criteria
SCO	Soil Cleanup Objectives
SOP	standard operating procedure
SRS	Soil Remediation Standards
SVOC	semi-volatile organic compounds
TAL	target analyte list
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TIC	tentatively identified compounds
TPH	total petroleum hydrocarbons
TWS	TWS Environmental, LLC
VOC	volatile organic compounds

1.0 INTRODUCTION

This report summarizes field observations and data obtained from the implementation of the 30% Field Activity Plan for Environmental Sampling and Analysis for the Excavation & Capping of the Filled First Street Turning Basin, Gowanus Canal, Borough of Brooklyn, New York (Site) prepared by AKRF Engineering, P.C./KS Engineers, P.C. Joint Venture [AKRF/KSE-JV] in June 2017 and approved by the United States Environmental Protection Agency (EPA). The 30% Field Activities Plan was implemented between July 21, 2017 and September 13, 2017.

2.0 PROJECT BACKGROUND

According to the 2012 *Excavation of Filled First Street Turning Basin Gowanus Canal, Brooklyn, New York* prepared by CH2MHILL for the EPA, the former First Street Turning Basin was originally utilized to deliver coal via barges to the former Brooklyn Rapid Transit (BRT) Power House located adjacent to the south. The Power House complex was built in 1902 for the BRT, which operated various rail and streetcar lines in Brooklyn. BRT was later incorporated into the New York City's (NYC's) Transit system in 1940. The Power House consumed large quantities of coal. During its operating era, large coal piles surrounded the building. On the canal bank were a coal elevator and a cement coal pit, linked by tracks.

The Power House's generating equipment underwent various modifications during its operation until the plant became obsolete and was removed from service. The 2012 CH2MHILL report indicated that based on aerial photographs, the First Street Turning Basin was filled between 1954 and 1966. By 1969, the 125-foot-tall smokestack and dynamo sections of the Power House had been demolished and the remaining section of the Power House was the only part of the complex still standing.

The Gowanus Canal, including the former First Street Turning Basin, was placed on the National Priorities List (NPL) pursuant to Section 105 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) on March 2, 2010. In April 2010, the EPA entered into separate administrative consent orders with various parties to perform work in support of the EPA's remedial investigation/feasibility study (RI/FS). A FS Report was completed by the EPA (2011), and a FS Addendum Report was issued by the EPA in December 2012, which together describe the remedial alternatives considered to address the contamination in the Gowanus Canal and identify the preferred remedy with the rationale for such preference. Analytical data obtained during the RI in the former First Street Turning Basin showed the existence of contamination in soil and groundwater above cleanup standards. Contaminated sediments within the First Street Turning Basin were left in place when the basin was filled. In addition, the Record of Decision (ROD) issued by the EPA on September 27, 2013 states that the fill itself may have included waste materials and/or the filled-in basin may have been subject to later spills and dumping.

The preferred remedy consists of excavation and restoration of the former First Street Turning Basin and was outlined in the ROD issued by the EPA under CERCLA for the Gowanus Canal Superfund Site (EPA 2013). The Administrative Order for Remedial Design Order, issued by EPA on May 28, 2014 to the City of New York, included a Statement of Work further defining the preferred remedy and remedial actions (EPA 2014).

On behalf of the New York City Department of Design and Construction (NYCDDC), AKRF/KSE-JV prepared the scope of work for the Environmental Sampling and Analysis 30% Field Activity Plan. The objectives of the scope of work were to characterize the fill material for preliminary waste classification purposes and evaluate groundwater conditions for future dewatering design purposes for implementation of the preferred remedy.

2.1 Description of Surrounding Properties

The First Street Turning Basin Site is located within a densely commercial/industrial and residential portion of the Borough of Brooklyn, New York (Figure 1). The immediate adjoining property uses are as follows:

North: Multi-tenant industrial building including Alex Figliolia Water & Sewer, LLC at 420 Carrol Street; a Food Truck facility with parking lot at 430 Carrol Street; a contractor's parking lot at 444 Carrol Street, which also provides access to the Site from Carrol Street; and Extra Space Storage Facility located at 312 3rd Avenue.

South: The Former BRT Power House is currently in the process of a remedial effort; and the Cube Smart Storage Facility.

East: 3rd Avenue followed by multi-use buildings with 1st floor retail with residential apartments above, as well as the Consolidated Edison Facility at 323 3rd Avenue.

West: The Gowanus Canal, followed by a multi-story residential apartment building along Bond Street and several commercial and industrial properties.

2.2 Proposed Construction Plan

As stated in the ROD, the selected remedy for the former First Street Turning Basin is excavation and restoration of approximately 475 linear feet of the filled-in former First Street Turning Basin. Excavation and restoration activities will be completed in coordination with the broader Gowanus Canal remediation.

Excavation of material in this area will remove contaminants, thereby reducing the risk of recontamination to the Gowanus Canal, but also necessary for the implementation of the sediment remedies and future maintenance of the remedy and Gowanus Canal infrastructure. Restoration will mitigate the loss of surface water area as a result of new bulkhead encroachment into the Gowanus Canal. The remedial work will conform to the prevailing NYC construction requirements.

The presumptive depth of excavation from the filled-in First Street Turning Basin will be to native sediment at an elevation of approximately -18 feet [North American Vertical Datum of 1988 (NAVD 88)] along the western edge bordering the Gowanus Canal. Such excavation activities will require the definition of excavation limits and extents and the appropriate excavation means and methods, the determination of the need for and selection of necessary excavation support systems, and the appropriate water and materials handling methods. Final excavation limits and depths within the First Street Turning Basin, will be based on 30% Field Activity data and determined in coordination with the EPA and the ongoing remediation design associated with the Gowanus Canal. Components of the excavation activities will include but not be limited to installation of a support of excavation system, and potential reconstruction of adjoining bulkheads, dewatering and surface water treatment/discharge, partial backfilling, and installation of armoring and habitat materials to protect an underlying cap and promote the establishment of ecological communities.

3.0 FIELD INVESTIGATION

The implementation of the 30% Field Activity Plan consisted of the following:

- Pre-clearing (geophysical survey/soft dig);

- Installation of eight (8) soil borings utilizing a rotosonic drilling rig;
- Collection and laboratory analysis of nineteen (19) soil samples for laboratory analysis;
- Collection of core (soil) samples that contain non-aqueous phase liquid (NAPL);
- Installation and development of three (3) paired groundwater monitoring wells (total of six [6] groundwater monitoring wells);
- Collection and laboratory analysis of groundwater samples from each of the six (6) groundwater monitoring wells;
- Conducting slug testing on each of the six (6) groundwater monitoring wells; and
- Surveying of monitoring well elevations.

A photographic log of the field investigation activities is included as Appendix A. Investigation derived waste was containerized in New York State Department of Transportation (DOT)-approved 55-gallons drums for off-site transportation and disposal.

3.1 Preliminary Activities

On July 20, 2017, AKRF/KSE-JV mobilized to the Site to mark-out soil boring locations prior to mobilizing for the environmental sampling. At this time, the Site was observed to be partially paved at the southern and eastern portions. The eastern and southern portions of the Site were observed to be utilized as an active parking lot for several commercial trucking tenants and other businesses. Vehicles (including several which appeared to be inoperable) were predominantly parked across paved portions of the Site but some were observed along unpaved portions near the eastern boundary.

The westernmost portion contained thick vegetation, several vehicles, and mounds of debris (wood, concrete, steel), which required removal to allow access for vegetation clearing and drilling equipment. A steep change in elevation was observed within the western-central portion of the Site, which needed to be partially re-graded to allow access for drilling equipment. AKRF/KSE-JV contacted the tenant leasing a portion of the Site in order to make arrangements for some of the vehicles to be relocated to allow access. However, as some of the vehicles were unable to be moved/relocated, contingencies (i.e., use of a skid steer to clear access) were required to be implemented to gain access to areas that were blocked by vehicles, concrete blocks, and the change in elevation present at the Site.

3.1.1 Site Clearing

On August 1, 2017, vegetation clearing activities were implemented to gain access to the western and eastern portions of the Site. Associated Environmental Services, Ltd (AES) of Hauppauge, New York personnel removed brush and several small trees located in the western portion of the Site utilizing gas-powered chain saws, machetes, and other hand-held tooling. The brush and small trees were cut and stockpiled along the northern side of the Site. AES utilized a skid steer to remove a concrete barrier block wall and debris located near the eastern end of the Site. During the vegetation clearing, a groundwater monitoring well reportedly associated with a prior EPA investigation was identified in the southern-central portion of the Site.

On August 7, 2017, TWS Environmental, LLC (TWS) of Wilmington, Delaware mobilized a backhoe to re-grade the west-central portion of the Site, where the steep change in elevation was observed to provide a level/stable surface for the drill rig. During the re-grading activities, the backhoe bucket accidentally punctured a heavily corroded

buried 55-gallon drum at approximately two (2) feet below ground surface (bgs). The drum released its contents, which consisted of a black viscus oil. The backhoe was utilized to remove the 55-gallon drum, its contents, and any impacted soil and temporarily place the material in a steel basin. The formerly buried 55-gallon drum and associated contamination were then placed into an overpack drum and new DOT-approved 55-gallon drums for off-site transportation and disposal. The New York State Department of Environmental Conservation (NYSDEC) was notified of the buried drum and the released contents, and Spill Number 17-04632 was assigned. This report will be submitted to NYSDEC to satisfy Spill closure requirements.

3.1.2 Geophysical Survey

On August 2, 2017, On-Point Subsurface Utility Specialists (On-Point) mobilized to the Site to conduct a geophysical survey of the proposed environmental drilling locations as shown on Figure 2. On-point mobilized with ground penetrating radar equipment for the purpose of locating underground utilities or near-surface obstructions/structures that may be present in the vicinity of the proposed drilling locations.

The results of the geophysical survey indicated no subsurface anomalies were present which would prevent drilling activities, with the exception of environmental boring SB-4/MW-4. The aforementioned location was field adjusted nine (9) feet to the north to a location free of any suspect geophysical anomalies.

3.1.3 Soft-digging Activities

From August 3, 2017 to August 21, 2017 (excluding weekends), AES and TWS preformed soft digging activities to pre-clear the drilling locations. AES and TWS utilized air knife/vacuum excavation equipment to remove soils within each of the proposed each drilling locations to a depth of five (5) feet bgs.

3.2 Soil Borings

From August 7, 2017 to August 18, 2017 (excluding weekends), eight (8) soil boring were advanced by TWS utilizing a track-mounted rotosonic drill rig. In accordance with the EPA-approved 30% Field Activity Plan, three (3) soil borings (SB-1, SB-6, and SB-8), located within the proposed wetland shelf of the Site, were advanced to a total depth of 18 feet bgs. The remaining five (5) soil borings (SB-2, SB-3, SB-4, SB-5, and SB-7) were advanced to a total depth of 33 feet bgs.

3.2.1 Field Observations

During drilling activities, AKRF/KSE-JV's geologist field screened soils within these borings for visual and olfactory evidence of environmental impacts, as well as for the presence of volatile organic compounds (VOCs) utilizing a photoionization detector (PID). Descriptions along with PID readings of soils encountered within each of the eight (8) environmental soil borings were recorded and are presented within the soil boring logs included in Appendix B**.**

Soil within all borings was observed to consist of fill material (construction and demolition debris, wood, trash, glass, ash etc.) to a depth ranging from the surface to approximately 20 feet bgs to 28 feet bgs. Below the fill material, native soils were observed and consisted of black-to-gray, fine-to-coarse poorly sorted sands with silt, and gravel. Gray clays of varying plasticity were encountered only in the five (5) deeper (33-foot bgs) soil borings. Due to the lack of soil recovery in the shallow boring interval (0 to 18 feet) at the SB-3/MW-3 location, potentially due to construction debris, a second

boring (SB-3/MW-3S) was advanced for the purpose of screening the shallow soils within this location. No soil recovery was achieved from the shallow interval (1 to 10 feet bgs) in SB-6, and the deeper intervals (28 to 33 feet bgs) in SB-5 and (15 to 33 feet bgs) in SB-7. This may also be associated with the presence of construction debris.

Groundwater was encountered within each of the soil borings ranging in depth from 11 feet bgs to 20 feet bgs with variations due to the ground surface elevation of the borings, as well as tidal influence.

Field evidence of environmental impacts were noted in soils within each of the eight (8) soil borings starting from as shallow as 5 feet bgs and extending to the terminal depth of the borings (18 or 33 feet bgs). Field evidence of environmental impacts consisting of staining, chemical, and/or petroleum odors and/or elevated PID readings up to 287 parts per million (ppm) were noted within the soil within these depth intervals. Evidence of NAPL (e.g., free product, globules, or staining) was encountered within soil borings SB-1 (17 to 18 feet bgs), SB-2 (27 to 30 feet bgs), SB-3 (28 to 31 feet bgs), and SB-4 (23 to 25 feet bgs and 28 to 31 feet bgs). The distribution of NAPL observed with the soils is shown in plan view on Figure 3, and in a cross section on Figure 4.

3.2.2 Soil Sampling

Soil samples were collected from the approximate intervals of 0 to 10 feet bgs, 10 to 20 feet bgs, and 20 to 33 feet bgs for the deeper borings and from 0 to 10 feet bgs and 10 to 18 feet bgs for the shallower borings for laboratory analysis. From each of the intervals, individual grab samples were field screened. Nineteen (19) of the twenty-one (21) soil samples (grab and composite) proposed in the 30% Field Activity Plan were collected from the aforementioned soil borings, containerized in the appropriate laboratory-provided glassware and were submitted to Hampton-Clark Inc. of Fairfield, New Jersey for laboratory analysis. The individual grab sample from each sampling interval, which exhibited the greatest field evidence of environmental impacts, was selected as the discrete grab component of the laboratory sample. The remaining grab samples (including the remaining aliquot of the sample submitted as the grab portion of the analysis) were homogenized to form the composited portion of the sample. Soil samples collected and submitted for laboratory analysis are described in Table 1.

Two proposed sample intervals from soil borings SB-6 at 0 to 10 feet bgs and SB-7 20 to 33 feet bgs were not submitted for analysis due to the lack of sample recovery in the field. Nineteen (19) NAPL mobility cores were collected from soil borings SB-1, SB-2, SB-3, and SB-4, however, analysis of these cores was not deemed necessary by the EPA. The photographic logs submitted to the EPA for the NAPL mobility cores are included as Appendix C. All excess soils generated during the soil boring activities were containerized in DOT-approved 55-gallon drums and staged on-site for off-site disposal. All soil boring locations were backfilled with bentonite pellets to grade after completion.

3.3 Groundwater Monitoring Well Installation

Three (3) groundwater monitoring well pairs (MW-3S/MW-3D, MW-4S/MW-4D and MW-5S/MW-5D), for a total of six (6) wells, were installed as part of these field activities. Each of the well pairs consisted of a shallow (S) and deep (D) screened well. All wells were constructed of two (2)-inch diameter Schedule 40 polyvinyl chloride (PVC) well casing. According to the 30% Field Activity Plan, the shallow wells were proposed to be installed with an 10-foot screened interval from 5 feet bgs to 15 feet bgs, and the deeper wells were to be installed with a 8-foot screened interval from 25 feet bgs to 33 feet bgs. The deeper monitoring wells (MW-3D, MW-4D, and MW-5D) were installed to the specifications stated in the 30% Field Activity Plan.

However, due the presence of a deeper groundwater table (ranging from 11 to 20 feet bgs) observed during the advancement of the soil borings, the screened interval for MW-5S was revised, so the screen would intersect the surface of the observed groundwater table. MW-5S was installed to a total depth of 20 feet bgs with a screened interval from 9 feet bgs to 20 feet bgs. MW-4S and MW-3S were installed to the original specification of a total depth of 15 feet bgs with an 10-foot screen. However, after the installation of MW-3S, it was discovered that the screen had been compromised; as such MW-3S was moved approximately 2 feet east of the original well pair and re-installed to a total depth of 20 feet bgs with a 11-foot screened interval from 9 to 20 feet bgs. Well construction logs are included as Appendix D.

3.3.1 Groundwater Monitoring Well Development

After the completion of the monitoring well installation, each well was developed according to the standard operating procedure (SOP) included in the 30% Field Activity Plan (*Monitoring Well Development Rev.# 2.2*). Each well was developed with a submersible development pump while recording well parameters for turbidity, conductivity, pH, temperature, and depth to water. Wells were surged with the development pump prior to purging the well. Each well was purged until turbidity readings had fallen below the 50 nephelometric turbidity units (NTUs). All purge water associated with the development of the wells was containerized in DOT-approved 55-gallon drums and staged on-site for off-site disposal. It should also be noted that during the development of MW-4D, approximately one (1.08) feet of NAPL was detected at the bottom of the well starting at 31.30 feet bgs and extending to the bottom of the well at 32.38 feet bgs. Well development logs included as Appendix E.

3.3.2 Slug Testing

AKRF/KSE-JV mobilized to the Site on September 7 and 8, 2017 to conduct slug testing on the groundwater monitoring well pairs to estimate the hydraulic conductivity of the groundwater immediately surrounding the wells. Slug testing was completed in accordance with the SOP included in the 30% Field Activity Plan (*Best Practices Guidance and Standard Operating Instructions for Slug Testing Rev.#:4*).

Each monitoring well was tested utilizing two (2) solid slugs of different lengths and displacements. All data was recorded during the slug tests utilizing a downhole MicroDiver transducer and a BaroDiver barometer. Due to a minimal amount of standing groundwater (between 3.6 and 7 feet) in the shallow wells (MW-3S, MW-4S, and MW-5S) only a rising head test was conducted. Both rising and falling head tests were completed during the testing of the two deep wells (MW-3D and MW-5D). A slug test was not conducted on MW-4D due to the presence of NAPL (at a depth of 31.29 feet bgs) in the well. Insertion of slug testing equipment in the viscous NAPL would have coated the equipment, rendering it inoperable.

Two solid PVC slugs, measuring 3.0 feet and 4.1 feet in length each 1.5 inch in diameter, were used in each test. Two (2) tests for each slug were conducted on each well. As the slugs were submerged into groundwater and subsequently removed, water level data were recorded on the transducers with the real-time read-out visible on the field lap-top computer. Slug test logs are included as Appendix F.

3.3.3 Groundwater Sampling

On September 12 and 13, 2017, in accordance with the 30% Field Activity Plan and the included SOP (*Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells. Rev. #4*), the groundwater monitoring wells were sampled using low-

flow sampling techniques. A decontaminated bladder pump with a dedicated bladder kit was utilized for purging and sampling each well. Field indicator parameters [e.g., turbidity, temperature, specific conductance, pH, dissolved oxygen and oxidation-reduction potential (ORP)] were monitored throughout the purging of each well until the well had stabilized, as per the SOP. Flowrate was limited to reduce well drawdown to less than 0.3 feet from the initial static water level. Drawdown was prevented in all wells except for MW-5D. Low-flow groundwater sampling logs are included as Appendix G.

Purge water from MW-4D was observed to have a petroleum-like odor and evidence of light non-aqueous phase liquid (LNAPL). Additionally, a white smoke was observed exiting MW-4S during the purging of the well prior to sampling. The smoke was screened with a PID, which did not display elevated PID readings above ambient background readings of 0.0 PPM. Upon observing this white smoke, purging activities were stopped and after 45 minutes MW-4S was sampled.

Purged water from MW-3S and MW-3D displayed evidence of a petroleum sheen and NAPL was observed on the tubing when removed from MW-3D. Purge water within MW-5S and MW-5D did not display any evidence of a petroleum-like odor or sheen. Six (6) groundwater samples were collected from the groundwater monitoring wells, along with two (2) field blanks for QA/QC purposes. All samples were submitted to Hampton-Clark Inc. for analysis.

All monitoring wells, with exception of MW-4S, were gauged at the end of the groundwater sampling event concurrent with high tide to provide water levels readings under consistent tidal influence, as summarized in Table 2. This gauging also included the monitoring well from a prior EPA investigation, which was identified during Site clearing activities. This well, designated as EPA MW-27, consisted of two (2) paired wells (MW-27I and MW-27S, also referred to as GCMW-27I and GCMW-27S, respectively). NAPL was detected in MW-27I at a depth of 36.81 feet bgs and with a thickness of 1.53 feet.

3.4 Sample Location Surveying

After completion of the groundwater sampling activities, all monitoring wells and soil boring locations were recorded with a handheld global positioning system unit.

In addition, each of the monitoring well's ground surface and top of casing elevations were surveyed by B. Thayer Associates of Woodbury, New York as part of a separate 30% Field Activity Plan (*Topographic Survey and Sounding*).

3.5 Investigative Derived Waste

All purge water from well development and groundwater sampling, as well as all drill cuttings from soil sampling and groundwater monitoring well installations, were containerized in DOT-approved 55-gallon drums. During the course of the field activities, three (3) 55-gallon drums of purge water and three (3) 55-gallon drums of drill cuttings were generated and staged on-site for offsite disposal. Additionally, during the re-grading, one (1) buried drum was found and punctured, leaking its contents, as described in Section 3.1.1. Two (2) additional drums were generated to containerize the impacted soil and released oil, and one overpack container was generated to containerize the buried drum. A total of five (5) drums of impacted soil, three (3) drums of purge water, and one (1) overpack container were generated. All drums were labeled and staged on-site for offsite transport and disposal. Manifest documentation is included in Appendix H.

3.6 Work Zone Air Monitoring

As specified in the EPA-approved HASP associated with these field activities, an Air Monitoring Program was implemented during all intrusive activities (excavation, drilling, etc.) on-site. The air in the active work zones was monitored for particulate and VOC concentrations utilizing a DustTrak II and a PID, respectively. All instruments were calibrated before the start of each work day and continually monitored to ensure compliance with Health and Safety Plan action levels. There were no exceedances of the action levels during the course of these field activities, The particulate monitoring output data is provided as Appendix I.

4.0 LABORATORY

Soil samples were collected and submitted for laboratory analysis to address existing data gaps and improve the characterization of the soil in advance of the preferred remedy for the First Street Turning Basin. The objectives of the sampling were to evaluate and inform the nature and magnitude of soil quality, the methods to be used for soil excavation, and material handling and waste disposal options.

Groundwater samples were collected to assess groundwater quality and support an evaluation of potential water treatment system components associated with dewatering operations.

Grab portions of the nineteen (19) soil samples were submitted for the analysis of total petroleum hydrocarbons (TPH) [diesel range organics (DRO) and gasoline range organics (GRO), expanded to carbon 44 (C44)], Target Compound List (TCL) VOCs plus 15 tentatively identified compounds (TICs) [including New Jersey Department of Environmental Protection (NJDEP) Soil Cleanup Criteria (SCC) and Soil Remediation Standards (SRS) lists], and Toxicity Characteristic Leaching Procedure (TCLP) VOCs.

Composite portions of the nine (19) soil samples were submitted for the analysis of TCL semi-volatile organic compounds (SVOCs) plus 20 TICs (including NJDEP SCC and SRS lists), Target Analyte List (TAL) metals, hexavalent chromium, TCL polychlorinated biphenyls (PCBs), TCL pesticides, TCL herbicides, TCLP SVOCs, TCLP metals [Resource Conservation and Recovery Act (RCRA) metals, copper, nickel, and zinc], TCLP pesticides, TCLP herbicides, and RCRA Characteristics (pH, ignitability, reactive cyanide, reactive sulfide).

The NJDEP SCC and SRS lists were included because soil from New York City is often transported to New Jersey disposal facilities. The proposed analyses include extended lists consisting of the standard TCLs plus additional compounds on the NJDEP SCC and SRS lists. Testing for the additional New Jersey facility related compounds was conducted to enable a better evaluation of the estimated costs for disposal of the proposed excavated material.

Unfiltered groundwater samples were collected from the six (6) groundwater monitoring wells were submitted for the analysis of TCL VOCs, TCL SVOCs, TAL metals, and the NYC Department of Environmental Protection (DEP) “Limitations for Effluent to Sanitary or Combined Sewers” parameters, which includes PCBs, and field filtered groundwater samples were submitted for the analysis of TAL Metals and PCBs.

Laboratory analysis was conducted by Hampton-Clarke, Inc., a New York State Department of Health - certified Laboratory under appropriate Chain- of-Custody Protocols (COCs). Laboratory data deliverables were NYSDEC ASP-Category B with NYSDEC EQuIS Electronic Data Deliverable. Laboratory analytical data is included as Appendix J.

5.0 QUALITY ASSURANCE/QUALITY CONTROL MEASURES

Industry standard quality assurance/quality control measures were implemented as part of the sampling and analysis activities.

5.1 Sample Custody

Prior to collection of soil and groundwater samples, the laboratory glassware was received directly from laboratory personnel by the field personnel. Sample glassware was inspected to ensure its proper size and material make-up and to ensure that the proper preservative (if any) was present within same. Glassware was also inspected to ensure integrity.

During sample collected, field personnel (after logging field observations) immediately containerized samples into the appropriately laboratory-supplied glassware, labeled glassware, and then placed same into ice-filled coolers.

Sample coolers remained with the field personnel until they were picked up on a semi-daily basis at the Site by the lab courier. A Chain of Custody (COC) was completed daily and was signed by field personnel and countersigned by the laboratory courier upon pick-up. The carbon copy of the field-signed COC was retained by field personnel and the original was taken by the courier.

The COC was reviewed daily by the AKRF-KSE Team to ensure that the samples were submitted for the proper analyses.

5.2 Field Decontamination Procedures

To assure that no outside contamination will be introduced into the samples/data, thereby invalidating the samples/data, the following decontamination protocols were applied for all non-dedicated equipment used to collect samples.

- Washing with a non-phosphate laboratory grade detergent and tap water, triple rinse with tap water, and a triple rinse with analyte-free water;
- Air dry before using;
- If equipment was not used immediately, it was wrapped in aluminum foil; and
- Drill rig equipment was brush-cleaned between locations and a physically rinsed with potable water and alconox.

5.3 Additional QA/QC Protocols

In accordance with the Low-Flow Groundwater Purging and Sampling Procedures for Monitoring Wells, one (1) field blank per day of groundwater sampling and one (1) trip blank were collected for submission of laboratory analysis of TCL VOCs plus 15 TICs. All monitoring instrumentation was operated in accordance with manufacturer's instructions and calibration procedures. Instruments were calibrated at the beginning of each day and the calibration was verified at the end of each day.

6.0 DEVIATIONS OF SCOPE

There were no deviations from the scope of work included in the 30% Field Activity Plan. The following additional activities were required:

- Reinstallation of the shallow monitoring well in the MW-3 well pair due to the compromised well screen. The replacement monitoring well was moved approximately two (2) feet east of the

original MW-3 well pair and reinstalled. MW-3S was installed to a total depth of 19 feet bgs, with a screened interval from 9 to 19 feet bgs to account for the deeper than expected groundwater table.

- Monitoring well MW-5S was installed to the same well construction specifications as MW-3S to account for a deeper than expected groundwater table.
- Soil boring SB-7 encountered refusal at approximately 12 feet bgs and was moved approximately 10 feet south and re-advanced.
- A skid steer was utilized to grade the westernmost portion of the site to facilitate access and provide a stable working surface for the drilling equipment.

7.0 SUMMARY OF FINDINGS

The following section presents the findings from the implementation of the field activities.

7.1 Soil

Results of laboratory analysis of soil quality samples are presented on Table 3 and were compared to:

- New York State Department of Environmental Conservation (NYSDEC) Subpart 375-6 Protection of Public Health Unrestricted Use Soil Cleanup Objectives (SCO),
- New Jersey Residential Direct Contact Soil Remediation Standards,
- NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO,
- NYSDEC Subpart 375-6 Protection of Groundwater SCO, and
- NYSDEC Subpart 375-6 Protection of Public Health Restricted Commercial Use SCO.

A comparison of the reported soil quality to the NYSDEC Restricted-Commercial Use (RCU) SCOs indicated the following:

- Various PCBs were reported at concentrations above the RCU SCO.
- No VOCs were reported at concentrations above the RCU SCO.
- Of the VOC TICs analyzed, only naphthalene was reported at a concentration above the RCU SCOs.
- The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene were reported at concentrations above the RCU SCO.
- No pesticides were reported at concentrations above the RCU SCO.
- Arsenic, barium, cadmium, copper, lead, mercury, and nickel were reported at concentrations above the RCU SCO.

TCLP analyses were completed for VOC, SVOC, herbicides, pesticides, and metals, resulting in the following constituents reported as detected above method detection limits:

- VOCs: 2-butanone, benzene, and tetrachloroethene;
- SVOCs: 2-methylphenol, and 3&4-methylphenol;

- Metals: barium, cadmium, lead, mercury, and nickel; and

There were no detections of herbicides or pesticides following TCLP analysis.

The soil sampling results did not identify any detections above the hazardous waste levels.

In addition to Table 3, the exceedances noted above the NYSDEC RCU SCO for detected PCBs and metals are highlighted on Figure 5a, and exceedances of detected SVOCs are highlighted on Figure 5b. VOCs were not detected above the NYSDEC RCU SCOs.

In support of this soil characterization effort, the report entitled, "Remedial Investigation Report for Gowanus Village I – Parcel B" (Langan, 2007), was reviewed with respect to the distribution of PCBs in the soil underlying the former Power House (property south of the Site). The data presented suggests that PCBs detected in the Site fill are not necessarily related to impacts at the former Power House. PCB impacts in soil beneath the former Power House are widespread, and varying in concentration; detections exceeded 50 ppm at various locations and depths. However, for the five samples collected along the north side of the former Power House property (adjacent to the Site), the reported PCB concentrations ranged from below the detection limit to 4.02 ppm.

Soil sample results from the Site reported varied PCB concentrations from Not Detected to 40 ppm and varied by both location and depth.

While there was some overlap of the specific PCB Aroclors detected, the suites detected were not identical.

- At the former Power House, Aroclor 1260 (max 2,550 ppm), Aroclor 1254 (1,320 ppm), and Aroclor 1016 (10.8 ppm) were detected.
- At the Site, Aroclor 1254 (max 40 ppm), Aroclor 1248 (max 4.2 ppm), Aroclor 1242 (max 2.6 ppm), and Aroclor 1260 (max 2.6 ppm) were detected.

There does not appear to be a direct correlation between the PCB impacts observed at the former Power House and the Site.

7.2 Groundwater

The following sections discuss findings related to groundwater flow direction and groundwater quality.

7.2.1 Flow Direction

Based on regional groundwater flow, groundwater moves westerly across the site and discharges to the Gowanus Canal. However, site-specific water level measurements, summarized in Table 2, do not indicate a westerly sloping potentiometric surface. Table 2 presents the calculated monitoring well water levels based on the surveyed elevations performed as part of a separated 30% Field Activity Plan mentioned in Section 3.3.4.

As noted in Table 2, water levels were monitored between 4:29 and 4:50 pm, and high tide at the National Oceanic and Atmospheric Administration (NOAA) Gowanus Bay station occurred at 2:20 pm, suggesting that the water level in Gowanus Canal, adjacent to the former basin was receding at the time Site water levels were monitored. However, site-specific water level observations indicated nearly identical water levels at MW-3D and MW-5D (2.70 feet NAVD 88 and 2.71 feet NAVD 88, respectively), and a depression in the potentiometric surface at MW-4D, and MW-27I, (2.03 feet NAVD 88, and 1.82 feet NAVD 88, respectively). That is the same water level at the eastern and western ends of the former basin and a depression in the middle of the former basin.

Site-specific water level observations suggest that site water levels appear to be influenced by tidal changes in the canal. Records from the Gowanus Bay station indicate a typical daily tidal range of about 5 feet. While a tide study has not been completed as part of this scope of work, it is reasonable to assume a similar range in water levels will occur in the Gowanus Canal adjacent to the Site in response to the tide cycle. Additional, continuous monitoring of Site water levels (with data loggers), as well as simultaneous monitoring of the water level in the Gowanus Canal, would be necessary to assess tidal efficiency (i.e., that is to what degree and how quickly, do groundwater levels change in response to changing tides).

7.2.2 Groundwater Quality

Results of laboratory analysis of groundwater quality samples are presented on Table 4, and were compared to both NYSDEC Part 703.5 Class GA Ambient Water Quality Standards and Guidance Values (NYSDEC, 1998), and New York City Department of Environmental Protection (NYCDEP) Limitations for Effluent to Sanitary or Combined Sewers (NYCDEP, 2009).

A comparison of the reported water quality to the Ambient Water Quality Standards and Guidance Values (AWQS) indicated the following:

- Chloride and nitrate were reported at concentrations above the AWQS, no other ions or general chemistry parameters were reported at concentrations above the AWQS.
- The concentrations of various metals, in both their total and dissolved forms, significantly exceeded the AWQS.
- Aroclor 1242, Aroclor 1254, and total PCBs were reported at concentrations above the AWQS.
- Various VOCs and SVOCs were reported at concentrations above the AWQS.

In addition to Table 4, the exceedances noted above the AWQS for PCBs and metals are highlighted on Figure 6a, exceedances of VOCs and SVOCs on Figure 6b.

A comparison of the reported water quality to New York City Department of Environmental Protection (NYCDEP) *Limitations for Effluent to Sanitary or Combined Sewers* (NYCDEP, 2009) indicate that:

- The permissible effluent limit for naphthalene was exceeded in the samples from MW-3S, MW-3D, MW-4D, and MW-5D;
- The permissible effluent limits for ethylbenzene and toluene were exceeded in the sample from MW-4D; and
- The permissible effluent limit for total xylenes was exceeded in the sample from MW-4D and MW-5D.

NYCDEP does not define discharge limits for anions, or PCBs; for general chemistry parameters, metals, SVOCs, and TPH select constituents have discharge limits, as shown on Table 4. Except for the exceedances noted above, there were no detections of general chemistry parameters, metals, SVOCs or TPH constituents in groundwater above the applicable effluent limit.

