FORMER DUTCH MASTERS PAINT AND VARNISH CO.
Site No. C224262

29-41 WYTHE AVENUE AND 180 N. 14th STREET
BROOKLYN, NEW YORK 11249
Block 2279, Lots 1 and 9

REMEDIAL ACTION WORK PLAN

DECEMBER 2019
Revised September 2020

Prepared for:

False Alarm LTD and M.A.J. Associates, Inc.
530 7th Avenue, Suite 1902
New York, NY 10018

AMC Engineering, PLLC
18-36 42nd Street,
Astoria, NY 11105
(516) 545-0474

CERTIFICATION

I, Ariel Czemerinski, certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

076508	9/18/2020	
NYS Professional Engineer #	Date	Signature

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

TABLE OF CONTENTS
REMEDIAL ACTION WORK PLAN
FORMER DUTCH MASTERS PAINT AND VARNISH CO.

TABLE OF CONTENTS
REMEDIAL ACTION WORK PLAN
FORMER DUTCH MASTERS PAINT AND VARNISH CO.

TABLE OF CONTENTS
REMEDIAL ACTION WORK PLAN
FORMER DUTCH MASTERS PAINT AND VARNISH CO.

LIST OF TABLES

TABLE OF CONTENTS
REMEDIAL ACTION WORK PLAN
FORMER DUTCH MASTERS PAINT AND VARNISH CO.

LIST OF FIGURES

ATTACHMENTS

LIST OF ACRONYMS

Acronym	Definition
AMC	AMC Engineering
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CQMP	Construction Quality Management Plan
DUSR	Data Usability Statement Report
EBC	Environmental Business Consultants
FER	Final Engineering Report
HDPE	High Density Polyethylene
IRM	Interim Remedial Measure
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PS	Public School
PVC	Polyvinyl Chloride
RAO	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RSCOs	Recommended Site Cleanup Objectives
SCG	Standards, Criteria, and Guidelines
SMMP	Soil/Materials Management Plan
SMP	Site Management Plan
SSDS	Sub-slab Depressurization System
SWPPP	Stormwater Pollution Prevention Plan
SVOCs	Semi-Volatile Organic Compounds
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

Site Description/Physical Setting/Site History

This Remedial Action Work Plan (RAWP) was prepared on behalf of False Alarm LTD and M.A.J. Associates, Inc. for the property known as the Former Dutch Masters Paint and Varnish Co. Site located at 29-41 Wythe Avenue and 180 N. 14th Street in Brooklyn, New York (hereafter referred to as the Site). In August 2017, False Alarm LTD and M.A.J. Associates, Inc. filed an application with the New York State Department of Environmental Conservation (NYSDEC), to admit the Project Site into the New York State Brownfield Cleanup Program (BCP). The application was deemed complete by the NYSDEC on August 22, 2017. On October 19, 2017, the NYSDEC informed False Alarm LTD and M.A.J. Associates, Inc. that the project (Site No. C224262) had been accepted into the BCP with False Alarm LTD and M.A.J. Associates, Inc. classified as “Volunteers”. The Brownfield Cleanup Agreement was executed by NYSDEC on December 6, 2017.

An unrestricted use is proposed for the property. When completed, the Site will be redeveloped with a new 7-story mixed-use building. The project will include light manufacturing, commercial office, and retail space. The proposed development is compatible with the existing M1-1 and M1-2 zoning. Refer to the Brownfield Cleanup Program (BCP) application for additional details.

The street addresses for the Site are 29 through 41 Wythe Avenue and 180 N. 14th Street, Brooklyn, New York (**Figure 1**). The Site is located in the City of New York in the East Williamsburg neighborhood of the Borough of Brooklyn. The Site is comprised of two tax parcels identified as Block 2279, Lots 1 and 9 and totaling 28,528 ft^2 (0.65 acres). See **Figure 2**.

Lot 1 (29 through 41 Wythe Avenue) is located on the east side of Wythe Avenue, and consists of 200 feet of street frontage along Wythe Avenue, 100 feet of street frontage along North 13th Street, and 100 feet of street frontage along North 14th Street for a total of approximately 20,000 ft^2. The entire footprint of the lot was developed with a vacant 2-story industrial/manufacturing building which was recently demolished in preparation for remediation of the property.

Lot 9 (180 North 14th Street) is located immediately east of Lot 1 and consists of 85 feet of street frontage along North 14th Street and a lot depth of approximately 100.33 feet for a total of 8,528

ft^2. The entire footprint of Lot 9 was most recently developed with a vacant 1-story commercial/office building which was recently demolished in preparation for remediation of the property.

A review of Sanborn maps indicates that a portion of Lot 1 (33-35) Wythe Avenue was occupied by the C.L. Wood & Son. Varnish Factory beginning sometime prior to 1887. The varnish works factory expanded to cover all of Lot 1 by 1942. From 1951 through 2007, Lot 1 was labeled as the Dutch Masters Paint and Varnish Company. However, according to property transaction records, Lot 1 was purchased in 1978 by Victor Barouh, a manufacturer of type writer ribbons. The building was reportedly used as a warehouse by Barouh Eaton Allen Corp. when the requestor purchased the building in 1995 and used it as a clothing warehouse. It remained in this use through 2009 when portions of the building were rented out to a motorcycle repair shop and art studio.

A portion of Lot 9 was used as a foundry for the manufacture of window weights from 1902 through at least 1916. By 1942 (next available Sanborn map) the property is shown as a bed spring manufacturer. It remained in this use through 1979 when it is simply shown as manufacturing. According to property transaction listings, Dutch Masters Paint and Varnish took a mortgage on the property in 1969. In 1979, the property was purchased by Barouh Eaton Allen Corp and according to the current owner was used as a warehouse for typewriter ribbons. Lot 9 remained in this use through 1995 when it was purchased by the Requestor and used as a clothing warehouse through 2009 when it was rented out as music studios.

Lot 1 is currently owned by False Alarm LTD and Lot 9 is currently owned by M.A.J. Associates, Inc.

Summary of the Remedial Investigation

A Remedial Investigation was completed at the Site from October 15, 2018, through January 29, 2019, and documented in a Remedial Investigation Report dated November 2019. The goals of the Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination. Activities completed under the RI:

- The installation of fourteen soil borings to collect twenty-four soil samples for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides, pesticides, organophosphate pesticides, PCBs, and/or metals;
- The installation of nine groundwater monitoring wells and the collection of nine groundwater samples for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and total and dissolved metals;
- The collection of analysis of soil gas samples for VOCs from thirteen soil gas sampling locations.

The results of sampling performed during this RI identified contamination associated with historic fill, spill areas on/near Lot 9 of the chlorinated VOC trichloroethylene (TCE) that has impacted both groundwater and/or soil gas, and petroleum VOC contaminated soil in the southeast corner of Lot 1 that has slightly impacted groundwater.

The chlorinated VOC trichloroethylene (TCE) was detected within soil samples collected from three of the soil borings performed on Lot 9 (B1801, B1803, and B1804). TCE was detected above SCOs in several isolated samples at the site, including B1801 located in the northeast corner of Lot 9 and B1804 located in the southwest corner of Lot 9. TCE was reported above SCO's at higher concentrations in shallow vs deep samples indicating incidental surface spillage. TCE concentrations did not exceed Restricted Residential SCOs and ranged in concentration from 1,300 ug/kg to 3,100 ug/kg.

Petroleum related VOCs were detected at low concentrations in the majority of the soil samples collected at the Site, including soil samples collected at the groundwater interface and soil samples collected above the groundwater interface. However, detections above Unrestricted Use SCOs were limited to soil sample B10 located in the southeast corner of lot 1, (4-5), soil sample B1802 (10-12) located in the southeast corner of Lot 9, and soil sample B1805(6-8) located in the northeast corner of Lot 1. Total petroleum VOC concentrations in these samples ranged from

87 ug/kg to 1,017 ug/kg. Although polycyclic aromatic hydrocarbons (PAHs) were reported at elevated concentrations in some of the samples they did not appear to be related to petroleum. Petroleum impacts do not appear to be related to any definable source as elevated concentrations of VOCs and PAHs were not reported near any of the suspect underground storage tanks (USTs) or piping.

The historic fill material was found across the Site to depths of 10 to 12 feet below grade, extending as deep as 17 feet in some areas of the Site. Depending on location, the historic fill material contains one or more metals including arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel and zinc, pesticides and polycyclic aromatic hydrocarbons (PAHs) above Unrestricted Use and / or Restricted Residential SCOs.

Qualitative Human Health Exposure Assessment

The qualitative exposure assessment identified potential completed routes of exposure to construction workers and remediation workers through inhalation, ingestion and dermal contact of petroleum related VOCs, chlorinated VOCs, SVOCs and heavy metals during excavation activities. The Health and Safety Plan prepared for the Site identifies such exposures and provides instructions for on-Site workers to minimize potential exposure. Proposed remedial actions will address the potential for soil vapor intrusion to impact indoor air in any new developed building at the site.

The exposure assessment indicated a limited potential for exposure to residents and commercial workers in the adjacent buildings which would be addressed by the implementation of a Community Air Monitoring Plan. Identified source areas will be removed via the remedial action. Potential environmental impacts through the groundwater to surface water discharge were considered unlikely based on the concentrations of VOCs in groundwater.

Summary of the Remedy

The remedy recommended for the Site is a Track 1 alternative (Alternative 1) which consists of removing all soils with parameters above Unrestricted Use SCOs. This will require excavation to approximately 26 to 18 feet below grade. Excavation for the new building's cellar level will be performed across the Site to a depth of at least 28 feet below grade. In addition, all fill material will be removed from the Site and properly disposed of at an off-site facility. The remedy will include the following items:

1. Demolition of existing structures to allow for the excavation of impacted soil (previously completed);
2. Removal of underground storage tanks;
3. Excavation of soil/fill exceeding Track 1 Unrestricted Use SCOs as listed in **Table 1** to a minimum depth of 16 feet across the Site with additional excavation within the deeper impacted areas to 18 feet, or as needed, to meet Track 1 Unrestricted Use SCOs;
4. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
5. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
6. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
7. Dewatering of VOC impacted groundwater before discharging to the NYC sewer system under a NYCDEP sewer discharge permit;
8. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material;
9. If Track 1 is not achieved, an Environmental Easement will be filed against the Site to restrict the site use to commercial or industrial.

Although the goal of the remedy will be to achieve a Track 1 remedy, if Track 1 Unrestricted Use SCOs cannot be achieved, then a Track 2 cleanup will result.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) was prepared on behalf of False Alarm LTD and M.A.J. Associates, Inc. for the property known as the Former Dutch Masters Paint and Varnish Co. Site located at 29-41 Wythe Avenue and 180 N. 14th Street in Brooklyn, New York (hereafter referred to as the Site). In August 2017, False Alarm LTD and M.A.J. Associates, Inc. filed an application with the New York State Department of Environmental Conservation (NYSDEC), to admit the Project Site into the New York State Brownfield Cleanup Program (BCP). The application was deemed complete by the NYSDEC on August 22, 2017. On October 19, 2017, the NYSDEC informed False Alarm LTD and M.A.J. Associates, Inc. that the project (Site No. C224262) had been accepted into the BCP with False Alarm LTD and M.A.J. Associates, Inc. classified as “Volunteers”. The Brownfield Cleanup Agreement was executed by NYSDEC on December 6, 2017.

This RAWP summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed from October 15, 2018, through January 29, 2019. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that this Site does not pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

A formal Remedial Design document will not be prepared.

1.1 SITE LOCATION AND DESCRIPTION

The street addresses for the Site are 29 through 41 Wythe Avenue and 180 N. 14th Street, Brooklyn, New York (**Figure 1**). The Site is located in the City of New York in the East

Williamsburg neighborhood of the Borough of Brooklyn. The Site is comprised of two tax parcels identified as Block 2279, Lots 1 and 9 and totaling 28,528 ft^2 (0.65 acres). See **Figure 2**.

Lot 1 (29 through 41 Wythe Avenue) is located on the east side of Wythe Avenue, and consists of 200 feet of street frontage along Wythe Avenue, 100 feet of street frontage along North 13th Street, and 100 feet of street frontage along North 14th Street for a total of approximately 20,000 ft^2. The entire footprint of the lot was developed with a vacant 2-story industrial/manufacturing building. The building has been demolished in preparation for soil excavation.

Lot 9 (180 North 14th Street) is located immediately east of Lot 1 and consists of 85 feet of street frontage along North 14th Street and a lot depth of approximately 100.33 feet for a total of 8,528 ft^2. The entire footprint of Lot 9 was developed with a vacant 1-story commercial/office building. The building has been demolished in preparation for soil excavation.

A review of Sanborn maps indicates that a portion of Lot 1 (33-35) Wythe Avenue was occupied by the C.L. Wood & Son. Varnish Factory beginning sometime prior to 1887. The varnish works factory expanded to cover all of Lot 1 by 1942. From 1951 through 2007, Lot 1 was labeled as the Dutch Masters Paint and Varnish Company. However, according to property transaction records, Lot 1 was purchased in 1978 by Victor Barouh, a manufacturer of type writer ribbons. The building was reportedly used as a warehouse by Barouh Eaton Allen Corp. when the requestor purchased the building in 1995 and used it as a clothing warehouse. It remained in this use through 2009 when portions of the building were rented out to a motorcycle repair shop and art studio.

A portion of Lot 9 was used as a foundry for the manufacture of window weights from 1902 through at least 1916. By 1942 (next available Sanborn map) the property is shown as a bed spring manufacturer. It remained in this use through 1979 when it is simply shown as manufacturing. According to property transaction listings, Dutch Masters Paint and Varnish took a mortgage on the property in 1969. In 1979, the property was purchased by Barouh Eaton Allen Corp and according to the current owner was used as a warehouse for typewriter ribbons. Lot 9 remained in this use through 1995 when it was purchased by the Requestor and used as a clothing warehouse through 2009 when it was rented out as music studios.

Lot 1 is currently owned by False Alarm LTD and Lot 9 is currently owned by M.A.J. Associates, Inc.

The elevation of the Site is approximately 12 feet above the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes to the west toward the Bushwick Inlet. Groundwater occurs beneath the Site at a depth of approximately 7.50-11.78 feet below grade under water table conditions. The groundwater flow direction calculated for the Site was to the northeast.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The redevelopment project consists of the construction of a new 7-story mixed-use (commercial/industrial/incentive uses) building which will cover the entirety of the Site. The project includes light manufacturing, commercial office, and retail space. Plans include a full height cellar level requiring excavation of the entire Site to a depth of at least 28 ft below grade. The proposed development is compatible with the existing M1-1 and M1-2 zoning. It is estimated that a total of 26,600 cubic yards (42,600 tons) of soil/fill will require excavation and off-Site disposal. Groundwater was found at the Site at depths ranging between 7.50 to 11.78 feet below grade. Therefore, dewatering will be required during construction of the building's foundation.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The area surrounding the property is highly urbanized and is primarily industrial / commercial in accordance with the M1-1 and M1-2 zoning which surrounds the property (**Figure 3**). Adjacent land use includes a 111,300 ft^2 industrial/manufacturing building (9 Kent Avenue – Block 2278, Lot 2) to the north on the opposite side of Wythe Avenue, a new 22-story commercial/office/hotel building (55 Wythe Avenue – Block 2283, Lot 1) to the west on the opposite side of North 13th Street, a 45,000 ft^2 industrial/manufacturing building (72 North 15th Street – Block 2639, Lot 7) to the east on the opposite side of North 14th Street, a partially constructed new commercial building (103 North 13th Street - Block 2279, Lot 34) and a 3-story commercial/office building (190 North 14th Street – Block 2279, Lot 13) to the south.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The field work portion of the Remedial Investigation was conducted by EBC from October 15, 2018, through January 29, 2019 prior to building demolition. The investigation is summarized in the sections below. Further details are provided in the Remedial Investigation Report (EBC, November 2019).

2.1 SUMMARY OF REMEDIAL INVESTIGATIONS PERFORMED

2.1.1 Soil Borings

A total of 14 soil borings were advanced between October 15, 2018, to November 2, 2018, to identify source areas and to obtain general soil quality information present at the Site.

On October 15, 2018, and October 16, 2018, three soil borings (B18010, B18011 and B18014) were performed utilizing a stainless steel hand auger within the cellar of the building. Soil borings B18010 and B18011 were performed to a depth of 5 feet below grade, and soil boring B18014 was performed to a depth of 3 feet below grade. Soil recovered from the three hand augered soil borings was field screened by an environmental professional for the presence of VOCs with a photo-ionization detector (PID) and visually inspected for evidence of contamination. No significant PID readings were encountered, and no olfactory evidence of contamination was observed. Therefore, one soil sample was retained from each of the three soil borings for laboratory analysis.

On October 15, 2018, and October 16, 2018, six soil borings (B1805, B1807, B1808, B1809, B1812, and B1813) were performed. An additional four soil borings (B1801, B1802, B1803, and B1804) were performed on November 2, 2018. From each soil boring location, soil samples were collected continuously in 4 or 5-foot intervals to a depths varying between 12 and 16 feet below grade using a track-mounted Geoprobe™ model 66DT sampling system. The Geoprobe™ uses a direct push hydraulic percussion system to drive and retrieve core samplers. Soil samples were retrieved using a 2-inch diameter, 4 or 5-foot long macro-core sampler with disposable acetate liners. Each soil sample recovered from the soil borings was characterized by an experienced geologist and field screened for the presence of VOCs using a PID. In accordance with the RI

Work Plan, two samples were retained from each of the ten soil borings for laboratory analysis. However, only one soil sample was retained for laboratory analysis from soil boring B1806 due to a lack of recovery within the macrocore tube.

A total of 24 soil samples were retained for laboratory analysis from the 14 soil borings. The soil samples were analyzed for one or more of the following analyses depending on boring location and depth: VOCs (EPA Method 8260), SVOCs (EPA Method 8270), TAL metals and dissolved metals (EPA Method 6010), and Pesticides and PCBs (EPA Method 8081/8082). Soil boring locations are identified in **Figure 4**.

2.1.2 Monitoring Wells

Five monitoring wells (18MW5 through 18MW9) were installed at the Site on October 15, 2018, and October 16, 2018. An additional four monitoring wells (18MW1 through 18MW4) were installed at the Site on January 28, 2019. All nine monitoring wells were installed with a track mounted Geoprobe™ Model 6712DT drilling machine to a depth of approximately 20 feet below grade with 10 feet of 0.010 PVC well screen and 10 feet of PVC riser.

A No.00 morie filter-pack sand filled the annulus surrounding the screen within two feet above the top of the screen. A one-foot hydrated bentonite seal was then placed on top of the filter sand and the remainder of the borehole was backfilled to grade. Following installation, each of the wells were surveyed to determine relative casing elevation to the nearest 0.01 ft and horizontal position to the nearest 0.1 ft. Monitoring well locations are identified in **Figure 5**.

Prior to sampling, a synoptic round of depth-to-groundwater (DTW) measurements were obtained from the monitoring wells to determine the water table elevation and to calculate the volume of standing water in the well. The DTW was measured in monitoring wells 18MW5 through 18MW9 on October 17, 2018. The DTW was measured for monitoring wells 18MW1 through 18MW4 on January 29, 2019. The depth to groundwater ranged from 7.50 to 11.78 feet below grade.

2.1.3 Samples Collected

A summary of the sampling performed during the RI is provided in **Table 2**.

Soil Samples

A total of twenty-four (24) soil samples were collected from fourteen (14) soil borings for laboratory analysis of VOCs (EPA Method 8260), SVOCs (EPA Method 8270), target analyte list (TAL) metals and pesticides/PCBs (EPA Method 8081/8082).

Groundwater Samples

Groundwater samples were obtained from all nine monitoring wells. All groundwater samples from the monitoring wells were analyzed for VOCs / SVOCs and 1,4-dioxane (EPA Method 8260 / 8270), PFAS compounds (EPA Method 537) (except 18MW4), pesticides / PCBs (EPA Method 8081 / 8082) and TAL metals.

Soil Gas Samples

To assess the presence of VOCs in soil gas beneath the Site, 13 soil vapor implants were installed at the Site from October 15, 2018, through October 30, 2018, and sampled on October 16, 2018, and November 5, 2018. The soil vapor implants (Geoprobe™ Model AT86 series), were constructed of a 6-inch length of double woven stainless steel wire and installed to a depth of 7 ft below grade using Geoprobe™ equipment. All soil vapor samples were collected over a 2 hr sampling period.

Soil vapor samples were collected in accordance with the procedures as described in section 2.4 of the approved RIR and the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH 10/06)*.

2.1.4 Chemical Analytical Work Performed

Each soil and groundwater sample was placed in pre-cleaned laboratory supplied glassware, and placed in a cooler packed with ice for transport to the laboratory. Laboratory services for soil and groundwater sample analysis were provided by Phoenix Environmental Laboratories, Inc. of Manchester, Connecticut, a New York State ELAP certified environmental laboratory (ELAP Certification No. 11301).

Retained soil samples were submitted for laboratory analysis of one or more of the following analyses: volatile organic compounds (VOCs) by EPA Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, TAL Metals, pesticides and PCBs by EPA Method 8081/8082.

All groundwater samples from the monitoring wells were analyzed for VOCs / SVOCs and 1,4-dioxane by EPA Method 8260 / 8270, PFAS compounds by EPA Method 537 (except 18MW4), TAL metals by EPA Method 6010 and Pesticides/PCBs by EPA Method 8081/8082. Soil gas samples were analyzed for VOCs by USEPA Method TO-15.

2.1.5 Documentation

A map showing the locations of the soil borings is provided in **Figure 4**. The locations of the monitoring wells and soil gas sample collection points are provided in **Figure 5**. The results of soil, groundwater and soil gas samples collected during the RI are summarized in **Tables 3 through 15**. Below is a summary of the RI findings.

The results of soil sampling performed during this RI identified several contamination sources as follows:

- The chlorinated VOC trichloroethylene (TCE) was detected within soil samples collected from three of the soil borings performed on Lot 9 (B1801, B1803, and B1804). TCE was detected within soil samples B1801(4-6’) at 3,100 ug/kg, B1801(13-15’) at 1,300 ug/kg, B1803(4-6’) at 320 ug/kg, B1803(10-12’) at 360 ppb, B1804(10-12’) at 1,700 ug/kg. TCE was detected above GQS within groundwater sample 18MW1 (8.7 µg/L) collected on Lot 9 from the same location as soil boring B1801. TCE was detected at trace concentrations below GQS within the 18MW3 (0.44 µg/L) and 18MW4 (0.4 µg/L) groundwater samples collected from the B1803 and B1804 soil boring locations on Lot 9. TCE was detected at elevated concentrations in one soil gas sample on Lot 9 (SG1- 320 µg/m^3).

- Petroleum related VOCs were detected at low concentrations in the majority of the soil samples collected at the Site, including both soil samples collected at the groundwater interface, and soil samples collected above the groundwater interface. However, detections above Unrestricted Use SCOs were limited to soil sample B1802(10-12) for benzene (87 ppb), and soil sample B1805(6-8) for benzene (120 ppb).