With respect to dewatering efforts and the potential need for treatment of extracted groundwater, the following results are of interest, as they suggest the potential for treatment media fouling.

- Iron (total), magnesium (total), and sodium (total and dissolved) in all samples, and
- Manganese (total and dissolved) in the sample from MW-3S, MW-3D, MW-4D, and MW-5D.

7.3 NAPL

NAPL was detected in soil borings SB-1, SB-2, SB-3, and SB-4. The distribution of NAPL impacted soils is shown in plan view on Figure 3, and in cross section on Figure 4. NAPL was noted from 17 to 18 feet bgs at SB-1; from 27 to 30 feet bgs at SB-2; from 28 to 31 feet bls at SB-3; and from 23 to 25 feet bgs and 28 to 33 feet bgs at SB-4. Based on the soil boring logs, except for NAPL detected at SB-1, it appears the NAPL accumulations occur at the interface between the black coarse sand and underlying silty clay, and between the silty clay and underlying fine to coarse sand with silt.

During monitoring well gauging activities, on September 7, 2017 monitoring well MW-4D measured 1.08 feet of dense non-aqueous phase liquid (DNAPL), and on September 13, 2017 monitoring well MW-4D and MW-27I (MW-27I was only gauged on September 13, 2017) measured 1.09 and 1.53 feet of DNAPL, respectively.

7.4 Slug Testing Permeability Testing

The results of slug tests indicated that the hydraulic conductivity of the formation adjacent to the shallow monitoring wells ranged from $3.0x10^{-2}$ to $3.5x10^{-1}$ centimeters per second (cm/sec), and in the deep wells ranged from $1.2x10^{-4}$ to $4.4x10^{-3}$ cm/sec.

The hydraulic conductivities calculated for the Site are in the range typically associated with fine to medium sand (i.e., $2x10^{-2}$ to $9x10^{-5}$ cm/sec) as summarized in Domenico and Schwartz, 1990. A memo describing the slug testing and analysis, slug testing logs, data summary tables, and AQTESOLV output plots are provided in Appendix F.

In general, slug tests stress the environment immediately surrounding the well being tested. Due to the relatively small volume of water displaced during slug tests, they induce a relatively small stress on the aquifer. As a result, slug tests provide estimates of hydraulic conductivity which are representative of the local environment (i.e., near the well). It should be noted that hydraulic conductivity estimates derived from slug tests are typically viewed as the lower bound of the hydraulic conductivity near the well (Butler, 1998).

The non-ideal nature of the test wells (i.e., nested wells) had the potential to impact the effectiveness of the slug tests. In addition, the highly variable nature of the material tested, which included fill consisting of various debris, unsorted clays, sands, and gravels, resulted in significant variability in the estimated hydraulic conductivity. However, the general correlation of the estimated hydraulic conductivity through slug testing with the published range of hydraulic conductivity values for fine to medium sand suggests that the tests fulfilled the overall purpose of the effort, which was to generally characterize the hydraulic conductivity of the fill and underlying native material.

8.0 REFERENCES

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TABLES

Table 1

Sample Location Details and Summary of Field Observations

First Street Turning Basin

Brooklyn, New York

Soil				
Soil Boring ID	**Sample Intervals**	**Sample Description**	**Max PID (PPM)**	**Analytical Suite**
SB-1	0-10 feet bgs	Soil Sample SB-1 (0-10 feet bgs) consisted of unsaturated black to gray fill material with ash and debris, no staining or odors observed.	0.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-1 (VOC Grab)	9.5-10 feet bgs	Soil Sample SB-1 (9.5-10 feet bgs) consisted of unsaturated black to brown fill material, no staining or odors observed.	0.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-1	10-18 feet bgs	Soil Sample SB-1 (10-18 feet bgs) consisted of saturated black to gray fill material with wood, concrete and debris, with F-C sand and silt, heavy petroleum odors and staining observed (13-14 feet bgs). Petroleum odors and staining (16-17 ft bgs) heavy petroleum odor and NAPL present (17-18 feet bgs).	80.3	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-1 (VOC Grab)	14-14.5 feet bgs	Soil Sample SB-1 (14-14.5 feet bgs) consisted of saturated black fill material with F-C sand and silt and crushed concrete.	79.8	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-2	0-10 feet bgs	Soil Sample SB-2 (0-10 feet bgs) consisted of unsaturated brown to gray fill material with F-M sand with C&D, no staining or odors observed.	0.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-2 (VOC Grab)	7.5-8 feet bgs	Soil Sample SB-2 (7.5-8 feet bgs) consisted of unsaturated brown to gray fill material with F-M sand with C&D, no staining or odors observed.	0.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-2	10-20 feet bgs	Soil Sample SB-2 (10-20 feet bgs) consisted of saturated brown to black fill material F-M sand with silt, wood and C&D, chemical odor, no staining observed. (Sample from 10 -16 ft only, as no recovery from 16 to 20ft).	59.8	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-2 (VOC Grab)	13.5-14 feet bgs	Soil Sample SB-2 (13.5-14 feet bgs) consisted of saturated black fill material with wood and F sand and silt, chemical odors, no staining observed.	59.8	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-2	20-33 feet bgs	Soil Sample SB-2 (20-33 feet bgs) consisted of saturated black clay with trace organics F-C sand with silt and gravel, chemical odor and no staining (20-21 feet bgs), chemical odor and staining in black clay with chemcial odors (21 to 26.5 feet bgs), heavy petroleum odors and staining (26.5-33 feet bgs) observed. NAPL Present (27-30 feet bgs).	287.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-2 (VOC Grab)	23-23.5 feet bgs	Soil Sample SB-2 (23-23.5 feet bgs) consisted of saturated black clay with trace organics, chemical odor and staining observed.	287.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-3	0-10 feet bgs	Soil Sample SB-3 (0-10 feet bgs) consisted of unsaturated brown fill material with F-M sand with C&D, no odors or staining observed.	0.7	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-3 (VOC Grab)	8.5-9 feet bgs	Soil Sample SB-3 (8.5-9 feet bgs) consisted of unsaturated brown fill material with F-M sand with C&D, no odors or staining observed.	0.8	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-3	10-20 feet bgs	Soil Sample SB-3 (10-20 feet bgs) consisted of saturated brown to black fill material F-M sand with silt, crushed brick (C&D), no odors or staining observed.	5.7	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-3 (VOC Grab)	18-18.5 feet bgs	Soil Sample SB-3 (18-18.5 feet bgs) consisted of saturated black fill material with C&D, no odors or staining observed.	5.7	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs

Table 1

Sample Location Details and Summary of Field Observations

First Street Turning Basin

Brooklyn, New York

Soil (cont'd)				
Soil Boring ID	**Sample Intervals**	**Sample Description**	**MAX PID (PPM)**	**Analytical Suite**
SB-3	20-33 feet bgs	Soil Sample SB-3 (20-33 feet bgs) consisted of saturated fill material and black clay with trace organics F-M sand with silt and gravel, chemical odor and stating (20-23 feet begs, heavy petroleum odors and staining (23-33 feet bgs) observed. NAPL Present (28-31 feet bgs).	80.7	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-3 (VOC Grab)	23-23.5 feet bgs	Soil Sample SB-3 (23-23.5 feet bgs) consisted of black C sand with gravel, chemical odors and staining observed.	80.7	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-4	0-10 feet bgs	Soil Sample SB-4 (0-10 feet bgs) consisted of unsaturated brown fill material with F-C sand with silt and gravel and C&D, no odors or staining observed.	0.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-4 (VOC Grab)	5.5-6 feet bgs	Soil Sample SB-4 (5.5-6 feet bgs) consisted of unsaturated brown fill material with F-C sand with silt and C&D, no odors or staining observed.	0.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-4	10-20 feet bgs	Soil Sample SB-4 (10-20 feet bgs) consisted of saturated brown to gray fill material F-C sand and silt with gravel, wood and C&D, chemical odors and staining (19-20 feet bgs) observed.	206.3	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-4 (VOC Grab)	19.5-20 feet bgs	Soil Sample SB-4 (19.5-20 feet bgs) consisted of saturated black to brown wood and C&D, chemical odor and staining observed.	206.3	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-4	20-33 feet bgs	Soil Sample SB-4 (20-33 feet bgs) consisted of saturated fill material and black clay with trace organics and F-C sand with silt and gravel, chemical odors and staining (22-23 & 25-33 feet bgs) observed. Petrleum odor and staining 23-25 feet bgs. NAPL Present (23-25 feet bgs and 28-33 feet bgs).	204.3	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-4 (VOC Grab)	25.5-26 feet bgs	Soil Sample SB-4 (25.5-26 feet bgs) consisted of black clay low plasticity, with organics, chemical odors and staining observed. NAPL Present.	204.3	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-5	0-10 feet bgs	Soil Sample SB-5 (0-10 feet bgs) consisted of unsaturated brown fill material with F-M sand with silt and trash and C&D, no odors or staining observed.	0.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-5 (VOC Grab)	7.5-8 feet bgs	Soil Sample SB-5 (7.5-8 feet bgs) consisted of unsaturated brown fill material with F-M sand with silt and trash and C&D, no odors or staining observed.	0.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-5	10-20 feet bgs	Soil Sample SB-5 (10-20 feet bgs) consisted of saturated brown to black fill material F-M sand and silt and clay with gravel, and C&D, sheen noted on water (15-17 feet bgs), chemical odors and staining (17-20 feet bgs) observed.	113.6	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-5 (VOC Grab)	18.5-19.5 feet bgs	Soil Sample SB-5 (18.5-19.5 feet bgs) consisted of saturated silty clay, low plasticity, with trace organic matter, chemical odor and staining observed.	113.6	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-5	20-33 feet bgs	Soil Sample SB-5 (20-33 feet bgs) consisted of saturated fill material and black clay with trace organics and slit with some F-C sand and gravel, chemical odors and staining (20-25 feet bgs) observed. Black silt with sand with some brick and a sheen on water (25-26 feet bgs.) No recovery from 28-33 feet bgs).	86.5	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-5 (VOC Grab)	23.5-24 feet bgs	Soil Sample SB-5 (23.5-24 feet bgs) consisted of black clay low plasticity, with F-M sand and organics, chemical odors and staining observed.	86.5	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs

Table 1

Sample Location Details and Summary of Field Observations

First Street Turning Basin

Brooklyn, New York

Soil (cont'd)				
Soil Boring ID	**Sample Intervals**	**Sample Description**	**MAX PID (PPM)**	**Analytical Suite**
SB-6	0-10 feet bgs	No Recovery	NM	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-6 (VOC Grab)	NA	No Recovery	NM	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-6	10-18 feet bgs	Soil Sample SB-6 (10-18 feet bgs) consisted of saturated black to brown fill material with F-M sand with silt and gravel, wood and C&D, sheen noted on groundwater (12-13 feet bgs), no odors observed.	104.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-6 (VOC Grab)	17.5-18 feet bgs	Soil Sample SB-6 (17.5-18 feet bgs) consisted of saturated black fill material with silt and crushed wood, no odros or staining observed.	104.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-7	0-10 feet bgs	Soil Sample SB-7 (0-10 feet bgs) consisted of unsaturated black to brown fill material with F-M sand and silt with C&D, chemical odors, no staining observed.	94.8	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-7 (VOC Grab)	7-7.5 feet bgs	Soil Sample SB-7 (7-7.5 feet bgs) consisted of unsaturated black to brown fill material with F-M sand and silt with C&D, chemical odors and staining observed.	94.8	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-7	10-15 feet bgs	Soil Sample SB-7 (10-15 feet bgs) consisted of saturated black to gray fill material with F-M sand and silt with C&D and wood, chemical odors, no staining observed.	70.3	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-7 (VOC Grab)	11-11.5 feet bgs	Soil Sample SB-7 (11-11.5 feet bgs) consisted of saturated black to gay fill material with F-M sand and silt with C&D and wood, chemical odors, no staining observed.	62.4	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-7	20-33 feet bgs	No Recovery	NM	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-7 (VOC Grab)	NA	No Recovery	NM	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-8	0-10 feet bgs	Soil Sample SB-8 (0-10 feet bgs) consisted of unsaturated brown fill material F-M sand and silt with C&D (bricks), no odors or staining observed.	0.0	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-8 (VOC Grab)	7.5-8 feet bgs	Soil Sample SB-8 (7.5-8 feet bgs) consisted of unsaturated brown fill material F-M sand and silt with C&D, no odors or staining observed.	0.0	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs
SB-8	10-18 feet bgs	Soil Sample SB-8 (10-18 feet bgs) consisted of saturated black to gray fill material with concrete fragments, with F-M sand and silt, petroleum odors and staining (13-16 feet bgs) observed. Red-brown poorley graded fine to medium sand with silt and C&D debris (16 to 18 feet bgs).	14.8	TCL SVOCs+20 (NJDEP SCC & SRS Lists), TAL Metals + Hexavalent Chrome + mercury, TCL PCBs, TCL Pesticides, TCL Herbicides, TCLP SVOCs, TCLP Metals (RCRA +Cu,Ni,Zn), TCLP Pesticides, TCLP Herbicides, RCRA Characteristics, Reactivity (Sulfide & Cyanide)
SB-8 (VOC Grab)	12.5-13 feet bgs	Soil Sample SB-8 (12.5-13 feet bgs) consisted of saturated black to gray fill material with concrete fragments, with F-M sand and silt, no odors or staining observed.	7.8	TPH (GRO & DRO to C44), TCL VOCs+15 (NJDEP SCC & SRS Lists), TCLP VOCs

Table 1

Sample Location Details and Summary of Field Observations

First Street Turning Basin

Brooklyn, New York

Groundwater				
Monitoring Well ID	**Screened Interval**	**Sample Description**	**PID reading of head space (PPM)**	**Analytical Suite**
MW-3S	9-20 feet bgs	Clear, heavy petroleum sheen and organic odor	0.0	Unfiltered: TCL VOCs, TCL SVOCs, TAL metals, and the NYCDEP "Limitations for Effluent to Sanitary or Combined Sewers" parameters (includes PCBs)*. Field filtered: TAL Metals and PCBs
MW-3D	25-33 feet bgs	Groundwater sample was clear with no petroleum sheen but an organic odor. Upon removal of tubing, non-aqueous phase liquid noted was present outside of tubing.	0.0	Unfiltered: TCL VOCs, TCL SVOCs, TAL metals, and the NYCDEP "Limitations for Effluent to Sanitary or Combined Sewers" parameters (includes PCBs)*. Field filtered: TAL Metals and PCBs
MW-4S	5-15 feet bgs	Clear, no petroleum sheen, organic odor. White smoke observed emenating from well during purging.	0.3	Unfiltered: TCL VOCs, TCL SVOCs, TAL metals, and the NYCDEP "Limitations for Effluent to Sanitary or Combined Sewers" parameters (includes PCBs)*. Field filtered: TAL Metals and PCBs
MW-4D	25-33 feet bgs	Slightly cloudy, heavy sheen with floating product, organic odor.	57.3	Unfiltered: TCL VOCs, TCL SVOCs, TAL metals, and the NYCDEP "Limitations for Effluent to Sanitary or Combined Sewers" parameters (includes PCBs)*. Field filtered: TAL Metals and PCBs
MW-5S	9-20 feet bgs	Clear, no petroleum sheen or odor.	0.0	Unfiltered: TCL VOCs, TCL SVOCs, TAL metals, and the NYCDEP "Limitations for Effluent to Sanitary or Combined Sewers" parameters (includes PCBs)*. Field filtered: TAL Metals and PCBs
MW-5D	25-33 feet bgs	Clear, no petroleum sheen, organic (bog or peat-like) odor.	0.0	Unfiltered: TCL VOCs, TCL SVOCs, TAL metals, and the NYCDEP "Limitations for Effluent to Sanitary or Combined Sewers" parameters (includes PCBs)*. Field filtered: TAL Metals and PCBs

Notes:
bgs: Below Ground Surface
NA: Not Applicable
NM: Not Measured
NAPL: Non-Aqueous Phase Liquid
NJDEP: New Jersey Department of Environmental Protection
NYCDEP: New York City Department of Environmental Protection
PPM: Parts Per Million
* Parameter list is provided in DEP WQ-D001/Wastewater Quality Control Application/Rev. 11/2009, Table A, Limitations for Effluent to Sanitary or Combined Sewers, http://www.nyc.gov/html/dep/pdf/water_sewer/wqca_instructions.pdf

Analytical Group Name	Analytical Method
TPH (GRO & DRO to C44)	EPA 8015
TCL VOCs+15 & NJDEP SCC & SRS Lists	EPA 8260
TCLP VOCs	EPA 8260
TCL SVOCs+20 & NJDEP SCC & SRS Lists	EPA 8270
TAL Metals	EPA 6010
Hexavalent Chrome	EPA 7196
Mercury	EPA 7471
TCLP Metals (RCRA +Cu,Ni,Zn)	EPA 6010, 7470
TCL PCBs	EPA 8082
TCL Pesticides	EPA 8081
TCL Herbicides	EPA 8151
TCLP SVOCs	EPA 8270
TCLP Pesticides	EPA 8081
TCLP Herbicides	EPA 8151
RCRA Characteristics (Ignitability, pH)	EPA 1030, 9040/9045
Reactivity (Sulfide & Cyanide)	SW846 7.3.3, SW 7.3.4

Table 2
Groundwater Level Measurements
First Street Turning Basin
Brooklyn, New York

Groundwater Level Measurements- September 7, 2017												
Well ID	Location Coordinates		Measuring Point Elevation (feet NAVD 88)	Depth to Screen (feet bgs)		Screen Elevation (feet NAVD 88)		Time of Measurement	Depth to Water (feet bgs)	Water Level Elevation (feet NAVD 88)	Depth to NAPL (feet bgs)	NAPL Thickness (feet)
	Latitude	Longitude		Top	Bottom	Top	Bottom					
MW-3S	40.6766693°	-073.9879169°	14.87	5	15	9.87	-0.13	7:25	14.04	0.83	ND	ND
MW-3D	40.6766820°	-073.9879056°	15.01	25	33	-9.99	-17.99	7:30	12.62	2.39	ND	ND
MW-4S	40.6770076°	-073.9885535°	13.38	5	15	8.38	-1.62	7:36	11.84	1.54	ND	ND
MW-4D	40.6770076°	-073.9885535°	13.38	25	33	-11.62	-19.62	7:40	12.20	1.18	31.30	1.08
MW-5S	40.6772239°	-073.9888338°	14.01	9	19	5.01	-4.99	7:47	11.66	2.35	ND	ND
MW-5D	40.6772239°	-073.9888338°	14.01	25	33	-10.99	-18.99	7:51	11.29	2.72	ND	ND
MW-27S	NM	NM	17.43	13	22	4.43	-4.57	NM	NM	NM	ND	ND
MW-27I	NM	NM	17.46	35	40	-17.54	-22.54	NM	NM	NM	ND	ND

Notes:
Measuring point from *Topographical & Property Line Map, First Street Turning Basin, by B. Thayer Associates, 10/10/17* .
NM - Not Measured.
ND - Non-aqueous phase liquid (NAPL) was not detected.
NAVD 88 - North American Vertical Datum of 1988
Measurements collected between 0725 and 0751 hours.
At the time of these observations, the tide was rising; high tide was at 9:12.
Tidal observations are from *NOAA Tide Predictions at 8517921, Gowanus Bay, NY* .
https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=8517921&units=standard&bdate=20170907&edate=20170908&timezone=LST/LDT&clock=12hour&datum=MLLW&interval=hilo&action=dailychart

Groundwater Level Measurements- September 13, 2017												
Well ID	Location Coordinates		Measuring Point Elevation (NAVD 88)	Depth to Screen (feet bgs)		Screen Elevation (feet NAVD 88)		Time of Measurement	Depth to Water (feet bgs)	Water Level Elevation (feet NAVD 88)	Depth to NAPL (feet bgs)	NAPL Thickness (feet)
	Latitude	Longitude		Top	Bottom	Top	Bottom					
MW-3S	40.6766693°	-073.9879169°	14.87	5	15	9.87	-0.13	16:28	12.47	2.40	ND	ND
MW-3D	40.6766820°	-073.9879056°	15.01	25	33	-9.99	-17.99	16:32	12.31	2.70	ND	ND
MW-4S	40.6770076°	-073.9885535°	13.38	5	15	8.38	-1.62	NM	NM	NM	ND	ND
MW-4D	40.6770076°	-073.9885535°	13.38	25	33	-11.62	-19.62	16:36	11.35	2.03	31.29	1.09
MW-5S	40.6772239°	-073.9888338°	14.01	9	19	5.01	-4.99	16:39	12.28	1.73	ND	ND
MW-5D	40.6772239°	-073.9888338°	14.01	25	33	-10.99	-18.99	16:40	11.30	2.71	ND	ND
MW-27S	NM	NM	17.43	13	22	4.43	-4.57	16:50	15.55	1.88	ND	ND
MW-27I	NM	NM	17.46	35	40	-17.54	-22.54	16:46	15.64	1.82	36.81	1.53

Notes:
Measuring point from *Topographical & Property Line Map, First Street Turning Basin, by B. Thayer Associates, 10/10/17* .
NM - Not Measured.
ND - Non-aqueous phase liquid (NAPL) was not detected.
NAVD 88 - North American Vertical Datum of 1988
At the time of these observations, the tide was outgoing; high tide was at 14:20.
Tidal observations are from *NOAA Tide Predictions at 8517921, Gowanus Bay, NY* .
https://tidesandcurrents.noaa.gov/noaatidepredictions.html?id=8517921&units=standard&bdate=20170913&edate=20170914&timezone=LST/LDT&clock=12hour&datum=MLLW&interval=hilo&action=dailychart