- Historic fill material has been identified across the Site to depths of 10 to 12 feet below grade, extending as deep as 16 feet in some areas of the Site. Depending on location, the historic fill material contains one or more metals including arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel and zinc, pesticides and polycyclic aromatic hydrocarbons (PAHs) above Unrestricted Use and / or Restricted Residential SCOs.

The results of the groundwater sampling performed during this RI identified the following:

- Petroleum related VOCs were detected above NYSDEC Ambient Water Quality Standards (AWQS) within groundwater samples 18MW6 (east end of Lot 1) and 18MW7 (southeast corner of Lot 1). Total petroleum VOCs in groundwater in these areas ranged from 33.8 µg/L to 105 µg/L.

- TCE was detected above GQS within groundwater sample 18MW1 (8.7 µg/L) collected on Lot 9 from the same location as soil boring B1801. In addition, TCE was detected at trace concentrations below GQS within the 18MW3 (0.44 µg/L) and 18MW4 (0.4 µg/L) groundwater samples collected from the B1803 and B1804 soil boring locations on Lot 9.

- Combined PFOA and PFOS were detected above the USEPA Health Advisory within groundwater samples 18MW1, 18MW6, and 18MW8 (central portion of Lot 1). The combined PFOA and PFOS concentrations in groundwater in these wells ranged from 70.41 ng/L to 94.6 ng/L.

- SVOCs were detected above AWQS within most of the groundwater samples collected at the Site. The SVOC detections were limited to PAH compounds with standards in the parts per trillion range. The exceedances are likely attributed to a turbid sample and not due to an on-Site source.

- No pesticides or PCBs were detected in any of the groundwater samples collected at the Site.

- Several dissolved metals were detected above standards including iron, magnesium, manganese, and sodium in most of the wells. These metals are consistent with general groundwater quality throughout the area. The metals aluminum (28.8 mg/L), cadmium (208 mg/L), lead (0.037 mg/L), and selenium (0.028 mg/L) were detected above AWQS in 18MW2, and the metal arsenic (0.219 mg/L) was detected above AWQS in 18MW3. The exceedances are likely attributed to a turbid sample and not due to an on-Site source.

The results of the soil vapor sampling performed during this RI identified the following:

- Petroleum-related VOCs were generally low in soil vapor samples. Lighter end petroleum compounds such as heptane (795 µg/m^3) and hexane (1,730 µg/m^3) were detected at elevated concentrations in SG5 and may be related to the petroleum VOCs detected in soil across the Site.

- TCE was detected at elevated concentrations in one sample located on Lot 9 (SG1 - 320 µg/m^3).

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH will review the RI Report and will determine whether the Site does or does not pose a significant threat to human health and the environment. Notice of that determination will be provided during the public comment period, through Fact Sheet No. 2 and the Proposed Decision Document.

2.3 SITE HISTORY

2.3.1 Past Uses and Ownership

The Site is currently owned by False Alarm LTD. and M.A.J. Associates, Inc. The property was developed with a vacant 2-story, industrial/manufacturing building constructed in 1925, and a vacant commercial/office building constructed in 1950. Both buildings were demolished in preparation for remedial work.

A review of Sanborn maps indicates that a portion of Lot 1 (33-35) Wythe Avenue was occupied by the C.L. Wood & Son. Varnish Factory beginning sometime prior to 1887. The varnish works factory expanded to cover all of Lot 1 by 1942. From 1951 through 2007, Lot 1 was labeled as the Dutch Masters Paint and Varnish Company. However, according to property transaction records, Lot 1 was purchased in 1978 by Victor Barouh, a manufacturer of type writer ribbons. The building was reportedly used as a warehouse by Barouh Eaton Allen Corp. when the requestor purchased the building in 1995 and used it as a clothing warehouse. It remained in this use through 2009 when portions of the building were rented out to a motorcycle repair shop and art studio.

A portion of Lot 9 was used as a foundry for the manufacture of window weights from 1902 through at least 1916. By 1942 (next available Sanborn map) the property is shown as a bed spring manufacturer. It remained in this use through 1979 when it is simply shown as manufacturing. According to property transaction listings, Dutch Masters Paint and Varnish took a mortgage on the property in 1969. In 1979, the property was purchased by Barouh Eaton Allen Corp and according to the current owner was used as a warehouse for typewriter ribbons. Lot 9 remained in this use through 1995 when it was purchased by the Requestor and used as a clothing warehouse through 2009 when it was rented out as music studios. A listing of previous owners and operators for the property is as follows:

Previous Owners Block 2279, Lot 9

Dates	Name	Comments	Contact Info
Prior to 8/10/1971	Pashman, Lieb & Pashman	Deed	35 Wythe Avenue, Brooklyn, NY 11249
From 8/10/1971 to 6/11/1979	184 No. 14 Corp.	Deed	25 Wythe Avenue, Brooklyn, NY 11249 and 74 Lake Shore Drive, Eastchester, NY 10709
From 6/11/1979 to 12/6/1995	Eaton Allen Corp.	Deed	67 Kent Avenue, Brooklyn, NY 11211
From 12/6/1995 to present	M.A.J. Associates, Inc.	Deed	29 Wythe Avenue, Brooklyn, NY 11249

Previous Owners Block 2279, Lot 1

Dates	Name	Comments	Contact Info
Prior to 12/1/1977	Dutch Masters Paint & Chemical Co. Ltd.	Deed	74 Lakeshore Drive, Eastchester, NY 10707
From 12/1/1977 to 5/23/1978	4920 Van Dam Street Realty Corp.	Deed	20 West 48th Street, New York, NY 10036
From 5/23/1978 to 2/1/1982	Victor Berouh	Deed	67 Kent Avenue, Brooklyn, NY 11211
From 2/1/1982 to 3/31/1995	Barouh Eaton Allen Corp.	Deed	67 Kent Avenue, Brooklyn, NY 11211
From 3/31/1995 to present	False Alarm Ltd.	Deed	29-43 Wythe Avenue, Brooklyn, NY 11249

Previous Operators

Dates	Name	Comments	Contact Info
Sometime between 1887 to 1905	Residential development and C.L. Wood & Son Varnish Factory	Sanborn Maps City Directory	33-35 Wythe Avenue, Brooklyn, NY 11249; 101 North 13th Street, Brooklyn, NY 11249
Sometime between 1905 to 1942	Wood & Shepard Varnish Co., iron storage, storage, and storage for Kings County Iron Foundry	Sanborn Maps	33-35 Wythe Avenue, Brooklyn, NY 11249; 37-39 Wythe Avenue, Brooklyn, NY 11249; 41-43 Wythe Avenue, Brooklyn, NY 11249; 113 North 13th Street, Brooklyn, NY 11249
Sometime between 1942 to 1979	Dutch Masters Paint & Varnish Products Co. and Bed Spring Manufacturing	Sanborn Maps	29-43 Wythe Avenue, Brooklyn, NY 11249; 180-188 North 14th Street, Brooklyn, NY 11249
Sometime between 1979 and 2000	Dutch Masters Paint & Varnish Co., a manufacturing building, Fork Lift Repair Corp. (1985-1992), Iron Works Inc. (1985-1992) and LJJ Inc. (1997)	Sanborn Maps City Directory	29-43 Wythe Avenue, Brooklyn, NY 11249; 180-188 North 14th Street, Brooklyn, NY 11249; 101 North 13th Street, Brooklyn, NY 11249; 29 Wythe Avenue, Brooklyn, NY 11249
Sometime between 2000 to the present	Dutch Masters Paint & Varnish Co., a manufacturing building, LJJ Inc. (2000), We Know Construction Inc. (2008), Crumpler New York Limited (2008-2013), and Apple Locksmith (2013)	Sanborn Maps City Directory	29-43 Wythe Avenue, Brooklyn, NY 11249; 180-188 North 14th Street, Brooklyn, NY 11249; 180 North 14th Street, Brooklyn, NY 11249; 29 Wythe Avenue, Brooklyn, NY 11249

2.3.2 Summary of Previous Reports

The previous environmental investigation performed at the Site is detailed below:

- Phase II Subsurface Investigation Data Summary - EBC (April 2017)

EBC performed a subsurface investigation at the Site in February 2017. The field work portion of the Phase II was performed on February 22, 2017 and included the installation of 12 soil borings and 3 groundwater monitoring wells. A total of 10 soil samples were retained from 5 of the soil borings for laboratory analysis of volatile and semi-volatile organic compounds (VOCs/SVOCs). EBC also collected one soil sample from each of the 12 soil borings for laboratory analysis of metals. One groundwater sample was collected from each of the three monitoring wells for laboratory analysis of VOCs. Laboratory services were provided by Phoenix Environmental Laboratories, Inc. of Manchester, Connecticut 06040, a New York State ELAP certified environmental laboratory (ELAP Certification No. 11301).

The results of the investigation identified petroleum contamination (VOCs) in four of the samples collected with elevated SVOC's reported in five samples. The chlorinated VOC trichloroethene (TCE) was also reported in one of the samples. High concentrations of metals including one or more of the following: arsenic, barium, cadmium, copper, lead and zinc, were reported in all twelve soil samples. Petroleum VOCs were reported above groundwater standards in two of the samples.

2.4 GEOLOGICAL CONDITIONS

The geologic setting of Long Island is well documented and consists of crystalline bedrock overlain by layers of unconsolidated deposits. According to geologic maps of the area created by the United States Geologic Survey (USGS), the bedrock in this area of Brooklyn is an igneous intrusive classified as the Ravenswood grano-diorite of middle Ordovician to middle Cambrian age. Unconsolidated sediments overlie the bedrock and consist of Pleistocene aged sand, gravel and silty clays, deposited by glacial-fluvial activity. Non-native fill materials consisting of dredge spoils, rubble and / or other materials have historically been used to reinforce and extend shoreline areas and to raise and improve the drainage of low lying areas.

The Site is located adjacent to, or slightly within, a moderate risk flood zone to the north and to the east, and adjacent to a high risk flood zone (subject to 1%, 100-year annual flood) in the north area of the property.

Subsurface soils at the Site consist of historic fill materials to a depth of approximately 10 to 12 feet below the existing grade extending to 16 feet below grade at some locations. A native silty-sand and meadow mat (marshland) is present immediately below this layer.

Groundwater at the Site is present under water table conditions at a depth of 7.5 to 11.78 feet below grade. Based upon on-site measurements, groundwater flow is to the northeast (**Figure 6a, 6b**). Considering the poor quality of groundwater in the area, including high levels of iron, sodium and magnesium associated with saltwater intrusion and impacts from petroleum and industrial solvents related to the former commercial / industrial use of the area, there is no anticipated future groundwater use.

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

Contamination at the Site consists of historic fill material that contains metals and SVOCs above Unrestricted Use and / or Commercial Use to depths 10 to 12 ft below the building slab, extending to depths as great as 16 feet in some areas. The historic fill material was imported to the Site in the early to mid 1800's to raise and reclaim marshland around the inland streams and marshland associated with Bushwick Inlet.

CVOC contamination was reported at elevated but relatively low levels in three locations: two on Lot 9 and one in the northeastern corner of Lot 1 in the former motorcycle repair shop. The CVOC impact was generally higher in shallow soil (<5 ft) than it was in soil at the water table suggesting isolated surface spillage. TCE was reported slightly above groundwater standards at one of these locations indicating that some transfer to the dissolved phase has occurred in the northeast corner of lot 9. TCE in soil vapor was also elevated in this area of Lot 9 indicating volatilization of the impacted soil is occurring.

Petroleum contamination consisting of elevated levels of several SVOCs and low levels of VOCs, was reported in shallow soil in the southeast corner of Lot 1. There are no suspect underground storage tanks in this area of the site and the location of the boring was in the building's former main entryway and not in an area where any historic work operations would have occurred. This may be related to petroleum contamination associated with the adjacent lot to the east (lot 34). Benzene was reported in groundwater at this location slightly above its standard indicating some transfer to the dissolved phase.

2.5.2 Description of Areas of Concern

- The chlorinated VOC trichloroethylene (TCE) was detected within soil samples collected from three of the soil borings performed on Lot 9 (B1801, B1803, and B1804). TCE was detected above SCOs in several isolated samples at the site, including B1801 located in the northeast corner of Lot 9, B1804 located in the southwest corner of Lot. TCE was reported above SCO's at higher concentrations in shallow vs deep samples indicating incidental surface spillage. TCE concentrations did not exceed Restricted Residential SCOs and ranged in concentration from 1,300 ug/kg to 3,100 ug/kg.

- Petroleum related VOCs were detected at low concentrations in the majority of the soil samples collected at the Site, including in both soil samples collected at the groundwater interface and soil samples collected above the groundwater interface. However, detections above Unrestricted Use SCOs were limited to soil sample B10 located in the southeast corner of lot 1, (4-5), soil sample B1802 (10-12) located in the southeast corner of Lot 9, and soil sample B1805(6-8) located in the northeast corner of Lot 1. Total petroleum VOC concentrations in these samples ranged from 87 ug/kg to 1,017 ug/kg. Although polycyclic aromatic hydrocarbons (PAHs) were reported at elevated concentrations in some of the samples they did not appear to be related to petroleum. Petroleum impacts do not appear to be related to any definable source as elevated concentrations of VOCs and PAHs were not reported near any of the suspect underground storage tanks (USTs) or piping.

- Historic fill material has been identified across the Site to depths of 10 to 12 feet below grade, extending as deep as 16 feet in some areas of the Site. Depending on location, the historic fill material contains one or more metals, pesticides and polycyclic aromatic hydrocarbons (PAHs) above Unrestricted Use and / or Restricted Residential SCOs.

2.5.3 Soil/Fill Contamination

Summary of Soil/Fill Data

Soil sample results from the RI are summarized in **Tables 3-6**. Further information on soil sample collection, handling and analysis can be found in the RI Report (EBC, May 2019).

Comparison of Soil/Fill with SCGs

Table 7 shows sample results above Track 1 Unrestricted SCOs for all overburden soil at the Site. **Figure 7** is a spider map which shows soil sampling locations and summarizes shallow and deep sample results above Track 1 Unrestricted SCOs for all overburden soil.

2.5.4 On-Site and Off-Site Groundwater Contamination

Petroleum related VOCs were detected above NYSDEC Ambient Water Quality Standards (AWQS) within groundwater samples 18MW6 (east end of Lot 1) and 18MW7 (southeast corner of Lot 1). Total petroleum VOCs in groundwater in these areas ranged from 33.8 µg/L to 105 µg/L.

TCE was detected above GQS within groundwater sample 18MW1 (8.7 µg/L) collected on Lot 9 from the same location as soil boring B1801. In addition, TCE was detected at trace concentrations below GQS within the 18MW3 (0.44 µg/L) and 18MW4 (0.4 µg/L) groundwater samples collected from the B1803 and B1804 soil boring locations on Lot 9.

Combined PFOA and PFOS were detected above the USEPA Health Advisory for drinking water within groundwater samples 18MW1, 18MW6, and 18MW8 (central portion of Lot 1). The combined PFOA and PFOS concentrations in groundwater in these wells ranged from 70.41 ng/L to 94.6 ng/L. Low levels of other PFAS compounds were detected throughout the Site.

SVOCs were detected above AWQS within most of the groundwater samples collected at the Site. The SVOC detections were limited to PAH compounds with standards in the parts per trillion range. The exceedances are likely attributed to a turbid sample and not due to an on-Site source.

No pesticides or PCBs were detected in any of the five groundwater samples collected at the Site.

Several dissolved metals were detected above standards including iron, magnesium, manganese, and sodium in most of the wells. These metals are consistent with general groundwater quality throughout the area. The metals aluminum (28.8 mg/L), cadmium (208 mg/L), lead (0.037 mg/L), and selenium (0.028 mg/L) were detected above AWQS in 18MW2, and the metal arsenic (0.219 mg/L) was detected above AWQS in 18MW3. The exceedances are likely attributed to a turbid sample and not due to an on-Site source.

Summary of Groundwater Data

The results of groundwater samples collected during the RI are summarized in **Tables 8-13**. Further information on groundwater sample collection, handling and analysis can be found in the RI Report (EBC, May 2019).

Comparison of Groundwater with SCGs

Sample results above groundwater standards in monitoring wells prior to the remedy are shown in **Table 14**. Spider maps which show groundwater sampling locations and summarize results above GA groundwater standards prior to the remedy are shown in **Figure 8**.

2.5.5 On-Site and Off-Site Soil Vapor Contamination

Petroleum-related were generally low in soil vapor samples. Lighter end petroleum compounds such as heptane (795 µg/m^3) and hexane (1,730 µg/m^3) were detected at elevated concentrations in SG5 and may be related to the petroleum VOCs detected in soil across the Site.

TCE was detected at elevated concentrations in one soil gas sample located on Lot 9 (SG1-320 µg/m^3).

Summary of Soil Vapor Data

A table of soil vapor data collected prior to the remedy is shown in **Table 15**. Further information on soil gas sample collection, handling and analysis can be found in the RI Report (EBC, May 2019). Soil vapor results are posted on **Figure 9**.

2.6 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.6.1 Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water.
- Remove the source of ground or surface water contamination.

2.6.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

2.6.3 Soil Vapor

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 EVALUATION OF REMEDIAL ALTERNATIVES

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of NYSDEC standards, criteria and guidance values (SCGs). A remedy is then developed based on the following nine criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance; and
- Land use.

The first two criteria are threshold criteria and must be satisfied in order for an alternative to be considered for selection. The remaining seven criteria are balancing criteria which are used to compare the positive and negative aspects of each of the remedial alternatives, provided the alternative satisfies the threshold criteria.

3.2 STANDARDS, CRITERIA AND GUIDANCE (SCG)

A criterion for remedy selection is evaluation for conformance with SCGs that are applicable, relevant and appropriate. Principal SCGs that are applicable, relevant and appropriate for evaluating the alternatives for remediation of this BCP site include the following:

- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- 10 NYCRR Part 67 – Lead
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes (November 1998)

- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998)
- 6 NYCRR Subpart 374-1 - Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities (November 1998)
- 6 NYCRR Part 375 - 6 NYCRR Part 375 Environmental Remediation Programs Subparts 375-1, 375-3 and 375-6 (December 2006)
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- 6 NYCRR Part 750 through 758 - Implementation of NPDES Program in NYS (“SPDES Regulations”)
- 6 NYCRR Part 375-6 Soil Cleanup Objectives
- New York State Groundwater Quality Standards – 6 NYCRR Part 703;
- NYSDEC Ambient Water Quality Standards and Guidance Values – TOGS 1.1.1;
- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation - May 2010;
- NYSDEC Draft Brownfield Cleanup Program Guide – May 2004;
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYS Waste Transporter Permits – 6 NYCRR Part 364;
- NYS Solid Waste Management Requirements – 6 NYCRR Part 360 and Part 364.
- TAGM 4059 - Making Changes To Selected Remedies (May 1998)
- STARS #1 - Petroleum-Contaminated Soil Guidance Policy
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- DER-10, Technical Guidance for Site Investigation and Remediation, May 2010
- DER-23 / Citizen Participation Handbook for Remedial Programs, January 2010
- OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (November 1997)

Additional regulations and guidance are applicable, relevant, and appropriate to the remedial alternatives and will be complied in connection with implementation of the remedial program; however, the list above is intended to represent the principal SCGs which should be considered in evaluating the remedial alternatives for the BCP site.

Conformance with the appropriate standards for remediation of contaminated soil is an important criterion in evaluating the remedial alternatives for the BCP site. Presently, in New York State 6 NYCRR Part 375 establishes the primary SCGs associated with remediation of contaminated soil at sites which are in the BCP. If proposing remediation pursuant to a Track other than Track 1 (Unrestricted Use), 6 NYCRR Part 375 requires evaluation of at least one remedial alternative pursuant to Track I (Unrestricted Use) and one other alternative developed by the applicant for the proposed use of the BCP site. The remedial alternatives presented in Section 3.3 of this work plan have been prepared in conformance with this requirement.

3.3 ALTERNATIVES ANALYSIS

The goal of the remedy selection process under the BCP is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedance of NYSDEC standards, criteria and guidance values (SCGs). A remedy is then developed based on the following nine criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance; and
- Land use.

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. This analysis was prepared in accordance with 6 NYCRR Part 375-1.8(f) and Part 375-3.8(f) and Section 4.3(c) of NYSDEC DER-10. As required, a minimum of two remedial alternatives (including a Track 1 scenario) are evaluated, as follows:

- Alternative 1 - Track 1, A Track 1 cleanup requires remediation of all soils above bedrock to Unrestricted Use criteria. This would include excavation to a minimum depth of 16 feet across the Site with additional excavation up to 18 ft in some areas as needed to meet Unrestricted Use SCOs. The Alternative includes removal of contaminated groundwater at the Site by dewatering and to facilitate excavation below the water table. This alternative does not allow the use of long-term Institutional/Engineering Controls to address impacted media or prevent exposures which may be required beneath the new building.

- Alternative 2 - Track 2, A Track 2 cleanup requires remediation of all soils to Commercial criteria to a depth of 15 feet below grade with removal of soils below 15 feet which are a source of contamination to the groundwater. This alternative would require excavation across the Site to a depth of 15 ft below grade. The Alternative includes removal of contaminated groundwater at the Site by dewatering and to facilitate excavation below the water table. This alternative does not allow the use of long-term Institutional/Engineering Controls to meet SCOs. Long-term Institutional/ Engineering Controls are allowed to address or prevent exposures from other impacted media however, such as soil gas. This alternative will also require an environmental easement

- Alternative 3 - Track 4, A Track 4 cleanup will require the remediation / replacement of all soils in the upper two feet to meet Commercial Use SCOs or covering with the building slab or other impervious cover. This alternative would require capping of the entire site with the building slab. Since this alternative allows the use of long-term Institutional/Engineering Controls (>5yrs) to meet soil cleanup objectives and to address or prevent exposures from other impacted media such as soil gas, it is presented as a contingency to Alternative 2 in the event that on-going engineering controls are required to meet soil SCOs. This alternative will also require an environmental easement and a Site Management Plan.

3.4 REMEDIAL ALTERNATIVE 1

The following sections provide an evaluation of Alternative 1 based on the nine evaluation criteria as previously discussed.

3.4.1 Overall Protection of Human Health and the Environment

Alternative 1 will be protective of human health and the environment by eliminating CVOC and petroleum contaminants present in all affected soils at the Site, removing all historic fill soils and by remediating groundwater. The potential for human and environmental exposure to these constituents on-Site will be eliminated by excavation of all soils with parameters in excess of Unrestricted Use criteria, disposing of excavated materials off-Site, dewatering of groundwater beneath the Site, and backfilling as needed with certified clean fill or virgin mined materials.

Potential post-remediation exposures to on-Site residents from soil vapors are not expected to require the operation of SSD systems.

During remedial and construction activity workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a Health and Safety Plan. Exposures to area residents from dust and/or vapors will be minimized through the use of engineering controls and through implementation of a Community Air Monitoring Plan (CAMP).

3.4.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 1 will achieve compliance with the remedial goals, SCGs and RAOs for soil through source removal to Track 1 Unrestricted Use cleanup levels. SCGs for groundwater will also be achieved as impacted groundwater will be extracted and treated prior to discharge into the NYC sewer system (see Section 5.5.10). Compliance with SCGs for soil vapor is expected following completion of the remedial action though the NYSDOH may require further evaluation.