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-1 08/07/17 SB-1 (0-10)	SB-1 08/07/17 SB-1 (9.5-10)	SB-1 08/07/17 SB-1 (10-18)	SB-1 08/07/17 SB-1 (14-14.5)	SB-2 08/08/17 SB-2 (0-10)	SB-2 08/08/17 SB-2 (7.5-8)	SB-2 08/08/17 SB-2 (10-20)	SB-2 08/08/17 SB-2 (13.5-14)	SB-2 08/08/17 SB-2 (20-33)	SB-2 08/08/17 SB-2 (23-23.5)	SB-3 08/18/17 SB-3 (0-10)	SB-3 08/18/17 SB-3 (8.5-9)	SB-3 08/08/17 SB-3 (10-20)	SB-3 08/08/17 SB-3 (18-18.5)
Detected PCBs																					
Aroclor-1242	mg/kg	0.1	0.2	**1**	3.2	*1*		<0.028	NA	0.37	NA	<0.15	NA	***4.1***	NA	<0.03	NA	<0.03	NA	<0.029	NA
Aroclor-1248	mg/kg	0.1	0.2	**1**	3.2	*1*		<0.028	NA	<0.031	NA	<0.15	NA	<0.68	NA	<0.03	NA	<0.03	NA	<0.029	NA
Aroclor-1254	mg/kg	0.1	0.2	**1**	3.2	*1*		0.064	NA	***1.3 E***	NA	***3***	NA	***16***	NA	<0.03	NA	0.2	NA	<0.029	NA
Aroclor-1260	mg/kg	0.1	0.2	**1**	3.2	*1*		<0.028	NA	<0.031	NA	<0.15	NA	<0.68	NA	<0.03	NA	<0.03	NA	0.14	NA
Total PCBs	mg/kg	0.1	0.2	**1**	3.2	*1*		0.064	NA	***1.7***	NA	***3***	NA	***20***	NA	<0.03	NA	0.2	NA	0.14	NA
Detected VOCs																					
1,1,2,2-Tetrachloroethane	mg/kg	- -	1	- -	0.6	- -		NA	<0.0023	NA	<0.13	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
1,2-Dichlorobenzene	mg/kg	1.1	5,300	100	1.1	*500*		NA	<0.0023	NA	0.26	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
1,3-Dichlorobenzene	mg/kg	2.4	5,300	49	2.4	*280*		NA	<0.0023	NA	0.39	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
1,4-Dichlorobenzene	mg/kg	1.8	5	13	1.8	*130*		NA	<0.0023	NA	0.7	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
2-Butanone	mg/kg	0.12	3,100	100	0.12	*500*		NA	<0.0023	NA	<0.13	NA	<0.0018	NA	0.028	NA	<2.7	NA	<0.1	NA	<0.002
Acetone	mg/kg	0.05	70,000	100	0.05	*500*		NA	<0.012	NA	<0.64	NA	<0.009	NA	0.18	NA	<14	NA	<0.51	NA	<0.0099
Benzene	mg/kg	0.06	2	**4.8**	0.06	*44*		NA	<0.0012	NA	0.24	NA	<0.0009	NA	<0.0012	NA	4.7	NA	<0.051	NA	<0.00099
Carbon Disulfide	mg/kg	- -	7,800	- -	2.7	- -		NA	<0.0023	NA	<0.13	NA	<0.0018	NA	0.018	NA	<2.7	NA	<0.1	NA	<0.002
Chlorobenzene	mg/kg	1.1	510	100	1.1	*500*		NA	<0.0023	NA	0.25	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Chloroform	mg/kg	0.37	0.6	49	0.37	*350*		NA	<0.0023	NA	<0.13	NA	<0.0018	NA	0.0038	NA	<2.7	NA	<0.1	NA	<0.002
cis-1,2-Dichloroethene	mg/kg	0.25	230	100	0.25	*500*		NA	<0.0023	NA	0.47	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Cyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	<0.0023	NA	0.27	NA	<0.0018	NA	0.0044	NA	<2.7	NA	<0.1	NA	<0.002
Ethylbenzene	mg/kg	1	7,800	**41**	1	*390*		NA	<0.0012	NA	0.51	NA	<0.0009	NA	<0.0012	NA	**93**	NA	<0.1	NA	<0.00099
Isopropylbenzene	mg/kg	2.3	- -	- -	2.3	- -		NA	<0.0012	NA	0.9	NA	<0.0009	NA	<0.0012	NA	17	NA	<0.1	NA	<0.00099
m&p-Xylene	mg/kg	0.26	12,000	100	1.6	*500*		NA	<0.0012	NA	1.1	NA	<0.0009	NA	<0.0012	NA	65	NA	0.1	NA	<0.00099
Methyl acetate	mg/kg	- -	78,000	- -	- -	- -		NA	<0.0023	NA	<0.13	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Methylcyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	<0.0023	NA	0.19	NA	<0.0018	NA	0.0037	NA	<2.7	NA	<0.1	NA	<0.002
o-Xylene	mg/kg	0.26	12,000	100	1.6	*500*		NA	<0.0012	NA	0.26	NA	<0.0009	NA	<0.0012	NA	32	NA	<0.1	NA	<0.00099
Styrene	mg/kg	- -	90	- -	- -	- -		NA	<0.0023	NA	<0.13	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Tetrachloroethene	mg/kg	1.3	2	19	1.3	*150*		NA	<0.0023	NA	0.17	NA	0.005	NA	<0.0025	NA	<2.7	NA	0.16	NA	<0.002
Toluene	mg/kg	0.7	6,300	100	0.7	*500*		NA	<0.0012	NA	0.19	NA	<0.0009	NA	<0.0012	NA	24	NA	<0.1	NA	<0.00099
trans-1,2-Dichloroethene	mg/kg	0.19	300	100	0.19	*500*		NA	<0.0023	NA	0.14	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Trichloroethene	mg/kg	0.47	7	21	0.47	*200*		NA	<0.0023	NA	0.49	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Vinyl Chloride	mg/kg	0.02	0.7	0.9	0.02	*13*		NA	<0.0023	NA	0.14	NA	<0.0018	NA	<0.0025	NA	<2.7	NA	<0.1	NA	<0.002
Xylenes (total)	mg/kg	0.26	12,000	**100**	1.6	*500*		NA	<0.0012	NA	1.4	NA	<0.0009	NA	<0.0012	NA	97	NA	0.1	NA	<0.00099
Detected VOCs-TCLP																					
2-Butanone	mg/L	- -	- -	- -	- -	- -		NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.005	NA	<0.001	NA	<0.001
Benzene	mg/L	- -	- -	- -	- -	- -		NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	0.038	NA	<0.0005	NA	<0.0005
Tetrachloroethene	mg/L	- -	- -	- -	- -	- -		NA	<0.001	NA	<0.001	NA	0.0013	NA	0.013	NA	<0.005	NA	<0.001	NA	<0.001
Detected VOCs-TICs																					
.ALPHA.-PINENE, (-)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.39 J	NA	NA	NA	29 J	NA	NA
.alpha.-Terpinene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
.ALPHA.-TERPINOLENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,3-TETRAMETHYLCYCLOHEXANE B	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DIMETHYL-2-PROPYLCYCLOHEXANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,7-OCTATRIENE, 3,7-DIMETHYL-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Azido-1-methylcyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	140 J	NA	NA	NA	NA
1H-Indene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indene, 2,3-dihydro-1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1R-METHYL-2T-PHENYLCYCLOPROPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butenedioic acid, 2-methyl-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLDECALIN (PROBABLY TRANS)	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Oxatricyclo[5.5.0.0(4,10)]dodeca-5,8,	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	81 J	NA	NA	NA	NA
4-Hepten-3-one, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	6.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nonene, 3-methyl-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	6.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Octene, 2,6-dimethyl-, [S-(E)]-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-Borabicyclo[3.3.1]nonane, 9-hydroxy-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-1 08/07/17 SB-1 (0-10)	SB-1 08/07/17 SB-1 (9.5-10)	SB-1 08/07/17 SB-1 (10-18)	SB-1 08/07/17 SB-1 (14-14.5)	SB-2 08/08/17 SB-2 (0-10)	SB-2 08/08/17 SB-2 (7.5-8)	SB-2 08/08/17 SB-2 (10-20)	SB-2 08/08/17 SB-2 (13.5-14)	SB-2 08/08/17 SB-2 (20-33)	SB-2 08/08/17 SB-2 (23-23.5)	SB-3 08/18/17 SB-3 (0-10)	SB-3 08/18/17 SB-3 (8.5-9)	SB-3 08/08/17 SB-3 (10-20)	SB-3 08/08/17 SB-3 (18-18.5)
Detected VOCs-TICs (continued)																					
Benzene, (1-methyl-1-propenyl)-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	120 J	NA	NA	NA	NA
Benzene, (1-methyl-2-cyclopropen-1-yl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, (2-methyl-1-propenyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-(1,1-dimethylethyl)-4-methyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,2,3,4-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	4.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,2,3-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	120 J	NA	NA	NA	NA
Benzene, 1,2-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	5.9 J	NA	NA	NA	NA	NA	62 J	NA	NA	NA	NA
Benzene, 1,3-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	52 J	NA	NA	NA	NA
Benzene, 1,4-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	59 J	NA	NA	NA	NA
Benzene, 1-butynyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	85 J	NA	NA	NA	NA
Benzene, 1-ethenyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-3,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-3-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-methyl-3-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-propenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	85 J	NA	NA	NA	NA
Benzene, 2-ethenyl-1,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 2-ethyl-1,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	4.6 J	NA	NA	NA	NA	NA	84 J	NA	NA	NA	NA
Benzene, 4-ethyl-1,2-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, methyl(1-methylethyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.99 J	NA	NA	NA	NA	NA	NA
Benzeneethanol, .beta.-ethenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	30 J	NA	NA	NA	NA
Camphene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7 J	NA	NA
Cyclohexane, (1-methylethyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, 1-ethyl-1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, 1-ethyl-4-methyl-, trans-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	4.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, hexyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone, 2-(2-butynyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.2 J	NA	NA	NA	NA	NA	NA
Cyclohexene, 3-(2-methylpropyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	14 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclooctane, butyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-butyl-2-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-methyl-3-(1-methylethyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-methyl-3-(2-methylpropy	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Decane, 3,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dl-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 J	NA	NA
Heptane, 3,3'-[oxybis(methylene)]bis-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptane, 3-ethyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexane, 2,2,5-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	2.3	- -	- -	2.3	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	310 J	NA	NA	NA	NA
l-.beta.-Pinene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	mg/kg	12	6	**100**	12	*500*		NA	NA	NA	NA	NA	NA	NA	NA	NA	***530 J***	NA	NA	NA	NA
Naphthalene, 1,2-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1 J	NA	NA
Naphthalene, 1,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, decahydro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	8.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, decahydro-1,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.27 J	NA	NA	NA	NA	NA	NA
Nonane, 3-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nonane, 5-(1-methylpropyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octane, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxazole, 4,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentane, 2,2,4-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pulegone	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	3.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-1 08/07/17 SB-1 (0-10)	SB-1 08/07/17 SB-1 (9.5-10)	SB-1 08/07/17 SB-1 (10-18)	SB-1 08/07/17 SB-1 (14-14.5)	SB-2 08/08/17 SB-2 (0-10)	SB-2 08/08/17 SB-2 (7.5-8)	SB-2 08/08/17 SB-2 (10-20)	SB-2 08/08/17 SB-2 (13.5-14)	SB-2 08/08/17 SB-2 (20-33)	SB-2 08/08/17 SB-2 (23-23.5)	SB-3 08/18/17 SB-3 (0-10)	SB-3 08/18/17 SB-3 (8.5-9)	SB-3 08/08/17 SB-3 (10-20)	SB-3 08/08/17 SB-3 (18-18.5)
Detected VOCs-TICs (continued)																					
Tetracontane, 3,5,24-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TotalVolatileTic	mg/kg	- -	- -	- -	- -	- -		NA	U	NA	97 J	NA	0.0033 J	NA	4.9 J	NA	1,800 J	NA	39 J	NA	U
Tricyclo[3.3.1.1(3,7)]decane, 1,3-dimet	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.22 J	NA	NA	NA	NA	NA	NA
Tricyclo[3.3.1.1(3,7)]decane-1-carboxyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.38 J	NA	NA	NA	NA	NA	NA
Tridecane, 7-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Undecane, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.23 J	NA	NA	NA	NA	NA	NA
unknown 1	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	4.5 J	NA	0.0033 J	NA	0.17 J	NA	36 J	NA	0.41 J	NA	NA
unknown 2	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	7.3 J	NA	NA	NA	0.2 J	NA	49 J	NA	0.77 J	NA	NA
unknown 3	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	4.1 J	NA	NA	NA	0.2 J	NA	NA	NA	0.79 J	NA	NA
unknown 4	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	4.4 J	NA	NA	NA	0.22 J	NA	NA	NA	0.83 J	NA	NA
unknown 5	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	7.1 J	NA	NA	NA	0.27 J	NA	NA	NA	NA	NA	NA
unknown 6	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	11 J	NA	NA	NA	0.27 J	NA	NA	NA	NA	NA	NA
unknown 7	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.34 J	NA	NA	NA	NA	NA	NA
Unknown 8	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	0.54 J	NA	NA	NA	NA	NA	NA
Zinc, bis[2-(1,1-dimethylethyl)-3,3-dim	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Detected SVOCs																					
1,1'-Biphenyl	mg/kg	- -	3,100	- -	- -	- -		<0.22	NA	<0.42	NA	<0.24	NA	<1.4	NA	55	NA	<0.12	NA	<0.039	NA
2,4-Dimethylphenol	mg/kg	- -	1,200	- -	- -	- -		<0.056	NA	<0.1	NA	<0.059	NA	<0.34	NA	<4.1	NA	<0.03	NA	<0.0098	NA
2-Methylnaphthalene	mg/kg	- -	230	- -	36.4	- -		<0.22	NA	3.3	NA	<0.24	NA	<1.4	NA	480	NA	0.35	NA	0.06	NA
Acenaphthene	mg/kg	20	3,400	**100**	98	*500*		<0.22	NA	7.9	NA	<0.24	NA	<1.4	NA	**370**	NA	0.49	NA	0.05	NA
Acenaphthylene	mg/kg	100	- -	100	107	*500*		<0.22	NA	1.1	NA	<0.24	NA	<1.4	NA	35	NA	0.16	NA	0.044	NA
Anthracene	mg/kg	100	17,000	**100**	1,000	*500*		0.44	NA	7.6	NA	0.39	NA	1.5	NA	**290**	NA	0.88	NA	0.11	NA
Benzo(a)anthracene	mg/kg	1	0.6	**1**	1	*5.6*		***1.6***	NA	***6.2***	NA	***1.5***	NA	***3.8***	NA	***160***	NA	***2.3***	NA	0.46	NA
Benzo(a)pyrene	mg/kg	1	0.2	**1**	22	*1*		***1.3***	NA	***4.4***	NA	***1.4***	NA	***2.9***	NA	***110***	NA	***2***	NA	0.43	NA
Benzo(b)fluoranthene	mg/kg	1	0.6	**1**	1.7	*5.6*		***1.9***	NA	***4.7***	NA	***1.7***	NA	***3.9***	NA	***88***	NA	***2.5***	NA	0.54	NA
Benzo(g,h,i)perylene	mg/kg	100	380,000	100	1,000	*500*		1.1	NA	2.1	NA	1.2	NA	2	NA	45	NA	1.5	NA	0.33	NA
Benzo(k)fluoranthene	mg/kg	0.8	6	**3.9**	1.7	*56*		0.6	NA	1.4	NA	0.65	NA	<1.4	NA	32	NA	0.97	NA	0.19	NA
bis(2-Ethylhexyl)phthalate	mg/kg	- -	35	- -	435	- -		<0.22	NA	7.7	NA	0.41	NA	34	NA	<16	NA	0.24	NA	0.071	NA
Butylbenzylphthalate	mg/kg	- -	1,200	- -	122	- -		<0.22	NA	<0.42	NA	0.31	NA	<1.4	NA	<16	NA	<0.12	NA	<0.039	NA
Carbazole	mg/kg	- -	24	- -	- -	- -		0.23	NA	<0.42	NA	<0.24	NA	<1.4	NA	<16	NA	0.32	NA	0.052	NA
Chrysene	mg/kg	1	62	**3.9**	1	*56*		1.6	NA	**6**	NA	1.4	NA	3.1	NA	***150***	NA	2.2	NA	0.5	NA
Dibenzo(a,h)anthracene	mg/kg	0.33	0.2	**0.33**	1,000	*0.56*		0.27	NA	***0.62***	NA	0.27	NA	<1.4	NA	<16	NA	**0.37**	NA	0.077	NA
Dibenzofuran	mg/kg	7	- -	59	6.2	- -		0.14	NA	0.88	NA	0.098	NA	<0.34	NA	24	NA	0.23	NA	0.023	NA
Di-n-Butylphthalate	mg/kg	- -	6,100	- -	8.1	- -		<0.056	NA	<0.1	NA	<0.059	NA	3.6	NA	<4.1	NA	0.11	NA	0.021	NA
Di-n-Octylphthalate	mg/kg	- -	2,400	- -	120	- -		<0.22	NA	<0.42	NA	<0.24	NA	<1.4	NA	<16	NA	<0.12	NA	<0.039	NA
Fluoranthene	mg/kg	100	2,300	**100**	1,000	*500*		2.8	NA	13	NA	2.4	NA	5.4	NA	**290**	NA	4.9	NA	0.79	NA
Fluorene	mg/kg	30	2,300	**100**	386	*500*		<0.22	NA	4.8	NA	<0.24	NA	<1.4	NA	**290**	NA	0.48	NA	0.044	NA
Indeno(1,2,3-cd)pyrene	mg/kg	0.5	0.6	**0.5**	8.2	*5.6*		**0.85**	NA	**1.7**	NA	**0.88**	NA	**1.6**	NA	***35***	NA	**1.2**	NA	0.25	NA
Naphthalene	mg/kg	12	6	**100**	12	*500*		0.21	NA	0.81	NA	0.16	NA	0.49	NA	***460***	NA	0.44	NA	0.052	NA
Phenanthrene	mg/kg	100	- -	**100**	1,000	*500*		2.3	NA	21	NA	1.4	NA	2.8	NA	***800***	NA	4.3	NA	0.49	NA
Pyrene	mg/kg	100	1,700	**100**	1,000	*500*		2.9	NA	20	NA	2.4	NA	6.7	NA	**440**	NA	4.8	NA	0.79	NA
Detected SVOCs-TCLP																					
2-Methylphenol	mg/L	- -	- -	- -	- -	- -		<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA
3&4-Methylphenol	mg/L	- -	- -	- -	- -	- -		<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA
Detected SVOCs-TICs																					
(E,E)-2,5-Diphenyl-2,4-hexadiene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
.ALPHA.-PINENE, (-)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,3,3-TETRAMETHYL-1,3-DISILAINDAN	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1'-Biphenyl, 2,2',4,4',5-pentachloro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1'-Biphenyl, 2,3',4,4',5-pentachloro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,23,4-Dibenzoanthracene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.43 J	NA	NA	NA
10-Methoxybenz[a]azulen-1,4-dione	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	32 J	NA	NA	NA	NA	NA	NA	NA
11H-Benzo[a]fluorene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	230 J	NA	0.77 J	NA	0.28 J	NA
11H-Benzo[b]fluorene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	100 J	NA	0.49 J	NA	NA	NA
1H-Indene, 2,3-dihydro-1,1,3-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.4 J	NA	11 J	NA	NA	NA	NA	NA	NA	NA
1H-Indol-4-ol, 3-[2-(dimethylamino)ethy	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.66 J	NA	NA	NA
1-Methylnaphthalene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	400 J	NA	NA	NA	NA	NA
1-Octadecanamine, N,N-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Pentanol, 5,5,5-triphenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethyl-2'-fluorobenzophenone	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,8-BIS(FORMYL)DIBENZOTHIOPHENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-NOR-17ALPHA(H)-HOPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.2 J	NA	35 J	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-1 08/07/17 SB-1 (0-10)	SB-1 08/07/17 SB-1 (9.5-10)	SB-1 08/07/17 SB-1 (10-18)	SB-1 08/07/17 SB-1 (14-14.5)	SB-2 08/08/17 SB-2 (0-10)	SB-2 08/08/17 SB-2 (7.5-8)	SB-2 08/08/17 SB-2 (10-20)	SB-2 08/08/17 SB-2 (13.5-14)	SB-2 08/08/17 SB-2 (20-33)	SB-2 08/08/17 SB-2 (23-23.5)	SB-3 08/18/17 SB-3 (0-10)	SB-3 08/18/17 SB-3 (8.5-9)	SB-3 08/08/17 SB-3 (10-20)	SB-3 08/08/17 SB-3 (18-18.5)
Detected SVOCs-TICs (continued)																					
28-NOR-17BETA(H)-HOPANE	mg/kg	- -	- -	- -	- -	- -		0.67 J	NA	NA	NA	0.87 J	NA	NA	NA	NA	NA	NA	NA	0.32 J	NA
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg	- -	- -	- -	- -	- -		72 JAB	NA	74 JAB	NA	73 JAB	NA	100 JAB	NA	NA	NA	59 JAB	NA	55 JAB	NA
2-PHENYLNAPHTHALENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	110 J	NA	0.5 J	NA	NA	NA
3,4-DIPHENYLPYRAZOLE-1-D1	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	0.67 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-[(Trimethylsilyl)ethynyl]benzotrifluo	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	mg/kg	0.0033	3	13	14	*92*		NA	NA	NA	NA	0.55 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	mg/kg	0.0033	2	8.9	17	*62*		NA	NA	NA	NA	0.51 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Benzylamino-1,3-diphenyl-5,6,7,8-tetr	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4H-Cyclopenta[def]phenanthrene	mg/kg	- -	- -	- -	- -	- -		NA	NA	15 J	NA	NA	NA	NA	NA	480 J	NA	1.1 J	NA	NA	NA
7-anti-Trimethyl-5-exo-hydroxy-3-exo-me	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.24 J	NA
7H-Benzo[c]fluoren-7-one	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.53 J	NA	NA	NA
9,10-Anthracenedione	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.42 J	NA	NA	NA
9H-Fluorene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9H-Fluorene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	130 J	NA	NA	NA	NA	NA
9H-Fluorene, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-Octadecenamide, (Z)-	mg/kg	- -	- -	- -	- -	- -		1.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.75 J	NA	1.1 J	NA
Acenaphthene	mg/kg	20	3,400	100	98	*500*		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acridine, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		0.59 J	NA	6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	7.5 J	NA	NA	NA	NA	NA	110 J	NA	0.72 J	NA	NA	NA
Anthracene, 9,10-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	6.7 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	10 J	NA	NA	NA	NA	NA	230 J	NA	0.89 J	NA	NA	NA
Benzaldehyde, 3,5-dichloro-2-hydroxy-	mg/kg	- -	- -	- -	- -	- -		0.65 J	NA	NA	NA	NA	NA	11 J	NA	NA	NA	NA	NA	NA	NA
Benzenamine, 3-nitro-N-(phenylmethylene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	51 J	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	24 J	NA	NA	NA	NA	NA	NA	NA
Benzo[b]naphtho[2,1-d]thiophene	mg/kg	- -	- -	- -	- -	- -		0.52 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.55 J	NA	NA	NA
Benzo[c]phenanthrene, 5,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 J	NA
Benzo[e]pyrene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	11 J	NA	NA	NA	NA	NA	0.58 J	NA
Benzo[j]fluoranthene	mg/kg	- -	- -	- -	- -	- -		0.67 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimet	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	12 J	NA	NA	NA	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-2-one, 1,7,7-trime	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl, 2,4,4',5-tetrachloro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Borinic acid, diethyl-, 3,3,5-trimethyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cholestan-7-one, (5.alpha.,14.beta.)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	15 J	NA	NA	NA	NA	NA	NA	NA
Chrysene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.61 J	NA	0.35 J	NA
Chrysene, 5-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, octyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, undecyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.33 J	NA
CYCLOPENTA(DEF)PHENANTHRENONE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
d-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	28 J	NA	NA	NA	NA	NA	NA	NA
dl-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Docosane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 J	NA
Dodecane, 2,6,11-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dodecane, 2,7,10-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	6.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane, 1,1-bis(p-ethylphenyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	30	2,300	**100**	386	*500*		NA	NA	NA	NA	NA	NA	NA	NA	**140 J**	NA	NA	NA	NA	NA
Gamabufotalin	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptadecane	mg/kg	- -	- -	- -	- -	- -		0.51 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	16 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecane, 2,6,10,14-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	9.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecane, 7,9-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isocopalane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p'-DDD	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	8.5 J	NA	NA	NA	NA	NA	170 J	NA	NA	NA	NA	NA
Naphthalene, 1,4,5-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	6.1 J	NA	NA	NA	NA	NA	120 J	NA	NA	NA	NA	NA
Naphthalene, 1,4,6-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	6.7 J	NA	NA	NA	NA	NA	100 J	NA	NA	NA	NA	NA
Naphthalene, 1,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,6,7-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	8.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	10 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	280 J	NA	NA	NA	NA	NA
Naphthalene, 1,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	6.7 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1-ethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	250 J	NA	NA	NA	NA	NA
Naphthalene, 1-phenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	180 J	NA	NA	NA	NA	NA
Naphthalene, 2,3,6-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 2,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	290 J	NA	NA	NA	NA	NA
Naphthalene, 2,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Dodecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	7.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.26 J	NA
Nonadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-1 08/07/17 SB-1 (0-10)	SB-1 08/07/17 SB-1 (9.5-10)	SB-1 08/07/17 SB-1 (10-18)	SB-1 08/07/17 SB-1 (14-14.5)	SB-2 08/08/17 SB-2 (0-10)	SB-2 08/08/17 SB-2 (7.5-8)	SB-2 08/08/17 SB-2 (10-20)	SB-2 08/08/17 SB-2 (13.5-14)	SB-2 08/08/17 SB-2 (20-33)	SB-2 08/08/17 SB-2 (23-23.5)	SB-3 08/18/17 SB-3 (0-10)	SB-3 08/18/17 SB-3 (8.5-9)	SB-3 08/08/17 SB-3 (10-20)	SB-3 08/08/17 SB-3 (18-18.5)
Detected SVOCs-TICs (continued)																					
Nonane, 3,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.25 J	NA
Pentadecane, 2,6,10,14-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	10 J	NA	0.53 J	NA	18 J	NA	NA	NA	NA	NA	0.23 J	NA
Perylene	mg/kg	- -	- -	- -	- -	- -		1.7 J	NA	NA	NA	1.4 J	NA	NA	NA	NA	NA	1.7 J	NA	NA	NA
Phenanthrene, 2,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA
Phenanthrene, 2,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		0.49 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.55 J	NA	NA	NA
Phenanthrene, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.48 J	NA	NA	NA
Phenanthrene, 4-methyl-_2	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 9-dodecyltetradecahydro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	210 J	NA	NA	NA	NA	NA
Phenol, 4-(1,1,3,3-tetramethylbutyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	0.48 J	NA	NA	NA	NA	NA	0.69 J	NA	NA	NA
Tetracosane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetradecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	12 J	NA	NA	NA	NA	NA	NA	NA
Tetradecane, 4,11-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TotalSemiVolatileTic	mg/kg	- -	- -	- -	- -	- -		83 J	NA	240 J	NA	88 J	NA	660 J	NA	4,000 J	NA	73 J	NA	64 J	NA
Tricyclo[4.4.0.0(2,5)]dec-8-ene, 1,2,3,	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	11 J	NA	NA	NA	NA	NA	NA	NA
Tridecane, 5-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 7-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Triphenylene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.31 J	NA
unknown 1	mg/kg	- -	- -	- -	- -	- -		0.47 J	NA	7.6 J	NA	0.5 J	NA	11 J	NA	120 J	NA	0.76 J	NA	0.25 J	NA
unknown 10	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 11	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 12	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 2	mg/kg	- -	- -	- -	- -	- -		0.53 J	NA	9.8 J	NA	0.53 J	NA	15 J	NA	NA	NA	1.7 JB	NA	0.26 J	NA
unknown 3	mg/kg	- -	- -	- -	- -	- -		0.53 JB	NA	NA	NA	0.6 JB	NA	17 J	NA	NA	NA	NA	NA	0.39 J	NA
unknown 4	mg/kg	- -	- -	- -	- -	- -		0.68 J	NA	NA	NA	0.79 J	NA	26 J	NA	NA	NA	NA	NA	0.45 J	NA
unknown 5	mg/kg	- -	- -	- -	- -	- -		2.1 JB	NA	NA	NA	0.89 J	NA	27 J	NA	NA	NA	NA	NA	0.56 JB	NA
unknown 6	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.1 J	NA	NA	NA	NA	NA	NA	NA	2.2 JB	NA
unknown 7	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.3 JB	NA	190 J	NA	NA	NA	NA	NA	NA	NA
Unknown 8	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 9	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Valencene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Detected Herbicides																					
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Herbicides-TCLP																					
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Pesticides																					
4,4'-DDD	mg/kg	0.0033	3	13	14	*92*		<0.0028	NA	3	NA	<0.15	NA	9.7	NA	<0.015	NA	0.14	NA	0.015 d	NA
4,4'-DDE	mg/kg	0.0033	2	**8.9**	17	*62*		0.031	NA	2.5	NA	2.9	NA	**12**	NA	<0.015	NA	0.39	NA	0.12	NA
4,4'-DDT	mg/kg	0.0033	2	7.9	136	*47*		<0.0028	NA	<0.062	NA	0.28 d	NA	<0.17	NA	<0.015	NA	0.23	NA	0.067	NA
Alpha-Chlordane	mg/kg	0.094	0.2	4.2	2.9	*24*		<0.0056	NA	0.21 d	NA	0.32	NA	0.68 d	NA	<0.03	NA	<0.03	NA	0.008 d	NA
Dieldrin	mg/kg	0.005	0.04	0.2	0.1	*1.4*		<0.0011	NA	0.056 d	NA	<0.059	NA	0.19 d	NA	<0.0061	NA	<0.006	NA	<0.0012	NA
Gamma-Chlordane	mg/kg	0.094	0.2	4.2	14	*24*		<0.0056	NA	0.23	NA	0.38	NA	0.7 d	NA	<0.03	NA	<0.03	NA	0.012	NA
Technical Chlordane	mg/kg	0.094	0.2	4.2	16.9	*24*		<0.0056	NA	0.44	NA	0.7	NA	1.4	NA	<0.03	NA	<0.03	NA	0.02	NA
Detected Pesticides-TCLP																					
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Hydrocarbons																					
PHC as GASOLINE	mg/kg	- -	- -	- -	- -	- -		NA	<27	NA	450	NA	23	NA	65	NA	4,000	NA	<26	NA	<34
Total Petroleum Hydrocarbons	mg/kg	- -	- -	- -	- -	- -		NA	860	NA	11,000	NA	980	NA	3,700	NA	100,000	NA	380	NA	850

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-1 08/07/17 SB-1 (0-10)	SB-1 08/07/17 SB-1 (9.5-10)	SB-1 08/07/17 SB-1 (10-18)	SB-1 08/07/17 SB-1 (14-14.5)	SB-2 08/08/17 SB-2 (0-10)	SB-2 08/08/17 SB-2 (7.5-8)	SB-2 08/08/17 SB-2 (10-20)	SB-2 08/08/17 SB-2 (13.5-14)	SB-2 08/08/17 SB-2 (20-33)	SB-2 08/08/17 SB-2 (23-23.5)	SB-3 08/18/17 SB-3 (0-10)	SB-3 08/18/17 SB-3 (8.5-9)	SB-3 08/08/17 SB-3 (10-20)	SB-3 08/08/17 SB-3 (18-18.5)
Detected Inorganics																					
Aluminum	mg/kg	- -	78,000	- -	- -	- -		6,500	NA	8,500	NA	13,000	NA	13,000	NA	11,000	NA	24,000	NA	12,000	NA
Antimony	mg/kg	- -	31	- -	- -	- -		1.3	NA	<1	NA	<0.94	NA	<1.1	NA	<0.98	NA	<0.95	NA	<0.94	NA
Arsenic	mg/kg	13	19	**16**	16	*16*		***27***	NA	***17***	NA	9	NA	15	NA	***19***	NA	9.1	NA	6.3	NA
Barium	mg/kg	350	16,000	**400**	820	*400*		170	NA	180	NA	***1,100***	NA	***480***	NA	***590***	NA	340	NA	110	NA
Beryllium	mg/kg	7.2	16	72	47	*590*		1	NA	0.56	NA	0.44	NA	0.44	NA	0.35	NA	0.34	NA	0.43	NA
Cadmium	mg/kg	2.5	78	**4.3**	7.5	*9.3*		**6.2**	NA	2.7	NA	4.1	NA	4	NA	1.9	NA	1.6	NA	0.49	NA
Calcium	mg/kg	- -	- -	- -	- -	- -		35,000	NA	33,000	NA	100,000	NA	23,000	NA	21,000	NA	50,000	NA	45,000	NA
Chromium	mg/kg	30	- -	**180**	NS	*1500*		120	NA	130	NA	97	NA	**240**	NA	74	NA	44	NA	19	NA
Chromium, hexavalent	mg/kg	1	- -	110	19	*400*		<1.1	NA	<1.2	NA	<1.2	NA	<1.4	NA	<1.2	NA	<1.2	NA	<1.2	NA
Cobalt	mg/kg	- -	1,600	- -	- -	- -		43	NA	33	NA	18	NA	22	NA	14	NA	7.2	NA	4.6	NA
Copper	mg/kg	50	3,100	**270**	1,720	*270*		***2,700***	NA	***12,000***	NA	***500***	NA	***520***	NA	***550***	NA	180	NA	46	NA
Cyanide	mg/kg	27	1,600	27	40	*27*		<0.27	NA	<0.3	NA	<0.28	NA	8	NA	0.83	NA	<0.29	NA	0.34	NA
Iron	mg/kg	- -	- -	- -	- -	- -		110,000	NA	66,000	NA	35,000	NA	79,000	NA	35,000	NA	36,000	NA	20,000	NA
Lead	mg/kg	63	400	**400**	450	*1000*		910	NA	***1,100***	NA	***6,700***	NA	***1,300***	NA	910	NA	690	NA	110	NA
Magnesium	mg/kg	- -	- -	- -	- -	- -		2,900	NA	3,300	NA	21,000	NA	12,000	NA	8,600	NA	6,400	NA	13,000	NA
Manganese	mg/kg	1,600	11,000	2,000	2,000	*10000*		940	NA	820	NA	610	NA	730	NA	480	NA	420	NA	610	NA
Mercury	mg/kg	0.18	23	**0.81**	0.73	*2.8*		***3***	NA	**1.4**	NA	***27***	NA	***18***	NA	***16***	NA	***7.1***	NA	0.43	NA
Nickel	mg/kg	30	1,600	**310**	130	*310*		***2,800***	NA	***1,900***	NA	120	NA	150	NA	61	NA	43	NA	20	NA
Potassium	mg/kg	- -	- -	- -	- -	- -		1,100	NA	1,000	NA	2,200	NA	2,000	NA	2,300	NA	5,000	NA	1,600	NA
Selenium	mg/kg	3.9	390	180	4	*1500*		2.3	NA	3.4	NA	<2.4	NA	<2.7	NA	<2.4	NA	<2.4	NA	<2.4	NA
Silver	mg/kg	2	390	180	8.3	*1500*		0.79	NA	1.1	NA	0.73	NA	1.3	NA	2	NA	0.32	NA	<0.24	NA
Sodium	mg/kg	- -	- -	- -	- -	- -		670	NA	1,000	NA	660	NA	8,800	NA	3,500	NA	2,800	NA	1,800	NA
Thallium	mg/kg	- -	5	- -	- -	- -		<0.45	NA	<0.5	NA	<0.47	NA	<0.55	NA	0.49	NA	<0.48	NA	<0.47	NA
Vanadium	mg/kg	- -	78	- -	- -	- -		28	NA	35	NA	810	NA	82	NA	46	NA	27	NA	31	NA
Zinc	mg/kg	109	23,000	10,000	2,480	*10000*		2,700	NA	1,900	NA	2,500	NA	1,300	NA	1,200	NA	800	NA	120	NA
Detected Inorganics-TCLP																					
Barium	mg/L	- -	- -	- -	- -	- -		0.42	NA	0.99	NA	0.82	NA	0.53	NA	0.47	NA	0.66	NA	<0.25	NA
Cadmium	mg/L	- -	- -	- -	- -	- -		<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
Lead	mg/L	- -	- -	- -	- -	- -		3.3	NA	1	NA	4.2	NA	0.67	NA	0.099	NA	0.24	NA	0.15	NA
Mercury	mg/L	- -	- -	- -	- -	- -		<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA
Nickel	mg/L	- -	- -	- -	- -	- -		7.5	NA	0.1	NA	<0.1	NA	0.2	NA	1.1	NA	0.34	NA	<0.1	NA
Detected Miscellaneous																					
% Solids	Percent	- -	- -	- -	- -	- -		89	89	80	73	85	85	73	62	82	67	84	84	85	85
Eh	MV	- -	- -	- -	- -	- -		190	NA	-17	NA	38	NA	-230	NA	-140	NA	110	NA	120	NA
pH	PH	- -	- -	- -	- -	- -		9.4	NA	8.6	NA	10	NA	8.6	NA	8.8	NA	9.5	NA	9.9	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-3 08/08/17 SB-3 (20-33)	SB-3 08/08/17 SB-3 (23-23.5)	SB-4 08/09/17 SB-4 (0-10)	SB-4 08/09/17 SB-4 (5.5-6)	SB-4 08/09/17 SB-4 (10-20)	SB-4 08/09/17 SB-4 (19.5-20)	SB-4 08/09/17 SB-4 (20-33)	SB-4 08/09/17 SB-4 (25.5-26)	SB-5 08/10/17 SB-5 (0-10)	SB-5 08/10/17 SB-5 (7.5-8)	SB-5 08/10/17 SB-5 (10-20)	SB-5 08/10/17 SB-5 (18.5-19)	SB-5 08/10/17 SB-5 (20-33)	SB-5 08/10/17 SB-5 (23-23.5)
Detected PCBs																					
Aroclor-1242	mg/kg	0.1	0.2	**1**	3.2	*1*		<0.18	NA	<0.14	NA	<0.031	NA	<0.033	NA	<0.029	NA	<1.8	NA	<0.068	NA
Aroclor-1248	mg/kg	0.1	0.2	**1**	3.2	*1*		<0.18	NA	***4.2***	NA	0.92	NA	<0.033	NA	0.19	NA	<1.8	NA	<0.068	NA
Aroclor-1254	mg/kg	0.1	0.2	**1**	3.2	*1*		***5.03***	NA	<0.14	NA	<0.031	NA	<0.033	NA	<0.029	NA	***9.9***	NA	***2.4***	NA
Aroclor-1260	mg/kg	0.1	0.2	**1**	3.2	*1*		<0.18	NA	***2.2***	NA	0.65	NA	<0.033	NA	0.68	NA	<1.8	NA	<0.068	NA
Total PCBs	mg/kg	0.1	0.2	**1**	3.2	*1*		***5***	NA	***6.4***	NA	***1.6***	NA	<0.033	NA	0.87	NA	***9.9***	NA	***2.4***	NA
Detected VOCs																					
1,1,2,2-Tetrachloroethane	mg/kg	- -	1	- -	0.6	- -		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	2.2	NA	0.89
1,2-Dichlorobenzene	mg/kg	1.1	5,300	100	1.1	*500*		NA	<2.6	NA	<0.0022	NA	0.0092	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
1,3-Dichlorobenzene	mg/kg	2.4	5,300	49	2.4	*280*		NA	<2.6	NA	<0.0022	NA	0.11	NA	<0.25	NA	<0.0024	NA	1.5	NA	<0.27
1,4-Dichlorobenzene	mg/kg	1.8	5	13	1.8	*130*		NA	<2.6	NA	<0.0022	NA	0.3	NA	<0.25	NA	<0.0024	NA	5.7	NA	<0.27
2-Butanone	mg/kg	0.12	3,100	100	0.12	*500*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	0.6	NA	0.37
Acetone	mg/kg	0.05	70,000	100	0.05	*500*		NA	<13	NA	<0.011	NA	0.32	NA	<1.2	NA	<0.012	NA	1.4	NA	<1.4
Benzene	mg/kg	0.06	2	**4.8**	0.06	*44*		NA	***4.9***	NA	<0.0011	NA	0.009	NA	1.8	NA	<0.0012	NA	0.45	NA	0.37
Carbon Disulfide	mg/kg	- -	7,800	- -	2.7	- -		NA	<2.6	NA	<0.0022	NA	0.045	NA	1.2	NA	<0.0024	NA	0.74	NA	0.27
Chlorobenzene	mg/kg	1.1	510	100	1.1	*500*		NA	<2.6	NA	<0.0022	NA	0.012	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
Chloroform	mg/kg	0.37	0.6	49	0.37	*350*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
cis-1,2-Dichloroethene	mg/kg	0.25	230	100	0.25	*500*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	0.45	NA	<0.27
Cyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	<2.6	NA	<0.0022	NA	0.038	NA	<0.25	NA	<0.0024	NA	1	NA	<0.27
Ethylbenzene	mg/kg	1	7,800	**41**	1	*390*		NA	**73**	NA	<0.0011	NA	0.013	NA	**81**	NA	<0.0012	NA	6.6	NA	5
Isopropylbenzene	mg/kg	2.3	- -	- -	2.3	- -		NA	11	NA	<0.0011	NA	<0.0016	NA	24	NA	<0.0012	NA	3.4	NA	2.8
m&p-Xylene	mg/kg	0.26	12,000	100	1.6	*500*		NA	51	NA	<0.0011	NA	0.01	NA	73	NA	<0.0012	NA	23	NA	2.5
Methyl acetate	mg/kg	- -	78,000	- -	- -	- -		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	0.91	NA	0.45
Methylcyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	<2.6	NA	<0.0022	NA	0.04	NA	0.96	NA	<0.0024	NA	8.2	NA	0.81
o-Xylene	mg/kg	0.26	12,000	100	1.6	*500*		NA	28	NA	<0.0011	NA	0.006	NA	40	NA	<0.0012	NA	9.4	NA	3.4
Styrene	mg/kg	- -	90	- -	- -	- -		NA	2.7	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
Tetrachloroethene	mg/kg	1.3	2	19	1.3	*150*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
Toluene	mg/kg	0.7	6,300	100	0.7	*500*		NA	23	NA	<0.0011	NA	0.0023	NA	13	NA	<0.0012	NA	0.85	NA	0.66
trans-1,2-Dichloroethene	mg/kg	0.19	300	100	0.19	*500*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
Trichloroethene	mg/kg	0.47	7	21	0.47	*200*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
Vinyl Chloride	mg/kg	0.02	0.7	0.9	0.02	*13*		NA	<2.6	NA	<0.0022	NA	<0.0032	NA	<0.25	NA	<0.0024	NA	<0.19	NA	<0.27
Xylenes (total)	mg/kg	0.26	12,000	**100**	1.6	*500*		NA	79	NA	<0.0011	NA	0.016	NA	**110**	NA	<0.0012	NA	32	NA	5.9
Detected VOCs-TCLP																					
2-Butanone	mg/L	- -	- -	- -	- -	- -		NA	<0.005	NA	<0.001	NA	0.0082	NA	0.035	NA	<0.001	NA	0.035	NA	0.028
Benzene	mg/L	- -	- -	- -	- -	- -		NA	0.063	NA	<0.0005	NA	<0.0005	NA	0.0098	NA	<0.0005	NA	0.0026	NA	0.002
Tetrachloroethene	mg/L	- -	- -	- -	- -	- -		NA	<0.005	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001
Detected VOCs-TICs																					
.ALPHA.-PINENE, (-)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.74 J	NA	NA	NA	NA	NA	NA	NA	NA
.alpha.-Terpinene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
.ALPHA.-TERPINOLENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,3-TETRAMETHYLCYCLOHEXANE B	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42 J	NA	NA
1,1-DIMETHYL-2-PROPYLCYCLOHEXANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	89 J	NA	NA
1,3,5-Trimethylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	98 J	NA	NA	NA	NA	NA	NA
1,3,7-OCTATRIENE, 3,7-DIMETHYL-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Azido-1-methylcyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.44 J	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indene	mg/kg	- -	- -	- -	- -	- -		NA	130 J	NA	NA	NA	NA	NA	64 J	NA	NA	NA	NA	NA	NA
1H-Indene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	67 J	NA	NA	NA	NA	NA	110 J	NA	NA	NA	NA	NA	18 J
1H-Indene, 2,3-dihydro-1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	37 J	NA	NA	NA	NA	NA	NA
1R-METHYL-2T-PHENYLCYCLOPROPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	26 J
2-Butenedioic acid, 2-methyl-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	0.0035 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLDECALIN (PROBABLY TRANS)	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 J	NA	NA
2-Oxatricyclo[5.5.0.0(4,10)]dodeca-5,8,	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Hepten-3-one, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nonene, 3-methyl-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Octene, 2,6-dimethyl-, [S-(E)]-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-Borabicyclo[3.3.1]nonane, 9-hydroxy-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71 J	NA	25 J