3.4.3 Long-Term Effectiveness and Permanence

Alternative 1 achieves long term effectiveness and permanence by permanently removing and/or remediating all soils affected by Site contaminants or historic fill materials. Under this Alternative, risk from soil impacts and groundwater will be eliminated. Alternative 1 will continue to meet RAOs for soil, groundwater and soil vapor in the future, providing a permanent long-term solution for the Site.

3.4.4 Reduction in Toxicity, Mobility or Volume through Treatment

Alternative 1 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by meeting Unrestricted Use SCOs through excavation and from on-Site groundwater by extraction and off-Site discharge (sewer system) of groundwater beneath the Site during construction. The removal/remediation of on-Site soil and groundwater will also reduce the toxicity, mobility, and volume of contaminants in soil vapor.

3.4.5 Short-Term Effectiveness

There is the potential for short-term adverse impacts and risks to workers, the community, and the environment during the implementation of Alternative 1. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic, will be controlled and regulated under the terms of the NYC Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities, will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan has also been prepared to minimize disturbance to the local roads and community.

3.4.6 Implementability

The techniques, materials and equipment to implement Alternative 1 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation and construction dewatering for the remediation of soils and groundwater are both a "low tech" and reliable method which has a long and proven track record on the remediation of hazardous waste and petroleum spill sites.

3.4.7 Cost

Costs associated with Alternative 1 are estimated at approximately $ 3,981,478. This cost estimate includes the following elements and assumptions:

- Removal of underground storage tanks;
- Excavate petroleum/CVOC impacted soil and historic fill material to 16 ft across the Site with additional over-excavation to 18 ft as needed to achieve Track 1 Unrestricted Use SCOs;
- Shoring and SOE work to accommodate excavation to a depth of 18 ft;
- Excavation and loading of approximately 21,286 cy of CVOC/petroleum impacted soil and historic fill;
- Disposal of approximately 21,286 cy of CVOC/petroleum impacted soil and historic fill;
- Dewatering and discharge of groundwater to the NYC sewer system;
- Waste characterization and endpoint verification sampling and analysis;
- HASP and CAMP monitoring for the duration of the remedial activities; and
- Preparation of a Final Engineering Report.

3.4.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current zoning. Following remediation, the Site will meet the objectives for Unrestricted use which is appropriate for its planned use.

3.4.9 Community Acceptance

This RAWP will be subject to a 45-day public comment period to determine if the community had comments on the presented remedial alternatives and selected remedy.

If no comments are received regarding Alternative 1, it will be considered to be acceptable to the community.

3.5 REMEDIAL ALTERNATIVE 2

The following sections provide an evaluation of Alternative 2 based on the nine evaluation criteria as previously discussed.

3.5.1 Overall Protection of Human Health and the Environment

Alternative 2 will be protective of human health and the environment by eliminating petroleum and CVOC concentrations and constituents in soil. The potential for human and environmental exposure to these constituents on-site will be eliminated by excavation of petroleum and CVOC impacted soil to a depth of 15 feet, off-site disposal of excavated materials, dewatering, treatment and discharge of impacted groundwater and backfilling as needed with certified clean fill or virgin mined materials.

Potential post-remediation exposures to on-Site occupants from soil vapors are not expected to require the operation of SSD systems.

During remedial and construction activity, workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a HASP. Exposures to area residents from dust and or vapors will be minimized through the use of engineering controls and through implementation of a CAMP.

3.5.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 2 will achieve compliance with the remedial goals, SCGs and RAOs for soil through removal to Commercial cleanup levels for the top 15 feet. SCGs for groundwater will also be achieved as impacted groundwater below the Site will be extracted and treated prior to discharge into the NYC sewer system (see Section 5.5.10). Compliance with SCGs for soil vapor is expected following completion of the remedial action by removal of all impacted soil and groundwater and through the building's construction which will place the cellar level foundation below the water table. However, though the NYSDOH may require further evaluation of vapor intrusion following the remedial action.

3.5.3 Long-term Effectiveness and Permanence

Alternative 2 achieves long term effectiveness and permanence by permanently removing and/or remediating source materials and all soils affected by Site contaminants above Commercial SCOs to a depth of 15 feet and by remediating groundwater. Under this Alternative risk from soil impacts and groundwater will be eliminated. Alternative 2 will continue to meet RAOs for soil groundwater and soil vapor in the future, providing a permanent long-term solution for the Site.

3.5.4 Reduction in Toxicity, Mobility or Volume through Treatment

Alternative 2 will permanently eliminate the toxicity, mobility, and volume of contaminants from on-Site soil by removing source materials and meeting Commercial SCOs in the upper 15 feet and from on-Site groundwater by extraction and off-site discharge (sewer system) of groundwater beneath the Site during construction.

3.5.5 Short-term Effectiveness

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative 2 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic will be controlled and regulated under the terms of the NYS Department of Buildings issued building permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan will also be prepared to minimize disturbance to the local roads and community.

3.5.6 Implementability

The techniques, materials and equipment to implement Alternative 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation and construction dewatering for the remediation of soils and groundwater are both a "low tech" and reliable method which has a long and proven track record on the remediation of hazardous waste and petroleum spill sites. Excavation to remove source materials and meet Commercial SCOs will not require any additional shoring / dewatering beyond that needed for construction purposes.

3.5.7 Cost

Costs associated with Alternative 2 are similar to Alternative 1 requiring less excavation but adding only those costs associated with preparation of an Environmental Easement package and are estimated at approximately $ 3,611,937. This cost estimate includes the following elements and assumptions:

- Removal of underground storage tanks;
- Excavate petroleum/CVOC impacted soil / historic fill to 15ft across the Site with additional over-excavation as needed to achieve the Protection of Groundwater SCOs for the soils below 15 feet;
- Shoring to accommodate excavation to a depth of 15 ft;
- Excavation and loading of 19,018 cy of CVOC/petroleum impacted soil and historic fill;
- Disposal of approximately 19,018 cy of CVOC/petroleum impacted soil and historic fill;
- Dewatering and discharge of groundwater to the NYC sewer system;
- Waste characterization and endpoint verification sampling and analysis;
- HASP and CAMP monitoring for the duration of the remedial activities;
- Preparation of a Final Engineering Report; and
- Recording of an Environmental Easement to restrict use Commercial or Industrial.

3.5.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current zoning. Following remediation, the Site will meet the objectives for Commercial use which is appropriate for its planned community use. A groundwater use restriction will be required to prevent future exposure to affected groundwater.

3.5.9 Community Acceptance

This RAWP will be subject to a 45-day public comment period to determine if the community has any comments on the presented remedial alternatives and selected remedy. If no comments are received, it will be considered to be acceptable to the community.

3.6 REMEDIAL ALTERNATIVE 3

The following sections provide an evaluation of Alternative 3 based on the nine evaluation criteria as previously discussed.

3.6.1 Overall Protection of Human Health and the Environment

Alternative 3 will be protective of human health and the environment by eliminating CVOC and petroleum contaminated source areas and by capping any remaining residual fill with parameters above Commercial SCOs with the building foundation. The potential for human and environmental exposure to these constituents on-Site will be eliminated by the excavation and / or capping of all soils with parameters above Commercial criteria.

During remedial and construction activity, workers and area residents may be exposed to impacted soil and vapors. Worker exposure to soil and vapors will be minimized through implementation of a HASP. Exposures to area residents from dust and or vapors will be minimized through the use of engineering controls and through implementation of a CAMP.

3.6.2 Compliance with Remedial Goals, SCGs and RAOs

Alternative 3 will achieve compliance with the remedial goals, SCGs and RAOs for soil through source removal and capping any remaining residual fill with parameters above Commercial SCOs. Groundwater quality will continue to improve over time with respect to SCGs. Compliance with SCGs for soil vapor is expected following completion of the remedial action.

3.6.3 Long-term Effectiveness and Permanence

Alternative 3 achieves long term effectiveness and permanence by permanently removing CVOC and petroleum source material and by permanently capping any remaining residual fill with parameters above Commercial SCOs with the building foundation. Under this Alternative risk from soil impacts is eliminated for on-site occupants. Alternative 2 will continue to meet RAOs for soil in the future, providing a permanent long-term solution for the Site. The removal of CVOC / petroleum contaminated soil will also be effective in reducing these contaminats in groundwater and soil vapor.

3.6.4 Reduction in Toxicity, Mobility or Volume through Treatment

Alternative 3 will reduce the toxicity, mobility, and volume of contaminants from on-Site soil by removing all CVOC and petroleum source material. The removal of CVOC / petroleum contaminated soil will also reduce the toxicity, mobility, and volume of contaminants in groundwater and soil vapor.

3.6.5 Short-term Effectiveness

The potential for short-term adverse impacts and risks to the workers, the community, and the environment during the implementation of Alternative 3 is minimal. Short-term exposure to on-site workers during excavation and loading activities will be addressed with a HASP and mitigated through the use of personal protective equipment, monitoring and engineering controls. Potential short-term exposure to the surrounding community will be addressed through the use of odor and dust-suppression techniques and through the implementation of a CAMP which will require air monitoring activities during all excavation and soil disturbance activities.

Other potential impacts to the community such as construction-related noise, vibrations and traffic will be controlled and regulated under the terms of the NYS Department of Buildings permit which can place a Stop Work Order on the property for unsafe conditions, community impacts or violation of the terms and conditions of the permit. Decontamination procedures of equipment, including trucks transporting soil to off-site disposal facilities will minimize the potential for impacted soil to be dispersed beyond the Site boundary. A truck traffic plan will also be prepared to minimize disturbance to the local roads and community.

3.6.6 Implementability

The techniques, materials and equipment to implement Alternative 3 are readily available and have been proven effective in remediating the contaminants associated with the Site. Excavation and capping for the remediation of soils are both "low tech" and reliable methods which have a long and proven track record on the remediation of hazardous waste and petroleum spill sites. Excavation to remove source materials will not require any additional shoring / dewatering beyond that needed for construction purposes.

3.6.7 Cost

Costs associated with Alternative 3 are estimated at approximately $397,630. This cost estimate includes the following elements and assumptions:

- Removal of underground storage tanks;
- Excavate petroleum/CVOC impacted soil from source areas and dispose as non-hazardous;
- Capping the Site with the building foundation or 2 feet of certified clean fill;
- Disposal of approximately 750 cy of low level CVOC/petroleum impacted soil;
- Waste characterization and endpoint verification sampling and analysis;
- HASP and CAMP monitoring for the duration of the remedial activities;
- Preparation of a Final Engineering Report;
- Preparation of a Site Management Plan; and,
- Recording of an Environmental Easement.

3.6.8 Compatibility with Land Use

The proposed redevelopment of the Site is compatible with its current zoning. Following remediation, the Site will meet the objectives for Commercial use which is appropriate for its planned community use. A groundwater use restriction will be required to prevent future exposure to affected groundwater.

3.6.9 Community Acceptance

This RAWP will be subject to a 45-day public comment period to determine if the community has any comments on the presented remedial alternatives and selected remedy. If no comments are received, Alternative 3 will be considered to be acceptable to the community.

3.7 SELECTION OF THE PREFERRED REMEDY

The remedy recommended for the site is the Track 1 alternative. The Track 1 alternative consists of the removal of all underground storage tanks, removal and proper off-Site disposal of all petroleum / CVOC contaminated soil, and removal and proper off-Site disposal of all historic fill material with parameters above Unrestricted Use SCOs. The Track 1 alternative also includes the removal of contaminated groundwater through dewatering activities during excavation. Over-excavated areas will be backfilled with either virgin mined materials or certified fill which meet Unrestricted Use SCOs.

3.7.1 Preferred Remedy Land Use Factor Evaluation

As required by Article 27, Title 14 of the Environmental Conservation Law 27-1415, the following land use factor evaluation examines whether the preferred alternative is acceptable based on the 14 criteria presented in the following subsections.

Zoning

The Lot is currently zoned M1-1 commercial. M1 districts are often buffers between M2 or M3 districts and adjacent residential or commercial districts. M1 districts typically include light industrial uses, such as woodworking shops, repair shops, and wholesale service and storage facilities. Nearly all industrial uses are allowed in M1 districts if they meet the stringent M1 performance standards. Offices, hotels and most retail uses are also permitted.

The proposed project, which includes mixed-use office and retail space, is compatible with the surrounding land use and will be in compliance with the current zoning.

Applicable Comprehensive Community Master Plans or Land Use Plans

On May 11, 2005, the City Council approved the Greenpoint - Willamsburg Land Use and Waterfront Plan (CEQR No. 04DCP003K) covering nearly 200 blocks in the Greenpoint and Williamsburg neighborhoods of Brooklyn.

According to the NYC Department of City Planning Website:

"*In its Greenpoint-Williamsburg Rezoning, the Department of City Planning proposed zoning changes to allow for housing and open spaces, in tandem with light industry and commercial uses, along two miles of Brooklyn's East River waterfront and upland neighborhoods. Greenpoint and Williamsburg developed more than 100 years ago during Brooklyn's great industrial age, when both sides of the East River were dominated by large factories, oil refineries, and shipyards. The neighborhoods adjoining the waterfront housed the workers and, within these areas, homes and factories intermingled, setting a pattern of mixed use that still shapes the neighborhoods today.*

Over the years, these neighborhoods have grown and adapted to changing economic conditions. The refineries and shipbuilders have gone, and new generations of businesses, entrepreneurs and residents have emerged. The waterfront, however, remains largely derelict, dominated by empty lots and crumbling structures, and almost entirely inaccessible to the public.

The proposal was designed to create opportunities for thousands of new housing units, including affordable housing in areas that have been mostly vacant and derelict for years. In recognition of the mixed-use character of these neighborhoods, the proposal would permit light industrial and residential uses to coexist in specified areas, and it would retain manufacturing zoning for critical concentrations of industry. The proposal also included a plan for a continuous publicly accessible esplanade and new public open spaces along the waterfront."

The objectives of the rezoning were to:

- Reflect changing conditions. Enact comprehensive zoning changes to address the dramatic changes that have taken place in recent decades, and to prepare the communities for the twenty-first century.
- Promote housing opportunities. Capitalize on vacant and underused land for new housing

development, addressing both local and citywide needs.

- Fulfill the city's commitment to affordable housing.
- Address neighborhood context. New development should fit in with its surroundings, building on the strong character of the existing neighborhoods.
- Protect important concentrations of industrial activity. While industry in the area has been declining sharply for decades, manufacturing zones should be retained where important concentrations of industrial activity and employment exist.
- Create a continuous waterfront walkway and maximize public access to the waterfront. Establish a blueprint for a revitalized, publicly accessible East River waterfront.
- Facilitate development that will reconnect the neighborhood to the waterfront. Taking into account the difficulties of waterfront redevelopment, shape new development so that it connects the inland neighborhoods to the waterfront.

The proposed project will be in compliance with the current land use plans as identified in the Greenpoint - Willamsburg Land Use and Waterfront Plan (CEQR No. 04DCP003K) adopted by the City on May 11, 2005.

Surrounding Property Uses

The area surrounding the property is highly urbanized and is primarily industrial / commercial in accordance with the M1-1 and M1-2 zoning which surrounds the property (**Figure 3**). Adjacent land use includes a 111,300 ft^2 industrial/manufacturing building (9 Kent Avenue – Block 2278, Lot 2) to the north on the opposite side of Wythe Avenue, a new 22-story commercial/office/hotel building (55 Wythe Avenue – Block 2283, Lot 1) to the west on the opposite side of North 13th Street, a 45,000 ft^2 industrial/manufacturing building (72 North 15th Street – Block 2639, Lot 7) to the east on the opposite side of North 14th Street, a partially constructed new commercial building (103 North 13th Street - Block 2279, Lot 34) and a 3-story commercial/office building (190 North 14th Street – Block 2279, Lot 13) to the south.

There is one school located within a 1,000 feet of the project Site; Automotive High School at 50 Bedford Avenue approximately 650 feet to the east. There were no daycare centers, nursing homes or hospitals identified within 1,000 feet of the Site. The proposed project, which includes a mixed use building of office, retail and light industrial, is in compliance with existing zoning.

Citizen Participation

Citizen participation for implementation of the preferred alternative will be performed in accordance with DER 23 and NYCRR Part 375-1.10 and Part 375-3.10. A Citizen Participation Plan has been prepared and is available for public review at the identified document repositories (NYSDEC Region 2 Office, Greenpoint Branch of the Brooklyn Public Library, Brooklyn Community Board 1).

Environmental Justice Concerns

The Site is not located within a potential environmental justice area. The NYSDEC defines a potential environmental justice area as a "minority or low-income community that may bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Environmental justice means the fair treatment and meaningful involvement of all people regardless of race, color, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

Since the goal of the remedy will achieve the highest level of cleanup and will remove contaminated materials from the community, the remedy poses no environmental justice concerns.

Land use designations

The proposed remedy is consistent with land-use designations.

Population growth patterns

Population growth patterns support the proposed use for the Site. The preferred remedy will not negatively affect on population growth patterns.

Accessibility to existing infrastructure

The Site is accessible to existing infrastructure. The close proximity of the Site to Kent Avenue and the Brooklyn - Queens Expressway (I-287) will assist soil transportation and contractor access to the Site. The Site is also accessible to mass transit and is within walking distance to the G line with a subway stop on Nassau Avenue (6 blocks to the east) and the L line which has a subway stop on Bedford Avenue (5 blocks to the south). The preferred remedy will not alter accessibility to existing infrastructure.

Proximity to cultural resources

The proposed remedy will not negatively impact cultural resources.

Proximity to natural resources

The proposed remedy will improve the local environment and will not negatively impact affect natural resources.

Off-Site groundwater impacts

The proposed remedy will improve off-site groundwater impacts by removing petroleum and CVOC impacted soil and contaminated groundwater from the Site. The proposed remedy will not affect natural resources other than to potentially improve the quality of groundwater on a local basis.

Proximity to floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) showing the property (No. 3604970202F) indicates that the entire property is located both inside the 100-year and 500-year flood zones. According to the FEMA map, the Site is represented as Zone X which comes under areas with the 0.2% annual flood chance, areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than one square mile; and areas protected by levees from 1% annual chance flood. This indicates that there is moderate risk of flooding at the Site.

Geography and geology of the Site

The selected remedy will excavate soil from the Site to a depth of at least 16 feet below sidewalk grade. The selected alternative and development of the Site have considered the geography and geology of the Site.

Current Institutional Controls

There are no institutional controls presently assigned to the Site.

3.8 SUMMARY OF SELECTED REMEDIAL ACTIONS

The remedy selected for the Site is a Track 1 alternative (Alternative 1) which consists of the removal of all on-Site soil which exceeds Commercial Use SCOs and the removal of petroleum and CVOC impacted groundwater. It is expected that a Track 1 alternative will require excavation to a minimum depth of 16 feet across the Site with over excavation in some areas to a depth of 18 feet in areas with deeper contaminants above UUSCOs.

The remedy will include the following items:

1. Demolition of existing structures to allow for the excavation of impacted soil (previously completed);
2. Removal of underground storage tanks;
3. Excavation of soil/fill exceeding Track 1 Unrestricted Use SCOs as listed in **Table 1** to a minimum depth of 16 feet across the Site with additional excavation within the deeper impacted areas to 18 feet or as needed to meet Track 1 Unrestricted Use SCOs;
4. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
5. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
6. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
7. Dewatering of VOC impacted groundwater before discharging to the NYC sewer system under a NYCDEP sewer discharge permit;

8. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material;
9. If Track 1 remedy is not achieved an Environmental Easement will be filed against the Site to restrict the site use to commercial or industrial.
10. If Track 1 remedy is not achieved, a soil vapor intrusion evaluation will be conducted under the guidance of NYSDOH.

Although the goal of the remedy will be to remove all soil exceeding the Track 1 Unrestricted Use SCOs, if Track 1 Unrestricted Use SCOs and a bulk reduction of groundwater contamination to asymptotic levels cannot be achieved, then a Track 2 remedy will result.

All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. Any anticipated deviations to the RAWP shall be submitted to the NYSDEC for review.

4.0 REMEDIAL ACTION PROGRAM

The objective of this section of the Remedial Action Work Plan, is to present a scope of work which will be approved by NYSDEC and when completely implemented will ready the BCP site for development under the Contemplated Use consistent with the requirements of the Brownfield Cleanup Program.

4.1 GOVERNING DOCUMENTS

Governing documents and procedures included in the Remedial Work Plan include a Site-specific Health and Safety Plan (HASP), a Community Air Monitoring Plan (CAMP), a Citizen Participation Plan, a Soil Management Plan (SoMP), a Quality Assurance Project Plan (QAPP), fluid management procedures, and contractors' site operations and quality control procedures. Highlights of these documents and procedures are provided in the following sections.

4.1.1 Health & Safety Plan (HASP)

Contractors and subcontractors will have the option of adopting this HASP or developing their own Site-specific document. If a contractor or subcontractor chooses to prepare their own HASP, the Remedial Engineer will insure that it meets the minimum requirements as detailed in the Site-specific HASP prepared for the Site.

Activities performed under the HASP will comply with applicable parts of OSHA Regulations, primarily 29 CFR Parts 1910 and 1926. Modifications to the HASP may be made with the approval of the Remedial Engineer (RE), Site Safety Manager (SSM) and/or Project Manager (PM).

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Volunteer and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws.

The Health and Safety Plan (HASP) and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

The Site Safety Coordinator will be Mr. Thomas Gallo. His resume is provided in **Attachment F**. Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses. A copy of the Site-Specific Health and Safety Plan is provided in **Attachment B.**

4.1.2 Quality Assurance Project Plan (QAPP)

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or a cold-pak(s) to maintain a temperature of 4^{o}C.

Dedicated disposable sampling materials will be used for both soil and groundwater samples (if collected), eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected.

Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil
- Rinse with tap water
- Wash with alconox® detergent solution and scrub
- Rinse with tap water
- Rinse with distilled or deionized water

Prepare field blanks by pouring distilled or de-ionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory. Laboratory reports will be upgradeable to ASP category B deliverables for use in the preparation of a data usability report (DUSR). The QAPP for the Site is provided in **Attachment C**.

4.1.3 Construction Quality Assurance Plan (CQAP)

All construction work related to the remedy (i.e. soil excavation) will be monitored by EBC / AMC field personnel under the direct supervision of the Remedial Engineer. Monitoring during soil excavation will be performed to protect the health of site workers and the surrounding community. A Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) have been specifically developed for this project. These plans specify the monitoring procedures, action levels, and contingency measures that are required to protect public health.

All intrusive and soil disturbance activities will be monitored by an environmental professional (EP) under the direct supervision of the Remedial Engineer who will record observations in the site field book and complete a photographic log of the daily activities. The EP will provide daily updates to the Project Manager and Remedial Engineer who will both make periodic visits to the site as needed to assure construction quality. Daily updates will also be submitted to the NYSDEC. See section 4.4.1 Daily Reports.

4.1.4 Soil/Materials Management Plan (SoMP)

A SoMP has been prepared for excavation, handling, storage, transport and disposal of all soils/materials that are disturbed / excavated at the Site. The SoMP includes all of the controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SoMP is presented in Section 5.4.

4.1.5 Erosion and Sediment Control Plan (ESCP)

Erosion and sediment controls will be performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Typical measures that will be utilized at various stages of the project to limit the potential for erosion and migration of soil include the use of hay bales, temporary stabilized construction entrances/exits, placement of silt fencing and/or hay bales around soil stockpiles, and dust control measures.

4.1.6 Community Air Monitoring Plan (CAMP)

The CAMP provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities.

The action levels specified require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air. The primary concerns for this site are vapors, nuisance odors and dust particulates.

The primary concerns for this site are vapors, nuisance odors and dust particulates. The CAMP prepared for implementation of the RAWP is provided in **Attachment D**.

4.1.7 Contractors Site Operations Plan (SOP)

The Remedial Engineer has reviewed all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and confirms that they are in compliance with this RAWP. The Remedial Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor and sub-contractor document submittals, are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.8 Citizen Participation Plan (CPP)

The Citizen Participation Plan prepared for this project is provided in **Attachment E**. The public will be informed of key project documents and events through the distribution of fact sheets through the Department's List Serv. The public was initially informed of the Site and the opportunity to join the List Serv through an ad placed in the local newspaper and mailed fact sheets.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

Document repositories have been established at the following locations and contain all applicable project documents:

Brooklyn Public Library – Greenpoint Branch
107 Norman Avenue, Brooklyn, NY 11222 - (718) 349-8504

Hours

Mon	10:00 AM - 6:00 PM	Thu	10:00 AM - 8:00 PM	Sun - Closed
Tue	10:00 AM - 8:00 PM	Fri	10:00 AM - 6:00 PM	
Wed	10:00 AM - 8:00 PM	Sat	10:00 AM - 5:00 PM	

Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY, 11211
Phone: 718-389-0009
Email: bk01@cb.nyc.gov

4.2 GENERAL REMEDIAL ACTION INFORMATION

4.2.1 Project Organization

The Project Manager for the Remedial Activity will be Ms. Chawinie Reilly. Overall responsibility for the BCP project will be Mr. Charles B. Sosik, P.G., P.HG. The Remedial Engineer for this project is Mr. Ariel Czemerinski, P.E. Resumes of key personnel involved in the Remedial Action are included in **Attachment F**.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Mr. Ariel Czemerinski, P.E. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Site. The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will review all pre-remedial plans submitted by contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of back fill material, and management of waste transport and disposal, and will certify compliance in the Final Remediation Report. The Remedial Engineer will provide the certifications listed in Section 10.1 in the Final Engineering Report.

4.2.3 Remedial Action Schedule

The remedial action will begin with mobilization of equipment and material to the Site, which will begin approximately 1 week following RAWP approval and 10 days after the distribution of the remedial construction Fact Sheet. A pre-construction meeting will be held among NYSDEC, the Remedial Engineer, and the selected remedial contractor prior to site mobilization. Mobilization will be followed by soil removal and disposal and confirmation sampling. The work is expected to take 8 months as part of the construction excavation and foundation installation.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. DEC will be notified by the Applicant of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

A construction fence will be erected around the entire property as required by the NYC Department of Buildings. The fence will be maintained as required and secured at the end of each work day.

4.2.6 Traffic Control

The Volunteer’s construction management personnel will direct the arrival or departure of construction vehicles, and provide flag services as needed to maintain safe travel exiting and entering the Site from Wythe Avenue. Traffic related to on-going remedial activity will require the staging of 10-wheel dump trucks on Wythe Avenue on a daily basis during soil excavation activity. The soil disposal transport route will be as follows:

- ENTERING SITE - from the Brooklyn-Queens Expressway heading east; take the Exit 33 McGuinness Boulevard/Humboldt Street and turn left, heading northwest on McGuinness Boulevard. Turn left on Norman Avenue, and continue southwest on Wythe Avenue to the Site entrance on the left.

- EXITING SITE – Turn left onto Wythe Avenue heading southwest to North 13th Street. Turn left on to North 13th Street, heading southeast to Nassau Avenue. Turn left on to Nassau Avenue heading northeast to McGuinness Boulevard. Turn right on to McGuinness Boulevard, heading southeast, and continue on to the on-ramp (bearing right) to the Brooklyn-Queens Expressway.

A map showing the truck routes is included as **Figure 10**.

4.2.7 Worker Training and Monitoring

An excavation contractor with appropriate experience, personnel and training (minimum 24 hr OSHA) is required to perform the removal of the petroleum impacted soil, non-hazardous CVOC impacted soil, historic fill and uncontaminated native soil. The excavation contractor’s on-site personnel engaged in this work will all have a minimum of 24 hour Hazardous Waste Operations and Emergency Response Operations training.

All field personnel involved in remedial activities will participate in training, if required under 29 CFR 1910.120, including 24 and 40-hour hazardous waste operator training and annual 8-hour refresher training. The Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign a HASP acknowledgment.

All on-site personnel engaged in remedial or sampling activities must receive adequate Site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.
- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

4.2.8 Agency Approvals

The Applicant has addressed all SEQRA requirements for this Site. All permits or government approvals required for remedial construction have been, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with the current zoning for the property as determined by New York City Department of Planning. A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

A complete list of all local, regional and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is attached in **Table 16**. This list includes a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the Final Remediation Report.

4.2.9 Pre-Construction Meeting with NYSDEC

A pre-construction meeting or teleconference call with the Project Manager, Remedial Engineer, Construction Manager, Owner's Representative and the NYSDEC will take place prior to the start of major construction activities.

4.2.10 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in **Table 17**. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.11 Remedial Action Costs

The total estimated cost of the Remedial Action is $ 4,634,656. An itemized and detailed summary of estimated costs for all remedial activity is attached as **Attachment G**. This will be revised based on actual costs and submitted as an Appendix to the Final Remediation Report.

4.3 SITE PREPARATION

4.3.1 Mobilization

Mobilization will include the delivery of construction equipment and materials to the Site. All construction personnel will receive site orientation and training in accordance with the Site-specific HASP, CAMP and established policies and procedures to be followed during the implementation of the RAWP. The remediation contractor, construction manager and all associated subcontractors will each receive a copy of the RAWP and the Site-specific HASP and will be briefed on their contents.

4.3.2 Erosion and Sedimentation Controls

Soil erosion and sediment control measures for management of storm water will be installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control. Haybales and/or silt fence will be placed by the remedial contractor at locations surrounding excavation areas and within the perimeter fencing as needed, to control stormwater runoff and surface water from exiting the excavation. These control measures will be installed prior to initiating the soil excavation.

4.3.3 Stabilized Construction Entrance(s)

Stabilized construction entrances will be installed at all points of vehicle ingress and egress to the Site. The stabilized entrances will be constructed of a 4 to 6-inch bed of crushed stone or crushed concrete which will be sloped back toward the interior of the Site. The stabilized entrances will be inspected on a daily basis during soil loading activities and reinforced as needed with additional stone/concrete material to prevent the accumulation of ruts, mud or soil.

4.3.4 Utility Marker and Easements Layout

The Applicant and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Applicant and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Applicant and its contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site.

4.3.5 Sheeting and Shoring

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities including excavation is the sole responsibility of the Applicant and its contractors. The Applicant and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Applicant and its contractors must obtain any local, State or

Federal permits or approvals that may be required to perform work under this Plan. Further, the Applicant and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved Plan.

The exact means and methods for the support of excavation (SOE) have not been determined yet and will be forwarded to DEC upon receipt.

4.3.6 Equipment and Material Staging

All equipment and work materials will be staged on-Site in areas as designated by the General Contractor, and / or Construction Site Superintendant.

4.3.7 Decontamination Area

A temporary truck decontamination pad will be constructed to decontaminate trucks and other vehicles/equipment leaving the Site. The pad will be constructed by placing a 4 to 6-inch bed of stone aggregate such as crushed rock or RCA. The pad will be bermed at the sides and sloped back to the interior of the Site. The truck pad will be sized to accommodate the largest construction vehicle used and located in line with the stabilized construction entrance. The pad will be inspected on a daily basis during soil loading activities and reinforced as needed with additional stone/concrete material to prevent the accumulation of ruts, mud or soil.

4.3.8 Site Fencing

An 8-foot high construction fence is present around the portions of the Site which are not bordered by adjacent buildings (west) with entrance / exit gates located on North 14th Street and/or Wythe Avenue. This fence will be properly secured at the end of the day and supplemented, as needed, by installing orange safety fencing around open excavations to ensure on-site worker safety.

4.3.9 Demobilization

Demobilization will consist of the restoration of material staging areas and the disposal of materials and/or general refuse in accordance with acceptable rules and regulations. Materials used in remedial activities will be removed and disposed properly. All equipment will be decontaminated prior to leaving the Site.

4.4 REPORTING

All daily and monthly Reports will be included in the Final Engineering Report.

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of each day in which remedial activity takes place. Daily reports will include:

- An update of progress made during the reporting day;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;

- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG, PDF) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the Final Engineering Report.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

Complaints from the public regarding nuisance or other Site conditions including noise, odor, truck traffic etc., will be recorded in the Site field book and reported to the NYSDEC via email on the same day as the complaint is received.

4.4.5 Deviations from the Remedial Action Work Plan

Minor deviations from the RAWP will be identified in the daily update report and will be noted in the Final Engineering Report. When deviations are reported, a brief discussion will be provided which will state the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy.

Major changes to the scope of work must be discussed with the NYSDEC and the NYSDOH prior to implementation. If the changes are considered to be significant enough, an addendum to the RAWP Work Plan will be prepared and submitted to NYSDEC / NYSDOH for review.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

Excavation work includes the following; the removal and off-Site disposal of the top 18 feet of soil/fill material across the Site with additional excavation as needed to meet Unrestricted Use SCOs and Protection of Groundwater SCOs. Soil excavation will be performed using conventional equipment such as track-mounted excavators, backhoes and loaders. Following the removal of soil as needed for the Track 1 remedy, the excavation will continue to a depth of 28 ft for construction of the building's cellar and subcellar levels and to accommodate the matt slab foundation.

All excavation work will be performed in accordance with the Site-specific HASP and CAMP. If an underground storage tank (UST) is discovered during excavation the NYSDEC Project Manager will be immediately notified and the UST removed and closed in accordance with DER-10, NYSDEC PBS regulations and NYC Fire Department regulations. It is anticipated that the excavation of non-hazardous CVOC and petroleum impacted soil and historic fill will be performed by an excavation contractor using appropriately trained personnel (24 or 40 hr HAZWOPER).

Excavation for the cellar level of the new building will continue Site wide to a depth of 28 feet. Over excavated areas will be backfilled using clean native soil excavated from other areas of the Site or imported material meeting Unrestricted Use and Protection of Groundwater SCOs. An excavation plan showing the excavation depths to achieve the Track 1 remedy is provided in **Figure 11**.

Dewatering will be required for excavation of contaminated areas and for groundwater remediation (See sections 5.1.2, 5.10 and **Attachment G**).

5.1 CONTINGENCY

5.1.1 UST Removal Methods

Any USTs encountered during excavation activities at the Site will be removed in accordance with the procedures described under the NYSDEC Memorandum for the Permanent

Abandonment of Petroleum Storage Tanks and Section 5.5 of Draft DER-10 as follows:

- Remove all product to its lowest draw-off point
- Drain and flush piping into the tank
- Vacuum out the tank bottom consisting of water product and sludge
- Dig down to the top of the tank and expose the upper half of the tank
- Remove the fill tube and disconnect the fill, gauge, product and vent lines and pumps. Cap and plug open ends of lines
- Temporarily plug all tank openings, complete the excavation, remove the tank and place it in a secure location
- Render the tank safe and check the tank atmosphere to ensure that petroleum vapors have been satisfactorily purged from the tank
- Clean tank or remove to a storage yard for cleaning
- If the tank is to be moved it must be transported by licensed waste transported. Plug and cap all holes prior to transport leaving a 1/8 inch vent hole located at the top of the tank during transport
- After cleaning the tank must be made acceptable for disposal at a scrap yard cleaning the tank interior with a high pressure rinse and cutting the tank in several pieces.

During the tank and pipe line removal the following field observations should be made and recorded:

- A description and photographic documentation of the tank and pipe line condition (pitting, holes, staining, leak points, evidence of repairs, etc.)
- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.)
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

5.1.2 **Groundwater** Extraction

The remedy includes full Site dewatering and excavation below the impacted soil zone. Extracted groundwater will be treated and discharged under permit to the NYC combined sewer system. Dewatering operations will continue post-excavation until the building foundation is installed and enough of the building super structure is complete to counter balance the hydrostatic pressure when dewatering operations cease. Dewatering is therefore expected to continue for a minimum of six months. To meet with NYSDEP approval conditions, groundwater samples will be collected from the discharge end of the treatment system to ensure that discharge limitations are being met. In addition, to ensure that asymptotic bulk reduction of groundwater contaminants is achieved, samples will be obtained from dewatering well locations P4, P5 and P13 both prior to and after excavation is completed and analyzed for VOCs by EPA method 8260.

Dewatering operations will include the treatment and discharge of up to 43,200 gallons per day (30 gpm) into the combined sewer system located in Wythe Avenue. However, approval by DEP was sought for and given for 864,000 gpd to account for the possibility of the need of using relief wells in case the clayey layer is fully breached. Dewatering will consist of a max. of 18 sump pits fitted with submersible sump pumps activated by float controllers. Each sump pump will discharge to an 18,000 gallon settling tank which will gravity feed into the sewer via a new 8" lateral connection. Any sediment left in the settling tank will need to be sampled and disposed of properly. Based on groundwater characterization and its comparison to NYCDEP Sewer discharge criteria no further treatment is required. The NYCDEP approval expires at midnight on December 19, 2020 and includes the following conditions:

- The owner and its authorized agents are required to hold the groundwater to the maximum extent practicable during wet weather events.
- This conditional approval, is also subject to obtaining a groundwater discharge Approval, specifying allowable flow rates, from the Chief of Permitting and Compliance, Bureau of Water and Sewer Operations.
- The owner and its authorized agents are required to follow manufacturer specifications for the operation and maintenance of the selected equipment.
- This Letter of Approval is contingent upon compliance on the part of the owner and its authorized agents with any federal, state, or local requirements applicable to the permitted activity.
- Under no circumstances shall muddy groundwater be discharged into the public sewer.

- Payment shall be made to and permit obtained from the Bureau of Customer Service for groundwater discharge into the New York City Wastewater System in accordance with the Water and Wastewater Rate Schedule established by the New York City Water Board.
- The owner or its authorized agents must notify this section in writing prior to the commencement of discharge. Please refer to File # C-7052 in any correspondence to this office.
- The owner or its authorized agents must collect samples of the groundwater after the pretreatment system *in each quarter of the calendar year*. The samples must be analyzed for the parameter(s) included in the attached chart by a New York State Department of Health certified laboratory. The results must be submitted to this office within 14 days after each sampling date.
- If the sampling results, or any other sampling results, exceed the DEP limits, the discharge must cease and the Bureau of Wastewater Treatment must be notified immediately by phone at (718) 595-4715 and by email at shulbert@dep.nyc.gov.
- The owner and its authorized agents are prohibited from discharging any groundwater that exceeds the attached discharge Limit(s), as well as those contained in Title 15 Rules of the City of New York Chapter 19.

See **Attachment G** for further details.

Note that the dewatering operations will be fully isolated through the installation of new and existing secant walls along the interior of the site and through interlocking sheeting to be installed along Wythe Avenue, N. 13th Street and N. 14th Street. See **Attachment H** for the approved support of excavation plans.

The Long Island Well Program (6 NYCRR Part 602) contributes to the protection and conservation of available water supplies in Kings, Queens, Nassau, and Suffolk counties. The program regulates water withdrawals for any purpose, other than public water supply, when the total capacity of such a well or wells on one property is over 45 gallons per minute (gpm) (64,800 gallons per day). This includes wells for domestic supply, agriculture, irrigation, open loop geothermal systems, temporary or permanent dewatering wells, and others. Capacity is defined as the total withdrawal of all sources for a facility, independent of how they are plumbed or their designation, such as for redundancy, etc.

Since it is expected that groundwater withdrawal during dewatering operations will exceed 45 gpm, and given that groundwater is planned to be withdrawn via a series of well points or deep wells, a Long Island Well Permit (or its equivalent under the BCP) has been filed for with New York State Department of Environmental Conservation.

5.2 SOIL CLEANUP OBJECTIVES

The Soil Cleanup Objectives for this Site are listed in **Table 1**. **Table 7** summarizes all soil samples that exceed the SCOs proposed for this Remedial Action. Spider maps showing all soil samples that exceed the SCOs proposed for this Remedial Action are shown in **Figure 7**.

5.3 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT SAMPLING AND GROUNDWATER SAMPLING)

Post excavation (endpoint) soil samples will be collected from across the Site to verify that remedial goals have been achieved. Endpoint soil samples will be collected from the Site as follows:

(1) Site-wide bottom of excavation endpoint soil samples will be collected following removal of all soil needed for construction of the building’s cellar / subcellar level to verify that remedial goals have been achieved (**Figure 12**). The Site-wide endpoint soil samples will be analyzed for VOCs, SVOCs, pesticides, PCBs and metals. Twenty percent of the samples will be analyzed for emerging contaminants (PFAS, 1,4-dioxane).

(2) Sidewall endpoint soil samples will be collected from those CVOC and petroleum hotspot areas in which the excavation extends beyond the site-wide excavation depth of 28 ft. Sidewall samples collected from the CVOC hotspot areas will be analyzed for VOCs, and sidewall samples collected from the petroleum hotspot areas will be analyzed for VOCs and SVOCs.

(3) Groundwater samples will be collected from three of the dewatering well locations (P4, P5 and P13) both before pumping starts (baseline) and post soil excavation. Groundwater samples will be analyzed for VOCs.

5.3.1 End-Point Sampling Frequency

Endpoint sampling frequency will be in accordance with DER-10 section 5.4 which recommends the collection of one bottom sample per 900 sf of bottom area and one sidewall sample per 30 liner feet. Sidewall samples will not be collected where sheeting or shoring is present and will not be collected when the excavation extends to the Site boundaries. Sidewall samples only be collected from the petroleum hotspot areas if the excavation extends beyond the site-wide excavation depth of 18 ft.

5.3.2 Methodology

Collected samples be placed in glass jars supplied by the analytical laboratory and stored in a cooler with ice to maintain a temperature of 4 degrees C. Samples will either be picked up at the Site by a laboratory dispatched courier at the end of the day or transported back to the EBC /AMC office where they will be picked up the following day by the laboratory courier. All samples will be analyzed by a NYSDOH ELAP certified environmental laboratory

All site-wide post-excavation (endpoint) soil samples will be analyzed for VOCs by EPA Method 8260B, SVOCs by EPA method 8270, pesticides/PCBs by EPA method 8081/8082 and TAL metals. Twenty percent of the samples will be analyzed for emerging contaminants (PFAS by EPA method 537 and 1,4-dioxane by EPA method 8270. Baseline and post-excavation groundwater samples will be analyzed for VOCs by EPA Method 8260B.

5.3.3 Reporting of Results

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format.

5.3.4 QA/QC

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or cold-pak(s) to maintain a temperature of 4^oC. Dedicated disposable sampling materials will be used for soil samples, eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. Field blanks will be prepared by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers.

Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory.

5.3.5 DUSR

The DUSR provides a thorough evaluation of analytical data without third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use. Verification and/or performance monitoring samples collected under this RAWP will be reviewed and evaluated in accordance with the Guidance for the Development of Data Usability Summary Reports as presented in Appendix 2B of DER-10. The completed DUSR for verification/performance samples collected during implementation of this RAWP will be included in the final Engineering Report.

5.3.6 Reporting of End-Point Data in FER

All endpoint data collected as part of this remedial action will be summarized and presented in the Final Engineering Report. The summary tables will include comparison of results to Unrestricted Use SCOs to verify attainment of Track 1. Laboratory reports and the DUSR will be included as an appendix in the FER.

5.4 ESTIMATED MATERIAL REMOVAL QUANTITIES

It is expected that 21,627 cubic yards (34,603 tons) of non-hazardous historic fill material, CVOC impacted soil, and petroleum impacted soil will be generated by excavating the entire Site to a depth of at least 16 feet to meet Track 1. Clean native soil present below the fill materials and excavated for the building cellar level, subcellar and matt slab foundation to 28 feet below grade, may be reused, if found to be suitable, to backfill behind shoring installed around the perimeter of Site, or in over-excavated areas. The remainder of clean soil will be transported off-Site for disposal at a beneficial reuse facility or other approved destination.

5.5 SOIL/MATERIALS MANAGEMENT PLAN

Excavated soil will be secured and temporarily stored on-site until arrangements can be made for off-site disposal. As an alternative, waste characterization soil samples may be collected prior to commencement of excavation activities to allow the soil/fill to be loaded directly on to trucks for transport to the disposal facility. CVOC impacted soil will be classified as hazardous unless DEC makes a contained-in determination classifying it as non-hazardous. Based on the CVOC concentrations reported in soil samples collected during the RI, it is anticipated that DEC will make the contained-in determination. The remainder of the soil, including petroleum contaminated soil and historic fill are expected to be classified as non-hazardous. The final determination on classification will be based on the results of waste characterization analysis and the NYSDEC.

Soil excavation will be performed in accordance with the procedures described under Section 5.5 of DER-10 as follows:

- A description and photographic documentation of the excavation.

- Examination of the excavation floor and sidewalls for physical evidence of contamination (odor, staining, sheen, etc.).
- Periodic field screening (through bucket return) of the floor and sidewalls of the excavation with a calibrated photoionization detector (PID).

Final excavation depth, length, and width will be determined by the Remedial Engineer or his designee and will depend on the horizontal and vertical extent of contaminated soils as identified through physical examination (PID response, odor, staining, etc.).
The following procedure will be used for the excavation of impacted soil (as necessary and appropriate):

- Wear appropriate health and safety equipment as outlined in the HASP;
- Prior to excavation, ensure that the area is clear of utility lines or other obstructions. Lay plastic sheeting on the ground next to the area to be excavated;
- Using a rubber-tired backhoe or track mounted excavator, remove overburden soils and stockpile or dispose of separate from the impacted soil;
- If USTs are discovered, the NYSDEC will be notified and the best course of action to remove the structure should be determined in the field. This may involve the continued removal of overburden to access the top of the structure or continued trenching around the perimeter to minimize its disturbance;
- If physically contaminated soil is present (e.g., staining, odors, sheen, PID response, etc), an attempt will be made to remove it to the extent not limited by the site boundaries. If possible, physically impacted soil will be removed using the backhoe or excavator, segregated from clean soils and overburden, and staged on separate dedicated plastic sheeting or live loaded into trucks from the disposal facility. Removal of the impacted soils will continue until visibly clean material is encountered and monitoring instruments indicate that no contaminants are present;
- Excavated soils which are temporarily stockpiled on-site will be covered with 6-mil polyethylene sheeting while disposal options are determined. Sheeting will be checked on a daily basis and replaced, repaired or adjusted as needed to provide full coverage. The

sheeting will be shaped and secured in such a manner as to drain runoff and direct it toward the interior of the property;

- Once the Remedial Engineer is satisfied with the removal effort, verification or confirmatory samples will be collected from the excavation as described in **Section 6.2** of this document.