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-3 08/08/17 SB-3 (20-33)	SB-3 08/08/17 SB-3 (23-23.5)	SB-4 08/09/17 SB-4 (0-10)	SB-4 08/09/17 SB-4 (5.5-6)	SB-4 08/09/17 SB-4 (10-20)	SB-4 08/09/17 SB-4 (19.5-20)	SB-4 08/09/17 SB-4 (20-33)	SB-4 08/09/17 SB-4 (25.5-26)	SB-5 08/10/17 SB-5 (0-10)	SB-5 08/10/17 SB-5 (7.5-8)	SB-5 08/10/17 SB-5 (10-20)	SB-5 08/10/17 SB-5 (18.5-19)	SB-5 08/10/17 SB-5 (20-33)	SB-5 08/10/17 SB-5 (23-23.5)
Detected VOCs-TICs (continued)																					
Benzene, (1-methyl-1-propenyl)-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, (1-methyl-2-cyclopropen-1-yl)-	mg/kg	- -	- -	- -	- -	- -		NA	67 J	NA	NA	NA	NA	NA	87 J	NA	NA	NA	NA	NA	24 J
Benzene, (2-methyl-1-propenyl)-	mg/kg	- -	- -	- -	- -	- -		NA	61 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-(1,1-dimethylethyl)-4-methyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	43 J	NA	NA	NA	NA	NA	NA
Benzene, 1,2,3,4-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,2,3-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	79 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24 J
Benzene, 1,2-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	38 J	NA	NA	NA	NA	NA	51 J	NA	NA	NA	NA	NA	NA
Benzene, 1,3-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,4-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-butynyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethenyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 J
Benzene, 1-ethyl-2,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	190 J	NA	NA	NA	NA	NA	210 J	NA	NA	NA	42 J	NA	NA
Benzene, 1-ethyl-3,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	36 J	NA	NA	NA	NA	NA	58 J	NA	NA	NA	60 J	NA	19 J
Benzene, 1-ethyl-3-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	58 J	NA	NA	NA	NA	NA	NA
Benzene, 1-methyl-3-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53 J	NA	NA
Benzene, 1-propenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 2-ethenyl-1,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	96 J	NA	NA	NA	NA	NA	NA
Benzene, 2-ethyl-1,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	57 J	NA	NA	NA	NA	NA	73 J	NA	NA	NA	50 J	NA	NA
Benzene, 4-ethyl-1,2-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 J	NA	20 J
Benzene, methyl(1-methylethyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzeneethanol, .beta.-ethenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	NA	NA	NA
Camphene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, (1-methylethyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	44 J	NA	NA
Cyclohexane, 1-ethyl-1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 J	NA	NA
Cyclohexane, 1-ethyl-4-methyl-, trans-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, hexyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39 J
Cyclohexanone, 2-(2-butynyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexene, 3-(2-methylpropyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclooctane, butyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.44 J	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-butyl-2-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-methyl-3-(1-methylethyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	1.1 J	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-methyl-3-(2-methylpropy	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Decane, 3,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.52 J	NA	NA	NA	NA	NA	NA	NA	NA
dl-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptane, 3,3'-[oxybis(methylene)]bis-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptane, 3-ethyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA	NA	NA	32 J
Hexane, 2,2,5-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.59 J	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	2.3	- -	- -	2.3	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
l-.beta.-Pinene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	mg/kg	12	6	**100**	12	*500*		NA	400 J	NA	NA	NA	NA	NA	270 J	NA	NA	NA	NA	NA	160 J
Naphthalene, 1,2-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, decahydro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, decahydro-1,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nonane, 3-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nonane, 5-(1-methylpropyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	37 J	NA	NA
Octane, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxazole, 4,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33 J
Pentane, 2,2,4-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.37 J	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	mg/kg	- -	- -	- -	- -	- -		NA	21 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pulegone	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-3 08/08/17 SB-3 (20-33)	SB-3 08/08/17 SB-3 (23-23.5)	SB-4 08/09/17 SB-4 (0-10)	SB-4 08/09/17 SB-4 (5.5-6)	SB-4 08/09/17 SB-4 (10-20)	SB-4 08/09/17 SB-4 (19.5-20)	SB-4 08/09/17 SB-4 (20-33)	SB-4 08/09/17 SB-4 (25.5-26)	SB-5 08/10/17 SB-5 (0-10)	SB-5 08/10/17 SB-5 (7.5-8)	SB-5 08/10/17 SB-5 (10-20)	SB-5 08/10/17 SB-5 (18.5-19)	SB-5 08/10/17 SB-5 (20-33)	SB-5 08/10/17 SB-5 (23-23.5)
Detected VOCs-TICs (continued)																					
Tetracontane, 3,5,24-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TotalVolatileTic	mg/kg	- -	- -	- -	- -	- -		NA	1,300 J	NA	0.0035 J	NA	12 J	NA	1,500 J	NA	U	NA	900 J	NA	510 J
Tricyclo[3.3.1.1(3,7)]decane, 1,3-dimet	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tricyclo[3.3.1.1(3,7)]decane-1-carboxyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 7-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Undecane, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 1	mg/kg	- -	- -	- -	- -	- -		NA	36 J	NA	NA	NA	0.39 J	NA	66 J	NA	NA	NA	42 J	NA	14 J
unknown 2	mg/kg	- -	- -	- -	- -	- -		NA	39 J	NA	NA	NA	0.54 J	NA	NA	NA	NA	NA	47 J	NA	20 J
unknown 3	mg/kg	- -	- -	- -	- -	- -		NA	46 J	NA	NA	NA	0.59 J	NA	NA	NA	NA	NA	130 J	NA	26 J
unknown 4	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.89 J	NA	NA	NA	NA	NA	NA	NA	NA
unknown 5	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.95 J	NA	NA	NA	NA	NA	NA	NA	NA
unknown 6	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	1.8 J	NA	NA	NA	NA	NA	NA	NA	NA
unknown 7	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown 8	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, bis[2-(1,1-dimethylethyl)-3,3-dim	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.74 J	NA	NA	NA	NA	NA	NA	NA	NA
Detected SVOCs																					
1,1'-Biphenyl	mg/kg	- -	3,100	- -	- -	- -		35	NA	<0.19	NA	<0.21	NA	64	NA	<2.3	NA	3.4	NA	38	NA
2,4-Dimethylphenol	mg/kg	- -	1,200	- -	- -	- -		<2.9	NA	<0.047	NA	<0.052	NA	<4.9	NA	<0.58	NA	<0.71	NA	<3.4	NA
2-Methylnaphthalene	mg/kg	- -	230	- -	36.4	- -		310	NA	<0.19	NA	<0.21	NA	560	NA	<2.3	NA	22	NA	390	NA
Acenaphthene	mg/kg	20	3,400	**100**	98	*500*		**190**	NA	<0.19	NA	<0.21	NA	**400**	NA	<2.3	NA	11	NA	**230**	NA
Acenaphthylene	mg/kg	100	- -	100	107	*500*		29	NA	0.7	NA	0.27	NA	55	NA	<2.3	NA	5.6	NA	26	NA
Anthracene	mg/kg	100	17,000	**100**	1,000	*500*		**160**	NA	0.88	NA	0.36	NA	**280**	NA	<2.3	NA	18	NA	**170**	NA
Benzo(a)anthracene	mg/kg	1	0.6	**1**	1	*5.6*		***96***	NA	***2.5***	NA	0.96	NA	***160***	NA	<2.3	NA	***18***	NA	***98***	NA
Benzo(a)pyrene	mg/kg	1	0.2	**1**	22	*1*		***67***	NA	***2.6***	NA	1	NA	***100***	NA	<2.3	NA	***12***	NA	***65***	NA
Benzo(b)fluoranthene	mg/kg	1	0.6	**1**	1.7	*5.6*		***54***	NA	***3.4***	NA	**1.1**	NA	***86***	NA	***2.4***	NA	***13***	NA	***55***	NA
Benzo(g,h,i)perylene	mg/kg	100	380,000	100	1,000	*500*		30	NA	2.3	NA	0.89	NA	44	NA	<2.3	NA	6.7	NA	28	NA
Benzo(k)fluoranthene	mg/kg	0.8	6	**3.9**	1.7	*56*		***18***	NA	1	NA	0.4	NA	***27***	NA	<2.3	NA	**4.2**	NA	***20***	NA
bis(2-Ethylhexyl)phthalate	mg/kg	- -	35	- -	435	- -		72	NA	1.7	NA	2	NA	<20	NA	81	NA	44	NA	15	NA
Butylbenzylphthalate	mg/kg	- -	1,200	- -	122	- -		<11	NA	7	NA	0.22	NA	<20	NA	<2.3	NA	<2.9	NA	<14	NA
Carbazole	mg/kg	- -	24	- -	- -	- -		<11	NA	0.22	NA	<0.21	NA	<20	NA	<2.3	NA	<2.9	NA	<14	NA
Chrysene	mg/kg	1	62	**3.9**	1	*56*		***90***	NA	2.6	NA	0.92	NA	***150***	NA	<2.3	NA	**18**	NA	***96***	NA
Dibenzo(a,h)anthracene	mg/kg	0.33	0.2	**0.33**	1,000	*0.56*		<11	NA	**0.48**	NA	<0.21	NA	<20	NA	<2.3	NA	<2.9	NA	<14	NA
Dibenzofuran	mg/kg	7	- -	59	6.2	- -		14	NA	0.15	NA	0.064	NA	26	NA	<0.58	NA	3.5	NA	16	NA
Di-n-Butylphthalate	mg/kg	- -	6,100	- -	8.1	- -		<2.9	NA	0.11	NA	<0.052	NA	<4.9	NA	<0.58	NA	<0.71	NA	<3.4	NA
Di-n-Octylphthalate	mg/kg	- -	2,400	- -	120	- -		<11	NA	<0.19	NA	<0.21	NA	<20	NA	<2.3	NA	<2.9	NA	<14	NA
Fluoranthene	mg/kg	100	2,300	**100**	1,000	*500*		**170**	NA	5	NA	1.7	NA	**270**	NA	3.7	NA	30	NA	**160**	NA
Fluorene	mg/kg	30	2,300	**100**	386	*500*		**170**	NA	0.3	NA	<0.21	NA	**260**	NA	<2.3	NA	12	NA	**140**	NA
Indeno(1,2,3-cd)pyrene	mg/kg	0.5	0.6	**0.5**	8.2	*5.6*		***22***	NA	**1.8**	NA	**0.61**	NA	***32***	NA	<2.3	NA	**5**	NA	***21***	NA
Naphthalene	mg/kg	12	6	**100**	12	*500*		**300**	NA	0.18	NA	0.14	NA	***590***	NA	<0.58	NA	9.3	NA	**310**	NA
Phenanthrene	mg/kg	100	- -	**100**	1,000	*500*		**450**	NA	3	NA	1	NA	***880***	NA	2.6	NA	54	NA	**490**	NA
Pyrene	mg/kg	100	1,700	**100**	1,000	*500*		**270**	NA	4.7	NA	2.4	NA	**440**	NA	3.7	NA	45	NA	**260**	NA
Detected SVOCs-TCLP																					
2-Methylphenol	mg/L	- -	- -	- -	- -	- -		0.0026	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA
3&4-Methylphenol	mg/L	- -	- -	- -	- -	- -		0.0023	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA
Detected SVOCs-TICs																					
(E,E)-2,5-Diphenyl-2,4-hexadiene	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.74 J	NA	0.94 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
.ALPHA.-PINENE, (-)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,3,3-TETRAMETHYL-1,3-DISILAINDAN	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1'-Biphenyl, 2,2',4,4',5-pentachloro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1'-Biphenyl, 2,3',4,4',5-pentachloro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,23,4-Dibenzoanthracene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10-Methoxybenz[a]azulen-1,4-dione	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.79 J	NA	NA	NA	NA	NA	NA	NA	67 J	NA	NA	NA
11H-Benzo[a]fluorene	mg/kg	- -	- -	- -	- -	- -		110 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11H-Benzo[b]fluorene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	140 J	NA	NA	NA	NA	NA	NA	NA
1H-Indene, 2,3-dihydro-1,1,3-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indol-4-ol, 3-[2-(dimethylamino)ethy	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	- -	- -	- -	- -	- -		250 J	NA	NA	NA	NA	NA	590 J	NA	NA	NA	NA	NA	310 J	NA
1-Octadecanamine, N,N-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Pentanol, 5,5,5-triphenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dimethyl-2'-fluorobenzophenone	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,8-BIS(FORMYL)DIBENZOTHIOPHENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28-NOR-17ALPHA(H)-HOPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID:	SB-3	SB-3	SB-4	SB-4	SB-4	SB-4	SB-4	SB-4	SB-5	SB-5	SB-5	SB-5	SB-5	SB-5
							Sample Date:	08/08/17	08/08/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/09/17	08/10/17	08/10/17	08/10/17	08/10/17	08/10/17	08/10/17
							Sample Depth (ft bgs):	SB-3 (20-33)	SB-3 (23-23.5)	SB-4 (0-10)	SB-4 (5.5-6)	SB-4 (10-20)	SB-4 (19.5-20)	SB-4 (20-33)	SB-4 (25.5-26)	SB-5 (0-10)	SB-5 (7.5-8)	SB-5 (10-20)	SB-5 (18.5-19)	SB-5 (20-33)	SB-5 (23-23.5)
Detected SVOCs-TICs (continued)																					
28-NOR-17BETA(H)-HOPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg	- -	- -	- -	- -	- -		73 JAB	NA	54 JAB	NA	60 JAB	NA	NA	NA	24 JAB	NA	64 JAB	NA	NA	NA
2-PHENYLNAPHTHALENE	mg/kg	- -	- -	- -	- -	- -		79 J	NA	NA	NA	NA	NA	140 J	NA	NA	NA	NA	NA	NA	NA
3,4-DIPHENYLPYRAZOLE-1-D1	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-[(Trimethylsilyl)ethynyl]benzotrifluo	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	mg/kg	0.0033	3	13	14	*92*		NA	NA	NA	NA	1.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	mg/kg	0.0033	2	8.9	17	*62*		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Benzylamino-1,3-diphenyl-5,6,7,8-tetr	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
4H-Cyclopenta[def]phenanthrene	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.96 J	NA	NA	NA	410 J	NA	NA	NA	NA	NA	240 J	NA
7-anti-Trimethyl-5-exo-hydroxy-3-exo-me	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7H-Benzo[c]fluoren-7-one	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9,10-Anthracenedione	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9H-Fluorene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	85 J	NA
9H-Fluorene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	160 J	NA	NA	NA	NA	NA	NA	NA
9H-Fluorene, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		80 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-Octadecenamide, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	mg/kg	20	3,400	100	98	*500*		NA	NA	NA	NA	0.9 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acridine, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		120 J	NA	NA	NA	NA	NA	260 J	NA	NA	NA	NA	NA	140 J	NA
Anthracene, 9,10-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	36 J	NA	150 J	NA
Benzaldehyde, 3,5-dichloro-2-hydroxy-	mg/kg	- -	- -	- -	- -	- -		290 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzenamine, 3-nitro-N-(phenylmethylene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]naphtho[2,1-d]thiophene	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.68 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[c]phenanthrene, 5,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[e]pyrene	mg/kg	- -	- -	- -	- -	- -		NA	NA	1.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[j]fluoranthene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimet	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-2-one, 1,7,7-trime	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Biphenyl, 2,4,4',5-tetrachloro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Borinic acid, diethyl-, 3,3,5-trimethyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cholestan-7-one, (5.alpha.,14.beta.)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene, 5-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, octyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	30 J	NA	NA	NA
Cyclohexane, undecyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYCLOPENTA(DEF)PHENANTHRENONE	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.68 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	mg/kg	- -	- -	- -	- -	- -		99 J	NA	NA	NA	NA	NA	140 J	NA	NA	NA	NA	NA	110 J	NA
d-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dl-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Docosane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dodecane, 2,6,11-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	34 J	NA	NA	NA
Dodecane, 2,7,10-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane, 1,1-bis(p-ethylphenyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.6 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	30	2,300	**100**	386	*500*		NA	NA	NA	NA	NA	NA	**140 J**	NA	NA	NA	NA	NA	86 J	NA
Gamabufotalin	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120 J	NA	NA	NA
Hexadecane, 2,6,10,14-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	60 J	NA	NA	NA
Hexadecane, 7,9-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isocopalane	mg/kg	- -	- -	- -	- -	- -		NA	NA	1.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m,p'-DDD	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	200 J	NA
Naphthalene, 1,4,5-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	150 J	NA	NA	NA	40 J	NA	76 J	NA
Naphthalene, 1,4,6-trimethyl-	mg/kg	- -	- -	- -	- -	- -		100 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	30 J	NA	75 J	NA
Naphthalene, 1,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	280 J	NA	NA	NA	63 J	NA	NA	NA
Naphthalene, 1,6,7-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	140 J	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		150 J	NA	NA	NA	NA	NA	360 J	NA	NA	NA	39 J	NA	NA	NA
Naphthalene, 1,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		110 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1-ethyl-	mg/kg	- -	- -	- -	- -	- -		140 J	NA	NA	NA	NA	NA	250 J	NA	NA	NA	NA	NA	160 J	NA
Naphthalene, 1-phenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 2,3,6-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40 J	NA	89 J	NA
Naphthalene, 2,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		250 J	NA	NA	NA	NA	NA	190 J	NA	NA	NA	37 J	NA	120 J	NA
Naphthalene, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	200 J	NA	NA	NA	NA	NA	170 J	NA
Naphthalene, 2,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	210 J	NA
n-Dodecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	61 J	NA	NA	NA
Nonadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.62 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-3 08/08/17 SB-3 (20-33)	SB-3 08/08/17 SB-3 (23-23.5)	SB-4 08/09/17 SB-4 (0-10)	SB-4 08/09/17 SB-4 (5.5-6)	SB-4 08/09/17 SB-4 (10-20)	SB-4 08/09/17 SB-4 (19.5-20)	SB-4 08/09/17 SB-4 (20-33)	SB-4 08/09/17 SB-4 (25.5-26)	SB-5 08/10/17 SB-5 (0-10)	SB-5 08/10/17 SB-5 (7.5-8)	SB-5 08/10/17 SB-5 (10-20)	SB-5 08/10/17 SB-5 (18.5-19)	SB-5 08/10/17 SB-5 (20-33)	SB-5 08/10/17 SB-5 (23-23.5)
Detected SVOCs-TICs (continued)																					
Nonane, 3,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentadecane, 2,6,10,14-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		93 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	100 J	NA	100 J	NA
Perylene	mg/kg	- -	- -	- -	- -	- -		NA	NA	2.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 2,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		110 J	NA	NA	NA	NA	NA	200 J	NA	NA	NA	33 J	NA	110 J	NA
Phenanthrene, 2,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	1.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	160 J	NA	NA	NA	58 J	NA	90 J	NA
Phenanthrene, 4-methyl-_2	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	270 J	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 9-dodecyltetradecahydro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		130 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol, 4-(1,1,3,3-tetramethylbutyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.99 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetracosane	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.62 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetradecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetradecane, 4,11-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TotalSemiVolatileTic	mg/kg	- -	- -	- -	- -	- -		2,600 J	NA	74 J	NA	84 J	NA	4,500 J	NA	24 J	NA	1,200 J	NA	2,700 J	NA
Tricyclo[4.4.0.0(2,5)]dec-8-ene, 1,2,3,	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.74 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane	mg/kg	- -	- -	- -	- -	- -		100 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 5-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 7-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31 J	NA	NA	NA
Triphenylene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 1	mg/kg	- -	- -	- -	- -	- -		79 J	NA	0.74 J	NA	0.86 J	NA	140 J	NA	NA	NA	90 J	NA	76 J	NA
unknown 10	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.8 JB	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 11	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 12	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.8 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 2	mg/kg	- -	- -	- -	- -	- -		180 J	NA	0.98 J	NA	0.9 J	NA	140 J	NA	NA	NA	120 J	NA	92 J	NA
unknown 3	mg/kg	- -	- -	- -	- -	- -		NA	NA	0.99 J	NA	0.95 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 4	mg/kg	- -	- -	- -	- -	- -		NA	NA	1.3 J	NA	0.97 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 5	mg/kg	- -	- -	- -	- -	- -		NA	NA	1.6 JB	NA	1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 6	mg/kg	- -	- -	- -	- -	- -		NA	NA	1.8 J	NA	1 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 7	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown 8	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.2 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 9	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Valencene	mg/kg	- -	- -	- -	- -	- -		87 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Detected Herbicides																					
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Herbicides-TCLP																					
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Pesticides																					
4,4'-DDD	mg/kg	0.0033	3	13	14	*92*		3.7	NA	0.048 d	NA	0.87	NA	<0.016	NA	0.015 d	NA	7.5	NA	0.7	NA
4,4'-DDE	mg/kg	0.0033	2	**8.9**	17	*62*		5.7	NA	0.088 d	NA	0.89	NA	0.078	NA	0.037	NA	**21**	NA	4.2	NA
4,4'-DDT	mg/kg	0.0033	2	7.9	136	*47*		<0.071	NA	0.12 d	NA	0.034 d	NA	<0.016	NA	0.041 d	NA	<0.36	NA	<0.34	NA
Alpha-Chlordane	mg/kg	0.094	0.2	4.2	2.9	*24*		<0.14	NA	<0.011	NA	<0.062	NA	<0.033	NA	0.059	NA	1.1 d	NA	<0.68	NA
Dieldrin	mg/kg	0.005	0.04	0.2	0.1	*1.4*		<0.029	NA	<0.0023	NA	<0.012	NA	<0.0066	NA	0.0086 d	NA	<0.14	NA	<0.14	NA
Gamma-Chlordane	mg/kg	0.094	0.2	4.2	14	*24*		<0.14	NA	<0.011	NA	<0.062	NA	<0.033	NA	0.036 d	NA	1.3 d	NA	<0.68	NA
Technical Chlordane	mg/kg	0.094	0.2	4.2	16.9	*24*		<0.14	NA	<0.011	NA	<0.062	NA	<0.033	NA	0.095	NA	2.4	NA	<0.68	NA
Detected Pesticides-TCLP																					
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Hydrocarbons																					
PHC as GASOLINE	mg/kg	- -	- -	- -	- -	- -		NA	2,400	NA	<30	NA	210	NA	3,000	NA	<31	NA	8,800	NA	1,600
Total Petroleum Hydrocarbons	mg/kg	- -	- -	- -	- -	- -		NA	94,000	NA	540	NA	14,000	NA	61,000	NA	2,300	NA	1,900	NA	23,000

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bgs):	SB-3 08/08/17 SB-3 (20-33)	SB-3 08/08/17 SB-3 (23-23.5)	SB-4 08/09/17 SB-4 (0-10)	SB-4 08/09/17 SB-4 (5.5-6)	SB-4 08/09/17 SB-4 (10-20)	SB-4 08/09/17 SB-4 (19.5-20)	SB-4 08/09/17 SB-4 (20-33)	SB-4 08/09/17 SB-4 (25.5-26)	SB-5 08/10/17 SB-5 (0-10)	SB-5 08/10/17 SB-5 (7.5-8)	SB-5 08/10/17 SB-5 (10-20)	SB-5 08/10/17 SB-5 (18.5-19)	SB-5 08/10/17 SB-5 (20-33)	SB-5 08/10/17 SB-5 (23-23.5)
Detected Inorganics																					
Aluminum	mg/kg	- -	78,000	- -	- -	- -		20,000	NA	8,900	NA	14,000	NA	7,100	NA	6,800	NA	13,000	NA	8,700	NA
Antimony	mg/kg	- -	31	- -	- -	- -		1.2	NA	<0.91	NA	<1	NA	<1.1	NA	1.7	NA	12	NA	2.8	NA
Arsenic	mg/kg	13	19	**16**	16	*16*		***29***	NA	6.3	NA	7.9	NA	***19***	NA	5.1	NA	***17***	NA	***25***	NA
Barium	mg/kg	350	16,000	**400**	820	*400*		***1,400***	NA	390	NA	210	NA	***440***	NA	***1,400***	NA	***1,100***	NA	***830***	NA
Beryllium	mg/kg	7.2	16	72	47	*590*		0.42	NA	0.27	NA	0.34	NA	0.29	NA	<0.23	NA	0.39	NA	0.39	NA
Cadmium	mg/kg	2.5	78	**4.3**	7.5	*9.3*		**6.7**	NA	2.7	NA	1.5	NA	1.7	NA	**8.8**	NA	***17***	NA	**8.5**	NA
Calcium	mg/kg	- -	- -	- -	- -	- -		59,000	NA	46,000	NA	73,000	NA	28,000	NA	54,000	NA	37,000	NA	17,000	NA
Chromium	mg/kg	30	- -	**180**	NS	*1500*		180	NA	38	NA	65	NA	49	NA	94	NA	**380**	NA	170	NA
Chromium, hexavalent	mg/kg	1	- -	110	19	*400*		<1.4	NA	<1.1	NA	<1.2	NA	<1.3	NA	2.7	NA	<1.4	NA	<1.4	NA
Cobalt	mg/kg	- -	1,600	- -	- -	- -		34	NA	6.5	NA	11	NA	7.6	NA	11	NA	24	NA	15	NA
Copper	mg/kg	50	3,100	**270**	1,720	*270*		***1,000***	NA	150	NA	140	NA	***460***	NA	***8,400***	NA	***990***	NA	***790***	NA
Cyanide	mg/kg	27	1,600	27	40	*27*		3.7	NA	<0.27	NA	<0.3	NA	<0.32	NA	0.88	NA	0.62	NA	<0.32	NA
Iron	mg/kg	- -	- -	- -	- -	- -		65,000	NA	24,000	NA	55,000	NA	31,000	NA	61,000	NA	61,000	NA	43,000	NA
Lead	mg/kg	63	400	**400**	450	*1000*		***2,300***	NA	520	NA	370	NA	670	NA	***3,000***	NA	***2,100***	NA	***1,500***	NA
Magnesium	mg/kg	- -	- -	- -	- -	- -		15,000	NA	6,100	NA	12,000	NA	6,800	NA	4,900	NA	13,000	NA	7,000	NA
Manganese	mg/kg	1,600	11,000	2,000	2,000	*10000*		470	NA	460	NA	550	NA	320	NA	430	NA	570	NA	240	NA
Mercury	mg/kg	0.18	23	**0.81**	0.73	*2.8*		***34***	NA	0.33	NA	0.34	NA	0.6	NA	0.3	NA	**1.2**	NA	***11***	NA
Nickel	mg/kg	30	1,600	**310**	130	*310*		84	NA	28	NA	55	NA	36	NA	53	NA	180	NA	100	NA
Potassium	mg/kg	- -	- -	- -	- -	- -		3,700	NA	1,300	NA	2,600	NA	1,700	NA	870	NA	2,300	NA	1,700	NA
Selenium	mg/kg	3.9	390	180	4	*1500*		4	NA	<2.3	NA	<2.5	NA	<2.6	NA	<2.3	NA	<2.9	NA	3.9	NA
Silver	mg/kg	2	390	180	8.3	*1500*		2	NA	0.89	NA	0.45	NA	2.2	NA	1.2	NA	2.2	NA	3.8	NA
Sodium	mg/kg	- -	- -	- -	- -	- -		9,300	NA	610	NA	3,300	NA	2,500	NA	970	NA	10,000	NA	4,900	NA
Thallium	mg/kg	- -	5	- -	- -	- -		0.71	NA	<0.45	NA	<0.5	NA	<0.53	NA	<0.47	NA	<0.57	NA	0.66	NA
Vanadium	mg/kg	- -	78	- -	- -	- -		66	NA	27	NA	45	NA	27	NA	44	NA	110	NA	55	NA
Zinc	mg/kg	109	23,000	10,000	2,480	*10000*		2,900	NA	590	NA	490	NA	900	NA	2,400	NA	2,500	NA	1,900	NA
Detected Inorganics-TCLP																					
Barium	mg/L	- -	- -	- -	- -	- -		0.93	NA	<0.25	NA	0.27	NA	1.4	NA	<0.25	NA	0.47	NA	0.56	NA
Cadmium	mg/L	- -	- -	- -	- -	- -		<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	0.083	NA	<0.05	NA	<0.05	NA
Lead	mg/L	- -	- -	- -	- -	- -		<0.05	NA	0.069	NA	<0.05	NA	0.26	NA	0.84	NA	0.3	NA	0.93	NA
Mercury	mg/L	- -	- -	- -	- -	- -		<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	0.0062	NA	<0.0005	NA	<0.0005	NA
Nickel	mg/L	- -	- -	- -	- -	- -		<0.1	NA	<0.1	NA	<0.1	NA	<0.1	NA	0.45	NA	0.45	NA	0.39	NA
Detected Miscellaneous																					
% Solids	Percent	- -	- -	- -	- -	- -		70	69	88	87	80	72	76	69	86	89	70	57	74	70
Eh	MV	- -	- -	- -	- -	- -		-290	NA	88	NA	-150	NA	-190	NA	260	NA	-260	NA	-230	NA
pH	PH	- -	- -	- -	- -	- -		8.9	NA	10	NA	11	NA	8.8	NA	7.8	NA	9.2	NA	8.5	NA

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Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bls):	SB-6 08/11/17 SB-6 (10-20)	SB-6 08/11/17 SB-6 (17.5-18)	SB-7 08/18/17 SB-7 (0-10)	SB-7 08/18/17 SB-7 (7-7.5)	SB-7 08/18/17 SB-7 (10-15)	SB-7 08/18/17 SB-7 (11-11.5)	SB-8 08/14/17 SB-8 (0-10)	SB-8 08/14/17 SB-8 (7.5-8)	SB-8 08/14/17 SB-8 (10-18)	SB-8 08/14/17 SB-8 (12-13)
Detected PCBs																	
Aroclor-1242	mg/kg	0.1	0.2	**1**	3.2	*1*		<1.8	NA	<0.057	NA	<0.032	NA	<0.027	NA	***1.3***	NA
Aroclor-1248	mg/kg	0.1	0.2	**1**	3.2	*1*		<1.8	NA	0.26	NA	0.32	NA	<0.027	NA	<0.29	NA
Aroclor-1254	mg/kg	0.1	0.2	**1**	3.2	*1*		***40***	NA	<0.057	NA	<0.032	NA	***1.3***	NA	***8 E***	NA
Aroclor-1260	mg/kg	0.1	0.2	**1**	3.2	*1*		<1.8	NA	***2.6***	NA	***1.2***	NA	<0.027	NA	<0.29	NA
Total PCBs	mg/kg	0.1	0.2	**1**	3.2	*1*		***40***	NA	***2.9***	NA	***1.5***	NA	***1.3***	NA	***9.3***	NA
Detected VOCs																	
1,1,2,2-Tetrachloroethane	mg/kg	- -	1	- -	0.6	- -		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
1,2-Dichlorobenzene	mg/kg	1.1	5,300	100	1.1	*500*		NA	1.3	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
1,3-Dichlorobenzene	mg/kg	2.4	5,300	49	2.4	*280*		NA	0.98	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
1,4-Dichlorobenzene	mg/kg	1.8	5	13	1.8	*130*		NA	2.7	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
2-Butanone	mg/kg	0.12	3,100	100	0.12	*500*		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Acetone	mg/kg	0.05	70,000	100	0.05	*500*		NA	<1.1	NA	<0.53	NA	<0.54	NA	<0.0089	NA	<0.011
Benzene	mg/kg	0.06	2	**4.8**	0.06	*44*		NA	0.39	NA	<0.053	NA	<0.054	NA	<0.00089	NA	<0.0011
Carbon Disulfide	mg/kg	- -	7,800	- -	2.7	- -		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Chlorobenzene	mg/kg	1.1	510	100	1.1	*500*		NA	0.46	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Chloroform	mg/kg	0.37	0.6	49	0.37	*350*		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
cis-1,2-Dichloroethene	mg/kg	0.25	230	100	0.25	*500*		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Cyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	0.68	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Ethylbenzene	mg/kg	1	7,800	**41**	1	*390*		NA	5	NA	<0.11	NA	<0.11	NA	<0.00089	NA	<0.0011
Isopropylbenzene	mg/kg	2.3	- -	- -	2.3	- -		NA	2	NA	<0.11	NA	<0.11	NA	<0.00089	NA	<0.0011
m&p-Xylene	mg/kg	0.26	12,000	100	1.6	*500*		NA	9.7	NA	0.14	NA	<0.11	NA	<0.00089	NA	<0.0011
Methyl acetate	mg/kg	- -	78,000	- -	- -	- -		NA	14	NA	3.4	NA	5	NA	<0.0018	NA	<0.0022
Methylcyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	4.1	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
o-Xylene	mg/kg	0.26	12,000	100	1.6	*500*		NA	3.6	NA	<0.11	NA	<0.11	NA	<0.00089	NA	<0.0011
Styrene	mg/kg	- -	90	- -	- -	- -		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Tetrachloroethene	mg/kg	1.3	2	19	1.3	*150*		NA	<0.22	NA	0.24	NA	<0.11	NA	<0.0018	NA	<0.0022
Toluene	mg/kg	0.7	6,300	100	0.7	*500*		NA	1	NA	0.18	NA	<0.11	NA	<0.00089	NA	<0.0011
trans-1,2-Dichloroethene	mg/kg	0.19	300	100	0.19	*500*		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Trichloroethene	mg/kg	0.47	7	21	0.47	*200*		NA	<0.22	NA	0.22	NA	<0.11	NA	<0.0018	NA	<0.0022
Vinyl Chloride	mg/kg	0.02	0.7	0.9	0.02	*13*		NA	<0.22	NA	<0.11	NA	<0.11	NA	<0.0018	NA	<0.0022
Xylenes (total)	mg/kg	0.26	12,000	**100**	1.6	*500*		NA	13	NA	0.14	NA	<0.11	NA	<0.00089	NA	<0.0011
Detected VOCs-TCLP																	
2-Butanone	mg/L	- -	- -	- -	- -	- -		NA	0.0049	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001
Benzene	mg/L	- -	- -	- -	- -	- -		NA	0.002	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005
Tetrachloroethene	mg/L	- -	- -	- -	- -	- -		NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001	NA	<0.001
Detected VOCs-TICs																	
.ALPHA.-PINENE, (-)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	18 J	NA	57 J	NA	NA	NA	NA
.alpha.-Terpinene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	0.58 J	NA	NA	NA	NA	NA	NA
.ALPHA.-TERPINOLENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	1.4 J	NA	NA	NA	NA
1,1,2,3-TETRAMETHYLCYCLOHEXANE B	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-DIMETHYL-2-PROPYLCYCLOHEXANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.061 J
1,2,4-Trimethylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,7-OCTATRIENE, 3,7-DIMETHYL-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	1.2 J	NA	NA	NA	NA
1-Azido-1-methylcyclohexane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.033 J
1H-Indene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indene, 2,3-dihydro-1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1R-METHYL-2T-PHENYLCYCLOPROPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butenedioic acid, 2-methyl-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-METHYLDECALIN (PROBABLY TRANS)	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Oxatricyclo[5.5.0.0(4,10)]dodeca-5,8,	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Hepten-3-one, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nonene, 3-methyl-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.036 J
4-Octene, 2,6-dimethyl-, [S-(E)]-	mg/kg	- -	- -	- -	- -	- -		NA	7.7 J	NA	NA	NA	NA	NA	NA	NA	NA
9-Borabicyclo[3.3.1]nonane, 9-hydroxy-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bls):	SB-6 08/11/17 SB-6 (10-20)	SB-6 08/11/17 SB-6 (17.5-18)	SB-7 08/18/17 SB-7 (0-10)	SB-7 08/18/17 SB-7 (7-7.5)	SB-7 08/18/17 SB-7 (10-15)	SB-7 08/18/17 SB-7 (11-11.5)	SB-8 08/14/17 SB-8 (0-10)	SB-8 08/14/17 SB-8 (7.5-8)	SB-8 08/14/17 SB-8 (10-18)	SB-8 08/14/17 SB-8 (12-13)
Detected VOCs-TICs (continued)																	
Benzene, (1-methyl-1-propenyl)-, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, (1-methyl-2-cyclopropen-1-yl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, (2-methyl-1-propenyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-(1,1-dimethylethyl)-4-methyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,2,3,4-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,2,3-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	24 J	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,2-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,3-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1,4-diethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-butynyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethenyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	7.3 J	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-3,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-3-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-methyl-3-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-propenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 2-ethenyl-1,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 2-ethyl-1,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	10 J	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 4-ethyl-1,2-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, methyl(1-methylethyl)-	mg/kg	- -	- -	- -	- -	- -		NA	8.3 J	NA	NA	NA	NA	NA	NA	NA	NA
Benzeneethanol, .beta.-ethenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Camphene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	0.78 J	NA	3.3 J	NA	NA	NA	NA
Cyclohexane, (1-methylethyl)-	mg/kg	- -	- -	- -	- -	- -		NA	17 J	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, 1-ethyl-1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, 1-ethyl-4-methyl-, trans-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, hexyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone, 2-(2-butynyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexene, 3-(2-methylpropyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclooctane, butyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-butyl-2-propyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.031 J
Cyclopentane, 1-methyl-3-(1-methylethyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclopentane, 1-methyl-3-(2-methylpropy	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.04 J
Decane, 3,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dl-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	3.1 J	NA	8.5 J	NA	NA	NA	NA
Heptane, 3,3'-[oxybis(methylene)]bis-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.034 J
Heptane, 3-ethyl-2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.07 J
Hexane, 2,2,5-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene	mg/kg	2.3	- -	- -	2.3	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
l-.beta.-Pinene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	0.66 J	NA	NA	NA	NA	NA	NA
Naphthalene	mg/kg	12	6	**100**	12	*500*		NA	8.4 J	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,2-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	1.2 J	NA	NA	NA	NA
Naphthalene, decahydro-	mg/kg	- -	- -	- -	- -	- -		NA	12 J	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, decahydro-1,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nonane, 3-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.063 J
Nonane, 5-(1-methylpropyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octane, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.046 J
Oxazole, 4,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentane, 2,2,4-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Isopropyltoluene	mg/kg	- -	- -	- -	- -	- -		NA	9.5 J	NA	NA	NA	NA	NA	NA	NA	NA
Pulegone	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyridine, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	0.62 J	NA	NA	NA	NA
sec-Butylbenzene	mg/kg	- -	- -	- -	- -	- -		NA	7.2 J	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bls):	SB-6 08/11/17 SB-6 (10-20)	SB-6 08/11/17 SB-6 (17.5-18)	SB-7 08/18/17 SB-7 (0-10)	SB-7 08/18/17 SB-7 (7-7.5)	SB-7 08/18/17 SB-7 (10-15)	SB-7 08/18/17 SB-7 (11-11.5)	SB-8 08/14/17 SB-8 (0-10)	SB-8 08/14/17 SB-8 (7.5-8)	SB-8 08/14/17 SB-8 (10-18)	SB-8 08/14/17 SB-8 (12-13)
Detected VOCs-TICs (continued)																	
Tetracontane, 3,5,24-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.037 J
TotalVolatileTic	mg/kg	- -	- -	- -	- -	- -		NA	170 J	NA	24 J	NA	76 J	NA	0.0067 J	NA	0.67 J
Tricyclo[3.3.1.1(3,7)]decane, 1,3-dimet	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tricyclo[3.3.1.1(3,7)]decane-1-carboxyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 7-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.027 J
Undecane, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 1	mg/kg	- -	- -	- -	- -	- -		NA	7.7 J	NA	0.6 J	NA	0.42 J	NA	0.0027 J	NA	0.034 J
unknown 2	mg/kg	- -	- -	- -	- -	- -		NA	8.4 J	NA	NA	NA	0.54 J	NA	0.004 J	NA	0.04 J
unknown 3	mg/kg	- -	- -	- -	- -	- -		NA	12 J	NA	NA	NA	0.73 J	NA	NA	NA	0.041 J
unknown 4	mg/kg	- -	- -	- -	- -	- -		NA	13 J	NA	NA	NA	0.92 J	NA	NA	NA	0.073 JY
unknown 5	mg/kg	- -	- -	- -	- -	- -		NA	18 J	NA	NA	NA	NA	NA	NA	NA	NA
unknown 6	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 7	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Unknown 8	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc, bis[2-(1,1-dimethylethyl)-3,3-dim	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Detected SVOCs																	
1,1'-Biphenyl	mg/kg	- -	3,100	- -	- -	- -		1.4	NA	<0.95	NA	<0.43	NA	<0.22	NA	<0.78	NA
2,4-Dimethylphenol	mg/kg	- -	1,200	- -	- -	- -		<0.11	NA	<0.24	NA	<0.11	NA	<0.054	NA	0.57	NA
2-Methylnaphthalene	mg/kg	- -	230	- -	36.4	- -		8.5	NA	<0.95	NA	<0.43	NA	<0.22	NA	<0.78	NA
Acenaphthene	mg/kg	20	3,400	**100**	98	*500*		6.3	NA	<0.95	NA	<0.43	NA	<0.22	NA	4.9	NA
Acenaphthylene	mg/kg	100	- -	100	107	*500*		1.4	NA	<0.95	NA	0.49	NA	0.42	NA	<0.78	NA
Anthracene	mg/kg	100	17,000	**100**	1,000	*500*		10	NA	<0.95	NA	0.76	NA	0.39	NA	4.9	NA
Benzo(a)anthracene	mg/kg	1	0.6	**1**	1	*5.6*		***16***	NA	**2.5**	NA	**2.9**	NA	**1.6**	NA	**2.7**	NA
Benzo(a)pyrene	mg/kg	1	0.2	**1**	22	*1*		***12***	NA	***2.2***	NA	***2.8***	NA	***2***	NA	***1.6***	NA
Benzo(b)fluoranthene	mg/kg	1	0.6	**1**	1.7	*5.6*		***16***	NA	**2.7**	NA	**3.8**	NA	**2.2**	NA	**1.6**	NA
Benzo(g,h,i)perylene	mg/kg	100	380,000	100	1,000	*500*		6.3	NA	1.7	NA	2.1	NA	2	NA	<0.78	NA
Benzo(k)fluoranthene	mg/kg	0.8	6	**3.9**	1.7	*56*		**5.4**	NA	1	NA	1.4	NA	0.68	NA	<0.78	NA
bis(2-Ethylhexyl)phthalate	mg/kg	- -	35	- -	435	- -		26	NA	1.5	NA	0.84	NA	<0.22	NA	49	NA
Butylbenzylphthalate	mg/kg	- -	1,200	- -	122	- -		<0.43	NA	31	NA	<0.43	NA	<0.22	NA	<0.78	NA
Carbazole	mg/kg	- -	24	- -	- -	- -		3.3	NA	<0.95	NA	0.46	NA	<0.22	NA	<0.78	NA
Chrysene	mg/kg	1	62	**3.9**	1	*56*		**15**	NA	2.4	NA	3.3	NA	1.5	NA	3.2	NA
Dibenzo(a,h)anthracene	mg/kg	0.33	0.2	**0.33**	1,000	*0.56*		***1.9***	NA	<0.95	NA	**0.48**	NA	0.31	NA	<0.78	NA
Dibenzofuran	mg/kg	7	- -	59	6.2	- -		3.8	NA	<0.24	NA	0.24	NA	0.09	NA	0.63	NA
Di-n-Butylphthalate	mg/kg	- -	6,100	- -	8.1	- -		<0.11	NA	<0.24	NA	<0.11	NA	<0.054	NA	<0.2	NA
Di-n-Octylphthalate	mg/kg	- -	2,400	- -	120	- -		<0.43	NA	<0.95	NA	<0.43	NA	<0.22	NA	0.89	NA
Fluoranthene	mg/kg	100	2,300	**100**	1,000	*500*		36	NA	4.8	NA	7.2	NA	2.8	NA	6	NA
Fluorene	mg/kg	30	2,300	**100**	386	*500*		7.8	NA	<0.95	NA	<0.43	NA	<0.22	NA	<0.78	NA
Indeno(1,2,3-cd)pyrene	mg/kg	0.5	0.6	**0.5**	8.2	*5.6*		***5.9***	NA	**1.3**	NA	**1.7**	NA	**1.2**	NA	<0.78	NA
Naphthalene	mg/kg	12	6	**100**	12	*500*		4.8	NA	<0.24	NA	0.15	NA	0.16	NA	0.31	NA
Phenanthrene	mg/kg	100	- -	**100**	1,000	*500*		39	NA	3.3	NA	5.4	NA	1.7	NA	5.1	NA
Pyrene	mg/kg	100	1,700	**100**	1,000	*500*		30	NA	4.3	NA	7	NA	3.6	NA	8.1	NA
Detected SVOCs-TCLP																	
2-Methylphenol	mg/L	- -	- -	- -	- -	- -		<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA
3&4-Methylphenol	mg/L	- -	- -	- -	- -	- -		<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA	<0.002	NA
Detected SVOCs-TICs																	
(E,E)-2,5-Diphenyl-2,4-hexadiene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
.ALPHA.-PINENE, (-)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	19 J	NA	NA	NA	NA	NA	NA	NA
1,1,3,3-TETRAMETHYL-1,3-DISILAINDAN	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	14 J	NA
1,1'-Biphenyl, 2,2',4,4',5-pentachloro-	mg/kg	- -	- -	- -	- -	- -		16 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1'-Biphenyl, 2,3',4,4',5-pentachloro-	mg/kg	- -	- -	- -	- -	- -		13 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,23,4-Dibenzoanthracene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10-Methoxybenz[a]azulen-1,4-dione	mg/kg	- -	- -	- -	- -	- -		25 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
11H-Benzo[a]fluorene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.69 J	NA	NA	NA
11H-Benzo[b]fluorene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1H-Indene, 2,3-dihydro-1,1,3-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	2 J	NA	NA	NA	NA	NA	NA	NA
1H-Indol-4-ol, 3-[2-(dimethylamino)ethy	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Methylnaphthalene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-Octadecanamine, N,N-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.6 J	NA	NA	NA	NA	NA
1-Pentanol, 5,5,5-triphenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.6 J	NA	NA	NA	NA	NA
2,6-Dimethyl-2'-fluorobenzophenone	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.47 J	NA	NA	NA
2,8-BIS(FORMYL)DIBENZOTHIOPHENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.5 J	NA	NA	NA
28-NOR-17ALPHA(H)-HOPANE	mg/kg	- -	- -	- -	- -	- -		20 J	NA	NA	NA	NA	NA	NA	NA	19 J	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bls):	SB-6 08/11/17 SB-6 (10-20)	SB-6 08/11/17 SB-6 (17.5-18)	SB-7 08/18/17 SB-7 (0-10)	SB-7 08/18/17 SB-7 (7-7.5)	SB-7 08/18/17 SB-7 (10-15)	SB-7 08/18/17 SB-7 (11-11.5)	SB-8 08/14/17 SB-8 (0-10)	SB-8 08/14/17 SB-8 (7.5-8)	SB-8 08/14/17 SB-8 (10-18)	SB-8 08/14/17 SB-8 (12-13)
Detected SVOCs-TICs (continued)																	
28-NOR-17BETA(H)-HOPANE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Pentanone, 4-hydroxy-4-methyl-	mg/kg	- -	- -	- -	- -	- -		66 JAB	NA	45 JAB	NA	44 JAB	NA	55 JAB	NA	53 JAB	NA
2-PHENYLNAPHTHALENE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,4-DIPHENYLPYRAZOLE-1-D1	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-[(Trimethylsilyl)ethynyl]benzotrifluo	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2 J	NA	NA	NA	NA	NA
4,4'-DDD	mg/kg	0.0033	3	13	14	*92*		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	mg/kg	0.0033	2	8.9	17	*62*		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Benzylamino-1,3-diphenyl-5,6,7,8-tetr	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4H-Cyclopenta[def]phenanthrene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.67 J	NA	NA	NA
7-anti-Trimethyl-5-exo-hydroxy-3-exo-me	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7H-Benzo[c]fluoren-7-one	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9,10-Anthracenedione	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9H-Fluorene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9H-Fluorene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9H-Fluorene, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9-Octadecenamide, (Z)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	1.6 J	NA	NA	NA
Acenaphthene	mg/kg	20	3,400	100	98	*500*		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acridine, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	4.5 J	NA	NA	NA	NA	NA
Anthracene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.6 J	NA	NA	NA	NA	NA
Anthracene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 9,10-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde, 3,5-dichloro-2-hydroxy-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	4.3 J	NA	NA	NA	NA	NA
Benzenamine, 3-nitro-N-(phenylmethylene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene, 1-ethyl-2,4-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[b]naphtho[2,1-d]thiophene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[c]phenanthrene, 5,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo[e]pyrene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	1.7 J	NA	NA	NA
Benzo[j]fluoranthene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimet	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-2-one, 1,7,7-trime	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.8 J	NA	NA	NA	NA	NA
Biphenyl, 2,4,4',5-tetrachloro-	mg/kg	- -	- -	- -	- -	- -		23 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Borinic acid, diethyl-, 3,3,5-trimethyl	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cholestan-7-one, (5.alpha.,14.beta.)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene, 5-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.53 J	NA	NA	NA
Cyclohexane, octyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane, undecyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CYCLOPENTA(DEF)PHENANTHRENONE	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzothiophene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
d-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.6 J	NA	NA	NA	NA	NA
dl-Limonene	mg/kg	- -	- -	- -	- -	- -		NA	NA	3.1 J	NA	NA	NA	NA	NA	NA	NA
Docosane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dodecane, 2,6,11-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	14 J	NA
Dodecane, 2,7,10-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethane, 1,1-bis(p-ethylphenyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	mg/kg	30	2,300	**100**	386	*500*		NA	NA	NA	NA	2.2 J	NA	NA	NA	NA	NA
Gamabufotalin	mg/kg	- -	- -	- -	- -	- -		14 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	31 J	NA
Hexadecane, 2,6,10,14-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexadecane, 7,9-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	11 J	NA
Isocopalane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.47 J	NA	NA	NA
m,p'-DDD	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	13 J	NA
Naphthalene, 1,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	12 J	NA
Naphthalene, 1,4,5-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	19 J	NA
Naphthalene, 1,4,6-trimethyl-	mg/kg	- -	- -	- -	- -	- -		14 J	NA	NA	NA	NA	NA	NA	NA	12 J	NA
Naphthalene, 1,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,6,7-trimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		13 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1,8-dimethyl-	mg/kg	- -	- -	- -	- -	- -		16 J	NA	NA	NA	NA	NA	NA	NA	11 J	NA
Naphthalene, 1-ethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 1-phenyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 2,3,6-trimethyl-	mg/kg	- -	- -	- -	- -	- -		14 J	NA	NA	NA	NA	NA	NA	NA	21 J	NA
Naphthalene, 2,3-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 2,6-dimethyl-	mg/kg	- -	- -	- -	- -	- -		13 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene, 2,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Dodecane	mg/kg	- -	- -	- -	- -	- -		17 J	NA	NA	NA	NA	NA	NA	NA	23 J	NA
Nonadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bls):	SB-6 08/11/17 SB-6 (10-20)	SB-6 08/11/17 SB-6 (17.5-18)	SB-7 08/18/17 SB-7 (0-10)	SB-7 08/18/17 SB-7 (7-7.5)	SB-7 08/18/17 SB-7 (10-15)	SB-7 08/18/17 SB-7 (11-11.5)	SB-8 08/14/17 SB-8 (0-10)	SB-8 08/14/17 SB-8 (7.5-8)	SB-8 08/14/17 SB-8 (10-18)	SB-8 08/14/17 SB-8 (12-13)
Detected SVOCs-TICs (continued)																	
Nonane, 3,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		14 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Octadecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentadecane, 2,6,10,14-tetramethyl-	mg/kg	- -	- -	- -	- -	- -		36 J	NA	NA	NA	NA	NA	NA	NA	34 J	NA
Perylene	mg/kg	- -	- -	- -	- -	- -		NA	NA	2.1 J	NA	3.7 J	NA	0.57 J	NA	NA	NA
Phenanthrene, 2,5-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 2,7-dimethyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 4-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.7 J	NA	NA	NA	NA	NA
Phenanthrene, 4-methyl-_2	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene, 9-dodecyltetradecahydro-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.9 J	NA	NA	NA	NA	NA
Phenanthrene, 9-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol, 4-(1,1,3,3-tetramethylbutyl)-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	14 J	NA
Pyrene, 1-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	0.53 J	NA	NA	NA
Tetracosane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetradecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	20 J	NA
Tetradecane, 4,11-dimethyl-	mg/kg	- -	- -	- -	- -	- -		39 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
TotalSemiVolatileTic	mg/kg	- -	- -	- -	- -	- -		470 J	NA	80 J	NA	90 J	NA	65 J	NA	410 J	NA
Tricyclo[4.4.0.0(2,5)]dec-8-ene, 1,2,3,	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 5-propyl-	mg/kg	- -	- -	- -	- -	- -		24 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tridecane, 7-methyl-	mg/kg	- -	- -	- -	- -	- -		16 J	NA	NA	NA	NA	NA	NA	NA	15 J	NA
Triphenylene, 2-methyl-	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 1	mg/kg	- -	- -	- -	- -	- -		19 J	NA	2.8 J	NA	1.6 J	NA	0.69 J	NA	11 J	NA
unknown 10	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 11	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 12	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 2	mg/kg	- -	- -	- -	- -	- -		54 J	NA	5.7 J	NA	1.6 J	NA	1.6 JB	NA	12 J	NA
unknown 3	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	1.9 J	NA	NA	NA	51 J	NA
unknown 4	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.1 J	NA	NA	NA	NA	NA
unknown 5	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.2 J	NA	NA	NA	NA	NA
unknown 6	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	2.7 J	NA	NA	NA	NA	NA
unknown 7	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	3 J	NA	NA	NA	NA	NA
Unknown 8	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
unknown 9	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Valencene	mg/kg	- -	- -	- -	- -	- -		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Detected Herbicides																	
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Herbicides-TCLP																	
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Pesticides																	
4,4'-DDD	mg/kg	0.0033	3	13	14	*92*		12	NA	0.038	NA	0.24	NA	0.1	NA	10	NA
4,4'-DDE	mg/kg	0.0033	2	**8.9**	17	*62*		**15**	NA	0.24	NA	0.27	NA	0.33	NA	8.7	NA
4,4'-DDT	mg/kg	0.0033	2	7.9	136	*47*		<0.36	NA	0.22 d	NA	0.11 d	NA	0.14 d	NA	<0.29	NA
Alpha-Chlordane	mg/kg	0.094	0.2	4.2	2.9	*24*		1.2 d	NA	0.048	NA	0.043 d	NA	<0.027	NA	<0.59	NA
Dieldrin	mg/kg	0.005	0.04	0.2	0.1	*1.4*		<0.14	NA	<0.0023	NA	<0.0065	NA	<0.0054	NA	0.18 d	NA
Gamma-Chlordane	mg/kg	0.094	0.2	4.2	14	*24*		0.95 d	NA	0.026 d	NA	0.035 d	NA	<0.027	NA	<0.59	NA
Technical Chlordane	mg/kg	0.094	0.2	4.2	16.9	*24*		2.2	NA	0.074	NA	0.078	NA	<0.027	NA	<0.59	NA
Detected Pesticides-TCLP																	
None Detected	- -	- -	- -	- -	- -	- -		- -	NA	- -	NA	- -	NA	- -	NA	- -	NA
Detected Hydrocarbons																	
PHC as GASOLINE	mg/kg	- -	- -	- -	- -	- -		NA	520	NA	80	NA	120	NA	<23	NA	<28
Total Petroleum Hydrocarbons	mg/kg	- -	- -	- -	- -	- -		NA	29,000	NA	340	NA	390	NA	670	NA	930

Table 3
Summary Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

	Units	NYSDEC Subpart 375-6 Protection of Public Health Unrestricted Use SCO	NJ Residential Direct Contact Soil Remediation Standards	NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO	NYSDEC Subpart 375-6 Protection of Groundwater SCO	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	Sample ID: / Sample Date: / Sample Depth (ft bls):	SB-6 08/11/17 SB-6 (10-20)	SB-6 08/11/17 SB-6 (17.5-18)	SB-7 08/18/17 SB-7 (0-10)	SB-7 08/18/17 SB-7 (7-7.5)	SB-7 08/18/17 SB-7 (10-15)	SB-7 08/18/17 SB-7 (11-11.5)	SB-8 08/14/17 SB-8 (0-10)	SB-8 08/14/17 SB-8 (7.5-8)	SB-8 08/14/17 SB-8 (10-18)	SB-8 08/14/17 SB-8 (12-13)
Detected Inorganics																	
Aluminum	mg/kg	- -	78,000	- -	- -	- -		9,200	NA	10,000	NA	8,200	NA	6,700	NA	21,000	NA
Antimony	mg/kg	- -	31	- -	- -	- -		190	NA	1	NA	4.4	NA	<0.86	NA	<0.94	NA
Arsenic	mg/kg	13	19	**16**	16	*16*		***23***	NA	8.6	NA	13	NA	5.3	NA	13	NA
Barium	mg/kg	350	16,000	**400**	820	*400*		***1,300***	NA	***430***	NA	***610***	NA	260	NA	360	NA
Beryllium	mg/kg	7.2	16	72	47	*590*		0.33	NA	<0.23	NA	0.28	NA	0.23	NA	0.68	NA
Cadmium	mg/kg	2.5	78	**4.3**	7.5	*9.3*		***10***	NA	3.5	NA	3.2	NA	0.75	NA	3.9	NA
Calcium	mg/kg	- -	- -	- -	- -	- -		30,000	NA	59,000	NA	37,000	NA	45,000	NA	120,000	NA
Chromium	mg/kg	30	- -	**180**	NS	*1500*		160	NA	70	NA	85	NA	73	NA	91	NA
Chromium, hexavalent	mg/kg	1	- -	110	19	*400*		<1.4	NA	<1.1	NA	<1.3	NA	<1.1	NA	<1.2	NA
Cobalt	mg/kg	- -	1,600	- -	- -	- -		37	NA	12	NA	12	NA	9.1	NA	16	NA
Copper	mg/kg	50	3,100	**270**	1,720	*270*		***1,200***	NA	200	NA	170	NA	95	NA	140	NA
Cyanide	mg/kg	27	1,600	27	40	*27*		0.55	NA	<0.27	NA	<0.31	NA	0.31	NA	0.47	NA
Iron	mg/kg	- -	- -	- -	- -	- -		140,000	NA	56,000	NA	73,000	NA	23,000	NA	19,000	NA
Lead	mg/kg	63	400	**400**	450	*1000*		***4,200***	NA	620	NA	***1,300***	NA	340	NA	790	NA
Magnesium	mg/kg	- -	- -	- -	- -	- -		12,000	NA	5,900	NA	5,900	NA	7,000	NA	9,900	NA
Manganese	mg/kg	1,600	11,000	2,000	2,000	*10000*		750	NA	520	NA	820	NA	300	NA	660	NA
Mercury	mg/kg	0.18	23	**0.81**	0.73	*2.8*		***14***	NA	0.62	NA	**1**	NA	**2.5**	NA	***47***	NA
Nickel	mg/kg	30	1,600	**310**	130	*310*		120	NA	66	NA	78	NA	47	NA	43	NA
Potassium	mg/kg	- -	- -	- -	- -	- -		1,600	NA	1,300	NA	1,700	NA	910	NA	2,900	NA
Selenium	mg/kg	3.9	390	180	4	*1500*		<2.9	NA	<2.3	NA	<2.6	NA	<2.2	NA	<2.4	NA
Silver	mg/kg	2	390	180	8.3	*1500*		1.3	NA	0.72	NA	0.9	NA	<0.22	NA	0.96	NA
Sodium	mg/kg	- -	- -	- -	- -	- -		7,600	NA	510	NA	4,800	NA	560	NA	6,600	NA
Thallium	mg/kg	- -	5	- -	- -	- -		0.61	NA	<0.45	NA	<0.52	NA	<0.43	NA	<0.47	NA
Vanadium	mg/kg	- -	78	- -	- -	- -		74	NA	100	NA	96	NA	27	NA	46	NA
Zinc	mg/kg	109	23,000	10,000	2,480	*10000*		7,200	NA	900	NA	1,400	NA	340	NA	460	NA
Detected Inorganics-TCLP																	
Barium	mg/L	- -	- -	- -	- -	- -		1.1	NA	0.77	NA	0.55	NA	0.91	NA	<0.25	NA
Cadmium	mg/L	- -	- -	- -	- -	- -		<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA	<0.05	NA
Lead	mg/L	- -	- -	- -	- -	- -		<0.05	NA	0.17	NA	0.43	NA	<0.05	NA	<0.05	NA
Mercury	mg/L	- -	- -	- -	- -	- -		<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA	<0.0005	NA
Nickel	mg/L	- -	- -	- -	- -	- -		<0.1	NA	<0.1	NA	0.2	NA	<0.1	NA	<0.1	NA
Detected Miscellaneous																	
% Solids	Percent	- -	- -	- -	- -	- -		70	46	88	91	77	89	93	94	85	87
Eh	MV	- -	- -	- -	- -	- -		-240	NA	220	NA	-17	NA	41	NA	-150	NA
pH	PH	- -	- -	- -	- -	- -		7.9	NA	9.3	NA	8.8	NA	11	NA	11	NA

Table 3
Summary of Compounds Detected in Soil Samples
First Street Turning Basin
Brooklyn, New York

Notes and Abbreviations:

NA	Not analyzed
VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
PCBs	Polychlorinated Byphenols
TCLP	Toxicity Characterisc Leaching Procedure
TIC	Tentatively Identified Compound
PHC	Petroleum Hydrocarbons
NS	No Standard
	Exceeds NYSDEC Subpart 375-6 Unrestricted Use SCOs.
Red Font	Exceeds New Jersey Residential Direct Contact Soil Remediation Standards.
Bold Font	Exceeds NYSDEC Subpart 375-6 Protection of Public Health Restricted-Residential Use SCO.
Underline	Exceeds NYSDEC Subpart 375-6 Protection of Groundwater SCO.
Italics	Exceeds NYSDEC Subpart 375-6 Protection of Public Health Restricted-Commerical Use SCO.
NYSDEC	New York State Department of Environmental Conservation.
SCO	Soil Cleanup Objective.
mg/kg	Milligrams per kilogram.
ft/bgs	Feet below ground surface.
N.J.A.C	New Jersey Administrative Code.
N.J.A.C. 7:26D	Remediation Standards

- New Jersey Residential Direct Contact Soil Remediation Standards

Lab Qualifiers	Definition
<	Less than
E	Serial dilution results not within 10%. Applicable only if analyte concentration is at least 50X the IDL in original sample.
J	Indicates an estimated value.
JAB	Indicates an estimated value, and a detection of a non-targeted compound suspected to be an aldol-condensation product, which was also found in the associated blank. These compounds are a by-proected of the sample extraction process.
JB	Indicates an estimated value, and the analyte was found in the associated blank sample.
JY	Indicates an estimated value, and that a contaminant was found in the associated blank at less than 10% of the concentration of the contaminant found in the sample.