5.5.1 Excavation of Petroleum / CVOC Contaminated Soil

Petroleum related VOCs were detected at low concentrations in the majority of the soil samples collected at the Site, including both soil samples collected at the groundwater interface, and soil samples collected above the groundwater interface. The chlorinated VOC trichloroethylene (TCE) was detected within soil samples collected from three of the soil borings performed on Lot 9 (B1801, B1803, and B1804), and soil boring B2, which was performed close to Lot 9 (northeast corner of Lot 1) during a previous Phase 2 investigation. The chlorinated VOC tetrachloroethene (PCE) was detected at concentrations below Unrestricted Use SCOs within three of the soil borings performed on Lot 9. Soil screening will be performed to determine the limits of the excavation with verification sampling performed to confirm removal of all petroleum and CVOC impacted soil. The excavation of the CVOC and petroleum areas will be performed by a qualified contractor and trained (24 hr HAZWOPER) personnel.

5.5.2 Excavation of Historic Fill Soil

Historic fill material is present beneath the Site to depths which vary from 10 to 15 feet below grade extending to 18 feet in some locations. The historic fill material contains SVOCs, metals and pesticides above Unrestricted Use and/or Commercial Use SCOs. Historic fill material will be segregated from non-contaminated native soils and disposed of off-Site at a permitted disposal facility.

Historic fill soil with lead levels above 1,500 mg/kg may require further segregation for disposal at alternate facilities. Excavated historic fill materials will be secured and temporarily stored on-Site until arrangements can be made for off-Site disposal. It is anticipated that the historic fill material will be classified as non-hazardous material. If this material is classified as non-hazardous, then the excavation of historic fill material will be performed by the excavation contractor for the construction project using trained personnel (24 hr or 40 hr HAZWOPER).

5.5.3 Excavation of Native Soils

Native soils present below the fill material, which is not impacted with CVOCs and petroleum, will require excavation for the new building's cellar. Excavation of native soil for the cellar will begin following removal of CVOC and petroleum contaminated soil and historic fill. If evidence of contamination is discovered while excavating the native soil, for the cellar level, the contaminated soil will be removed to the extent possible and segregated from clean native soil for proper disposal. Clean native soil will be stockpiled on-Site and characterized for reuse on-Site in over excavated areas or behind shoring constructed around the perimeter of the Site. Any excess soil will be disposed of off-Site as a beneficial re-use material or reused on-Site if found to meet SCOs through testing and if acceptable to the structural engineer.

It is anticipated that the excavation of native soil will be performed by the excavation contractor for the construction project.

5.5.4 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by an environmental professional during all remedial and development excavations into known or potentially contaminated material (Residual Contamination Zone). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Final Engineering Report.

Screening will be performed by environmental professionals. Resumes will be provided for all personnel responsible for field screening (i.e. those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.5.5 Stockpile Methods

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced. Soils which exhibit strong odors will be completely sealed with heavy tarps or vapor suppressant foam.

5.5.6 Materials Excavation and Load Out

The Remedial Engineer or an EP under his/her supervision will oversee all invasive work and the excavation and load-out of all excavated material. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

Where effective, the equipment will be “dry” decontaminated using a broom and/or brushes. If significant amounts of soil or other contaminants remain after the dry decontamination, the equipment will also be pressure washed before leaving the Site. The EP will be responsible for ensuring that all outbound trucks are dry-brushed or washed on the truck wash/equipment pad before leaving the Site until the remedial construction is complete. Dry brushing can only be used to remove moist soil and cannot cause excessive dust. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking. The overall intention is to keep trucks on the truck pad or on a gravel path which is replenished as needed to prevent any soil from adhering to the undercarriage or wheels of the trucks. Keeping the trucks clean in this manner will greatly speed trucks leaving the Site and eliminate concern of tracking soil off-site. The EP will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site derived materials.

The Volunteer and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this Remedial Action Work Plan.

Development-related grading cuts and fills will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill material and contaminated soil on-Site is prohibited. All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be located and shown on maps to be reported in the Final Engineering Report.

5.5.7 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded. Truck transport routes are as follows:

- ENTERING SITE - from the Brooklyn-Queens Expressway heading east; take Exit 33 McGuinness Boulevard/Humboldt Street and turn left, heading northwest on McGuinness Boulevard. Turn left on Norman Avenue, and continue southwest on Wythe Avenue to the Site entrance on the left.

- EXITING SITE – Turn left onto Wythe Avenue heading southwest to North 13th Street. Turn left on to North 13th Street, heading southeast to Nassau Avenue. Turn left on to

Nassau Avenue heading northeast to McGuinness Boulevard. Turn right on to McGuinness Boulevard, heading southeast, and continue on to the on-ramp (bearing right) to the Brooklyn-Queens Expressway.

These routes are shown in **Figure 10**.

These are the most appropriate routes to and from the Site and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off- Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in residential neighborhoods around the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development. Material transported by trucks exiting the Site will be secured with covers. Wet loads are not anticipated since the entire site will be dewatered prior to excavating soils. However, if wet soils are excavated they will be stockpiled within the excavation to dry or blended with dry soils. No loads of material capable of generating free liquid will be allowed to leave the Site. All trucks will be inspected, dry-brushed and / or washed, as needed, before leaving the Site.

5.5.8 Materials Disposal Off-Site

Multiple disposal facility designations may be employed for the materials removed from the Site. Once final arrangements have been made, the disposal facility acceptance letters will be provided to the NYSDEC Project Manager before the start of excavation activities. It is anticipated that the soil will be disposed of at up to 3 different facilities, based on the following classification:

- Non Hazardous - Contaminated (historic fill / petroleum / CVOC) Low Lead < 1,500 mg/kg
- Non Hazardous - Contaminated (historic fill / petroleum / CVOC) High Lead > 1,500 mg/kg
- Uncontaminated Native Soil - meets NJDSC Criteria for beneficial Reuse

The total quantity of material expected to be disposed off-Site is 35,500 cubic yards, including 21,286 cubic yards of historic fill material and CVOC / petroleum impacted soil and 14,214 cubic yards of clean native soil.

Hazardous Soil Disposal and Transport

It is not expected that any soil will be classified as hazardous, however if any soil is classified as hazardous it will be shipped under a hazardous waste manifest system. All hazardous waste transported and disposed of must have a USEPA ID Number and waste code and must be distributed in accordance with the regulatory requirements.

The multi-part manifest will be filled out for each load of soil shipped off of the Site. At a minimum, the following information will be recorded on each manifest:

1) Generator's Name, Address, and Phone Number
2) Destination Facility Name, Address and Phone Number
3) EPA ID Number
4) Waste classification code
5) Transporter Name, Address, Phone Number, License Plate Number, Driver Name, and SW Haulers Permit #
6) Signatures – Generator or an authorized agent for the generator shall print, sign, and date each non-hazardous material manifest after each truck is loaded. The transporter shall then sign and date noting time material was picked up at the site. Both the transporter and a representative of the disposal facility will sign the non-hazardous material manifest when the material has been delivered to disposal facility.

Non-Hazardous Soil Disposal and Transport

Non-hazardous historic fill material and CVOC and petroleum contaminated soil classified as non-hazardous, will be handled, at a minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Historical fill material and contaminated soils from the Site are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the Division of Materials Management (DMM) in NYSDEC to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported. Soil classified as non-hazardous fill will be transported under a non-hazardous waste manifest obtained from the selected disposal facility. The multi-part manifest will be filled out for each load of soil shipped off of the Site. At a minimum, the following information will be recorded on each manifest:

1) Generator's Name, Address, and Phone Number
2) Destination Facility Name, Address and Phone Number
3) Transporter Name, Address, Phone Number, License Plate Number, Driver Name, and SW Haulers Permit #
4) Signatures – Generator or an authorized agent for the generator shall print, sign, and date each non-hazardous material manifest after each truck is loaded. The transporter shall then sign and date noting time material was picked up at the site. Both the transporter and a representative of the disposal facility will sign the non-hazardous material manifest when the material has been delivered to disposal facility.

A copy of the manifest will be retained by AMC on-Site personnel for each shipment. Final signed manifests will be forwarded by the disposal facility to the generator. Copies of the final manifests will be presented in the FER.

Clean Soil Disposal

Clean native soil removed from the Site for development purposes (i.e. basement levels) will be handled as unregulated or beneficial use disposal. This soil will undergo a testing program to confirm that it meets Unrestricted Use SCOs or Residential / Groundwater Protection SCOs prior to unregulated disposal or meets Unrestricted Use SCOs prior to reuse on-Site.

Soil testing for off-site unregulated disposal:

Fill Material Quantity (cubic yards)	Minimum Number of Analyses for Volatile Organic Compounds, if Required	Minimum Number of Analyses for all other parameters
0-300	2	1
301-1000	4	2
1001-10,000	6	3
10,001+	10,001+ Two for every additional 10,000 cubic yards or fraction thereof	One per every additional 10,000 cubic yards or fraction thereof

(1) Sample method and frequency. Samples must be representative of the fill material. The sampling program must be designed and implemented by or under the direction of a qualified environmental professional (QEP), using the table above as a minimum sampling frequency. Written documentation of the sampling program with certification from the QEP that samples were representative of the fill material must be retained for three years after the sampling occurs and must be provided to the department upon request.

(2) Analytical parameters. Fill material samples must be analyzed for:

(i) the Metals, PCBs/Pesticides, and Semivolatile organic compounds listed in section 375-6.8(b) of this Title;

(ii) asbestos if demolition of structures has occurred on the site;

(iii) volume of physical contaminants, if present, based on visual observation; and

(iv) volatile organic compounds listed in section 375-6.8(b) of this Title, if their presence is possible based on site events such as an historic petroleum spill, odors, photoionization detector meter or other field instrument readings.

(3) Laboratory and analytical requirements. Laboratory analyses must be performed by a laboratory currently certified by the New York State Department of Health's Environmental Laboratory Approval Program (ELAP).

Confirmation testing of clean soils for on-site re-use will be in accordance with DER-10 Section 5.4(e)(10) as follows:

Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	Each composite sample for analysis is created from 3-5 discrete samples from representative locations in the fill.
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Uncontaminated native soil confirmed by the above testing program and removed from the site, will be disposed of as C&D material or sent to a beneficial re-use facility. Note that clean soils disposed of at an out-of-state facility will be subject to the testing requirements of that facility in lieu of testing program outlined above. The final destination of soils whether classified as contaminated or uncontaminated must be approved by the Remedial Engineer.

C&D and Scrap Metal Disposal

Concrete demolition material generated on the Site from building slabs, parking areas and other structures will be segregated, sized and shipped to a concrete recycling facility. Concrete crushing or processing on-Site is prohibited. Asphalt removed from the parking areas will be sent to a separate recycling facility.

Additionally, it is common to encounter scrap metals and large boulders (greater than one foot in diameter) during excavation which may not be accepted by either the licensed disposal facility or the C&D facility. These materials will be segregated and subsequently recycled at local facilities. Uncontaminated metal objects will be taken to a local scrap metal facility.

Bricks and other C&D material are also not accepted by most soil disposal facilities if present at greater then 5% by volume. This material, if encountered, will be sent to a C&D landfill or other C&D processing facility. C&D material of this type is most often encountered on sites in which former basement structures have been filled in with material from demolishing a former building. There was no evidence of former basement areas identified during previous investigations performed at the Site.

Scale Tickets

All trucks to be utilized for transport of hazardous or non-hazardous contaminated soil shall be weighed before and after unloading at the disposal facility. Disposal facilities must provide truck scales capable of generating load tickets measured in tons. The tonnage transported and disposed will be determined by the disposal facility and reported on a certified scale ticket which will be attached to each returned manifest. Weights will be reported on the certified scale ticket as Tare and Gross weights.

C&D Transport Tickets / Bills of Lading

Bill of Lading system or equivalent will be used for the disposal of C&D and related materials. Documentation for materials disposed of at recycling facilities (such as metal, concrete, asphalt) and as non-regulated C&D will include transport tickets for each load stating the origin of the material, the destination of the material and the quantity transported. This information will be reported in the Final Engineering Report.

Disposal Facility Documentation

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or BCP Applicant to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

The Final Engineering Report will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

5.5.9 Materials Reuse On-Site

Re-use of on-Site clean native soil will only be allowed if the material is found to meet Unrestricted Use SCOs (for Track 1) or Commercial Use SCOs (for Track 2) through the verification testing program detailed above. It is estimated that 1,000 cubic yards of clean native soil will be reused behind the shoring constructed around the perimeter of the Site. Additional soil may be re-used on-site to backfill over excavated areas.

The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site.

Acceptable demolition material proposed for reuse on-Site, if any, will be sampled for asbestos. Concrete crushing or processing on-Site is prohibited. Contaminated on-Site material, including historic fill material and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

5.5.10 Fluids Management

As the depth to groundwater at the site is approximately 20 feet above the planned excavation depth, dewatering operations will be employed during construction. Dewatering operations will continue post-excavation until the building foundation is installed and enough of the building super structure is complete to counter balance the hydrostatic pressure when dewatering operations cease. Dewatering is therefore expected to continue for a minimum of six months.

Dewatering fluids will be handled, transported and disposed of in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by the NYCDEP. Dewatered fluids will not be recharged back to the land surface or subsurface of the Site.

Dewatering operations will include the treatment and discharge of up to 43,200 gallons per day (30 gpm) into the combined sewer system located in Wythe Avenue. However, approval by DEP was sought for and given for 864,000 gpd to account for the possibility of the need of using relief wells in case the clayey layer is fully breached. Dewatering will consist of a max. of 18 sump pits fitted with submersible sump pumps activated by float controllers. Each sump pump will discharge to an 18,000 gallon settling tank which will gravity feed into the sewer via a new 8” lateral connection. Based on groundwater characterization and its comparison to NYCDEP Sewer discharge criteria no further treatment is required.

Note that the dewatering operations will be fully isolated through the installation of new and existing secant walls along the interior of the site and through interlocking sheeting to be installed along Wythe Avenue, N. 13th Street and N. 14th Street. See **Attachment H** for the approved support of excavation plans.

5.5.11 Backfill from Off-Site Sources

Off-site fill material may be needed to stabilize the entrance - exit areas of the Site, for temporary driveways for loading trucks and as an underlayment to structural components of the new buildings including slabs and footings. Recycled Concrete Aggregate (RCA) derived from recognizable and uncontaminated concrete and supplied by facilities permitted by, and in full compliance with Part 360-16 and DSNY regulations, is an acceptable form of backfill material. The Remedial Engineer is responsible for ensuring that the facility is compliant with the registration and permitting requirements of 6 NYCRR Part 360 and DSNY regulations at the time the RCA is acquired. RCA imported from compliant facilities does not require additional testing unless required by NYS DEC and DSNY under its terms of operations for the facility. Documentation of part 360-16 and DSNY compliance must be provided to the Remedial Engineer before the RCA is transported to the Site. RCA can only be used beneath a cover and cannot be placed at or below the water table.

Fill material may also consist of general fill, virgin mined sand, gravel or stone products. Gravel or stone material from a virgin mined source may be imported to the Site without testing provided that that the material meets the specifications of the geotechnical engineer, Remedial Engineer, and Redevelopment Construction Documents and that the source of the material is approved by the Remediation Engineer and the NYSDEC Project Manager. This material must contain less than 10% fines and not be blended with soil or other material. As per DER-10, if soil sourced from a virgin mine or pit is imported, at least one round of characterization sampling for the first 100 cubic yards is required in accordance with Table 4 of CP-51/Table 5.4(e)10 of DER-10. The source approval process will require a review of the following information:

- The origin of the material;
- The address of the facility which mines/processes the material;
- If a virgin source: A letter from the facility stating that the material to be delivered to the site is a virgin mined material and that it has not been co-mingled with other materials during processing or stockpiling.

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site. Material from industrial sites, spill sites or other potentially contaminated sites will not be imported to the Site.

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan".

Under no circumstances will fill materials be imported to the site without prior approval from the NYSDEC Project Manager. Any general fill imported to the site will be tested in accordance with Table 4 of NYSDEC CP-51 Soil Cleanup Guidance Policy. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

5.5.12 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

5.5.13 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs). These analyses will not be limited to STARS parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic electronic media reports.

5.5.14 Community Air Monitoring Plan

The Community Air Monitoring Plan (CAMP) provides measures for protection for on-site workers and the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial work) from potential airborne contaminant releases resulting from remedial activities at construction sites.

The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that the remedial work did not spread contamination off-site through the air. The primary concerns for this site are odors associated with groundwater purging and sampling. Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report. The complete CAMP developed for this Site is included in **Attachment D**.

5.5.15 Odor, Dust and Nuisance Control Plan

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site and on-Site. If nuisance odors are identified, work will be halted, and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Applicant's Remediation Engineer, who is responsible for certifying the Final Engineering Report.

All necessary means will be employed to prevent on and off-Site nuisances. At a minimum, procedures will include: (a) use of closed settling tanks and carbon treatment of exhaust air from the pumping / dewatering system (b) limiting the area of open excavations; (c) shrouding open excavations with tarps and other covers; and (d) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (e) direct load-out of soils to trucks for off-Site disposal; (f) use of chemical odorants in spray or misting systems, (g) use of perimeter misting systems; and, (h) use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

Dust Control Plan

A dust suppression plan that addresses dust management during invasive on-Site work, will include, at a minimum, the items listed below:

- Dust suppression will be achieved though spraying water directly onto off-road areas including excavations and stockpiles.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water application.

Nuisance Control Plan

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work. A plan will be developed and utilized by the contractor for all remedial work and conforms, to NYCDEP noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

If a Track 1 cleanup is achieved, all on-Site soil remaining after completion of remediation will meet Track 1 Unrestricted Use SCOs, a bulk reduction of groundwater contamination to asymptotic levels will have occurred, and an Institutional Control (IC) will not be required to protect human health and the environment.

However, if a Track 1 cleanup is not achieved, the Track 2 alternative will be implemented as a contingency and an IC will be required. The Track 2 alternative will allow Commercial use of the property. Long-term management of the IC will be executed under an environmental easement recorded with the NYC Department of Finance, Office of the City Register.

If Track 1 is not achieved, long-term management of ICs and of residual contamination may be executed under a Site-specific Site Management Plan (SMP) that will be developed and submitted to DEC, if needed. The FER will report residual contamination on the Site in tabular and map form.

7.0 ENGINEERING CONTROLS

The intent of this project is to achieve Track 1 Unrestricted Use remedy. If a Track 1 Cleanup cannot be achieved, then a Track 2 Commercial cleanup is proposed. If neither a Track 1 nor Track 2 Cleanup can be achieved, then a Track 4 Cleanup will be achieved.

If a Track 4 remedy is achieved, the Site will be restricted to Commercial and Industrial uses and a site cover may be required to allow for the intended use of the Site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or two feet of soil meeting the SCOs as set forth in 6 NYCRR Part 375-6.7(d) and Table 375-6.8(b). The soil cover will be placed over a demarcation layer, with the upper six inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the Site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

8.0 INSTITUTIONAL CONTROLS

Since the intent of this project is to achieve Track 1 cleanup criteria, institutional controls are not expected to be part of the final remedy for the Site.

If Track 1 cleanup is not achieved, ICs will be incorporated into the remedy to render the overall Site remedy protective of public health and the environmental. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a SMP.

If required, a Site-Specific Environmental Easement will be recorded with the City of New York to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on the Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs.

If a Track 1 remedy is achieved, an environmental easement will not be required.

8.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions than an Environmental Easement is required. If an Environmental Easement is needed following completion of the remedy an Environmental Easement approved by NYSDEC will be filed and recorded with the City of New York. The Environmental Easement (if needed) will be submitted as part of the Final Remediation Report.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with the City of New York before the Certificate of Completion can be issued by NYSDEC. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. ICs can, generally, be subdivided between controls that support ECs, and those that place general restrictions on Site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides all of the methods and procedures to be followed to comply with this remedy.

The ICs which will be needed to support ECs are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successor's is required;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the Controls;
- NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable;

8.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial Action. The SMP is submitted as a separate and independent document from the FER. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the SMP are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated [month, year], and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

9.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) and Certificate of Completion (COC) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The FER will include as-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the Final Engineering Report review.

The FER will include written and photographic documentation of all remedial work performed under this remedy. The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

9.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I _________certify that I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Work Plan (or Remedial Design or Plans and Specifications) was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Work Plan (or Remedial Design or Plans and Specifications).

Additionally, I certify that:

- *All documents generated in support of this report have been submitted in accordance with the DER's electronic submission protocols and have been accepted by the Department;*

- *All data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department;*

- *All information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as Owner's Designated Site Representative: [and I have been authorized and designated by all site owners to sign this certification] for this site.*

If the Remedial Action Work Plan (or Remedial Design or Plans and Specifications) identifies time frames to be achieved by the remedial program, the certification must include:

The data submitted to DER demonstrates that the remediation requirements set forth in the Remedial Work Plan (or Remedial Design or Plans and Specifications) and all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in the work plan (or Remedial Design or Plans and Specifications).

If the remedial program requires ICs or ECs, the certification will include:

All use restrictions, institutional controls, engineering controls and/or any operation and maintenance requirements applicable to the site are contained in an environmental easement created and recorded pursuant to ECL 71-3605 and that any affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

If the remedial program requires applicable SMP, the certification will include:

A Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of any engineering controls employed at the site including the proper maintenance of any remaining monitoring wells, and that such plan has been approved by DER.

If the remedial program requires financial assurance, the certification will include:

Any financial assurance mechanisms required by DEC pursuant to Environmental Conservation Law have been executed.

10.0 SCHEDULE

The remedial action will begin with mobilization of equipment and material to the Site which will begin approximately 3 weeks following RAWP approval and within 10 days of the distribution of the Construction Fact Sheet. Mobilization will be followed by the installation of shoring structures, installation and operation of dewatering equipment, removal and disposal of the USTs (if present), excavation and disposal of CVOC / petroleum impacted soil, historic fill materials and native soil and by confirmation endpoint soil sampling. Excavation work may proceed in several stages as needed to accommodate pile or sheet driving equipment, underpinning and other components related to the support of excavation (SOE). The work is expected to take approximately 12 months as part of the construction excavation and foundation installation. The schedule of tasks completed under this RAWP is as follows:

Conduct pre-construction meeting with NYSDEC	Within 3 weeks of RAWP approval
Mobilize equipment to the site and construct truck pad and other designated areas	Within 3 weeks following the pre-construction meeting and issuance of Pre-Construction Fact Sheet
Mobilize shoring contractor and equipment to the Site	Within 3 weeks following the pre-construction meeting
Mobilize excavation contractor and equipment to the Site	Within 3 weeks following the installation of shoring or as shoring proceeds
Begin excavation of USTs (if present)	Upon discovery during initial excavation cut (top six feet of soil).
Mobilize dewatering contractor and equipment to the Site	Within 3 weeks following the installation of shoring or as shoring proceeds
Collect baseline groundwater samples from three of the dewatering wells.	One week following well installation and before dewatering begins
Complete excavation and disposal of historic fill material and clean native soil.	Within 12 months of mobilization
Perform endpoint verification of entire site	Performed in sequence as final depth of each excavated area is complete.
Collect post remedial groundwater samples from three of the dewatering wells.	Following the completion of all excavation work.
Submit SMP (as a contingency) if Track 1 Cleanup is not achieved	By August 15th of the year in which the COC is sought or as required by DEC.
Submit FER	By September 15th of the year in which the COC is sought or as required by DEC.

TABLES

TABLE 1
SOIL CLEANUP OBJECTIVES
SOIL IMPORT CRITERIA

Contaminant	CAS Number	Unrestricted Use
Metals		
Arsenic	7440-38-2	13 [c]
Barium	7440-39-3	350 [c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5 [c]
Chromium, hexavalent [e]	18540-29-9	1 [b]
Chromium, trivalent [e]	16065-83-1	30 [c]
Copper	7440-50-8	50
Total Cyanide [e, f]		27
Lead	7439-92-1	63 [c]
Manganese	7439-96-5	1600 [c]
Total Mercury		0.18 [c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9 [c]
Silver	7440-22-4	2
Zinc	7440-66-6	109 [c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex) [f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033 [b]
4,4'-DDT	50-29-3	0.0033 [b]
4,4'-DDD	72-54-8	0.0033 [b]
Aldrin	309-00-2	0.005 [c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
delta-BHC [g]	319-86-8	0.04
Dibenzofuran [f]	132-64-9	7
Dieldrin	60-57-1	0.005 [c]
Endosulfan I [d, f]	959-98-8	2.4
Endosulfan II [d, f]	33213-65-9	2.4
Endosulfan sulfate [d, f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1
Semivolatile organic compounds		
Acenaphthene	83-32-9	20
Acenapthylene [f]	208-96-8	100 [a]
Anthracene [f]	120-12-7	100 [a]
Benz(a)anthracene [f]	56-55-3	1 [c]
Benzo(a)pyrene	50-32-8	1 [c]
Benzo(b)fluoranthene [f]	205-99-2	1 [c]
Benzo(g,h,i)perylene [f]	191-24-2	100
Benzo(k)fluoranthene [f]	207-08-9	0.8 [c]
Chrysene [f]	218-01-9	1 [c]
Dibenz(a,h)anthracene [f]	53-70-3	0.33 [b]
Fluoranthene [f]	206-44-0	100 [a]
Fluorene	86-73-7	30
Indeno(1,2,3-cd)pyrene [f]	193-39-5	0.5 [c]
m-Cresol [f]	108-39-4	0.33 [b]
Naphthalene [f]	91-20-3	12
o-Cresol [f]	95-48-7	0.33 [b]

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
p-Cresol [f]	106-44-5	0.33 [b]
Pentachlorophenol	87-86-5	0.8 [b]
Phenanthrene [f]	85-01-8	100
Phenol	108-95-2	0.33 [b]
Pyrene [f]	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane [f]	71-55-6	0.68
1,1-Dichloroethane [f]	75-34-3	0.27
1,1-Dichloroethene [f]	75-35-4	0.33
1,2-Dichlorobenzene [f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 [c]
cis -1,2-Dichloroethene [f]	156-59-2	0.25
trans-1,2-Dichloroethene [f]	156-60-5	0.19
1,3-Dichlorobenzene [f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 [b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene [f]	104-51-8	12
Carbon tetrachloride [f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene [f]	100-41-4	1
Hexachlorobenzene [f]	118-74-1	0.33 [b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether [f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05

TABLE 1
SOIL CLEANUP OBJECTIVES

Contaminant	CAS Number	Unrestricted Use
n - Propylbenzene [f]	103-65-1	3.9
sec-Butylbenzene [f]	135-98-8	11
tert-Butylbenzene [f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene [f]	95-63-6	3.6
1,3,5-Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

All soil cleanup objectives (SCOs) are in parts per million (ppm).

Footnotes

[a] The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See Technical Support Document (TSD), section 9.3.

[b] For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

[c] For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

[d] SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

[e] The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

[f] Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with “NS”. Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

TABLE 2
SUMMARY OF
SAMPLING PROGRAM RATIONALE AND ANALYSIS

Matrix	Location	Approximate Number of Samples	Rationale for Sampling	Laboratory Analysis
Subsurface soil (0 to 5 feet below existing grade)	3 borings throughout the Site. (B1806, B1810, B1811 and B1814)	4	To assess quality of historic fill across the Site.	VOCs EPA Method 8260B, SVOCs EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals EPA 6010.
Subsurface soil (Water table and 15 feet below grade)	11 borings throughout the Site. (B1801-B1809, B1812-B1813)	20	To assess petroleum impact and native soil quality across the Site.	VOCs EPA Method 8260B, SVOCs EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals EPA 6010.
Total (Soils)		24		
Groundwater (water table)	9 monitoring wells across the Site.	9	To assess groundwater quality at the Site.	VOCs EPA Method 8260B, PFAS Compounds EPA Method 537, SVOCs and 1,4-dioxane EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals EPA 6010 dissolved and total.
Total (Groundwater)		9		
Soil Gas (7 ft below existing grade)	8 soil gas implants to be installed across the Site.	13	Evaluate soil gas across the Site.	VOCs EPA Method TO15
Total (Soil Gas)		13		
MS/MSD	Matrix spike and Matrix spike duplicates at the rate 5%	3	To meet requirements of QA / QC program	1 soil and 1 groundwater MS/MSD for VOCs EPA Method 8260B, SVOCs EPA Method 8270, pesticide / PCBs EPA Method 8081/8082, TAL metals. Soil for VOCs EPA Method 8260B, SVOCs EPA Method 8270 and TAL metals EPA 6010.
Trip Blanks	One laboratory prepared trip blank to accompany samples each time they are delivered to the laboratory.	2	To meet requirements of QA / QC program	VOCs EPA Method 8260B
Total (QA / QC Samples)		5		

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1801								B1802								B1803								B1804							
			(4-6') 11/2/2018				(13-15') 11/2/2018				(10-12') 11/2/2018				(12-14') 11/2/2018				(4-6') 11/2/2018				(10-12') 11/2/2018				(10-12') 11/2/2018				(13-15') 11/2/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 6.1	6.1	U	1.2	< 19	19	U	0.95	< 5.8	5.8	U	1.2	< 1300	1,300	U	67	< 22	22	U	1.1	< 28	28	U	1.4	< 5.4	5.4	U	1.1	< 18	18	U	0.90
1,1,1-Trichloroethane	680	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	**2.1**	6.9	J	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,1,2,2-Tetrachloroethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 480	480	U	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,1,2-Trichloroethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,1-Dichloroethane	270	26,000	< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 270	270	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,1-Dichloroethene	330	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,1-Dichloropropene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	< 0.001	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,2,3-Trichlorobenzene			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 480	480	U	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,2,3-Trichloropropane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,2,4-Trichlorobenzene			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 480	480	U	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,2,4-Trimethylbenzene	3,600	52,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	**930**	330		33	< 5.4	5.4	U	0.54	**99**	480	J	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,2-Dibromo-3-chloropropane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 480	480	U	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,2-Dibromomethane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,2-Dichlorobenzene	1,100	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,2-Dichloroethane	20	3,100	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 33	33	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,2-Dichloropropane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,3,5-Trimethylbenzene	8,400	52,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	**520**	330		33	< 5.4	5.4	U	0.54	**60**	480	J	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,3-Dichlorobenzene	2,400	4,900	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,3-Dichloropropane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
1,4-Dichlorobenzene	1,800	13,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
2,2-Dichloropropane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
2-Chlorotoluene			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 480	480	U	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
2-Hexanone (Methyl Butyl Ketone)			< 31	31	U	6.1	< 24	24	U	4.8	< 29	29	U	5.8	< 1700	1,700	U	330	< 27	27	U	5.4	< 35	35	U	6.9	< 27	27	U	5.4	< 22	22	U	4.5
2-Isopropyltoluene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
4-Chlorotoluene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
4-Methyl-2-Pentanone			< 31	31	U	6.1	< 24	24	U	4.8	< 29	29	U	5.8	< 1700	1,700	U	330	< 27	27	U	5.4	< 35	35	U	6.9	< 27	27	U	5.4	< 22	22	U	4.5
Acetone	50	100,000	**48**	28	SL	5.6	**35**	24	S	4.8	**27**	29	JS	5.8	< 330	330	U	330	**41**	27	SL	5.4	**41**	50	JSL	30	**32**	27	S	5.4	**45**	22	S	4.5
Acrolein			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Acrylonitrile			< 12	12	U	1.2	< 19	19	U	0.48	< 12	12	U	1.2	< 1300	1,300	U	33	< 22	22	U	0.54	< 28	28	U	0.69	< 11	11	U	1.1	< 18	18	U	0.45
Benzene	60	4,800	**2**	6.1	J	0.61	**1.3**	4.8	J	0.48	< 5.8	5.8	U	0.58	**87**	60	-	33	**0.7**	5.4	J	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Bromobenzene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Bromochloromethane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Bromodichloromethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Bromoform			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Bromomethane			< 6.1	6.1	U	2.5	< 4.8	4.8	U	1.9	< 5.8	5.8	U	2.3	< 330	330	U	130	< 5.4	5.4	U	2.2	< 6.9	6.9	U	2.8	< 5.4	5.4	U	2.2	< 4.5	4.5	U	1.8
Carbon Disulfide			< 6.1	6.1	U	1.2	**1.1**	4.8	J	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Carbon tetrachloride	760	2,400	< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Chlorobenzene	1,100	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Chloroethane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Chloroform	370	49,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Chloromethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
cis-1,2-Dichloroethene	250	100,000	< 6.1	6.1	U	0.61	**56**	250	J	32	< 5.8	5.8	U	0.58	< 250	250	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
cis-1,3-Dichloropropene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Dibromochloromethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Dibromomethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Dichlorodifluoromethane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Ethylbenzene	1,000	41,000	< 6.1	6.1	U	0.61	**1.5**	4.8	J	0.48	< 5.8	5.8	U	0.58	**200**	130	-	33	< 5.4	5.4	U	0.54	**0.99**	6.9	J	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Hexachlorobutadiene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Isopropylbenzene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	**53**	330	J	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
m&p-Xylenes	260	100,000	< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	**680**	330	-	67	< 5.4	5.4	U	1.1	**200**	480	J	96	< 5.4	5.4	U	1.1	**58**	280	J	56
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 37	37	U	6.1	< 29	29	U	4.8	< 35	35	U	5.8	< 130	130	U	130	< 33	33	U	5.4	< 42	42	U	6.9	< 32	32	U	5.4	**13**	27	J	4.5
Methyl t-butyl ether (MTBE)	930	100,000	< 12	12	U	1.2	< 9.5	9.5	U	0.95	< 12	12	U	1.2	< 670	670	U	67	< 11	11	U	1.1	< 14	14	U	1.4	< 11	11	U	1.1	< 9.0	9.0	U	0.90
Methylene chloride	50	100,000	< 6.1	6.1	U	6.1	< 4.8	4.8	U	4.8	< 5.8	5.8	U	5.8	< 330	330	U	330	< 5.4	5.4	U	5.4	< 6.9	6.9	U	6.9	< 5.4	5.4	U	5.4	< 4.5	4.5	U	4.5
Naphthalene	12,000	100,000	**200**	170		86	**99**	320	J	64	< 5.8	5.8	U	2.3	**960**	330	-	67	**1.3**	5.4	J	1.1	**1,300**	480	-	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
n-Butylbenzene	12,000	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	**82**	330	J	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
n-Propylbenzene	3,900	100,000	< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	**100**	330	J	67	< 5.4	5.4	U	1.1	< 480	480	U	96	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
o-Xylene	260	100,000	< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	**410**	330	-	67	< 5.4	5.4	U	1.1	**3.5**	6.9	J	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
p-Isopropyltoluene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	**35**	330	J	33	**140**	330	J	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
sec-Butylbenzene	11,000	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Styrene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Tert-butyl alcohol			< 120	120	U	25	< 95	95	U	19	< 120	120	U	23	< 6700	6,700	U	1300	< 110	110	U	22	< 140	140	U	28	< 110	110	U	22	< 90	90	U	18
tert-Butylbenzene	5,900	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 480	480	U	48	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Tetrachloroethene	1,300	19,000	**230**	170	-	86	**120**	320	J	64	< 5.8	5.8	U	1.2	< 330	330	U	67	**63**	300	J	60	**3.1**	6.9	J	1.4	**190**	140	-	72	< 4.5	4.5	U	0.90
Tetrahydrofuran (THF)			< 12	12	U	3.1	< 9.5	9.5	U	2.4	< 12	12	U	2.9	< 670	670	U	170	< 11	11	U	2.7	< 14	14	U	3.5	< 11	11	U	2.7	< 9.0	9.0	U	2.2
Toluene	700	100,000	**1.2**	6.1	J	0.61	**54**	320	J	32	< 5.8	5.8	U	0.58	**160**	130	-	33	**41**	300	J	30	**140**	480	J	48	**38**	360	J	36	**50**	280	J	28
trans-1,2-Dichloroethene	190	100,000	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 190	190	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
trans-1,3-Dichloropropene			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
trans-1,4-dichloro-2-butene			< 12	12	U	3.1	< 9.5	9.5	U	2.4	< 12	12	U	2.9	< 670	670	U	170	< 11	11	U	2.7	< 960	960	U	240	< 11	11	U	2.7	< 9.0	9.0	U	2.2
Trichloroethene	470	21,000	**3,100**	430	-	43	**1,300**	320	-	32	< 5.8	5.8	U	0.58	< 330	330	U	33	**320**	300	-	30	**360**	290	-	48	**1,700**	360	-	36	< 4.5	4.5	U	0.45
Trichlorofluoromethane			< 6.1	6.1	U	1.2	< 4.8	4.8	U	0.95	< 5.8	5.8	U	1.2	< 330	330	U	67	< 5.4	5.4	U	1.1	< 6.9	6.9	U	1.4	< 5.4	5.4	U	1.1	< 4.5	4.5	U	0.90
Trichlorotrifluoroethane			< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 330	330	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
Vinyl Chloride	20	900	< 6.1	6.1	U	0.61	< 4.8	4.8	U	0.48	< 5.8	5.8	U	0.58	< 33	33	U	33	< 5.4	5.4	U	0.54	< 6.9	6.9	U	0.69	< 5.4	5.4	U	0.54	< 4.5	4.5	U	0.45
1,4- dioxane	100	13,000	< 92	92	U	49	< 71	71	U	38	< 87	87	U	46	< 2700	2,700	U	2700	< 82	82	U	44	< 100	100	U	55	< 81	81	U	43	< 67	67	U	36
Total BTEX Concentration			3				56.80				0				1537				41.7				344.5				38				108.00			
Total VOCs Concentration			3,581				1667.90				62				4,322.0				467.00				2209.69				1960.00				166.00			

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	10/15/2018	B1805								B1806				B1807								B1808							
			(6-8') 10/15/2018				(13-15') 10/15/2018				(6-8') 10/15/2018				(10-12') 10/15/2018				(13-15') 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 5.7	5.7	U	1.1	< 1600	1,600	U	79	< 2400	2,400	U	120	< 990	990	U	50	< 280	280	U	55	< 1100	1,100	U	54	< 16	16	U	0.79
1,1,1-Trichloroethane	680	100,000	< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,1,2,2-Tetrachloroethane			< 350	350	U	69	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,1,2-Trichloroethane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,1-Dichloroethane	270	26,000	< 5.7	5.7	U	1.1	< 270	270	U	79	< 270	270	U	120	< 250	250	U	50	< 270	270	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,1-Dichloroethene	330	100,000	< 5.7	5.7	U	0.57	< 330	330	U	40	< 330	330	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,1-Dichloropropene			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	< 0.001	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,2,3-Trichlorobenzene			< 350	350	U	69	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,2,3-Trichloropropane			< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,2,4-Trichlorobenzene			< 350	350	U	69	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,2,4-Trimethylbenzene	3,600	52,000	< 350	350	U	35	**410**	400	-	40	< 610	610	U	61	**160**	250	J	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,2-Dibromo-3-chloropropane			< 350	350	U	69	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,2-Dibromomethane			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,2-Dichlorobenzene	1,100	100,000	< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,2-Dichloroethane	20	3,100	< 5.7	5.7	U	0.57	< 40	40	U	40	< 61	61	U	61	< 25	25	U	25	< 28	28	U	28	< 27	27	U	27	< 3.9	3.9	U	0.39
1,2-Dichloropropane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,3,5-Trimethylbenzene	8,400	52,000	< 350	350	U	35	**1,100**	400	-	40	< 610	610	U	61	**510**	250	-	25	**460**	280	-	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,3-Dichlorobenzene	2,400	4,900	< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
1,3-Dichloropropane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
1,4-Dichlorobenzene	1,800	13,000	< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
2,2-Dichloropropane			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
2-Chlorotoluene			< 350	350	U	69	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
2-Hexanone (Methyl Butyl Ketone)			< 28	28	U	5.7	< 2000	2,000	U	400	< 3000	3,000	U	610	< 1200	1,200	U	250	< 1400	1,400	U	280	< 1300	1,300	U	270	< 20	20	U	3.9
2-Isopropyltoluene			< 350	350	U	35	**5,200**	400	-	40	**1,500**	610	-	61	**520**	250	-	25	**350**	280	-	28	**220**	270	J	27	**1.9**	3.9	J	0.39
4-Chlorotoluene			< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
4-Methyl-2-Pentanone			< 28	28	U	5.7	< 2000	2,000	U	400	< 3000	3,000	U	610	< 1200	1,200	U	250	< 1400	1,400	U	280	< 1300	1,300	U	270	< 20	20	U	3.9
Acetone	50	100,000	**79**	28	S	5.7	**970**	400	S	400	**880**	610	S	610	< 250	250	U	250	< 280	280	U	280	< 270	270	U	270	**33**	20	S	3.9
Acrolein			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Acrylonitrile			< 11	11	U	1.1	< 1600	1,600	U	40	< 2400	2,400	U	61	< 990	990	U	25	< 550	550	U	55	< 1100	1,100	U	27	< 16	16	U	0.39
Benzene	60	4,800	**120**	60	-	35	< 60	60	U	40	< 61	61	U	61	**56**	60	J	25	**57**	60	J	28	< 60	60	U	27	< 3.9	3.9	U	0.39
Bromobenzene			< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Bromochloromethane			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Bromodichloromethane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Bromoform			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Bromomethane			< 5.7	5.7	U	2.3	< 400	400	U	160	< 610	610	U	240	< 250	250	U	99	< 280	280	U	110	< 270	270	U	110	< 3.9	3.9	U	1.6
Carbon Disulfide			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Carbon tetrachloride	760	2,400	< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Chlorobenzene	1,100	100,000	< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Chloroethane			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Chloroform	370	49,000	< 5.7	5.7	U	0.57	< 370	370	U	40	< 370	370	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Chloromethane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
cis-1,2-Dichloroethene	250	100,000	< 5.7	5.7	U	0.57	< 250	250	U	40	< 250	250	U	61	< 250	250	U	25	< 250	250	U	28	< 250	250	U	27	< 3.9	3.9	U	0.39
cis-1,3-Dichloropropene			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Dibromochloromethane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Dibromomethane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Dichlorodifluoromethane			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Ethylbenzene	1,000	41,000	< 5.7	5.7	U	0.57	**40**	400	J	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Hexachlorobutadiene			< 350	350	U	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Isopropylbenzene			< 350	350	U	35	**510**	400	-	40	**530**	610	J	61	**1,400**	250	-	25	**1,000**	280	-	28	**81**	270	J	27	**0.65**	3.9	J	0.39
m&p-Xylenes	260	100,000	< 5.7	5.7	U	1.1	**440**	400	-	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	**95**	270	J	54	**0.86**	3.9	J	0.79
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 34	34	U	5.7	< 160	160	U	160	< 240	240	U	240	< 120	120	U	120	< 120	120	U	120	< 120	120	U	120	< 24	24	U	3.9
Methyl t-butyl ether (MTBE)	930	100,000	< 11	11	U	1.1	< 790	790	U	79	< 930	930	U	120	< 500	500	U	50	< 550	550	U	55	< 540	540	U	54	< 7.9	7.9	U	0.79
Methylene chloride	50	100,000	< 5.7	5.7	U	5.7	< 400	400	U	400	< 610	610	U	610	< 250	250	U	250	< 280	280	U	280	< 270	270	U	270	< 3.9	3.9	U	3.9
Naphthalene	12,000	100,000	< 350	350	U	69	**140**	400	J	79	< 610	610	U	120	**1,100**	250	-	50	**1,600**	280	-	55	**140**	270	J	54	**3.5**	3.9	J	0.79
n-Butylbenzene	12,000	100,000	< 350	350	U	35	**130**	400	J	40	**1,300**	610		61	**490**	250	-	25	**440**	280	-	28	**130**	270	J	27	**1.1**	3.9	J	0.39
n-Propylbenzene	3,900	100,000	< 350	350	U	69	< 400	400	U	79	**460**	610	J	120	**2,000**	250	-	50	**1,700**	280	-	55	**97**	270	J	54	< 3.9	3.9	U	0.79
o-Xylene	260	100,000	< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
p-Isopropyltoluene			< 350	350	U	35	**1,700**	400	-	40	**340**	610	J	61	**100**	250	J	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
sec-Butylbenzene	11,000	100,000	< 350	350	U	35	**280**	400	J	40	**1,800**	610	-	61	**990**	250	-	25	**710**	280	-	28	**320**	270	-	27	**2.3**	3.9	J	0.39
Styrene			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Tert-butyl alcohol			< 110	110	U	23	< 7900	7,900	U	1600	< 12000	12,000	U	2400	< 5000	5,000	U	990	< 5500	5,500	U	1100	< 5400	5,400	U	1100	< 79	79	U	16
tert-Butylbenzene	5,900	100,000	< 350	350	U	35	**63**	400	J	40	**560**	610	J	61	**240**	250	J	25	**160**	280	J	28	**93**	270	J	27	**0.88**	3.9	J	0.39
Tetrachloroethene	1,300	19,000	< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Tetrahydrofuran (THF)			< 11	11	U	2.8	< 790	790	U	200	< 1200	1,200	U	300	< 500	500	U	120	< 550	550	U	140	< 540	540	U	130	< 7.9	7.9	U	2.0
Toluene	700	100,000	**55**	350	J	35	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	**0.95**	3.9	J	0.39
trans-1,2-Dichloroethene	190	100,000	< 5.7	5.7	U	0.57	< 190	190	U	40	< 190	190	U	61	< 190	190	U	25	< 190	190	U	28	< 190	190	U	27	< 3.9	3.9	U	0.39
trans-1,3-Dichloropropene			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
trabs-1,4-dichloro-2-butene			< 690	690	U	170	< 790	790	U	200	< 1200	1,200	U	300	< 500	500	U	120	< 550	550	U	140	< 540	540	U	130	< 7.9	7.9	U	2.0
Trichloroethene	470	21,000	< 5.7	5.7	U	0.57	< 400	400	U	40	< 470	470	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Trichlorofluoromethane			< 5.7	5.7	U	1.1	< 400	400	U	79	< 610	610	U	120	< 250	250	U	50	< 280	280	U	55	< 270	270	U	54	< 3.9	3.9	U	0.79
Trichlorotrifluoroethane			< 5.7	5.7	U	0.57	< 400	400	U	40	< 610	610	U	61	< 250	250	U	25	< 280	280	U	28	< 270	270	U	27	< 3.9	3.9	U	0.39
Vinyl Chloride	20	900	< 5.7	5.7	U	0.57	< 40	40	U	40	< 61	61	U	61	< 25	25	U	25	< 28	28	U	28	< 27	27	U	27	< 3.9	3.9	U	0.39
1,4- dioxane	100	13,000	<85	85	U	45	<3200	3,200	U	3200	<4800	4,800	U	4800	<2000	2,000	U	2000	<2200	2,200	U	2200	<2200	2,200	U	2200	<59	59	U	31
Total BTEX Concentration			**175**				**480**				**0**				**56.0**				**57.0**				**95**				**1.8**			
Total VOCs Concentration			**254**				**10983.0**				**7370**				**7566.0**				**6477.00**				**1,176**				**45.14**			