Table 4
Summary of Groundwater Sample Analytical Results
First Street Turning Basin
Brooklyn, New York

Analyte	T/D	Unit	NYSDEC TOGS (1.1.1) SGV	Location: Sample ID: Sample Date: NYCDEP Effluent to Sewer	MW-3S MW-3S-09122017 9/12/2017	MW-3D MW-3D-09122017 9/12/2017	MW-4S MW-4S-09132017 9/13/2017	MW-4D MW-4D-09132017 9/13/2017	MW-5S MW-5S-09122017 9/12/2017	MW-5D MW-5D-09132017 9/13/2017
Anions										
Chloride	--	mg/l	250	--	8,600	250	12000	6500	13000	510
Nitrate-N	--	mg/l	10	--	< 1.0 U	< 1.0 U	11	< 1.0 U	1.1	< 1.0 U
Nitrite	--	mg/l	1	--	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U	< 1.0 U
Total Kjeldahl Nitrogen	--	mg/l	--	--	2.2	9.2	--	--	0.39	--
GenChem										
Biological Oxygen Demand	--	mg/l	--	--	< 2.0 U	< 2.0 U	< 2.0 U	8.9	< 2.0 U	7.6
Flashpoint	--	deg f	--	>140	>141	>141	>141	>141	>141	>141
pH	--	SU	--	--	7.5	7.2	6.8	7.7	7.4	7.4
Total Solids	--	mg/l	--	--	18,000	1,000	24,000	14,000	26,000	1,700
Total Suspended Solids	--	mg/l	--	350	25	12	30	65	29	160
Metals										
Aluminum	D	ug/l	--	--	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U	< 200 U
Aluminum	T	ug/l	--	--	< 200 U	< 200 U	< 200 U	710	< 200 U	3400
Antimony	D	ug/l	3	--	< 3 U	< 3 U	< 3.0 U	< 3.0 U	< 3 U	< 3.0 U
Antimony	T	ug/l	3	--	< 3 U	< 3 U	< 3.0 U	< 3.0 U	< 3 U	< 3.0 U
Arsenic	D	ug/l	25	--	< 2 U	< 2 U	< 6.0 U	3.9	< 6 U	2.5
Arsenic	T	ug/l	25	--	< 2 U	< 2 U	< 6.0 U	5.9	< 6 U	5.3
Barium	D	ug/l	1000	--	100	130	< 50 U	190	< 50 U	66
Barium	T	ug/l	1000	--	99	120	< 50 U	270	< 50 U	140
Beryllium	D	ug/l	3	--	< 3 U	< 1 U	< 3.0 U	< 3.0 U	< 3 U	< 1.0 U
Beryllium	T	ug/l	3	--	< 3 U	< 1 U	< 3.0 U	< 3.0 U	< 3 U	< 1.0 U
Cadmium	D	ug/l	5	690	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U
Cadmium	T	ug/l	5	690	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 2 U	< 2.0 U
Calcium	D	ug/l	--	--	240,000	100,000	260,000	170,000	280,000	81,000
Calcium	T	ug/l	--	--	230,000	99,000	250,000	160,000	270,000	71,000
Chromium	D	ug/l	50	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Chromium	T	ug/l	50	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Chromium VI	T	mg/l	0.05	5	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U
Cobalt	D	ug/l	--	--	< 6 U	< 2 U	< 6.0 U	< 6.0 U	< 6 U	< 2.0 U
Cobalt	T	ug/l	--	--	< 6 U	< 2 U	< 6.0 U	< 6.0 U	< 6 U	2.3
Copper	D	ug/l	200	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Copper	T	ug/l	200	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	54
Iron	D	ug/l	300	--	530	3100	450	4,400	< 300 U	2,000
Iron	T	ug/l	300	--	600	3200	540	6,600	430	7,700
Lead	D	ug/l	25	--	< 3 U	< 3 U	< 3.0 U	< 3.0 U	< 9 U	< 3.0 U
Lead	T	ug/l	25	--	< 3 U	< 3 U	< 3.0 U	19	< 9 U	78
Magnesium	D	ug/l	35000	--	580,000	48,000	750,000	430,000	790,000	54,000

Table 4
Summary of Groundwater Sample Analytical Results
First Street Turning Basin
Brooklyn, New York

Analyte	T/D	Unit	NYSDEC TOGS (1.1.1) SGV	Location: Sample ID: Sample Date: NYCDEP Effluent to Sewer	MW-3S MW-3S-09122017 9/12/2017	MW-3D MW-3D-09122017 9/12/2017	MW-4S MW-4S-09132017 9/13/2017	MW-4D MW-4D-09132017 9/13/2017	MW-5S MW-5S-09122017 9/12/2017	MW-5D MW-5D-09132017 9/13/2017
Metals (continued)										
Magnesium	T	ug/l	35000	--	550,000	45,000	720,000	400,000	760,000	53,000
Manganese	D	ug/l	300	--	1,100	7,600	140	320	< 40 U	430
Manganese	T	ug/l	300	--	1,200	7,300	160	440	< 40 U	420
Mercury	D	ug/l	0.7	--	< 0.5 U	< 0.5 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.50 U
Mercury	T	ug/l	0.7	--	< 0.5 U	< 0.5 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.50 U
Nickel	D	ug/l	100	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Nickel	T	ug/l	100	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Potassium	D	ug/l	--	--	240,000	25,000	340,000	190,000	360,000	35,000
Potassium	T	ug/l	--	--	230,000	24,000	320,000	170,000	330,000	35,000
Selenium	D	ug/l	10	--	< 10 U	< 10 U	< 30 U	< 10 U	< 30 U	< 10 U
Selenium	T	ug/l	10	--	< 10 U	< 10 U	< 30 U	< 10 U	< 30 U	< 10 U
Silver	D	ug/l	50	--	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Silver	T	ug/l	50	--	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
Sodium	D	ug/l	20000	--	4,900,000 D	150,000	6,500,000	4,200,000	6,700,000 D	330,000
Sodium	T	ug/l	20000	--	4,800,000 D	150,000	6,100,000	3,500,000	6,700,000 D	360,000
Thallium	D	ug/l	0.5	--	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 6 U	< 2.0 U
Thallium	T	ug/l	0.5	--	< 2 U	< 2 U	< 2.0 U	< 2.0 U	< 6 U	< 2.0 U
Vanadium	D	ug/l	--	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Vanadium	T	ug/l	--	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
Zinc	D	ug/l	2000	--	< 50 U	< 50 U	< 50 U	< 50 U	68	< 50 U
Zinc	T	ug/l	2000	--	< 50 U	< 50 U	< 50 U	< 50 U	74	110
PCBs										
Aroclor 1016	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Aroclor 1221	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Aroclor 1232	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Aroclor 1242	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	0.28
Aroclor 1248	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Aroclor 1254	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	1.1
Aroclor 1260	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Aroclor 1262	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Aroclor 1268	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	< 0.26 U
Polychlorinated biphenyls	--	ug/l	0.09	--	< 0.05 U	< 0.05 U	< 0.28 U	< 0.25 U	< 0.05 U	1.4
SVOCs										
1,1-Biphenyl	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	12
1,2,4,5-Tetrachlorobenzene	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2,2-Oxybis(1-Chloropropane)	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2,3,4,6-Tetrachlorophenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U

Table 4
Summary of Groundwater Sample Analytical Results
First Street Turning Basin
Brooklyn, New York

Analyte	T/D	Unit	NYSDEC TOGS (1.1.1) SGV	Location: Sample ID: Sample Date: NYCDEP Effluent to Sewer	MW-3S MW-3S-09122017 9/12/2017	MW-3D MW-3D-09122017 9/12/2017	MW-4S MW-4S-09132017 9/13/2017	MW-4D MW-4D-09132017 9/13/2017	MW-5S MW-5S-09122017 9/12/2017	MW-5D MW-5D-09132017 9/13/2017
SVOCs (continued)										
2,4,5-Trichlorophenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2,4,6-Trichlorophenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2,4-Dichlorophenol	--	ug/l	1	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
2,4-Dimethylphenol	--	ug/l	1	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
2,4-Dinitrophenol	--	ug/l	1	--	< 10 U	< 30 U	< 10 U	< 200 U	< 10 U	< 50 U
2,4-Dinitrotoluene	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2,6-Dinitrotoluene	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2-Chloronaphthalene	--	ug/l	10	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2-Chlorophenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2-Methyl-4,6-dinitrophenol	--	ug/l	1	--	< 10 U	< 30 U	< 10 U	< 200 U	< 10 U	< 50 U
2-Methylnaphthalene	--	ug/l	--	--	**11**	**35 D**	< 2.0 U	**500**	< 2 U	**150**
2-Methylphenol	--	ug/l	1	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
2-Nitroaniline	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
2-Nitrophenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
3,3-Dichlorobenzidine	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
3-Methylphenol, 4-Methylphenol	--	ug/l	--	--	< 0.5 U	< 1.5 U	--	--	< 0.5 U	--
3-Nitroaniline	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
4-Bromophenyl phenyl ether	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
4-Chloro-3-Methylphenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
4-Chlorophenyl phenyl ether	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
4-Methylphenol	--	ug/l	**1**	--	--	--	< 0.50 U	< 10 U	--	**31**
4-Nitroaniline	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
4-Nitrophenol	--	ug/l	1	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Acenaphthene	--	ug/l	**20**	--	**6.1**	**55 D**	**2.5**	**210**	**4.1**	**88**
Acenaphthylene	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Acetophenone	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Anthracene	--	ug/l	**50**	--	< 2 U	< 6 U	< 2.0 U	**52**	< 2 U	**28**
Atrazine	--	ug/l	7.5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Benzaldehyde	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Benzo(a)anthracene	--	ug/l	**0.002**	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	**16**
Benzo(a)pyrene	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Benzo(b)fluoranthene	--	ug/l	0.002	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Benzo(g,h,i)perylene	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Benzo(k)fluoranthene	--	ug/l	0.002	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
bis(2-Chloroethoxy)methane	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
bis(2-Chloroethyl)ether	--	ug/l	1	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
bis(2-Ethylhexyl)phthalate	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U

Table 4
Summary of Groundwater Sample Analytical Results
First Street Turning Basin
Brooklyn, New York

Analyte	T/D	Unit	NYSDEC TOGS (1.1.1) SGV	Location: Sample ID: Sample Date: NYCDEP Effluent to Sewer	MW-3S MW-3S-09122017 9/12/2017	MW-3D MW-3D-09122017 9/12/2017	MW-4S MW-4S-09132017 9/13/2017	MW-4D MW-4D-09132017 9/13/2017	MW-5S MW-5S-09122017 9/12/2017	MW-5D MW-5D-09132017 9/13/2017
SVOCs (continued)										
Butyl benzyl phthalate	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Caprolactam	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Carbazole	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Chrysene	--	ug/l	**0.002**	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	**15**
Dibenzo(a,h)anthracene	--	ug/l	--	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Dibenzofuran	--	ug/l	--	--	< 0.5 U	**2.5 D**	< 0.50 U	**12**	< 0.5 U	**5.6**
Diethyl phthalate	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Dimethyl phthalate	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Di-n-butyl phthalate	--	ug/l	50	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
Di-n-octyl phthalate	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Fluoranthene	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	**46**	**2.3**	**28**
Fluorene	--	ug/l	**50**	--	< 2 U	**13 D**	< 2.0 U	**91**	< 2 U	**38**
Hexachloro-1,3-butadiene	--	ug/l	0.5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Hexachlorobenzene	--	ug/l	0.04	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Hexachlorocyclopentadiene	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Hexachloroethane	--	ug/l	5	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Indeno(1,2,3-cd)pyrene	--	ug/l	0.002	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Isophorone	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
Naphthalene	--	ug/l	**10**	19	**45**	**210 D**	< 0.50 U	**1900**	< 0.5 U	**390**
Nitrobenzene	--	ug/l	0.4	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
N-Nitrosodi-n-propylamine	--	ug/l	--	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
N-Nitrosodiphenylamine	--	ug/l	50	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	< 10 U
p-Chloroaniline	--	ug/l	5	--	< 0.5 U	< 1.5 U	< 0.50 U	< 10 U	< 0.5 U	< 2.5 U
Pentachlorophenol	--	ug/l	1	--	< 10 U	< 30 U	< 10 U	< 200 U	< 10 U	< 50 U
Phenanthrene	--	ug/l	**50**	--	< 2 U	**23 D**	< 2.0 U	**210**	< 2 U	**100**
Phenol	--	ug/l	**1**	--	< 2 U	< 6 U	< 2.0 U	< 40 U	< 2 U	**11**
Pyrene	--	ug/l	**50**	--	< 2 U	< 6 U	< 2.0 U	**75**	**2.8**	**44**
TPH										
HEM Polar (Oil and Grease - Polar)	--	mg/l	--	50	< 5.4 U	< 5.2 U	< 6.2 U	**7.6**	< 5.2 U	< 6.0 U

Table 4
Summary of Groundwater Sample Analytical Results
First Street Turning Basin
Brooklyn, New York

Analyte	T/D	Unit	NYSDEC TOGS (1.1.1) SGV	Location: Sample ID: Sample Date: NYCDEP Effluent to Sewer	MW-3S MW-3S-09122017 9/12/2017	MW-3D MW-3D-09122017 9/12/2017	MW-4S MW-4S-09132017 9/13/2017	MW-4D MW-4D-09132017 9/13/2017	MW-5S MW-5S-09122017 9/12/2017	MW-5D MW-5D-09132017 9/13/2017
VOCs										
1,1,1-Trichloroethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,1,2,2-Tetrachloroethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,1,2-trichloro-1,2,2-trifluoroethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,1,2-Trichloroethane	--	ug/l	1	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,1-Dichloroethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,1-Dichloroethene	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,2,3-Trichlorobenzene	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,2,4-Trichlorobenzene	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,2-Dibromo-3-chloropropane	--	ug/l	0.04	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,2-Dibromoethane	--	ug/l	0.0006	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,2-Dichlorobenzene	--	ug/l	3	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,2-Dichloroethane	--	ug/l	0.6	--	< 0.5 U	< 0.5 U	< 0.50 U	< 0.50 U	< 0.5 U	< 0.50 U
1,2-Dichloropropane	--	ug/l	1	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,3-Dichlorobenzene	--	ug/l	3	--	**2.3**	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
1,4-Dichlorobenzene	--	ug/l	**3**	--	**6.5**	< 1 U	**5.1**	< 1.0 U	< 1 U	**2.4**
1,4-Dioxane	--	ug/l	--	--	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
2-Butanone (MEK)	--	ug/l	50	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
2-Hexanone	--	ug/l	50	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
4-Methyl-2-Pentanone	--	ug/l	--	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Acetone	--	ug/l	50	--	< 5 U	< 5 U	< 5.0 U	< 5.0 U	< 5 U	< 5.0 U
Benzene	--	ug/l	**1**	57	**0.67**	**4.2**	< 0.50 U	**17**	< 0.5 U	**8.9**
Bromochloromethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Bromodichloromethane	--	ug/l	50	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Bromoform	--	ug/l	50	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Bromomethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Carbon Disulfide	--	ug/l	60	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Carbon Tetrachloride	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
CFC-11	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
CFC-12	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Chlorobenzene	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Chlorodibromomethane	--	ug/l	50	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Chloroethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Chloroform	--	ug/l	7	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	**2.4**
Chloromethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
cis-1,2-Dichloroethene	--	ug/l	5	--	< 1 U	**1.5**	< 1.0 U	**2.4**	< 1 U	< 1.0 U
cis-1,3-Dichloropropene	--	ug/l	0.4	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Cyclohexane	--	ug/l	--	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U

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Analyte	T/D	Unit	NYSDEC TOGS (1.1.1) SGV	Location: Sample ID: Sample Date: NYCDEP Effluent to Sewer	MW-3S MW-3S-09122017 9/12/2017	MW-3D MW-3D-09122017 9/12/2017	MW-4S MW-4S-09132017 9/13/2017	MW-4D MW-4D-09132017 9/13/2017	MW-5S MW-5S-09122017 9/12/2017	MW-5D MW-5D-09132017 9/13/2017
VOCs (continued)										
Dichloromethane	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Ethylbenzene	--	ug/l	5	142	5.2	16	2.2	210	< 1 U	61
Isopropylbenzene	--	ug/l	5	--	< 1 U	4.4	< 1.0 U	23	< 1 U	12
m&p-Xylenes	--	ug/l	5	--	4.1	9.7	1.3	130	< 1 U	57
Methyl Acetate	--	ug/l	--	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Methylcyclohexane	--	ug/l	--	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Methyl-tert-butylether	--	ug/l	10	50	0.94	4.2	< 0.50 U	3.6	< 0.5 U	< 0.50 U
o-Xylene	--	ug/l	5	--	2.7	13	< 1.0 U	110	< 1 U	43
Styrene (Monomer)	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Tetrachloroethene	--	ug/l	5	20	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Toluene	--	ug/l	5	28	1.5	2.2	< 1.0 U	42	< 1 U	13
Total Xylenes	--	ug/l	5	28	6.8	23	1.3	240	< 1 U	100
trans-1,2-Dichloroethene	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
trans-1,3-Dichloropropene	--	ug/l	0.4	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Trichloroethene	--	ug/l	5	--	< 1 U	< 1 U	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U
Vinyl chloride	--	ug/l	2	--	< 1 U	2.6	< 1.0 U	< 1.0 U	< 1 U	< 1.0 U

Table 4
Summary of Groundwater Sample Analytical Results
First Street Turning Basin
Brooklyn, New York

Notes and Abbreviations:

VOCs	Volatile Organic Compounds
SVOCs	Semi-Volatile Organic Compounds
PCBs	Polychlorinated Byphenols
ug/L	micrograms per Liter
T/D	Total/Dissolved
--	Not available.
Bold Font	Indicates detection above laboratory Method Dection Limit.
Red Font	Indicated an exceedence of TOGS (1.1.1) SGV.
	Compound concentration exceeds Effluent to Sewer Limitation.

NYSDEC	New York State Department of Environmental Conservation.
NYSDEC TOGS 1.1.1	NYSDEC Part 703.5 Class GA Ambient Water Quality Standards and Guidance Values.
TOGS	Technical & Operational Guidance Series.
SGV	Ambient Water Quality Standards and Guidance Values.

NYCDEP Effluent to Sewer - "Limitiations for Effluent to Sanitary or Combined Sewers"
- Parameter list is provided in DEP WQ-D001/Wastewater Quality Control Application/Rev. 11/2009, Table A.

NYCDEP	New York City Department of Environmental Protection.

Lab Qualifier	Definition
U	The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

FIGURES

CAPITAL PROJECT: PW77GOWAN
PRELIMINARY AND FINAL DESIGN SERVICES
FOR EXCAVATION AND CAPPING OF FILLED
FIRST STREET TURNING BASIN GOWANUS CANAL

Privileged & Confidential - Prepared at the Request of Legal Counsel

0 800 1,600
Feet

FIRST STREET TURNING BASIN - GOWANUS CANAL
Brooklyn, New York

SITE LOCATION

AKRF | KSE
The AKRF-KSE JV

DATE
5/19/2016

PROJECT No.
80468

FIGURE
1-1

©2015 AKRF, Inc. Environmental Consultants W:\Projects\80468 - DDC - GOWANUS\Technical\GIS and Graphics\hazmat\80468 Fig site loc map gowanus.mxd

LEGEND:

- PROJECT SITE BOUNDARY
- LOT LINE
- PROPOSED CONSTRUCTED WETLAND AREA
- PREVIOUSLY INSTALLED MONITORING WELL
- OFF-SET MONITORING WELL
- SOIL BORINGS TO 18 FT BGS IN PROPOSED WETLAND SHELF
- SOIL BORINGS TO 33 FT BGS
- SOIL BORINGS TO 33 FT BGS; MONITORING WELL/SLUG TESTING
- 453 BLOCK NUMBER
- 54 LOT NUMBER

NOTES:

1. BASE MAP PROVIDED BY AKRF ENGINEERING, P.C., PROJECTED TO NAD83 NY S.P. LONG ISLAND ZONE, US FEET.
2. IMAGERY PROVIDED BY USGS EARTHEXPLORER.
3. GCMW-27 PREVIOUSLY INSTALLED BY EPA.
4. BGS - BELOW GROUND SURFACE

0 20' 40'
APPROXIMATE SCALE IN FEET

FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

SAMPLE LOCATION MAP

AKRF KSE
The AKRF-KSE JV

FIGURE
2

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: A. SANCHEZ
C:\Users\alsanchez\Desktop\B00188800\0000\00501\DWG\18800B02.dwg LAYOUT: 2 SAVED: 11/10/2017 5:16 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 11/10/2017 5:22 PM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ----
18800X01 18800X01_200 FT.jpg
18800X0D AKRF-KES-JV_Logo2.png

LEGEND:

- PROJECT SITE BOUNDARY
- LOT LINE
- PROPOSED CONSTRUCTED WETLAND AREA
- PREVIOUSLY INSTALLED MONITORING WELL
- OFF-SET MONITORING WELL
- SOIL BORINGS TO 18 FT BGS IN PROPOSED WETLAND SHELF
- SOIL BORINGS TO 33 FT BGS
- SOIL BORINGS TO 33 FT BGS; MONITORING WELL/SLUG TESTING
- 453 BLOCK NUMBER
- 54 LOT NUMBER

- NAPL DETECTED FROM 17-18 FT. BGS.
- NAPL DETECTED FROM 27-30 FT. BGS.
- NAPL DETECTED FROM 28-31 FT. BGS.
- NAPL DETECTED FROM 23-25, 28-33 FT. BGS.
- NAPL DETECTED FROM 17-21, 30-35 FT. BGS., AS NOTED IN EPA BORING LOG

NOTES:

1. BASE MAP PROVIDED BY AKRF ENGINEERING, P.C., PROJECTED TO NAD83 NY S.P. LONG ISLAND ZONE, US FEET.
2. IMAGERY PROVIDED BY USGS EARTHEXPLORER.
3. GCMW-27 PREVIOUSLY INSTALLED BY EPA.
4. BGS - BELOW GROUND SURFACE

0 20' 40'
APPROXIMATE SCALE IN FEET

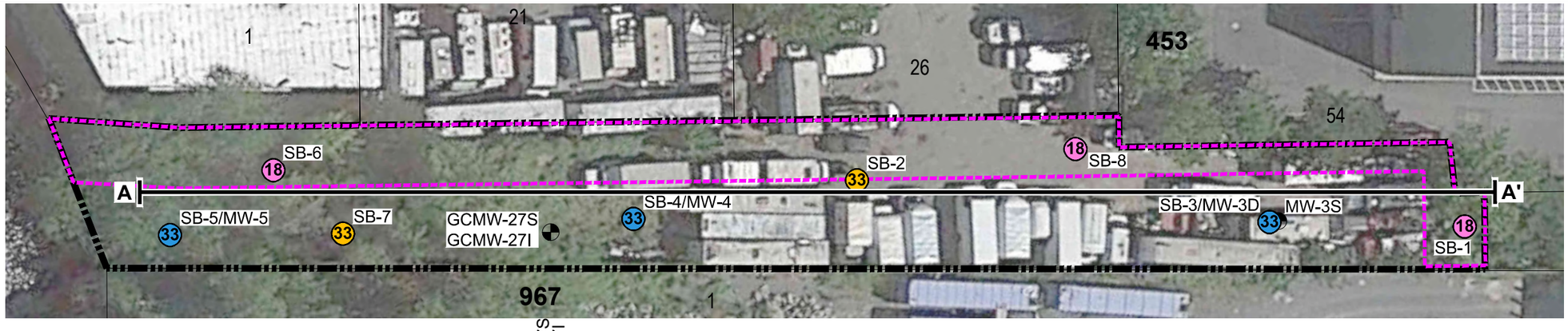
FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

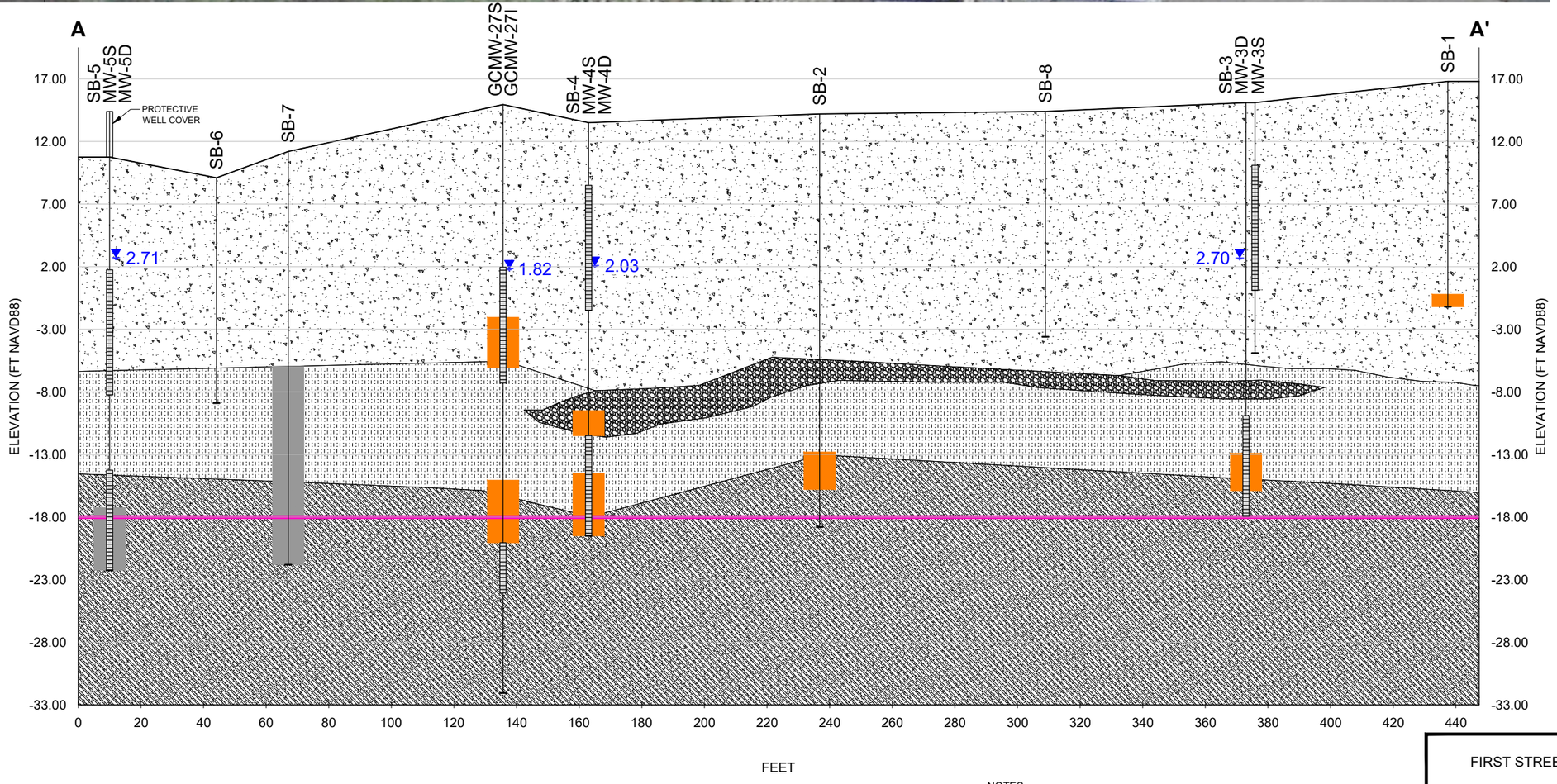
OBSERVED NON-AQUEOUS PHASE LIQUID (NAPL) LOCATIONS

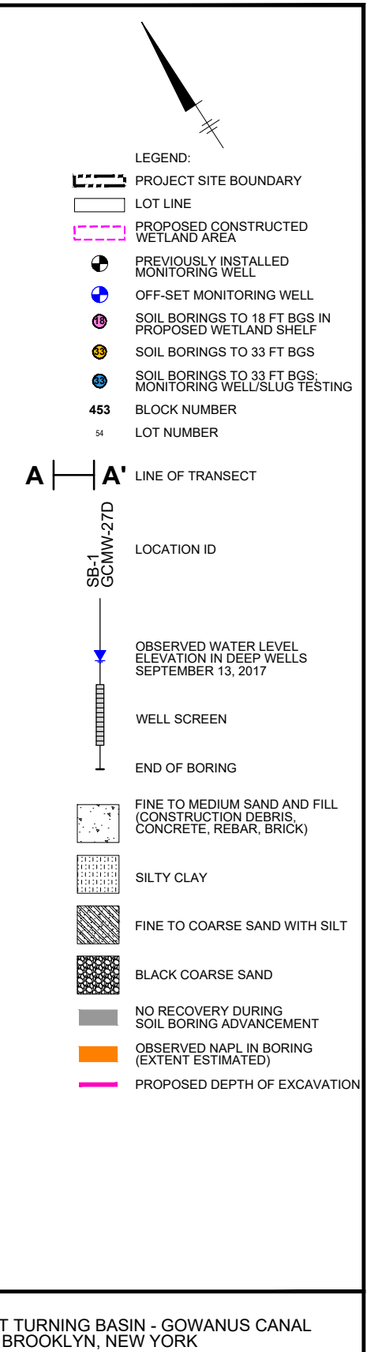
AKRF KSE
The AKRF-KSE JV

FIGURE
3

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: A. SANCHEZ
Z:\ENVCAD\SYRACUSE\ACT\18800\0000\0056\01\DWG\18800B03.dwg LAYOUT: 3 SAVED: 11/13/2017 10:20 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/13/2017 5:20 PM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ----
18800X01 18800X01_200 FT.jpg
18800X0D AKRF-KES-JV_Logo2.png







NOTES:

1. BASE MAP PROVIDED BY AKRF ENGINEERING, P.C., PROJECTED TO NAD83 NY S.P. LONG ISLAND ZONE, US FEET.
2. IMAGERY PROVIDED BY USGS EARTHEXPLORER.
3. GCMW-27 PREVIOUSLY INSTALLED BY THE EPA, PRODUCT THICKNESSES SHOWN ARE AS REPORTED IN BORING LOG.
4. BGS - BELOW GROUND SURFACE.
5. GROUND SURFACE ELEVATIONS FROM TOPOGRAPHIC & PROPRTY LINE MAP, FIRST STREET TURNING BASIN, BY B. THAYER ASSOCIATES, 10.10.2017.

FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

LINE OF TRANSECT AND CROSS SECTION A-A'

AKRF KSE
The AKRF-KSE JV

FIGURE
4

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: A. SANCHEZ
Z:\ENVCAD\SYRACUSE\ACTIB\018800\0000\008501\DWG\18800V02.dwg LAYOUT: 4 SAVED: 11/13/2017 9:44 AM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/13/2017 4:58 PM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ----
18800X01 18800X01_200 FT.jpg
18800X0D AKRF-KES-JV_Logo2.png

SB-6	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/10/2017
Starting Depth	Feet		10
Ending Depth	Feet		20
PCBs			
Aroclor-1242	mg/kg	1	<1.8
Aroclor-1248	mg/kg	1	<1.8
Aroclor-1254	mg/kg	1	40
Aroclor-1260	mg/kg	1	<1.8
Inorganics			
Arsenic	mg/kg	16	23
Barium	mg/kg	400	1,300
Cadmium	mg/kg	9.3	10
Copper	mg/kg	270	1,200
Lead	mg/kg	1000	4,200
Mercury	mg/kg	2.8	14

SB-4	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/9/2017	8/9/2017	8/9/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
PCBs					
Aroclor-1248	mg/kg	1	4.2	NE	NE
Aroclor-1260	mg/kg	1	2.2	NE	NE
Inorganics					
Arsenic	mg/kg	16	NE	NE	19
Barium	mg/kg	400	NE	NE	440
Copper	mg/kg	270	NE	NE	460

SB-2	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/8/2017	8/8/2017	8/8/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
PCBs					
Aroclor-1242	mg/kg	1	NE	4.1	NE
Aroclor-1254	mg/kg	1	3	16	NE
Inorganics					
Arsenic	mg/kg	16	27	17	NE
Barium	mg/kg	400	NE	NE	1,100
Copper	mg/kg	270	2,700	12,000	500
Lead	mg/kg	1000	NE	1,100	6,700
Mercury	mg/kg	2.8	3	NE	27
Nickel	mg/kg	310	2,800	1,900	NE

SB-8	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/14/2017	8/14/2017
Starting Depth	Feet		0	10
Ending Depth	Feet		10	18
PCBs				
Aroclor-1242	mg/kg	1	NE	1.3
Aroclor-1254	mg/kg	1	1.3	8
Detected Inorganics				
Mercury	mg/kg	2.8	NE	47

SB-5	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/10/2017	8/10/2017	8/10/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
PCBs					
Aroclor-1242	mg/kg	1	NE	<1.8	NE
Aroclor-1248	mg/kg	1	NE	<1.8	NE
Aroclor-1254	mg/kg	1	NE	9.9	2.4
Aroclor-1260	mg/kg	1	NE	<1.8	NE
Inorganics					
Arsenic	mg/kg	16	NE	17	25
Barium	mg/kg	400	1,400	1,100	830
Cadmium	mg/kg	9.3	NE	17	NE
Copper	mg/kg	270	8,400	990	790
Lead	mg/kg	1000	3,000	2,100	1,500
Mercury	mg/kg	2.8	NE	NE	11

SB-7	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/18/2017	8/18/2017
Starting Depth	Feet		0	10
Ending Depth	Feet		10	15
PCBs				
Aroclor-1260	mg/kg	1	2.6	1.2
Inorganics				
Barium	mg/kg	400	430	610
Lead	mg/kg	1000	NE	1,300

SB-3	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/8/2017	8/8/2017	8/8/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
PCBs					
Aroclor-1254	mg/kg	1	NE	NE	5.03
Detected Inorganics					
Arsenic	mg/kg	16	NE	NE	29
Barium	mg/kg	400	NE	NE	1,400
Copper	mg/kg	270	NE	NE	1,000
Lead	mg/kg	1000	NE	NE	2,300
Mercury	mg/kg	2.8	7.1	NE	34

SB-1	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/7/2017	8/7/2017
Starting Depth	Feet		0	10
Ending Depth	Feet		10	18
PCBs				
Aroclor-1254	mg/kg	1	NE	1.3
Inorganics				
Arsenic	mg/kg	16	27	17
Copper	mg/kg	270	2,700	12,000
Lead	mg/kg	1000	NE	1,100
Mercury	mg/kg	2.8	3	NE
Nickel	mg/kg	310	2,800	1,900

SB-6 SB-5/MW-5 SB-7 GCMW-27S GCMW-27I SB-4/MW-4 SB-2 SB-8 SB-3/MW-3D MW-3S SB-1

LEGEND:

- PROJECT SITE BOUNDARY
- LOT LINE
- PROPOSED CONSTRUCTED WETLAND AREA
- PREVIOUSLY INSTALLED MONITORING WELL
- OFF-SET MONITORING WELL
- SOIL BORINGS TO 18 FT BGS IN PROPOSED WETLAND SHELF
- SOIL BORINGS TO 33 FT BGS
- SOIL BORINGS TO 33 FT BGS; MONITORING WELL/SLUG TESTING
- 453 BLOCK NUMBER
- 54 LOT NUMBER

NOTES:

1. BASE MAP PROVIDED BY AKRF ENGINEERING, P.C., PROJECTED TO NAD83 NY S.P. LONG ISLAND ZONE, US FEET.
2. IMAGERY PROVIDED BY USGS EARTHEXPLORER.
3. GCMW-27 PREVIOUSLY INSTALLED BY EPA.
4. BGS - BELOW GROUND SURFACE.
5. MG/KG - MILLIGRAMS PER KILOGRAM.
6. NE - NO EXCEEDANCE.
7. SB-7 HAD NO RECOVERY FROM 15-30 FEET BGS, THEREFORE NO SOIL SAMPLE WAS COLLECTED.