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1809 (10-12') 10/16/2018 µg/Kg		µg/Kg		B1809 (13-15') 10/16/2018 µg/Kg		µg/Kg		B1810 (0-5' bcg) 10/15/2018 µg/Kg		µg/Kg		B1811 (0-5' bcg) 10/15/2018 µg/Kg		µg/Kg		B1812 (10-12') 10/16/2018 µg/Kg		µg/Kg		B1812 (13-15') 10/16/2018 µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 1100	1,100	U	55	< 17	17	U	0.86	< 23	23	U	1.1	< 27	27	U	1.3	< 1000	1,000	U	52	< 1000	1,000	U	52
1,1,1-Trichloroethane	680	100,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
1,1,2,2-Tetrachloroethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,1,2-Trichloroethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,1-Dichloroethane	270	26,000	< 270	270	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,1-Dichloroethene	330	100,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
1,1-Dichloropropene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	< 0.001	< 260	260	U	26	< 260	260	U	26
1,2,3-Trichlorobenzene			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,2,3-Trichloropropane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
1,2,4-Trichlorobenzene			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,2,4-Trimethylbenzene	3,600	52,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	**1.8**	6.6	J	0.66	< 260	260	U	26	< 260	260	U	26
1,2-Dibromo-3-chloropropane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,2-Dibromomethane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
1,2-Dichlorobenzene	1,100	100,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
1,2-Dichloroethane	20	3,100	< 28	28	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 26	26	U	26	< 26	26	U	26
1,2-Dichloropropane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,3,5-Trimethylbenzene	8,400	52,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	**2.9**	6.6	J	0.66	**28**	260	J	26	**51**	260	J	26
1,3-Dichlorobenzene	2,400	4,900	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
1,3-Dichloropropane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
1,4-Dichlorobenzene	1,800	13,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
2,2-Dichloropropane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
2-Chlorotoluene			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
2-Hexanone (Methyl Butyl Ketone)			< 1400	1,400	U	280	< 22	22	U	4.3	< 28	28	U	5.6	< 33	33	U	6.6	< 1300	1,300	U	260	< 1300	1,300	U	260
2-Isopropyltoluene			**90**	280	J	28	**1.7**	4.3	J	0.43	< 5.6	5.6	U	0.56	**2.2**	6.6	J	0.66	**270**	260	-	26	**480**	260	-	26
4-Chlorotoluene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
4-Methyl-2-Pentanone			< 1400	1,400	U	280	< 22	22	U	4.3	< 28	28	U	5.6	< 33	33	U	6.6	< 1300	1,300	U	260	< 1300	1,300	U	260
Acetone	50	100,000	< 280	280	U	280	**16**	22	JS	4.3	**51**	28	S	5.6	**110**	33	S	6.6	< 260	260	U	260	< 260	260	U	260
Acrolein			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	7	U	1.3	< 260	260	U	52	< 260	260	U	52
Acrylonitrile			< 1100	1,100	U	28	< 17	17	U	0.43	< 23	23	U	0.56	< 27	27	U	0.66	< 1000	1,000	U	26	< 1000	1,000	U	26
Benzene	60	4,800	< 60	60	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	**0.77**	6.6	J	0.66	< 60	60	U	26	< 60	60	U	26
Bromobenzene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Bromochloromethane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Bromodichloromethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Bromoform			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Bromomethane			< 280	280	U	110	< 4.3	4.3	U	1.7	< 5.6	5.6	U	2.3	< 6.6	6.6	U	2.7	< 260	260	U	100	< 260	260	U	100
Carbon Disulfide			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Carbon tetrachloride	760	2,400	< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Chlorobenzene	1,100	100,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Chloroethane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Chloroform	370	49,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	**520**	260	-	26	**1,100**	260	-	26
Chloromethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
cis-1,2-Dichloroethene	250	100,000	< 250	250	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 250	250	U	26	< 250	250	U	26
cis-1,3-Dichloropropene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Dibromochloromethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Dibromomethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Dichlorodifluoromethane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Ethylbenzene	1,000	41,000	< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Hexachlorobutadiene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Isopropylbenzene			**31**	280	J	28	**1.2**	4.3	J	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	**690**	260	-	26	**1,900**	1,600	-	260
m&p-Xylenes	260	100,000	< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	**1.5**	6.6	J	1.3	< 260	260	U	52	< 260	260	U	52
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 120	120	U	120	< 26	26	U	4.3	< 34	34	U	5.6	< 40	40	U	6.6	< 120	120	U	120	< 120	120	U	120
Methyl t-butyl ether (MTBE)	930	100,000	< 550	550	U	55	< 8.6	8.6	U	0.86	< 11	11	U	1.1	< 13	13	U	1.3	< 520	520	U	52	< 520	520	U	52
Methylene chloride	50	100,000	< 280	280	U	280	< 4.3	4.3	U	4.3	< 5.6	5.6	U	5.6	< 6.6	6.6	U	6.6	< 260	260	U	260	< 260	260	U	260
Naphthalene	12,000	100,000	< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	**580**	260	-	52	**700**	2,600	J	520
n-Butylbenzene	12,000	100,000	**88**	280	J	28	**1.1**	4.3	J	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	**430**	260	-	26	**770**	260	-	26
n-Propylbenzene	3,900	100,000	< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	**1,200**	1,000	-	520	**2,800**	2,600	-	520
o-Xylene	260	100,000	< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
p-Isopropyltoluene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	**390**	380	-	38	< 260	260	U	26	**39**	260	J	26
sec-Butylbenzene	11,000	100,000	**130**	280	J	28	**2.3**	4.3	J	0.43	< 5.6	5.6	U	0.56	**2.4**	6.6	J	0.66	**550**	260	-	26	**1,100**	1,000	-	260
Styrene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Tert-butyl alcohol			< 5500	5,500	U	1100	< 86	86	U	17	<110	110	U	23	< 130	130	U	27	< 5200	5,200	U	1000	< 5200	5,200	U	1000
tert-Butylbenzene	5,900	100,000	**38**	280	J	28	**0.86**	4.3	J	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	**110**	260	J	26	**270**	2,600	J	260
Tetrachloroethene	1,300	19,000	< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Tetrahydrofuran (THF)			< 550	550	U	140	< 8.6	8.6	U	2.2	< 11	11	U	2.8	< 13	13	U	3.3	< 520	520	U	130	< 520	520	U	130
Toluene	700	100,000	< 280	280	U	28	< 4.3	4.3	U	0.43	0.83	5.6	J	0.56	**1.6**	6.6	J	0.66	< 260	260	U	26	< 260	260	U	26
trans-1,2-Dichloroethene	190	100,000	< 190	190	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 190	190	U	26	< 190	190	U	26
trans-1,3-Dichloropropene			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
trabs-1,4-dichloro-2-butene			< 550	550	U	140	< 8.6	8.6	U	2.2	< 11	11	U	2.8	< 13	13	U	3.3	< 520	520	U	130	< 520	520	U	130
Trichloroethene	470	21,000	< 280	280	U	28	< 4.3	4.3	U	0.43	1.1	5.6	J	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Trichlorofluoromethane			< 280	280	U	55	< 4.3	4.3	U	0.86	< 5.6	5.6	U	1.1	< 6.6	6.6	U	1.3	< 260	260	U	52	< 260	260	U	52
Trichlorotrifluoroethane			< 280	280	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 260	260	U	26	< 260	260	U	26
Vinyl Chloride	20	900	< 28	28	U	28	< 4.3	4.3	U	0.43	< 5.6	5.6	U	0.56	< 6.6	6.6	U	0.66	< 26	26	U	26	< 26	26	U	26
1,4- dioxane	100	13,000	<2200	2,200	U	2200	<65	65	U	34	<84	84	U	45	<99	99	U	53	<2100	2,100	U	2100	<72	72	U	38
Total BTEX Concentration			**0**				**0.00**				**0.0**				**4**				**0.00**				**0**			
Total VOCs Concentration			**377**				**23.16**				**51.00**				**513**				**4378.00**				**9210.0**			

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 3
Soil Analytical Results
Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1813								B1814				Soil Duplicate 1				Soil Duplicate 2			
			(10-12') 10/16/2018				(13-15') 10/16/2018				(0-3') 10/16/2018				11/2/2018				11/2/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachlorothane			< 1200	1,200	U	58	< 17	17	U	0.87	< 19	19	U	0.96	< 25	25	U	1.3	< 21	21	U	1.1
1,1,1-Trichloroethane	680	100,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,1,2,2-Tetrachloroethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,1,2-Trichloroethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,1-Dichloroethane	270	26,000	< 270	270	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,1-Dichloroethene	330	100,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,1-Dichloropropene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,2,3-Trichlorobenzene			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,2,3-Trichloropropane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,2,4-Trichlorobenzene			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,2,4-Trimethylbenzene	3,600	52,000	< 290	290	U	29	< 4.4	4.4	U	0.44	**62**	250	J	25	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,2-Dibromo-3-chloropropane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,2-Dibromomethane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,2-Dichlorobenzene	1,100	100,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,2-Dichloroethane	20	3,100	< 29	29	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,2-Dichloropropane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,3,5-Trimethylbenzene	8,400	52,000	< 290	290	U	29	< 4.4	4.4	U	0.44	**0.71**	4.8	J	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,3-Dichlorobenzene	2,400	4,900	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,3-Dichloropropane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
1,4-Dichlorobenzene	1,800	13,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
2,2-Dichloropropane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
2-Chlorotoluene			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
2-Hexanone (Methyl Butyl Ketone)			< 1400	1,400	U	290	< 22	22	U	4.4	< 24	24	U	4.8	< 32	32	U	6.3	< 26	26	U	5.3
2-Isopropyltoluene			**300**	2,900	J	290	**1.1**	4.4	J	0.44	**0.91**	4.8	J	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
4-Chlorotoluene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
4-Methyl-2-Pentanone			< 1400	1,400	U	290	< 22	22	U	4.4	< 24	24	U	4.8	< 32	32	U	6.3	< 26	26	U	5.3
Acetone	50	100,000	< 290	290	U	290	**28**	22	S	4.4	**16**	24	JS	4.8	**27**	32	JS	6.3	**22**	26	JS	5.3
Acrolein			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Acrylonitrile			< 1200	1,200	U	29	< 17	17	U	0.44	< 19	19	U	0.48	< 25	25	U	0.63	< 21	21	U	0.53
Benzene	60	4,800	< 60	60	U	29	< 4.4	4.4	U	0.44	**0.61**	4.8	J	0.48	< 6.3	6.3	U	0.63	**0.64**	5.3	J	0.53
Bromobenzene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Bromochloromethane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Bromodichloromethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Bromoform			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Bromomethane			< 290	290	U	120	< 4.4	4.4	U	1.7	< 4.8	4.8	U	1.9	< 6.3	6.3	U	2.5	< 5.3	5.3	U	2.1
Carbon Disulfide			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Carbon tetrachloride	760	2,400	< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Chlorobenzene	1,100	100,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Chloroethane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Chloroform	370	49,000	**400**	290	-	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Chloromethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
cis-1,2-Dichloroethene	250	100,000	< 250	250	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
cis-1,3-Dichloropropene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Dibromochloromethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Dibromomethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Dichlorodifluoromethane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Ethylbenzene	1,000	41,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Hexachlorobutadiene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Isopropylbenzene			**360**	2,900	J	290	**2.2**	4.4	J	0.44	**1.2**	4.8	J	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
m&p-Xylenes	260	100,000	< 290	290	U	58	< 4.4	4.4	U	0.87	**53**	250	J	51	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Methyl Ethyl Ketone (2-Butanone)	120	100,000	< 120	120	U	120	< 26	26	U	4.4	< 29	29	U	4.8	< 38	38	U	6.3	< 32	32	U	5.3
Methyl t-butyl ether (MTBE)	930	100,000	< 580	580	U	58	< 8.7	8.7	U	0.87	< 9.6	9.6	U	0.96	< 13	13	U	1.3	< 11	11	U	1.1
Methylene chloride	50	100,000	< 290	290	U	290	< 4.4	4.4	U	4.4	< 4.8	4.8	U	4.8	< 6.3	6.3	U	6.3	< 5.3	5.3	U	5.3
Naphthalene	12,000	100,000	**190**	290	J	58	**1.6**	4.4	J	0.87	**0.96**	4.8	J	0.96	< 6.3	6.3	U	1.3	**65**	300	J	60
n-Butylbenzene	12,000	100,000	**370**	2,900	J	290	**1.2**	4.4	J	0.44	**80**	250	J	25	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
n-Propylbenzene	3,900	100,000	**240**	290	J	58	**1.3**	4.4	J	0.87	**54**	250	J	51	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
o-Xylene	260	100,000	< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
p-Isopropyltoluene			< 290	290	U	29	< 4.4	4.4	U	0.44	**1.3**	4.8	J	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
sec-Butylbenzene	11,000	100,000	**580**	290	-	29	**2.2**	4.4	J	0.44	**2.2**	4.8	J	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Styrene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Tert-butyl alcohol			< 5800	5,800	U	1200	< 87	87	U	17	< 96	96	U	19	< 130	130	U	25	< 110	110	U	21
tert-Butylbenzene	5,900	100,000	**120**	290	J	29	**0.63**	4.4	J	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Tetrachloroethene	1,300	19,000	< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	**61**	300	J	60
Tetrahydrofuran (THF)			< 580	580	U	140	< 8.7	8.7	U	2.2	< 9.6	9.6	U	2.4	< 13	13	U	3.2	< 11	11	U	2.6
Toluene	700	100,000	< 290	290	U	29	**0.89**	4.4	J	0.44	**1.2**	4.8	J	0.48	< 6.3	6.3	U	0.63	**46**	300	J	30
trans-1,2-Dichloroethene	190	100,000	< 190	190	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
trans-1,3-Dichloropropene			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
trabs-1,4-dichloro-2-butene			< 580	580	U	140	< 8.7	8.7	U	2.2	< 9.6	9.6	U	2.4	< 13	13	U	3.2	< 11	11	U	2.6
Trichloroethene	470	21,000	< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	**340**	300	-	30
Trichlorofluoromethane			< 290	290	U	58	< 4.4	4.4	U	0.87	< 4.8	4.8	U	0.96	< 6.3	6.3	U	1.3	< 5.3	5.3	U	1.1
Trichlorotrifluoroethane			< 290	290	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
Vinyl Chloride	20	900	< 29	29	U	29	< 4.4	4.4	U	0.44	< 4.8	4.8	U	0.48	< 6.3	6.3	U	0.63	< 5.3	5.3	U	0.53
1,4- dioxane	100	13,000	<2300	2,300	U	2300	<65	65	U	35	<72	72	U	38	< 95	95	U	50	< 79	79	U	42
Total BTEX Concentration			**0**				**0.89**				**55**				**0.00**				**46.64**			
Total VOCs Concentration			**2,560**				**39.12**				**274**				**27.00**				**534.64**			