0 20' 40'
APPROXIMATE SCALE IN FEET

FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

SOIL SAMPLE CONCENTRATIONS ABOVE NYSDEC COMMERCIAL SCOs (PCBs & METALS)

AKRF KSE The AKRF-KSE JV

FIGURE 5a

CITY: SAN RAFAEL, CA DIV/GROUP: ENV/CAD DB: A. SANCHEZ
\\arcadis-us\officedata\Syracuse-NY\ENV\CAD\SYRACUSE\ACTIVE\B0018800\0000\0005011\DWG\118800B05a.dwg LAYOUT: 5A SAVED: 11/10/2017 5:28 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/13/2017 10:47 AM BY: IAMICELI, KIMBERLY
XREFS: IMAGES: PROJECTNAME: ----
18800X01 18800X01_200 FT.jpg
18800X0D AKRF-KES-JV_Logo2.png

SB-6	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/10/2017
Starting Depth	Feet		10
Ending Depth	Feet		20
Detected SVOCs			
Benzo(a)anthracene	mg/kg	5.6	16
Benzo(a)pyrene	mg/kg	1	12
Benzo(b)fluoranthene	mg/kg	5.6	16
Dibenzo(a,h)anthracene	mg/kg	0.56	1.9
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	5.9

SB-4	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/9/2017	8/9/2017	8/9/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
Detected SVOCs					
Benzo(a)anthracene	mg/kg	5.6	NE	NE	160
Benzo(a)pyrene	mg/kg	1	2.6	1	100
Benzo(b)fluoranthene	mg/kg	5.6	NE	NE	86
Chrysene	mg/kg	56	NE	NE	150
Dibenzo(a,h)anthracene	mg/kg	0.56	NE	NE	<20
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	NE	NE	32
Naphthalene	mg/kg	500	NE	NE	590
Phenanthrene	mg/kg	500	NE	NE	880

SB-2	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/8/2017	8/8/2017	8/8/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
Detected SVOCs					
Benzo(a)anthracene	mg/kg	5.6	NE	NE	160
Benzo(a)pyrene	mg/kg	1	1.4	2.9	110
Benzo(b)fluoranthene	mg/kg	5.6	NE	NE	88
Chrysene	mg/kg	56	NE	NE	150
Dibenzo(a,h)anthracene	mg/kg	0.56	NE	<1.4	16
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	NE	NE	35
Phenanthrene	mg/kg	500	NE	NE	800

SB-8	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/14/2017	8/14/2017
Starting Depth	Feet		0	10
Ending Depth	Feet		10	18
Detected SVOCs				
Benzo(a)pyrene	mg/kg	1	2	1.6
Dibenzo(a,h)anthracene	mg/kg	0.56	NE	<0.78

SB-5	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/10/2017	8/10/2017	8/10/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
Detected SVOCs					
Benzo(a)anthracene	mg/kg	5.6	NE	18	98
Benzo(a)pyrene	mg/kg	1	<2.3	12	65
Benzo(b)fluoranthene	mg/kg	5.6	NE	13	55
Chrysene	mg/kg	56	NE	NE	96
Dibenzo(a,h)anthracene	mg/kg	0.56	<2.3	<2.9	<14
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	NE	NE	21

SB-7	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/18/2017	8/18/2017
Starting Depth	Feet		0	10
Ending Depth	Feet		10	15
Detected SVOCs				
Benzo(a)pyrene	mg/kg	1	2.2	2.8
Dibenzo(a,h)anthracene	mg/kg	0.56	<0.95	NE

SB-3	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/8/2017	8/8/2017	8/8/2017
Starting Depth	Feet		0	10	20
Ending Depth	Feet		10	20	33
Detected SVOCs					
Benzo(a)anthracene	mg/kg	5.6	NE	NE	96
Benzo(a)pyrene	mg/kg	1	2	NE	67
Benzo(b)fluoranthene	mg/kg	5.6	NE	NE	54
Chrysene	mg/kg	56	NE	NE	90
Dibenzo(a,h)anthracene	mg/kg	0.56	NE	NE	<11
Indeno(1,2,3-cd)pyrene	mg/kg	5.6	NE	NE	22

SB-1	UNITS	NYSDEC Subpart 375-6 Protection of Public Health Restricted Commerical Use SCO	8/7/2017	8/7/2017
Starting Depth	Feet		0	10
Ending Depth	Feet		10	18
Detected SVOCs				
Benzo(a)anthracene	mg/kg	5.6	NE	6.2
Benzo(a)pyrene	mg/kg	1	1.3	4.4
Dibenzo(a,h)anthracene	mg/kg	0.56	NE	0.62

SB-6 SB-5/MW-5 SB-7 GCMW-27S GCMW-27I SB-4/MW-4 SB-2 SB-8 SB-3/MW-3D MW-3S SB-1

1 21 26 453 54 967 1 24

LEGEND:

- PROJECT SITE BOUNDARY
- LOT LINE
- PROPOSED CONSTRUCTED WETLAND AREA
- PREVIOUSLY INSTALLED MONITORING WELL
- OFF-SET MONITORING WELL
- SOIL BORINGS TO 18 FT BGS IN PROPOSED WETLAND SHELF
- SOIL BORINGS TO 33 FT BGS
- SOIL BORINGS TO 33 FT BGS; MONITORING WELL/SLUG TESTING
- 453 BLOCK NUMBER
- 54 LOT NUMBER

NOTES:

1. BASE MAP PROVIDED BY AKRF ENGINEERING, P.C., PROJECTED TO NAD83 NY S.P. LONG ISLAND ZONE, US FEET.
2. IMAGERY PROVIDED BY USGS EARTHEXPLORER.
3. GCMW-27 PREVIOUSLY INSTALLED BY EPA.
4. BGS - BELOW GROUND SURFACE.
5. MG/KG - MILLIGRAMS PER KILOGRAM.
6. NE - NO EXCEEDANCE.
7. SB-7 HAD NO RECOVERY FROM 15-30 FEET BGS, THEREFORE NO SOIL SAMPLE WAS COLLECTED.

0 20' 40'
APPROXIMATE SCALE IN FEET

FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

SOIL SAMPLE CONCENTRATIONS ABOVE NYSDEC COMMERCIAL SCOs (SVOCs)

AKRF KSE The AKRF-KSE JV

FIGURE
5b

CITY: SAN RAFAEL, CA DIV/GROUP: ENV/CAD DB: A. SANCHEZ
\\arcadis-us\officedata\Syracuse-NY\ENV\CAD\SYRACUSE\ACTIVE\B0018800\0000\0050\1DWG\118800B05b.dwg LAYOUT: 5B SAVED: 11/10/2017 5:16 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/13/2017 11:02 AM BY: IAMICELI, KIMBERLY
XREFS: IMAGES: PROJECTNAME: ----
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18800X0D AKRF-KES-JV_Logo2.png

MW-4S	UNITS	NYSDEC TOGS (1.1.1) SGV	9/13/2017
Metals - No Exceedances			
PCBs			
Aroclor 1242	ug/l	0.09	< 0.28
Aroclor 1254	ug/l	0.09	< 0.28
Polychlorinated biphenyls	ug/l	0.09	< 0.28

MW-4D	UNITS	NYSDEC TOGS (1.1.1) SGV	9/13/2017
Metals - No Exceedances			
PCBs			
Aroclor 1242	ug/l	0.09	< 0.25
Aroclor 1254	ug/l	0.09	< 0.25
Polychlorinated biphenyls	ug/l	0.09	< 0.25

MW-3S	UNITS	NYSDEC TOGS (1.1.1) SGV	9/12/2017
Metals - No Exceedances			
PCBs - No Exceedances			

MW-5S	UNITS	NYSDEC TOGS (1.1.1) SGV	9/12/2017
Metals - No Exceedances			
PCBs			
Aroclor 1242	ug/l	0.09	< 0.05
Aroclor 1254	ug/l	0.09	< 0.05
Polychlorinated biphenyls	ug/l	0.09	< 0.05

MW-5D	UNITS	NYSDEC TOGS (1.1.1) SGV	9/13/2017
Metals			
Lead	ug/l	25	78
PCBs			
Aroclor 1242	ug/l	0.09	0.28
Aroclor 1254	ug/l	0.09	1.1
Polychlorinated biphenyls	ug/l	0.09	1.4

MW-3D	UNITS	NYSDEC TOGS (1.1.1) SGV	9/12/2017
Metals - No Exceedances			
PCBs - No Exceedances			

1
21
26
453
54
967
1
24
SB-6
SB-8
SB-2
SB-5/MW-5
SB-7
GCMW-27S
GCMW-27I
SB-4/MW-4
SB-3/MW-3D
MW-3S
SB-1

LEGEND:

- PROJECT SITE BOUNDARY
- LOT LINE
- PROPOSED CONSTRUCTED WETLAND AREA
- PREVIOUSLY INSTALLED MONITORING WELL
- OFF-SET MONITORING WELL
- 18 SOIL BORINGS TO 18 FT BGS IN PROPOSED WETLAND SHELF
- 33 SOIL BORINGS TO 33 FT BGS
- 33 SOIL BORINGS TO 33 FT BGS; MONITORING WELL/SLUG TESTING
- 453 BLOCK NUMBER
- 54 LOT NUMBER

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3. GCMW-27 PREVIOUSLY INSTALLED BY EPA.
4. BGS - BELOW GROUND SURFACE.
5. UG/L - MICROGRAMS PER LITER.
6. AWQS DENOTES THE DIVISION OF WATER TOGS (1.1.1) AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES.
7. NE - NO EXCEEDANCE.
8. SB-7 HAD NO RECOVERY FROM 15-30 FEET BGS, THEREFORE NO SOIL SAMPLE WAS COLLECTED.

0 20' 40'
APPROXIMATE SCALE IN FEET

FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

GROUNDWATER SAMPLE CONCENTRATIONS ABOVE NYSDEC AWQS (PCBs & METALS)

AKRF KSE
The AKRF-KSE JV

FIGURE
6a

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: A. SANCHEZ
G:\ENVCAD\SYRACUSE\ACT\B0018800\0\0050\1DWG\18800B06a.dwg LAYOUT: 6A SAVED: 11/10/2017 5:16 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 11/13/2017 8:12 AM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ---
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18800X0D AKRF-KES-JV_Logo2.png

MW-4S	UNITS	NYSDEC TOGS (1.1.1) SGV	9/13/2017
SVOCs			
Benzo(a)anthracene	ug/l	0.002	< 2.0
Chrysene	ug/l	0.002	< 2.0
Phenol	ug/l	1	< 2.0
VOCs			
1,4-Dichlorobenzene	ug/l	3	5.1

MW-4D	UNITS	NYSDEC TOGS (1.1.1) SGV	9/13/2017
SVOCs			
1,1-Biphenyl	ug/l	5	< 40
4-Methylphenol	ug/l	1	< 10
Acenaphthene	ug/l	20	210
Anthracene	ug/l	50	52
Benzo(a)anthracene	ug/l	0.002	< 40
Chrysene	ug/l	0.002	< 40
Fluorene	ug/l	50	91
Naphthalene	ug/l	10	1900
Phenanthrene	ug/l	50	210
Phenol	ug/l	1	< 40
Pyrene	ug/l	50	75
VOCs			
Ethylbenzene	ug/l	5	210
Isopropylbenzene	ug/l	5	23
Toluene	ug/l	5	42
Total Xylenes	ug/l	5	240

MW-3S	UNITS	NYSDEC TOGS (1.1.1) SGV	9/12/2017
SVOCs			
Benzo(a)anthracene	ug/l	0.002	< 2
Chrysene	ug/l	0.002	< 2
Naphthalene	ug/l	10	45
Phenol	ug/l	1	< 2
VOCs			
1,4-Dichlorobenzene	ug/l	3	6.5
Ethylbenzene	ug/l	5	5.2
Total Xylenes	ug/l	5	6.8

MW-5S	UNITS	NYSDEC TOGS (1.1.1) SGV	9/12/2017
SVOCs			
Benzo(a)anthracene	ug/l	0.002	< 2 U
Chrysene	ug/l	0.002	< 2 U
Phenol	ug/l	1	< 2 U
VOCs - No Exceedances			

MW-5D	UNITS	NYSDEC TOGS (1.1.1) SGV	9/13/2017
SVOCs			
1,1-Biphenyl	ug/l	5	12
4-Methylphenol	ug/l	1	31
Acenaphthene	ug/l	20	88
Benzo(a)anthracene	ug/l	0.002	16
Chrysene	ug/l	0.002	15
Naphthalene	ug/l	10	390
Phenanthrene	ug/l	50	100
Phenol	ug/l	1	11
VOCs			
Ethylbenzene	ug/l	5	61
Isopropylbenzene	ug/l	5	12
Toluene	ug/l	5	13
Total Xylenes	ug/l	5	100

MW-3D	UNITS	NYSDEC TOGS (1.1.1) SGV	9/12/2017
SVOCs			
1,1-Biphenyl	ug/l	5	< 6
4-Methylphenol	ug/l	1	--
Acenaphthene	ug/l	20	55 D
Benzo(a)anthracene	ug/l	0.002	< 6
Chrysene	ug/l	0.002	< 6
Naphthalene	ug/l	10	210 D
Phenol	ug/l	1	< 6
VOCs			
Ethylbenzene	ug/l	5	16
Total Xylenes	ug/l	5	23
Vinyl chloride	ug/l	2	2.6

LEGEND:

- PROJECT SITE BOUNDARY
- LOT LINE
- PROPOSED CONSTRUCTED WETLAND AREA
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- SOIL BORINGS TO 18 FT BGS IN PROPOSED WETLAND SHELF
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NOTES:

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0 20' 40'
APPROXIMATE SCALE IN FEET

FIRST STREET TURNING BASIN - GOWANUS CANAL
BROOKLYN, NEW YORK

GROUNDWATER SAMPLE CONCENTRATIONS ABOVE NYSDEC AWQS (SVOCs & VOCs)

AKRF KSE
The AKRF-KSE JV

FIGURE
6b

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: A. SANCHEZ
C:\Users\alsanchez\Desktop\B0018800\000\005011\DWG\18800B06b.dwg LAYOUT: 6B SAVED: 11/10/2017 5:16 PM ACADVER: 20.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 11/10/2017 5:24 PM BY: SANCHEZ, ADRIAN
XREFS: IMAGES: PROJECTNAME: ----
18800X01 18800X01_200 FT.jpg
18800X0D AKRF-KES-JV_Logo2.png

APPENDIX A
PHOTOGRAPHIC LOG

Photograph 1: Location for soil boring SB-6 staked out. **Date:** August 4, 2017.

Photograph 2: View of the Site prior to re-grading and vegetation clearing activities. **Date:** August 7, 2017.

Photograph 3: Site and vegetation clearing activities with a skid steer. **Date:** August 7, 2017.

Photograph 4: Site and vegetation clearing activities with a skid steer. **Date:** August 7, 2017.

Photograph 5: Site re-grading activities with a back-hoe. **Date:** August 7, 2017.

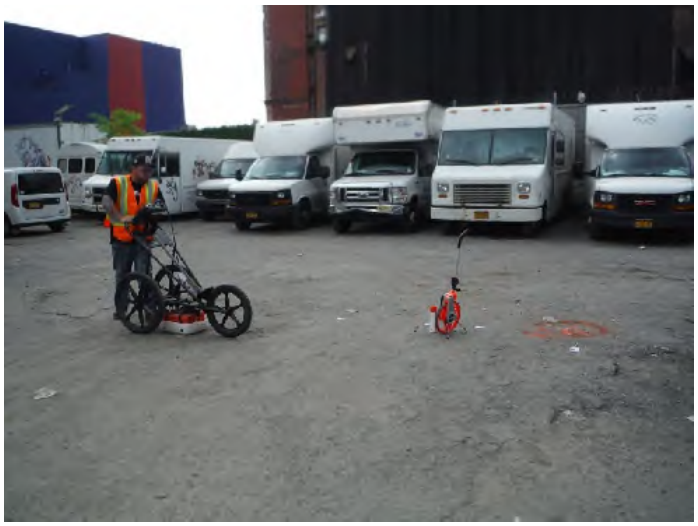
Photograph 6: View of Site during vegetation clearing. **Date:** August 7, 2017.

Photograph 7: View of the eastern portion of the Site after removal of vehicle and concrete mafia blocks. **Date:** August 7, 2017.

Photograph 8: During re-grading activities, a buried 55-gallon drum encountered and punctured . Contained a black viscous oil. **Date:** August 7, 2017.

Photograph 9: View of black viscous oil released from the 55-gallon drum. **Date:** August 7, 2017.

Photograph 10: Released black viscous oil and impacted soil was excavated and placed into 55-gallon drums for off-site disposal. **Date:** August 7, 2017.



Photograph 11: Geophysical ground penetrating radar survey of the site. **Date:** August 15, 2017

Photograph 12: Air Knife for soft digging activities. **Date:** August 15, 2017.

Photograph 13: Performing soft digging activities. **Date:** August 15, 2017.

Photograph 14: Soil boring pre-cleared to 5 feet below ground surface. **Date:** August 15, 2017.

Photograph 15: View of pre-cleared boring location. **Date:** August 15, 2017.

Photograph 16: NAPL (non-aqueous phase liquid) observed in soil boring SB-3 from 23 to 23.5 feet below ground surface. **Date:** August 8, 2017.

Photograph 17: NAPL observed in soil boring SB-1 from 17.5 to 18 feet below ground surface. **Date:** August 8, 2017.

Photograph 18: Field screening soils with a hand-held photoionization detector (PID). **Date:** August 8, 2017.

Photograph 19: Field screening soils with a hand-held PID **Date:** August 8, 2017

Photograph 20: Roto-sonic drill rig installing well within soil boring SB-6. **Date:** August 11, 2017.

Photograph 21: Dust monitoring during intrusive activities. **Date:** August 18, 2017.

Photograph 22: Asphalt-patch after completion of borehole. **Date:** August 18, 2017.

Photograph 23: Groundwater gauging of MW-4S using a interface probe. Note NAPL on probe. **Date:** September 13, 2017.

Photograph 24: Purging of monitoring well using low-flow groundwater sampling techniques. **Date:** September 12, 2017.

Photograph 25: Purging of monitoring well using low flow groundwater sampling techniques. **Date:** September 12, 2017.

Photograph 26: Sampling of groundwater from a monitoring well. **Date:** September 12, 2017.

Photograph 27: Sheen visible on purged groundwater. **Date:** September 12, 2017.

Photograph 28: Sampling of groundwater from a monitoring well. **Date:** September 13, 2017.

Photograph 29: View of paired groundwater monitoring well prior to installation of protective cover. **Date:** August 28, 2017.

Photograph 30: View of a paired monitoring well with a stick-up protective cover.. **Date:** September 13, 2017.

Photograph 31: View of monitoring well MW-3S and MW-3D with flushmount protective covers. **Date:** August 28, 2017.

Photograph 32: Labeling of investigation derived waste. **Date:** August 28, 2017.

Photograph 33: Labeling of investigation derived waste. **Date:** August 28, 2017.

Photograph 34: Storage of 55-gallon drums containing investigation derived waste at the Site prior to off-site disposal. **Date:** August 28, 2017.

Photograph 35: Photo of a monitoring well previous installed by the EPA encountered at the Site. **Date:** August 1, 2017.

Photograph 36: Performing monitoring well slug testing. **Date:** September 7, 2017.

Photograph 37: Performing monitoring well slug testing. **Date:** September 7, 2017.

Photograph 38: Performing monitoring well slug testing. **Date:** September 7, 2017.

APPENDIX B

SOIL BORING LOGS

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/7/17

SOIL BORING LOG

Soil Boring ID: SB-1

SHEET 1 OF 1

BORING LOCATION: 40.6765809°; -073.9877102°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION:

MEASURING POINT ELEVATION: N/A

START DATE: 8/7/17

DRILLING CO.: TWS

FINISH DATE: 8/7/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling.
5	5-7	3	0.0		Fill: Gray, poorly graded fine to medium sand with gravel and construction and demolition debris, no staining or odors.
	7-8				Fill: Tan and black poorly graded fine to medium sand and gravel with glass, no staining or odors.
10	8-10				Fill: Black ash, construction and demolition debris, no staining or odors.
	10-12	1.5	0.0		Fill: Dark gray poorly graded fine to medium sand and silt with wood, no staining or odors.
	12-13		4.3		
	13-14	4.5	18.3		Fill: Concrete, wood, and debris with staining and heavy petroleum odors. Wet at 13 feet below grade surface.
15	14-15		79.8		Fill: Black, poorly graded fine to coarse sand and silt with gravel and debris.
	15-16		80.3		
	16-17		11.2		Fill: Brown and gray poorly graded fine to coarse sand and silt with gravel and debris, petroleum odor and staining.
18	17-18		35.8		Fill: Gray brown poorly graded fine to coarse sand and gravel with wood, heavy petroleum odor and non-aqueous phase liquid present.
					End of Boring at 18 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material
PT	Peat, Humus, Swamp Soils with High Organic Contents

Notes: Composite samples collected from SB-1: (0'-10'); (10'-18'). Grab samples collected from SB-1: (9.5'-10'); (14'-14.5').

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/8/17

SOIL BORING LOG

Soil Boring ID: SB-2

SHEET 1 OF 1

BORING LOCATION: 40.6769160° -073.9882869°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION: N/A

MEASURING POINT ELEVATION: N/A

START DATE: 8/8/17

DRILLING CO.: TWS

FINISH DATE: 8/8/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10	2.5	0		Fill: Brown to gray poorly sorted fine to medium sand and silt with construction and demolition debris, no odors or staining.
10	10-11	1	1.8		Fill: Brown/Black construction and demolition debris with silt and wood, chemical odor, no staining. Wet at 11 feet below grade surface.
	11-12	4.5	3.6		
	12-13		4.5		
	13-14		59.8		Fill: Black wood with fine sand and silt, chemical odor, no staining.
15	14-15		10.3		
	15-16		8.3		
	16-20		N/A		No Recovery
20					
	20-20.5	5	21.3		OL: Black clay with trace organics, chemical odor, no staining.
	20.5-21		11.6		GW: Black well graded coarse sand with gravel, chemical odor, no staining.
	21-22		186		OL: Black clay with trace organics, chemical odor and staining.
	22-23		205		
	23-24		287		
25	24-25		187		
	25-26.5		119		
	26.5-27	3	143		OL: Black poorly graded fine to coarse sand with gravel and silt, heavy petroleum odor and staining.
	27-28		81.3		GM: Gray poorly graded fine to coarse sand and gravel with silt, heavy petroleum odor and staining, non-aqueous phase liquid present.
	28-29	4.5	80.6		
30	29-30		60.2		
	30-31		25.4		GM: Gray poorly graded fine to coarse sand and gravel with silt, heavy petroleum odor and staining.
	31-32		7.0		
	32-33		3.2		
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-2: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-2: (7.5'-8'); (13.5'-14'); (23'-23.5').

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/8/17

SOIL BORING LOG

Soil Boring ID: SB-3

SHEET 1 OF 1

BORING LOCATION: 40.6766820° -073.9879056°

LOGGED BY: Bryan Comey, Preferred Environmental Services

GROUND SURFACE ELEVATION: N/A

MEASURING POINT ELEVATION: N/A

START DATE: 8/8/17

DRILLING CO.: TWS

FINISH DATE: 8/8/17

DRILLERS NAME: Steve E.

SAMPLING METHOD: Continuous

DRILLING METHOD AND RIG TYPE: Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0		Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5					
	5-10		N/A		No Recovery.
10					
	10-13	5	0.0		Fill: Construction and demolition debris (crushed brick), no odors or staining.
15	13-15				Fill: Construction and demolition debris (crushed gray concrete), no odors or staining.
	15-18	2.5	4.3		Fill: Construction and demolition debris (crushed brick), no odors or staining.
20	18-20		5.7		Fill: Construction and demolition debris (crushed gray concrete), no odors or staining, wet at 18 feet below grade surface.
	20-21	3	2.3		Fill: Black clay with organics and glass, chemical odor, no staining.
	21-22		35.7		
	22-23		29.6		
	23-23.5	5	80.7		GW: Black well graded coarse sand with gravel, chemical odor, no staining.
	23.5-24		53.6		OL: Black, low plasticity clay with wood and organics, heavy petroleum odor and staining.
25	24-25		35.8		
	25-26		24.3		
	26-27		25.8		
	27-28		14.6		
	28-29	5	18.8		OH: Black medium plasticity clay, heavy petroleum odor and staining, non-aqueous phase liquid present.
30	29-30		11.7		
	30-31		8.2		
	31-32		2.4		GM: Gray poorly graded fine to medium sand with silt and gravel, heavy petroleum odor and staining.
	32-33		2.2		GM: Gray poorly graded fine to medium sand with silt and gravel, heavy petroleum odor and staining.
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-3: (10'-20'); (20'-33'). Grab samples collected from SB-3: (18'-18.5'); (23'-23.5'). Soil boring SB-3 completed as MW-3D and MW-3S. MW-3S was unable to be utilized as a monitoring well due to collapse of the screen. MW-3S was re-drilled approximately 3 feet east of MW-3D.

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/18/17

SOIL BORING LOG

Soil Boring ID: SB-3/MW-3S

SHEET 1 OF 1

BORING LOCATION: 40.6766693° -073.9879169°	**LOGGED BY:** Dan Prisco-Buxbaum, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/18/17	**DRILLING CO.:** TWS
FINISH DATE: 8/18/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5	3	0.7		Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no staining.
5	5-6	0.5	0.6		Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no staining.
	6-7	0.5	0.5		
	7-8	0.5	0.6		
	8-9	0.5	0.8		
10	9-10	0.5	0.5		
	10-15	3	0.4		Fill: Brown poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odors, no staining.
15					
	15-20	1	0.5		SM: Gray/brown sandy silt with construction and demolition debris, chemical odors, no staining. Wet at 16 feet below grade surface.
20					End of boring at 20 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite sample collected from SB-3: (0'-10'). Grab sample collected from SB-3: (8.5'-9'). Soil boring SB-3 completed as MW-3S.

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/09/17

SOIL BORING LOG

Soil Boring ID: SB-4

SHEET 1 **OF** 1

BORING LOCATION: 40.6770076° -073.9885535°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/09/17	**DRILLING CO.:** TWS
FINISH DATE: 8/09/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5			N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-7	3.5	0.0		Fill: Brown poorly graded fine to coarse sand with silt and construction and demolition debris, no odors or staining.
	7-8				Fill: Construction and demolition debris (crushed brick), no odors or staining.
10	8-10				Fill: Brown poorly graded fine-coarse sand with gravel with construction and demolition debris, (crushed concrete), no odors or staining.
	10-11	4.5	1.4		Fill: Brown poorly graded fine to coarse sand and gravel with construction and demolition debris (brick), no odors or staining.
	11-14		0.0		Fill: Brown poorly graded fine to coarse sand with silt, no odors or staining.
15	14-15				Fill: Construction and demolition debris (crushed concrete with wood), no odors or staining.
	15-16	5	1.8		Fill: Brown poorly graded fine to coarse sand with silt and wood, no odors or staining. Wet at 15 feet below grade surface.
	16-17		6.8		
	17-18		13.4		Fill: Gray clay and fine sand and crushed rock, no odors or staining.
	18-19		2.4		
20	19-20		206.3		Fill: Construction and demolition debris (wood) with chemical odor and staining.
	20-21	4.5	36.2		Fill: Construction and demolition debris (bricks).
	21-22		103.7		
	22-23		55.4		GC: Black poorly graded fine to coarse sand silt, chemical odor and staining.
	23-24		78.6		GC: Black poorly graded fine to medium sand with gravel, petroleum odor and staining, non-aqueous phase liquid present.
25	24-25		192.7		
	25-26	3	204.3		OH: Black low plasticity clay with organics, chemical odor and staining.
	26-27		190.6		
	27-28		76.8		
	28-29	5	45.6		GC: Black poorly graded fine to coarse sands with clay, chemical odor and staining, non-aqueous phase liquid present.
30	29-30		47.7		
	30-31		34.3		OH: Gray high plasticity clay, chemical odor and staining, non-aqueous phase liquid present.
	31-32		76.8		SP: Gray poorly graded fine to medium sands, chemical odor and staining, non-aqueous phase liquid present.
	32-33		19.4		
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-4: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-4: (5.5'-6'); (19.5'-20'); (25.5'-26'). Soil boring SB-3 as MW-4S and MW-4D.

	PROJECT: PW77GOWAN **LOCATION:** First-Street Turning Basin **DATE:** 8/10/17	**SOIL BORING LOG** **Soil Boring ID:** SB-5 **SHEET** 1 **OF** 1

BORING LOCATION: 40.6772239° -073.9888338°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION:	**MEASURING POINT ELEVATION:**
START DATE: 8/10/17	**DRILLING CO.:** TWS
FINISH DATE: 8/10/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10	2	0.0		Fill: Brown poorly graded fine to medium sand with silt, construction and demolition debris and trash, no odors or staining.
10	10-11	4	0.0		Fill: Brown poorly graded fine to medium sand with silt, construction and demolition debris and trash, no odors or staining. Wet at 11 feet below grade surface.
	11-13				
15	13-15				Fill: Brown/gray poorly sorted fine to medium sand with silt, gravel and construction and demolition debris (brick), no odors or staining.
	15-16	5	4.5		Fill: Black silt with fine sand, and organics (plant matter), sheen noted on groundwater, organic odor.
	16-17		9.6		
	17-18		29.6		Fill: Black silty low plasticity clay, chemical odor and staining.
	18-19		113.6		
20	19-20		38.5		
	20-21	5	84.6		
	21-22		46.5		
	22-23		73.6		Fill: Black silty clay with poorly graded fine to medium sand, chemical odor and staining.
	23-24		86.5		
25	24-25		58.3		
	25-26	3	13.8		Fill: Black silt with poorly graded fine to coarse sand, sheen noted on groundwater and chemical odor.
	26-27		9.6		Fill: Black poorly graded fine to coarse sand with silt, gravel and C&D (brick).
	27-28		6.7		
	28-29	N/A	N/A		No recovery from 28-33 feet below grade surface.
30	30-31				
	31-32				
	32-33				
					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-5: (0'-10'); (10'-20'); (20'-33'). Grab samples collected from SB-5: (7.5'-8'); (18.5'-19'); (23'-23.5'). Soil boring SB-5 as MW-5S and MW-5D.

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/11/17

SOIL BORING LOG

Soil Boring ID: SB-6

SHEET 1 **OF** 1

BORING LOCATION: 40.6772117° -073.9888628°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/11/17	**DRILLING CO.:** TWS
FINISH DATE: 8/11/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT.)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		0.0	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odors or staining.
5	5-10		0.0	N/A	No Recovery.
10	10-11	5	0.0		Fill: Brown poorly graded fine to medium sand with gravel, no odor or staining.
	11-12				
	12-13		7.8		Fill: Brown/black poorly graded fine to medium sands with silt, sheen noted on groundwater, no odors. Wet at 13 feet below grade surface.
	13-14		20.8		Fill: Black poorly graded fine to coarse sand with silt, no odors or staining.
15	14-15		31.6		Fill: Black construction and demolition debris (trash/wood), no odors or staining.
	15-16	2	56.8		
	16-17		84.0		Fill: Black silty high plasticity clay, no odors or staining.
18	17-18		104.0		Fill: Black silt with construction and demolition debris (wood/debris), no odors or staining.
					End of boring at 18 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite samples collected from SB-6: (10'-18'). Grab samples collected from SB-6: (17.5'-18').

PROJECT: PW77GOWAN

LOCATION: First-Street Turning Basin

DATE: 8/18/17

SOIL BORING LOG

Soil Boring ID: SB-7

SHEET 1 OF 1

BORING LOCATION: 40.6771292° -073.9888345°	**LOGGED BY:** Dan Prisco-Buxbaum, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/18/17	**DRILLING CO.:** TWS
FINISH DATE: 8/18/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5	3	0.3		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris, no odors or staining.
5	5-6	0.5	9.6		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odor, no staining.
	6-7	0.5	10.8		
	7-8	0.5	94.8		
	8-9	0.5	81.2		
10	9-10	0.5	76.4		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris (wood), chemical odor, no staining.
	10-11	3	70.3		Fill: Brown/black poorly sorted fine to medium sand with silt and construction and demolition debris, chemical odor, no staining.
	11-12		62.4		
	12-13		19.5		Fill: Gray/black poorly sorted sand with silt, cobbles and construction and demolition debris (wood), chemical odor, no staining. Wet at 12 feet below grade surface.
	13-14		32.5		
15	14-15		29.3		
	15-33		N/A		No recovery from 15 to 33 feet below grade surface.
33					End of boring at 33 feet below grade surface.

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
GM	Silty Gravels, Gravel - Sand - Silt Mixtures
GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
SM	Silty Sands, Sand - Silt Mixtures
SC	Clayey Sands, Sand - Clay Mixtures
ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
OL	Organic Silts and Organic Silty Clays of Low Plasticity
MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
CH	Inorganic class of High Plasticity
OH	Organic Clays of Medium to High Plasticity, Organic Silts
PT	Peat, Humus, Swamp Soils with High Organic Contents
FILL	Fill Material

Notes: Composite sample collected from SB-7: (0'-10'); (10'-15'). Grab sample collected from SB-7: (7.5'-8'); (11'-11.5'). SB-7 was re-drilled after hitting refusal atapproximately 12 feet below grade surface.

	PROJECT: PW77GOWAN **LOCATION:** First-Street Turning Basin **DATE:** 8/14/17	**SOIL BORING LOG** **Soil Boring ID:** SB-8 **SHEET** 1 OF 1

BORING LOCATION: 40.6768319° -073.9880485°	**LOGGED BY:** Bryan Comey, Preferred Environmental Services
GROUND SURFACE ELEVATION: N/A	**MEASURING POINT ELEVATION:** N/A
START DATE: 8/14/17	**DRILLING CO.:** TWS
FINISH DATE: 8/14/17	**DRILLERS NAME:** Steve E.
SAMPLING METHOD: Continuous	**DRILLING METHOD AND RIG TYPE:** Roto-Sonic

DEPTH (FT)	SAMPLE DEPTH (FT)	SAMPLE REC. (FT.)	SAMPLE PID (PPM)	GRAPHIC LOG	MATERIAL DESCRIPTION
1	0-5		N/A	N/A	Soft dug to 5 feet below grade surface prior to drilling, no odor or staining.
5					
	5-10	4	0.0		Fill: Brown poorly sorted fine to medium sand and silt with construction and demolition debris (bricks), no odor or staining.
10					
	10-12	4	5.0		Fill: Red construction and demolition debris (crushed brick) with poorly sorted fine to medium sand, silt and clay, no odor or staining. Wet at 11 feet below garade surface.
	12-13		7.8		
	13-14		12.9		Fill: Black/gray construction and demolition debris (concrete) with poorly sorted fine to medium sand and silt, petroleum odor, no staining.
15	14-15		14.8		
	15-16	3	10.2		
	16-17		0.4		Fill: Red/brown poorly graded fine to medium sand with silt and construction and demolition debris, no odor or staining.
18	17-18		0.0		
					End of boring at 18 feet below grade surface.

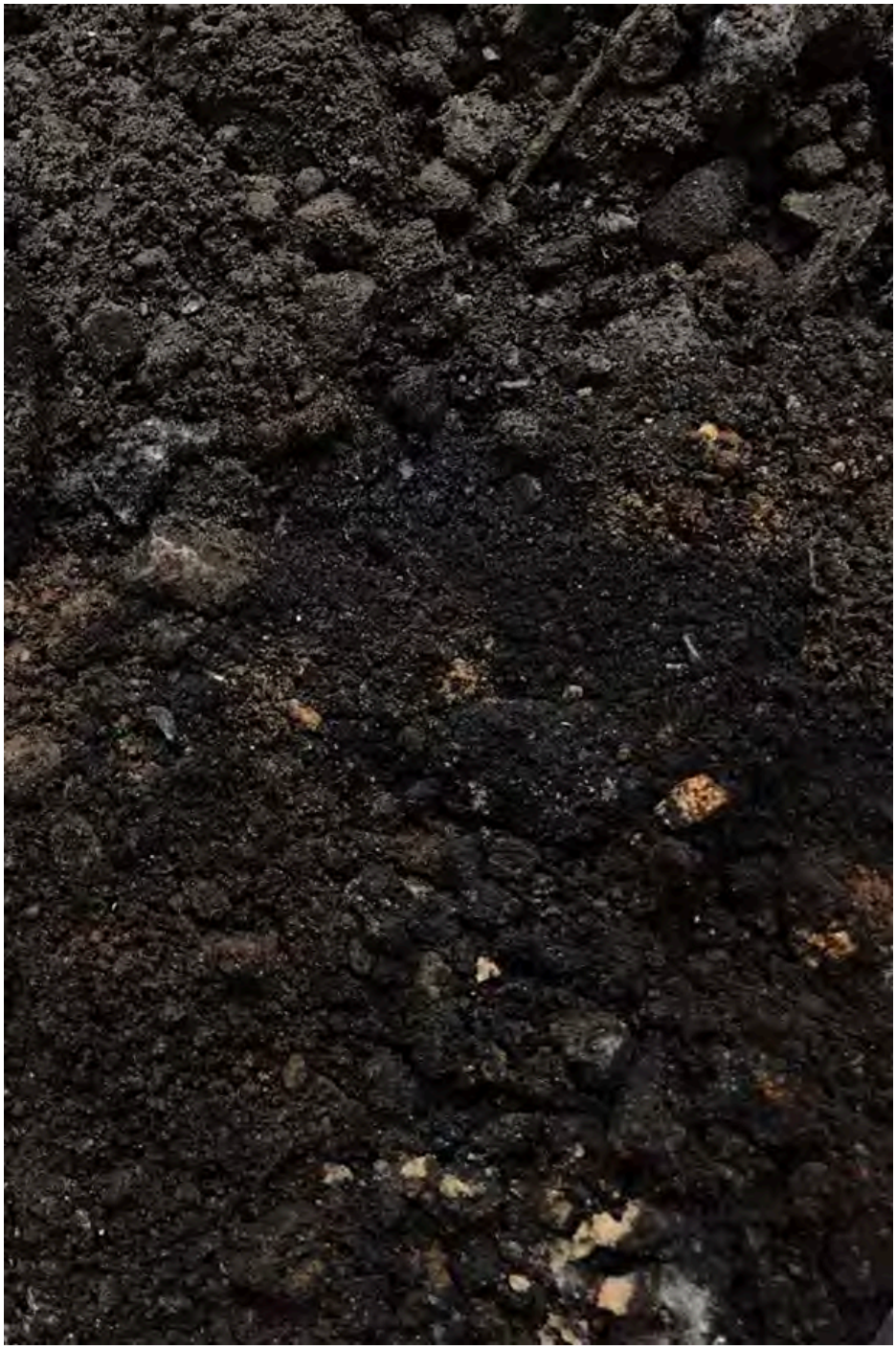
UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
	GW	Well-Graded Gravels, Gravel - Sand Mixtures, Little or No Fines
	GP	Poorly-Graded Gravels, Gravel- Sand Mixtures, Little or No Fines
	GM	Silty Gravels, Gravel - Sand - Silt Mixtures
	GC	Clayey Gravels, Gravel- Sand- Clay Mixtures
	SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
	SP	Poorly-Graded Sands, Gravelly Sand, Little or no Fines
	SM	Silty Sands, Sand - Silt Mixtures
	SC	Clayey Sands, Sand - Clay Mixtures
	ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
	CL	Inorganic Clays of Low Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
	OL	Organic Silts and Organic Silty Clays of Low Plasticity
	MH	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Sands
	CH	Inorganic class of High Plasticity
	OH	Organic Clays of Medium to High Plasticity, Organic Silts
	PT	Peat, Humus, Swamp Soils with High Organic Contents
	FILL	Fill Material

Notes: Composite samples collected from SB-8: (0'-10'); (10'-18'). Grab samples collected from SB-8: (7.5'-8'); (12.5'-13').

APPENDIX C

NAPL MOBILITY PHOTOGRAPHIC LOGS

NAPL MOBILITY CORE PHOTOGRAPHIC LOG



Soil Boring: SB-1
NAPL Photo 1

Description:
NAPL Contingency Photo
8.5 feet (top of photo) to 9 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/7/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-1
NAPL Photo 2

Description:
NAPL Contingency Photo
11.5 feet (top of photo) to 12 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/7/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-1
NAPL Photo 3

Description:
NAPL Contingency Photo
14.5 feet (top of photo) to 15 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/7/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-1
NAPL Photo 4

Description:
NAPL Contingency Photo
15.5 feet (top of photo) to 16 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/7/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-1
NAPL Photo 5

Description:
NAPL Contingency Photo
17.5 feet (top of photo) to 18 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/7/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-2
NAPL Photo 1

Description:
NAPL Contingency Photo
27 feet (top of photo) to 27.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-2
NAPL Photo 2

Description:
NAPL Contingency Photo
28 feet (top of photo) to 28.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-2
NAPL Photo 3

Description:
NAPL Contingency Photo
29 feet (top of photo) to 29.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-3
NAPL Photo 1

Description:
NAPL Contingency Photo
23 feet (top of photo) to 23.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-3
NAPL Photo 2

Description:
NAPL Contingency Photo
28 feet (top of photo) to 28.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-3
NAPL Photo 3

Description:
NAPL Contingency Photo
29 feet (top of photo) to 29.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-3
NAPL Photo 4

Description:
NAPL Contingency Photo
30 feet (top of photo) to 30.5 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/8/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 1

Description:
NAPL Contingency Photo
23.5 feet (top of photo) to 24 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/9/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 2

Description:
NAPL Contingency Photo
24.5 feet (top of photo) to 25 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/9/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 3

Description:
NAPL Contingency Photo
28.5 feet (top of photo) to 29 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/9/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 4

Description:
NAPL Contingency Photo
29.5 feet (top of photo) to 30 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/9/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 5

Description:
NAPL Contingency Photo
30.5 feet (top of photo) to 31 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/9/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 6

Description:
NAPL Contingency Photo
31.5 feet (top of photo) to 32 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

Preferred Environmental Services

Date: 8/9/2017

NAPL MOBILITY CORE PHOTOGRAPHIC LOG

Soil Boring: SB-4
NAPL Photo 7

Description:
NAPL Contingency Photo
32.5 feet (top of photo) to 33 feet (bottom of photo) below ground surface

Location:
First Street Turning Basin,
Brooklyn, New York

Photograph taken by:
Bryan Comey

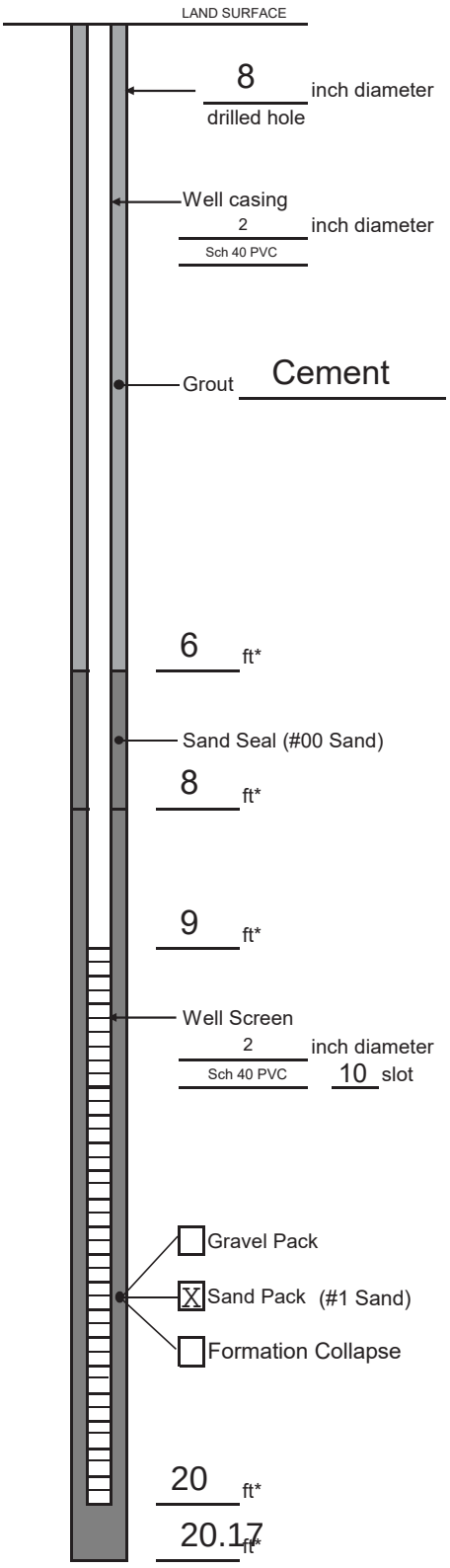
Preferred Environmental Services

Date: 8/9/2017

APPENDIX D

WELL CONSTRUCTION LOGS

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-3S

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 15.2 feet ☑ Surveyed

Measuring Point: 14.87 feet ☐ Estimated

Installation Date(s): August 18, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 28, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 16.43 feet below M.P.

Water Removed During Development: 40 gallons

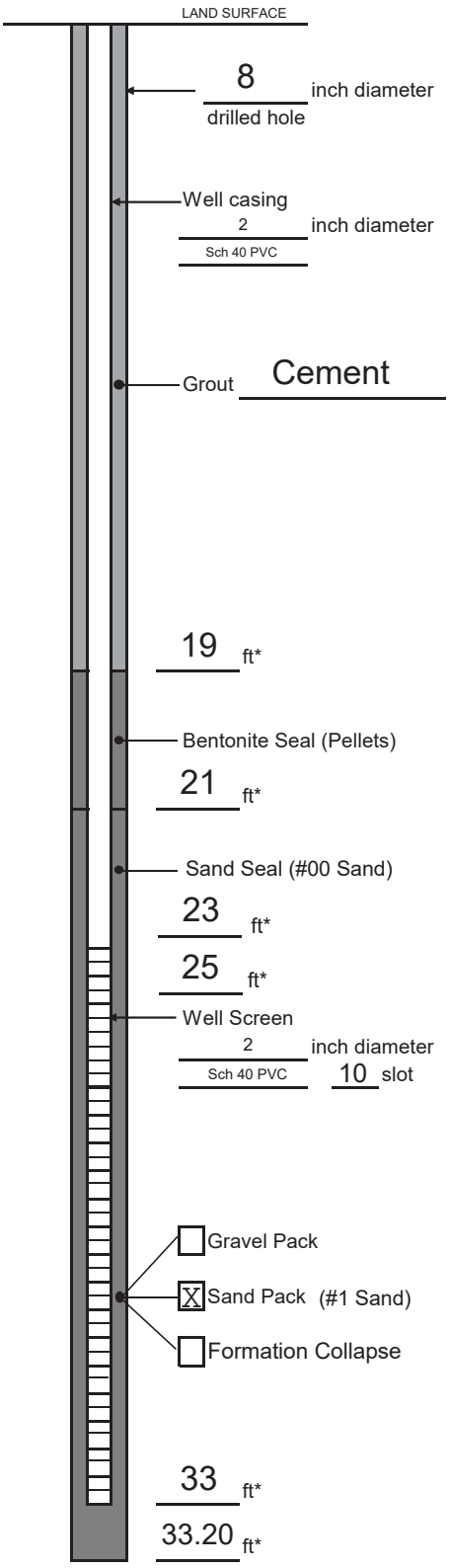
Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-3S was installed as a cluster well, alongside MW-3D in an 8-inch diameter borehole. The original MW-3S was installed on 8/9/17, but the screen was damaged so MW-3S was re-drilled adjacent to MW-3D on 8/18/17.

Prepared by: D. Prisco-Buxbaum, Preferred Environmental Services

WELL CONSTRUCTION LOG



Project: First Street Turning Basin Well: MW-3D

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 15.31 feet ☑ Surveyed

Measuring Point: 15.01 feet ☐ Estimated

Installation Date(s): August 9, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 11, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 12.71 feet below M.P.

Water Removed During Development: 15 gallons

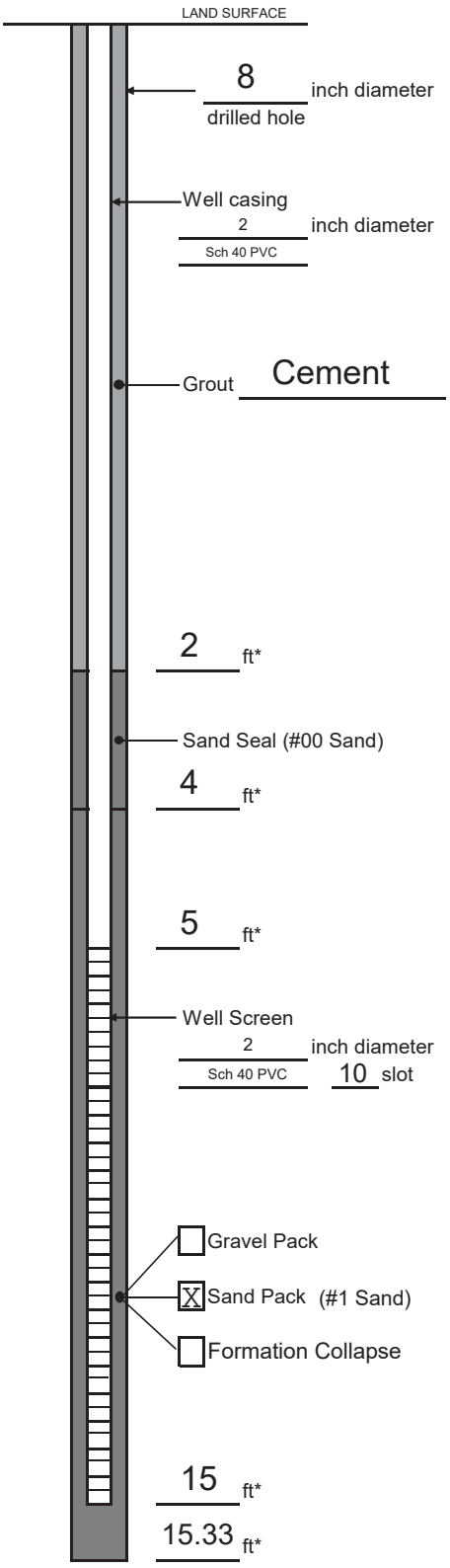
Pumping Duration: 0.83 hours

Well Purpose: Monitoring Well

Remarks: MW-3D was installed as a cluster well, alongside MW-3S in an 8-inch diameter borehole. The original MW-3S was installed on 8/9/17, but the screen was damaged so MW-3S was re-drilled adjacent to MW-3D on 8/18/17.

Prepared by: B. Comey, Preferred Environmental Services

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-4S

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 13.84 feet ☑ Surveyed

Measuring Point: 13.38 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 11, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 11.69 feet below M.P.

Water Removed During Development: 12 gallons

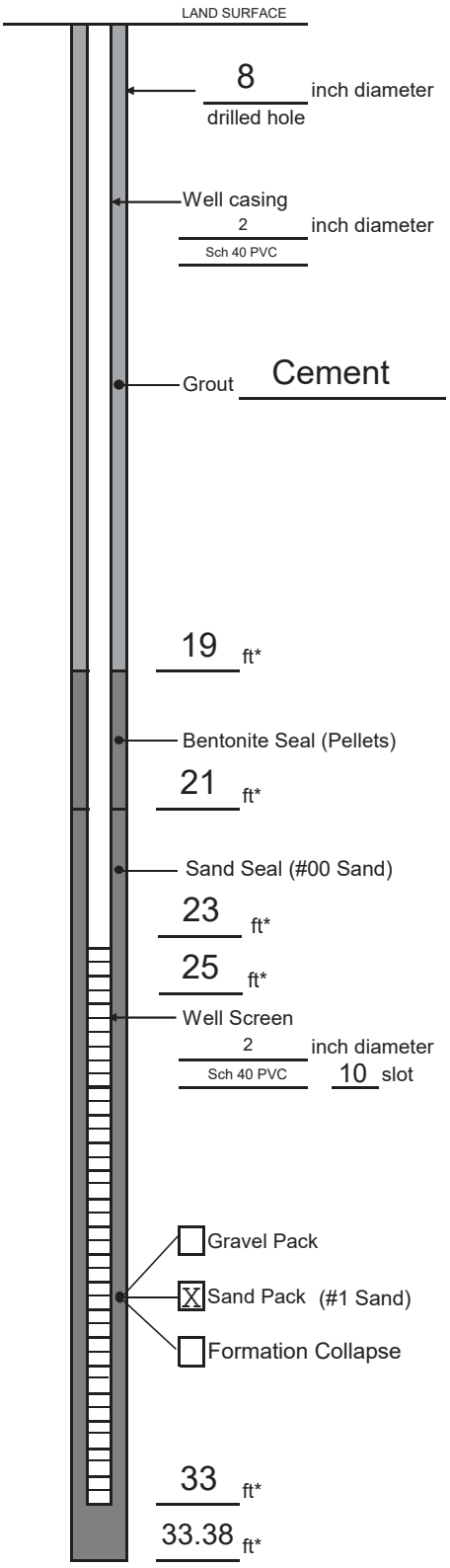
Pumping Duration: 0.83 hours

Well Purpose: Monitoring Well

Remarks: MW-4S was installed as a cluster well alongside MW-4D in an 8-inch diameter borehole.

Prepared by: D. Prisco-Buxbaum, Preferred Environmental Services

WELL CONSTRUCTION LOG



Project: First Street Turning Basin Well: MW-4D

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 13.84 feet ☑ Surveyed

Measuring Point: 13.38 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 11, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 11.54 feet below M.P.

Water Removed During Development: 20 gallons

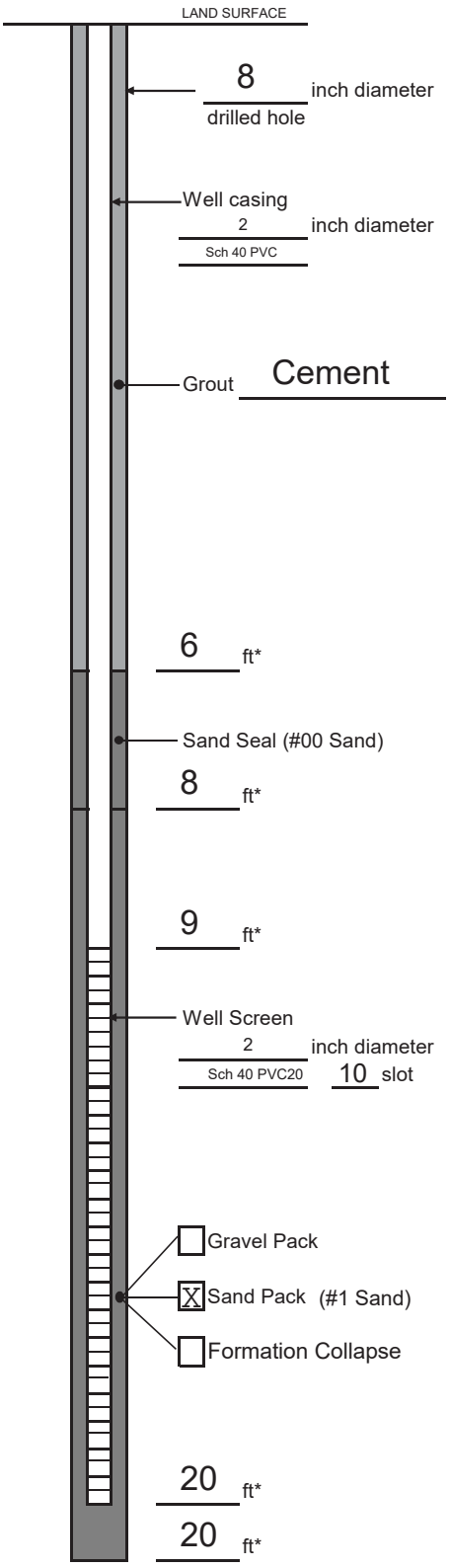
Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-4D was installed as a cluster well alongside MW-4S in an 8-inch diameter borehole.

Prepared by: B. Comey, Preferred Environmental Services

WELL CONSTRUCTION LOG



Project: First Street Turning Basin Well: MW-5S

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 10.75 feet ☑ Surveyed

Measuring Point: 14.01 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 17, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 11.98 feet below M.P.

Water Removed During Development: 12 gallons

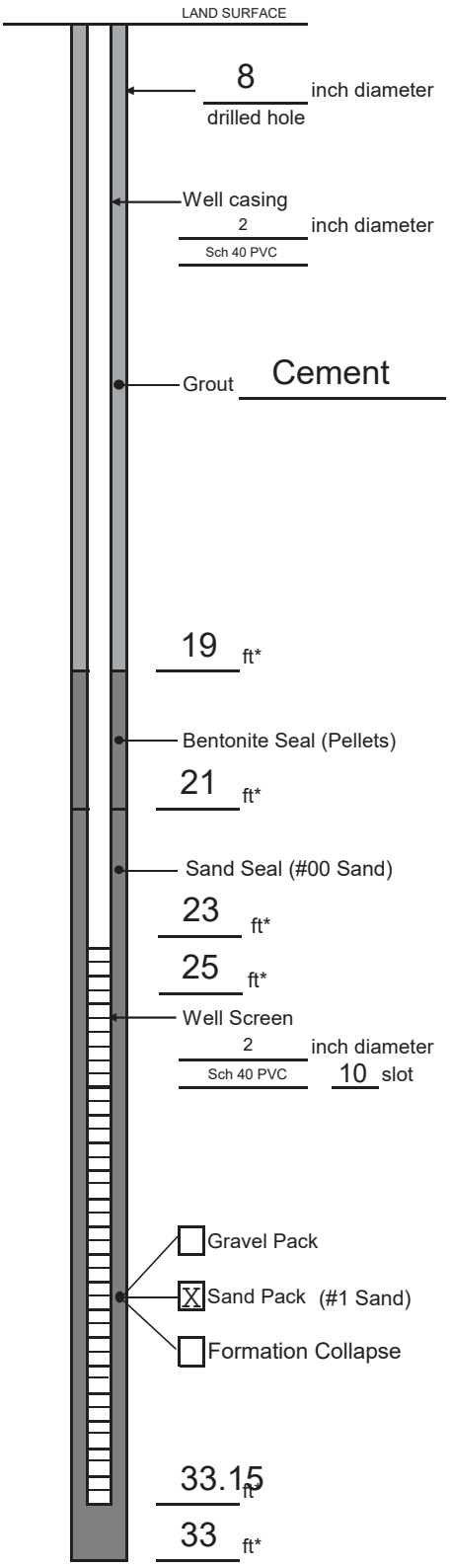
Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-5S was installed as a cluster well alongside MW-5D in an 8-inch diameter borehole.

Prepared by: B. Comey, Preferred Environmental Services

WELL CONSTRUCTION LOG



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

* Depth Below Land Surface

Project: First Street Turning Basin Well: MW-5D

Town/City: Brooklyn

County: Kings State: NY

Permit No.: NA

Land Surface and Measuring Point Elevation: Datum: NAVD 88

Land Surface: 10.75 feet ☑ Surveyed

Measuring Point: 14.01 feet ☐ Estimated

Installation Date(s): August 10, 2017

Drilling Method: Roto-Sonic

Drilling Contractor: TWS

Drilling Fluid: None

Development Technique(s) and Date(s)

Whale Pump

August 17, 2017

Fluid Loss During Driling: NA gallons

Static Depth to Water: 9.02 feet below M.P.

Water Removed During Development: 16 gallons

Pumping Duration: 0.75 hours

Well Purpose: Monitoring Well

Remarks: MW-5D was installed as a cluster well, alongside MW-5S in an 8-inch diameter borehole.

Prepared by: B. Comey, Preferred Environmental Services

APPENDIX E

WELL DEVELOPMENT LOGS

WELL DEVELOPMENT LOG

Project: First Street Turning Basin | Well: MW-3S | Date: August 28, 2017

Developed By: B. Comey, Preferred Environmental Services | Well Material: PVC

Initial Static Depth to Water (ft bmp): 16.43 | Well Diameter: 2"

Initial Total Depth of Well (ft bmp): 20.15 | Total Gallons Removed: 40

Final Static Depth to Water (ft bmp): 16.21 | Pump Decontaminated Prior to Development: YES

Final Total Depth of Well (ft bmp): 20.17

Time	Pumping Rate (gpm)	Depth to Water (ft bmp)	Gallons Removed	Turbidity (NTU)	Conductivity (mS/cm)	pH (s. u.)	Temp (ºC)	Appearance
9:35	1.0	16.43	0	Out of Range	21.57	7.43	20.1	Black, Heavy Sheen
9:40	1.0	16.43	5	200.3	22.15	7.48	19.9	Black, Heavy Sheen
9:45	1.0	16.43	10	58.6	22.31	7.59	19.3	Clear, Heavy Sheen
9:50	1.0	16.43	15	Out of Range	26.78	7.39	19.4	Black, Heavy Sheen
9:55	1.0	16.43	20	16.87	22.94	7.38	19.4	Cloudy, Sheen
10:00	1.0	16.43	25	Out Of Range	23.01	7.38	19.6	Cloudy, Sheen
10:05	1.0	16.43	30	56	24.94	7.35	19.4	Clear, Sheen
10:10	1.0	16.43	35	11.6	22.18	7.33	19.4	Clear, Sheen
10:15	1.0	16.43	40	7.73	22.33	7.30	19.1	Clear, Sheen

ft bmp Feet Below Measuring Point.

WELL DEVELOPMENT LOG

Project: First Street Turning Basin | Well: MW-3D | Date: August 11, 2017

Developed By: J. Zator, Preferred Environmental Services | Well Material: PVC

Initial Static Depth to Water (ft bmp): 12.71 | Well Diameter: 2"

Initial Total Depth of Well (ft bmp): 33.20 | Total Gallons Removed: 15

Final Static Depth to Water (ft bmp): 12.84 | Pump Decontaminated Prior to Development: YES

Final Total Depth of Well (ft bmp): 33.20

Time	Pumping Rate (gpm)	Depth to Water (ft bmp)	Gallons Removed	Turbidity (NTU)	Conductivity (mS/cm)	pH (s. u.)	Temp (ºC)	Appearance
10:46	0.3	12.72	0	Out of Range	60.2	6.84	21.3	Black
10:51	0.3	13.61	1.5	Out Of Range	838	7.25	20.7	Dark Gray
10:56	0.3	13.54	3	35.4	26.5	7.16	20.1	Gray
11:01	0.3	13.52	4.5	30.1	58.7	7.82	20.5	Gray
11:06	0.3	13.40	5	17.9	24.1	7.22	19.9	Gray
11:11	0.3	12.84	6.5	33.5	62.2	7.31	21.4	Gray
11:16	0.3	12.90	8	45.1	3.2	7.40	25.6	Dark Gray
11:21	0.3	12.91	9.5	30.7	4.8	7.38	24.1	Gray
11:26	0.3	12.85	11	18.5	4.6	7.24	22.1	Light Gray
11:31	0.3	12.84	12.5	14.1	3.8	7.21	21.5	Clear
11:36	0.3	12.84	15	6.59	13.3	7.25	21.9	Clear

ft bmp Feet Below Measuring Point.

WELL DEVELOPMENT LOG

Project: First Street Turning Basin | Well: MW-4S | Date: August 11, 2017

Developed By: J. Zator, Preferred Environmental Services | Well Material: PVC

Initial Static Depth to Water (ft bmp): 11.69 | Well Diameter: 2"

Initial Total Depth of Well (ft bmp): 15.33 | Total Gallons Removed: 12

Final Static Depth to Water (ft bmp): 13.66 | Pump Decontaminated Prior to Development: YES

Final Total Depth of Well (ft bmp): 15.33

Time	Pumping Rate (gpm)	Depth to Water (ft bmp)	Gallons Removed	Turbidity (NTU)	Conductivity (mS/cm)	pH (s. u.)	Temp (ºC)	Appearance
14:09	0.4	12.92	0	49.5	Out of Range	7.75	25.9	Tan and Cloudy
14:14	0.4	15.33	2	*	*	*	*	*Ran Dry, Paused Development
14:34	0.4	13.35	4	26.3	Out of Range	7.98	37.2	Tan and Cloudy
14:39	0.4	13.44	6	90.2	Out of Range	7.66	25.3	Tan
14:44	0.4	13.50	8	16.2	Out of Range	7.43	26.4	Tan
14:49	0.4	13.58	10	62.3	Out of Range	7.34	25.2	Tan
14:54	0.4	13.66	12	8.78	Out of Range	7.50	23.7	Clear

ft bmp Feet Below Measuring Point.

WELL DEVELOPMENT LOG

Project: First Street Turning Basin | Well: MW-4D | Date: August 11, 2017

Developed By: J. Zator, Preferred Environmental Services | Well Material: PVC

Initial Static Depth to Water (ft bmp): 11.54 | Well Diameter: 2"

Initial Total Depth of Well (ft bmp): 33.38 | Total Gallons Removed: 20

Final Static Depth to Water (ft bmp): 20.59 | Pump Decontaminated Prior to Development: YES

Final Total Depth of Well (ft bmp): 33.38

Time	Pumping Rate (gpm)	Depth to Water (ft bmp)	Gallons Removed	Turbidity (NTU)	Conductivity (mS/cm)	pH (s. u.)	Temp (ºC)	Appearance
12:53	0.4	19.20	0	Out of Range	206.8	8.90	25.6	Black
12:58	0.4	19.57	2.2	Out of Range	Out of Range	8.84	26.0	Black
13:03	0.4	19.71	4.4	Out of Range	Out of Range	8.53	25.6	Black
13:08	0.4	19.81	6.6	Out of Range	Out of Range	7.97	25.1	Dark Gray
13:13	0.4	19.80	8.8	Out of Range	Out of Range	7.92	24.9	Black
13:18	0.4	20.03	11.0	Out of Range	Out of Range	7.69	24.5	Dark Gray
13:23	0.4	20.05	13.2	Out of Range	Out of Range	7.64	24.1	Dark Gray
13:28	0.4	20.19	15.4	Out of Range	Out of Range	7.62	23.0	Gray
13:33	0.4	20.21	17.6	26.0	Out of Range	7.47	22.5	Clear
13:38	0.4	20.59	19.8	23.5	Out of Range	7.49	20.9	Clear

ft bmp Feet Below Measuring Point.

WELL DEVELOPMENT LOG

Project: First Street Turning Basin | Well: MW-5S | Date: August 17, 2017

Developed By: D. Prisco-Buxbaum, Preferred Environmental Services | Well Material: PVC

Initial Static Depth to Water (ft bmp): 11.98 | Well Diameter: 2"

Initial Total Depth of Well (ft bmp): 20.00 | Total Gallons Removed: 12

Final Static Depth to Water (ft bmp): 9.70 | Pump Decontaminated Prior to Development: YES

Final Total Depth of Well (ft bmp): 20.00

Time	Pumping Rate (gpm)	Depth to Water (ft bmp)	Gallons Removed	Turbidity (NTU)	Conductivity (mS/cm)	pH (s. u.)	Temp (ºC)	Appearance
9:15	0.3	11.98	2	Out of Range	Out of Range	7.89	25.3	Black
9:20	0.3	18.78	4	Out of Range	Out of Range	7.97	26.5	Black
9:25	*	20.00	4	*	*	*	*	*Ran Dry, Paused Development
9:50	0.3	14.50	6	Out of Range	7.08	8.07	22.1	Black
9:55	0.3	17.97	8	Out of Range	26.4	7.99	21.5	Light Gray
10:00	*	20.00	8	*	*	*	*	*Ran Dry, Paused Development
14:15	0.3	9.70	8	Out of Range	28.01	7.87	28.4	Black
14:30	0.3	9.70	10	20.6	31.55	7.51	26.1	Clear
14:45	0.3	9.70	12	12.2	18.21	7.48	24.4	Clear

ft bmp Feet Below Measuring Point.

WELL DEVELOPMENT LOG

Project: First Street Turning Basin Well: MW-5D Date: August 17, 2017

Developed By: D. Prisco-Buxbaum, Preferred Environmental Services Well Material: PVC

Initial Static Depth to Water (ft bmp): 9.02 Well Diameter: 2"

Initial Total Depth of Well (ft bmp): 33.15 Total Gallons Removed: 16

Final Static Depth to Water (ft bmp): 9.08 Pump Decontaminated Prior to Development: YES

Final Total Depth of Well (ft bmp): 33.15

Time	Pumping Rate (gpm)	Depth to Water (ft bmp)	Gallons Removed	Turbidity (NTU)	Conductivity (mS/cm)	pH (s. u.)	Temp (ºC)	Appearance
10:15	0.3	9.02	2	Out of Range	228.1	8.03	23.3	Dark Gray
10:20	0.3	20.50	4	Out of Range	2,904	8.16	19.7	Gray
10:25	0.3	20.71	6	1,267	3,846	8.01	19.7	Light Gray
10:30	0.3	21.26	8	1,142	1,688	8.05	18.7	Light Gray
10:35	0.3	21.52	10	Out of Range	23.7	8.33	22.5	Light Gray
10:40	0.3	21.38	12	62.4	23.9	8.45	21.2	Clear
10:45	0.3	21.41	14	46.9	19.1	8.46	20.9	Clear
10:50	0.3	21.39	16	36.1	17.9	8.47	21.1	Clear

ft bmp Feet Below Measuring Point.