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1801								B1802								B1803								B1804							
			(4-6') 11/2/2018				(13-15') 11/2/2018				(10-12') 11/2/2018				(12-14') 11/2/2018				(4-6') 11/2/2018				(10-12') 11/2/2018				(10-12') 11/2/2018				(13-15') 11/2/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 260	260	U	130	< 280	280	U	140	< 270	270	U	140	< 2800	2,800	U	1400	< 250	250	U	130	< 2700	2,700	U	1400	< 260	260	U	130	< 270	270	U	130
1,2,4-Trichlorobenzene			< 260	260	U	110	< 280	280	U	120	< 270	270	U	120	< 2800	2,800	U	1200	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	110	< 270	270	U	120
1,2-Dichlorobenzene			< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 1100	1,100	U	1100	< 250	250	U	100	< 1100	1,100	U	1100	< 260	260	U	110	< 270	270	U	110
1,2-Diphenylhydrazine			< 260	260	U	120	< 280	280	U	130	< 270	270	U	130	< 2800	2,800	U	1300	< 250	250	U	120	< 2700	2,700	U	1300	< 260	260	U	120	< 270	270	U	120
1,3-Dichlorobenzene			< 260	260	U	110	< 280	280	U	120	< 270	270	U	110	< 2400	2,400	U	1200	< 250	250	U	110	< 2400	2,400	U	1200	< 260	260	U	110	< 270	270	U	110
1,4-Dichlorobenzene			< 260	260	U	110	< 280	280	U	120	< 270	270	U	110	< 1800	1,800	U	1200	< 250	250	U	110	< 1800	1,800	U	1200	< 260	260	U	110	< 270	270	U	110
2,4,5-Trichlorophenol			< 260	260	U	210	< 280	280	U	220	< 270	270	U	210	< 2800	2,800	U	< 0.001	< 250	250	U	200	< 2700	2,700	U	2200	< 260	260	U	200	< 270	270	U	210
2,4,6-Trichlorophenol			< 190	190	U	120	< 200	200	U	130	< 190	190	U	120	< 2000	2,000	U	1300	< 180	180	U	120	< 2000	2,000	U	1300	< 190	190	U	120	< 190	190	U	120
2,4-Dichlorophenol			< 190	190	U	130	< 200	200	U	140	< 190	190	U	140	< 2000	2,000	U	1400	< 180	180	U	130	< 2000	2,000	U	1400	< 190	190	U	130	< 190	190	U	130
2,4-Dimethylphenol			< 260	260	U	93	< 280	280	U	98	< 270	270	U	96	< 2800	2,800	U	990	< 250	250	U	90	< 2700	2,700	U	970	< 260	260	U	93	< 270	270	U	95
2,4-Dinitrophenol			< 260	260	U	260	< 280	280	U	280	< 270	270	U	270	< 2800	2,800	U	2800	< 250	250	U	250	< 2700	2,700	U	2700	< 260	260	U	260	< 270	270	U	270
2,4-Dinitrotoluene			< 190	190	U	150	< 200	200	U	160	< 190	190	U	150	< 2000	2,000	U	1600	< 180	180	U	140	< 2000	2,000	U	1500	< 190	190	U	150	< 190	190	U	150
2,6-Dinitrotoluene			< 190	190	U	120	< 200	200	U	120	< 190	190	U	120	< 2000	2,000	U	1300	< 180	180	U	110	< 2000	2,000	U	1200	< 190	190	U	120	< 190	190	U	120
2-Chloronaphthalene			< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1100	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	110	< 270	270	U	110
2-Chlorophenol			< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1100	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	110	< 270	270	U	110
2-Methylnaphthalene			**200**	260	J	110	**230**	280	J	120	< 270	270	U	110	**5,000**	2,800	-	1200	< 250	250	U	110	**1,800**	2,700	J	1200	< 260	260	U	110	< 270	270	U	110
2-Methylphenol (o-cresol)	330	100,000	< 260	260	U	180	< 280	280	U	190	< 270	270	U	180	< 800	800	U	800	< 250	250	U	170	< 790	790	U	790	< 260	260	U	180	< 270	270	U	180
2-Nitroaniline			< 260	260	U	260	< 280	280	U	280	< 270	270	U	270	< 2800	2,800	U	2800	< 250	250	U	250	< 2700	2,700	U	2700	< 260	260	U	260	< 270	270	U	270
2-Nitrophenol			< 260	260	U	240	< 280	280	U	250	< 270	270	U	240	< 2800	2,800	U	2500	< 250	250	U	230	< 2700	2,700	U	2500	< 260	260	U	240	< 270	270	U	240
3&4-Methylphenol (m&p-cresol)	330	100,000	< 260	260	U	150	< 280	280	U	160	< 270	270	U	150	< 2800	2,800	U	1600	< 250	250	U	140	< 2700	2,700	U	1500	< 260	260	U	150	< 270	270	U	150
3,3'-Dichlorobenzidine			< 190	190	U	180	< 200	200	U	190	< 190	190	U	180	< 2000	2,000	U	1900	< 180	180	U	170	< 2000	2,000	U	1900	< 190	190	U	180	< 190	190	U	180
3-Nitroaniline			< 380	380	U	750	< 400	400	U	790	< 390	390	U	770	< 4000	4,000	U	8000	< 360	360	U	730	< 3900	3,900	U	7900	< 370	370	U	750	< 380	380	U	760
4,6-Dinitro-2-methylphenol			< 230	230	U	75	< 240	240	U	79	< 230	230	U	77	< 2400	2,400	U	800	< 220	220	U	73	< 2400	2,400	U	790	< 220	220	U	75	< 230	230	U	76
4-Bromophenyl phenyl ether			< 260	260	U	110	< 280	280	U	120	< 270	270	U	110	< 2800	2,800	U	1200	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	110	< 270	270	U	110
4-Chloro-3-methylphenol			< 260	260	U	130	< 280	280	U	140	< 270	270	U	140	< 2800	2,800	U	1400	< 250	250	U	130	< 2700	2,700	U	1400	< 260	260	U	130	< 270	270	U	130
4-Chloroaniline			< 300	300	U	180	< 320	320	U	180	< 310	310	U	180	< 3200	3,200	U	1900	< 290	290	U	170	< 3100	3,100	U	1800	< 300	300	U	170	< 310	310	U	180
4-Chlorophenyl phenyl ether			< 260	260	U	130	< 280	280	U	130	< 270	270	U	130	< 2800	2,800	U	1300	< 250	250	U	120	< 2700	2,700	U	1300	< 260	260	U	130	< 270	270	U	130
4-Nitroaniline			< 380	380	U	130	< 400	400	U	130	< 390	390	U	130	< 4000	4,000	U	1300	< 360	360	U	120	< 3900	3,900	U	1300	< 370	370	U	120	< 380	380	U	130
4-Nitrophenol			< 380	380	U	170	< 400	400	U	180	< 390	390	U	170	< 4000	4,000	U	1800	< 360	360	U	160	< 3900	3,900	U	1800	< 370	370	U	170	< 380	380	U	170
Acenaphthene	20,000	100,000	**430**	260	-	110	**360**	280	-	120	< 270	270	U	120	< 2800	2,800	U	1200	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	110	< 270	270	U	120
Acenaphthylene	100,000	100,000	**130**	260	J	110	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1100	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	100	< 270	270	U	110
Acetophenone			< 260	260	U	120	< 280	280	U	120	< 270	270	U	120	< 2800	2,800	U	1300	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	120	< 270	270	U	120
Aniline			< 300	300	U	300	< 320	320	U	320	< 310	310	U	310	< 3200	3,200	U	3200	< 290	290	U	290	< 3100	3,100	U	3100	< 300	300	U	300	< 310	310	U	310
Anthracene	100,000	100,000	**1,600**	260	-	120	**780**	280	-	130	**220**	270	J	130	< 2800	2,800	U	1300	**250**	250	J	120	**2,000**	2,700	J	1300	< 260	260	U	120	< 270	270	U	130
Benz(a)anthracene	1,000	1,000	**12,000**	2,600	-	1300	**1,600**	280	-	130	**510**	270	-	130	**32,000**	2,800	-	1300	**680**	250	-	120	**27,000**	2,700	-	1300	**150**	260	J	130	< 270	270	U	130
Benzidine			< 380	380	U	220	< 400	400	U	230	< 390	390	U	230	< 4000	4,000	U	2400	< 360	360	U	210	< 3900	3,900	U	2300	< 370	370	U	220	< 380	380	U	220
Benzo(a)pyrene	1,000	1,000	**13,000**	1,900	-	1200	**1,500**	200	-	130	**490**	190	-	130	**31,000**	2,000	-	1300	**890**	180	-	120	**26,000**	2,000	-	1300	**130**	190	J	120	< 190	190	U	120
Benzo(b)fluoranthene	1,000	1,000	**11,000**	2,600	-	1300	**1,200**	280	-	140	**410**	270	-	130	**18,000**	2,800	-	1400	**780**	250	-	120	**24,000**	2,700	-	1300	**140**	260	J	130	< 270	270	U	130
Benzo(ghi)perylene	100,000	100,000	**6,800**	260	-	120	**700**	280	-	130	**250**	270	J	120	**36,000**	2,800	-	1300	**790**	250	-	120	**43,000**	2,700	-	1300	< 260	260	U	120	< 270	270	U	120
Benzo(k)fluoranthene	800	3,900	**10,000**	2,600	-	1200	**1,200**	280	-	130	**410**	270	-	130	**6,100**	2,800	-	1300	**700**	250	-	120	**7,400**	2,700	-	1300	**120**	260	J	120	< 270	270	U	130
Benzoic acid			< 1900	1,900	U	750	< 2000	2,000	U	790	< 1900	1,900	U	770	< 20000	20,000	U	8000	< 1800	1,800	U	730	< 20000	20,000	U	7900	< 1900	1,900	U	750	< 1900	1,900	U	760
Benzyl butyl phthalate			< 260	260	U	97	< 280	280	U	100	< 270	270	U	99	< 2800	2,800	U	1000	< 250	250	U	94	< 2700	2,700	U	1000	< 260	260	U	97	< 270	270	U	98
Bis(2-chloroethoxy)methane			< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1100	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	100	< 270	270	U	110
Bis(2-chloroethyl)ether			< 190	190	U	100	< 200	200	U	110	< 190	190	U	100	< 2000	2,000	U	1100	< 180	180	U	98	< 2000	2,000	U	1100	< 190	190	U	100	< 190	190	U	100
Bis(2-chloroisopropyl)ether			< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1100	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	100	< 270	270	U	110
Bis(2-ethylhexyl)phthalate			< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1200	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	110	< 270	270	U	110
Carbazole			**640**	190	-	150	**360**	200	-	160	< 190	190	U	150	< 2000	2,000	U	1600	< 180	180	U	150	< 2000	2,000	U	1600	< 190	190	U	150	< 190	190	U	150
Chrysene	1,000	3,900	**15,000**	2,600	-	1300	**1,600**	280	-	130	**530**	270	-	130	**51,000**	2,800	-	1300	**730**	250	-	120	**48,000**	2,700	-	1300	**160**	260	J	130	< 270	270	U	130
Dibenz(a,h)anthracene	330	330	**2,100**	190	-	120	**190**	200	J	120	< 190	190	U	120	**17,000**	2,000	-	1300	**160**	180	J	120	**19,000**	2,000	-	1300	< 190	190	U	120	< 190	190	U	110
Dibenzofuran	7,000	59,000	**410**	260	-	110	**290**	280	-	120	< 270	270	U	110	< 800	800	U	800	< 250	250	U	110	**1,000**	790	-	790	< 260	260	U	110	< 270	270	U	110
Diethyl phthalate			< 260	260	U	120	< 280	280	U	120	< 270	270	U	120	< 2800	2,800	U	1300	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	120	< 270	270	U	120
Dimethylphthalate			< 260	260	U	120	< 280	280	U	120	< 270	270	U	120	< 2800	2,800	U	1200	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	120	< 270	270	U	120
Di-n-butylphthalate			< 260	260	U	100	< 280	280	U	110	< 270	270	U	100	< 2800	2,800	U	1100	< 250	250	U	96	< 2700	2,700	U	1000	< 260	260	U	99	< 270	270	U	100
Di-n-octylphthalate			< 260	260	U	97	< 280	280	U	100	< 270	270	U	99	< 2800	2,800	U	1000	< 250	250	U	94	< 2700	2,700	U	1000	< 260	260	U	97	< 270	270	U	98
Fluoranthene	100,000	100,000	**31,000**	2,600	-	1200	**4,300**	280	-	130	**1,100**	270	-	120	**3,600**	2,800	-	1300	**1,500**	250	-	120	**11,000**	2,700	-	1300	**320**	260	-	120	**170**	270	J	120
Fluorene	30,000	100,000	**350**	260	-	120	**370**	280	-	130	< 270	270	U	130	< 2800	2,800	U	1300	< 250	250	U	120	< 2700	2,700	U	1300	< 260	260	U	120	< 270	270	U	130
Hexachlorobenzene			< 190	190	U	110	< 200	200	U	120	< 190	190	U	110	< 800	800	U	800	< 180	180	U	110	< 790	790	U	790	< 190	190	U	110	< 190	190	U	110
Hexachlorobutadiene			< 260	260	U	140	< 280	280	U	140	< 270	270	U	140	< 2800	2,800	U	1500	< 250	250	U	130	< 2700	2,700	U	1400	< 260	260	U	140	< 270	270	U	140
Hexachlorocyclopentadiene			< 260	260	U	110	< 280	280	U	120	< 270	270	U	120	< 2800	2,800	U	1200	< 250	250	U	110	< 2700	2,700	U	1200	< 260	260	U	110	< 270	270	U	120
Hexachloroethane			< 190	190	U	110	< 200	200	U	120	< 190	190	U	120	< 2000	2,000	U	1200	< 180	180	U	110	< 2000	2,000	U	1200	< 190	190	U	110	< 190	190	U	110
Indeno(1,2,3-cd)pyrene	500	500	**9,100**	2,600	-	1200	**790**	280	-	130	**310**	270	-	130	**9,500**	2,800	-	1300	**760**	250	-	120	**18,000**	2,700	-	1300	< 260	260	U	120	< 270	270	U	130
Isophorone			< 190	190	U	110	< 200	200	U	110	< 190	190	U	110	< 2000	2,000	U	1100	< 180	180	U	100	< 2000	2,000	U	1100	< 190	190	U	100	< 190	190	U	110
Naphthalene	12,000	100,000	**600**	260	-	110	**550**	280	-	110	< 270	270	U	110	**1,600**	2,800	J	1200	**120**	250	J	100	**3,200**	2,700	-	1100	< 260	260	U	110	< 270	270	U	110
Nitrobenzene			< 190	190	U	130	< 200	200	U	140	< 190	190	U	130	< 2000	2,000	U	1400	< 180	180	U	130	< 2000	2,000	U	1400	< 190	190	U	130	< 190	190	U	130
N-Nitrosodimethylamine			< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 2800	2,800	U	1100	< 250	250	U	100	< 2700	2,700	U	1100	< 260	260	U	110	< 270	270	U	110
N-Nitrosodi-n-propylamine			< 190	190	U	120	< 200	200	U	130	< 190	190	U	120	< 2000	2,000	U	1300	< 180	180	U	120	< 2000	2,000	U	1300	< 190	190	U	120	< 190	190	U	120
N-Nitrosodiphenylamine			< 260	260	U	140	< 280	280	U	150	< 270	270	U	150	< 2800	2,800	U	1500	< 250	250	U	140	< 2700	2,700	U	1500	< 260	260	U	140	< 270	270	U	150
Pentachloronitrobenzene			< 260	260	U	140	< 280	280	U	150	< 270	270	U	140	< 2800	2,800	U	1500	< 250	250	U	130	< 2700	2,700	U	1500	< 260	260	U	140	< 270	270	U	140
Pentachlorophenol	800	6,700	< 230	230	U	140	< 240	240	U	150	< 230	230	U	150	< 800	800	U	800	< 220	220	U	140	< 800	800	U	800	< 220	220	U	140	< 230	230	U	140
Phenanthrene	100,000	100,000	**14,000**	2,600	-	1100	**3,800**	280	-	110	**870**	270	-	110	**7,800**	2,800	-	1100	**1,300**	250	-	100	**9,900**	2,700	-	1100	**270**	260	-	110	**160**	270	J	110
Phenol	330	100,000	< 260	260	U	120	< 280	280	U	130	< 270	270	U	120	< 800	800	U	800	< 250	250	U	120	< 790	790	U	790	< 260	260	U	120	< 270	270	U	120
Pyrene	100,000	100,000	**29,000**	2,600	-	1300	**3,600**	280	-	140	**940**	270	-	130	**13,000**	2,800	-	1400	**1,300**	250	-	120	**21,000**	2,700	-	1400	**280**	260	-	130	**230**	270	J	130
Pyridine			< 260	260	U	92	< 280	280	U	97	< 270	270	U	95	< 2800	2,800	U	990	< 250	250	U	89	< 2700	2,700	U	970	< 260	260	U	92	< 270	270	U	94

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1805								B1806				B1807								B1808							
			(6-8') 10/15/2018				(13-15') 10/15/2018				(6-8') 10/15/2018				(10-12') 10/15/2018				(13-15') 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 280	280	U	140	< 280	280	U	140	< 310	310	U	160	< 260	260	U	130	< 280	280	U	140	< 270	270	U	130	< 260	260	U	130
1,2,4-Trichlorobenzene			< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	< 260	260	U	110	< 280	280	U	120	< 270	270	U	120	< 260	260	U	110
1,2-Dichlorobenzene			< 280	280	U	110	< 280	280	U	110	< 310	310	U	120	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	100
1,2-Diphenylhydrazine			< 280	280	U	130	< 280	280	U	130	< 310	310	U	140	< 260	260	U	120	< 280	280	U	130	< 270	270	U	120	< 260	260	U	120
1,3-Dichlorobenzene			< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	< 260	260	U	110	< 280	280	U	120	< 270	270	U	110	< 260	260	U	110
1,4-Dichlorobenzene			< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	< 260	260	U	110	< 280	280	U	120	< 270	270	U	110	< 260	260	U	110
2,4,5-Trichlorophenol			< 280	280	U	220	< 280	280	U	220	< 310	310	U	240	< 260	260	U	< 0.001	< 280	280	U	220	< 270	270	U	210	< 260	260	U	200
2,4,6-Trichlorophenol			< 200	200	U	130	< 200	200	U	130	< 220	220	U	140	< 180	180	U	120	< 200	200	U	130	< 190	190	U	120	< 190	190	U	120
2,4-Dichlorophenol			< 200	200	U	140	< 200	200	U	140	< 220	220	U	160	< 180	180	U	130	< 200	200	U	140	< 190	190	U	130	< 190	190	U	130
2,4-Dimethylphenol			< 280	280	U	100	< 280	280	U	99	< 310	310	U	110	< 260	260	U	91	< 280	280	U	98	< 270	270	U	94	< 260	260	U	92
2,4-Dinitrophenol			< 280	280	U	280	< 280	280	U	280	< 310	310	U	310	< 260	260	U	260	< 280	280	U	280	< 270	270	U	270	< 260	260	U	260
2,4-Dinitrotoluene			< 200	200	U	160	< 200	200	U	160	< 220	220	U	170	< 180	180	U	140	< 200	200	U	160	< 190	190	U	150	< 190	190	U	150
2,6-Dinitrotoluene			< 200	200	U	130	< 200	200	U	130	< 220	220	U	140	< 180	180	U	120	< 200	200	U	120	< 190	190	U	120	< 190	190	U	120
2-Chloronaphthalene			< 280	280	U	110	< 280	280	U	110	< 310	310	U	130	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	110
2-Chlorophenol			< 280	280	U	110	< 280	280	U	110	< 310	310	U	130	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	110
2-Methylnaphthalene			< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	**1,500**	260	-	110	**1,500**	280	-	120	**270**	270	-	110	**190**	260	J	110
2-Methylphenol (o-cresol)	330	100,000	< 280	280	U	190	< 280	280	U	190	< 310	310	U	210	< 260	260	U	170	< 280	280	U	180	< 270	270	U	180	< 260	260	U	170
2-Nitroaniline			< 280	280	U	280	< 280	280	U	280	< 310	310	U	310	< 260	260	U	260	< 280	280	U	280	< 270	270	U	270	< 260	260	U	260
2-Nitrophenol			< 280	280	U	250	< 280	280	U	250	< 310	310	U	280	< 260	260	U	230	< 280	280	U	250	< 270	270	U	240	< 260	260	U	240
3&4-Methylphenol (m&p-cresol)	330	100,000	< 280	280	U	160	**290**	280		160	< 310	310	U	170	< 260	260	U	140	< 280	280	U	160	< 270	270	U	150	< 260	260	U	150
3,3'-Dichlorobenzidine			< 200	200	U	190	< 200	200	U	190	< 220	220	U	210	< 180	180	U	170	< 200	200	U	190	< 190	190	U	180	< 190	190	U	180
3-Nitroaniline			< 400	400	U	800	< 400	400	U	800	< 440	440	U	890	< 370	370	U	740	< 390	390	U	790	< 380	380	U	760	< 370	370	U	740
4,6-Dinitro-2-methylphenol			< 240	240	U	80	< 240	240	U	80	< 270	270	U	89	< 220	220	U	74	< 240	240	U	79	< 230	230	U	76	< 220	220	U	74
4-Bromophenyl phenyl ether			< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	< 260	260	U	110	< 280	280	U	120	< 270	270	U	110	< 260	260	U	110
4-Chloro-3-methylphenol			< 280	280	U	140	< 280	280	U	140	< 310	310	U	160	< 260	260	U	130	< 280	280	U	140	< 270	270	U	130	< 260	260	U	130
4-Chloroaniline			< 320	320	U	190	< 320	320	U	190	< 350	350	U	210	< 290	290	U	170	< 310	310	U	180	< 300	300	U	180	< 300	300	U	170
4-Chlorophenyl phenyl ether			< 280	280	U	130	< 280	280	U	130	< 310	310	U	150	< 260	260	U	120	< 280	280	U	130	< 270	270	U	130	< 260	260	U	120
4-Nitroaniline			< 400	400	U	130	< 400	400	U	130	< 440	440	U	150	< 370	370	U	120	< 390	390	U	130	< 380	380	U	130	< 370	370	U	120
4-Nitrophenol			< 400	400	U	180	< 400	400	U	180	< 440	440	U	200	< 370	370	U	170	< 390	390	U	180	< 380	380	U	170	< 370	370	U	170
Acenaphthene	20,000	100,000	< 280	280	U	120	< 280	280	U	120	**240**	310	J	130	**300**	260	-	110	**310**	280	-	120	< 270	270	U	120	< 260	260	U	110
Acenaphthylene	100,000	100,000	< 280	280	U	110	< 280	280	U	110	< 310	310	U	120	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	100
Acetophenone			< 280	280	U	130	< 280	280	U	130	< 310	310	U	140	< 260	260	U	110	< 280	280	U	120	< 270	270	U	120	< 260	260	U	120
Aniline			< 320	320	U	320	< 320	320	U	320	< 350	350	U	350	< 290	290	U	290	< 310	310	U	310	< 300	300	U	300	< 300	300	U	300
Anthracene	100,000	100,000	**140**	280	J	130	< 280	280	U	130	**410**	310	-	150	**190**	260	J	120	**240**	280	J	130	< 270	270	U	120	< 260	260	U	120
Benz(a)anthracene	1,000	1,000	**320**	280	-	130	< 280	280	U	130	**510**	310	-	150	**390**	260	-	120	**290**	280	-	130	< 270	270	U	130	< 260	260	U	120
Benzidine			< 400	400	U	240	< 400	400	U	240	< 440	440	U	260	< 370	370	U	220	< 390	390	U	230	< 380	380	U	220	< 370	370	U	220
Benzo(a)pyrene	1,000	1,000	**310**	200	-	130	**140**	200	J	130	**460**	220	-	140	**140**	180	J	120	< 200	200	U	130	< 190	190	U	120	< 190	190	U	120
Benzo(b)fluoranthene	1,000	1,000	**280**	280	-	140	**150**	280	J	140	**350**	310	-	150	< 260	260	U	130	< 280	280	U	130	< 270	270	U	130	< 260	260	U	130
Benzo(ghi)perylene	100,000	100,000	**220**	280	J	130	**150**	280	J	130	**390**	310	-	140	**120**	260	J	120	< 280	280	U	130	< 270	270	U	120	< 260	260	U	120
Benzo(k)fluoranthene	800	3,900	**270**	280	J	130	< 280	280	U	130	**390**	310	-	150	< 260	260	U	120	< 280	280	U	130	< 270	270	U	130	< 260	260	U	120
Benzoic acid			< 2000	2,000	U	800	< 2000	2,000	U	800	< 2200	2,200	U	890	< 1800	1,800	U	740	< 2000	2,000	U	790	< 1900	1,900	U	760	< 1900	1,900	U	740
Benzyl butyl phthalate			< 280	280	U	100	< 280	280	U	100	< 310	310	U	110	< 260	260	U	95	< 280	280	U	100	< 270	270	U	98	< 260	260	U	96
Bis(2-chloroethoxy)methane			< 280	280	U	110	< 280	280	U	110	< 310	310	U	120	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	100
Bis(2-chloroethyl)ether			< 200	200	U	110	< 200	200	U	110	< 220	220	U	120	< 180	180	U	99	< 200	200	U	110	< 190	190	U	100	< 190	190	U	100
Bis(2-chloroisopropyl)ether			< 280	280	U	110	< 280	280	U	110	< 310	310	U	120	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	100
Bis(2-ethylhexyl)phthalate			< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 260	260	U	110
Carbazole			< 200	200	U	160	< 200	200	U	160	< 220	220	U	180	< 180	180	U	150	< 200	200	U	160	< 190	190	U	150	< 190	190	U	150
Chrysene	1,000	3,900	**380**	280	-	130	< 280	280	U	130	**670**	310	-	150	**520**	260	-	120	**400**	280	-	130	< 270	270	U	130	< 260	260	U	120
Dibenz(a,h)anthracene	330	330	< 200	200	U	130	< 200	200	U	130	< 220	220	U	140	< 180	180	U	120	< 200	200	U	130	< 190	190	U	120	< 190	190	U	120
Dibenzofuran	7,000	59,000	< 280	280	U	120	< 280	280	U	120	< 310	310	U	130	< 260	260	U	110	< 280	280	U	110	< 270	270	U	110	< 260	260	U	110
Diethyl phthalate			< 280	280	U	130	< 280	280	U	130	< 310	310	U	140	< 260	260	U	120	< 280	280	U	120	< 270	270	U	120	< 260	260	U	120
Dimethylphthalate			< 280	280	U	120	< 280	280	U	120	< 310	310	U	140	< 260	260	U	110	< 280	280	U	120	< 270	270	U	120	< 260	260	U	120
Di-n-butylphthalate			< 280	280	U	110	< 280	280	U	110	< 310	310	U	120	< 260	260	U	98	< 280	280	U	100	< 270	270	U	100	< 260	260	U	99
Di-n-octylphthalate			< 280	280	U	100	< 280	280	U	100	< 310	310	U	110	< 260	260	U	95	< 280	280	U	100	< 270	270	U	98	< 260	260	U	96
Fluoranthene	100,000	100,000	**850**	280	-	130	**370**	280	-	130	**930**	310	-	140	**190**	260	J	120	**150**	280	J	130	< 270	270	U	120	< 260	260	U	120
Fluorene	30,000	100,000	< 280	280	U	130	< 280	280	U	130	**260**	310	J	150	**250**	260	J	120	**230**	280	J	130	< 270	270	U	130	< 260	260	U	120
Hexachlorobenzene			< 200	200	U	120	< 200	200	U	120	< 220	220	U	130	< 180	180	U	110	< 200	200	U	110	< 190	190	U	110	< 190	190	U	110
Hexachlorobutadiene			< 280	280	U	150	< 280	280	U	150	< 310	310	U	160	< 260	260	U	130	< 280	280	U	140	< 270	270	U	140	< 260	260	U	130
Hexachlorocyclopentadiene			< 280	280	U	120	< 280	280	U	120	< 310	310	U	140	< 260	260	U	110	< 280	280	U	120	< 270	270	U	120	< 260	260	U	110
Hexachloroethane			< 200	200	U	120	< 200	200	U	120	< 220	220	U	130	< 180	180	U	110	< 200	200	U	120	< 190	190	U	110	< 190	190	U	110
Indeno(1,2,3-cd)pyrene	500	500	**220**	280	J	130	< 280	280	U	130	**320**	310	-	150	< 260	260	U	120	< 280	280	U	130	< 270	270	U	130	< 260	260	U	120
Isophorone			< 200	200	U	110	< 200	200	U	110	< 220	220	U	120	< 180	180	U	100	< 200	200	U	110	< 190	190	U	110	< 190	190	U	100
Naphthalene	12,000	100,000	< 280	280	U	120	**130**	280	J	120	**210**	310	J	130	**970**	260	-	110	**870**	280	-	110	< 270	270	U	110	< 260	260	U	110
Nitrobenzene			< 200	200	U	140	< 200	200	U	140	< 220	220	U	150	< 180	180	U	130	< 200	200	U	140	< 190	190	U	130	< 190	190	U	130
N-Nitrosodimethylamine			< 280	280	U	110	< 280	280	U	110	< 310	310	U	120	< 260	260	U	100	< 280	280	U	110	< 270	270	U	110	< 260	260	U	100
N-Nitrosodi-n-propylamine			< 200	200	U	130	< 200	200	U	130	< 220	220	U	140	< 180	180	U	120	< 200	200	U	130	< 190	190	U	120	< 190	190	U	120
N-Nitrosodiphenylamine			< 280	280	U	150	< 280	280	U	150	< 310	310	U	170	< 260	260	U	140	< 280	280	U	150	< 270	270	U	150	< 260	260	U	140
Pentachloronitrobenzene			< 280	280	U	150	< 280	280	U	150	< 310	310	U	160	< 260	260	U	140	< 280	280	U	150	< 270	270	U	140	< 260	260	U	140
Pentachlorophenol	800	6,700	< 240	240	U	150	< 240	240	U	150	< 270	270	U	170	< 220	220	U	140	< 240	240	U	150	< 230	230	U	140	< 220	220	U	140
Phenanthrene	100,000	100,000	**930**	280	-	110	**490**	280	-	110	**1,700**	310	-	130	**800**	260	-	110	**660**	280	-	110	**200**	270	J	110	< 260	260	U	110
Phenol	330	100,000	< 280	280	U	130	< 280	280	U	130	< 310	310	U	140	< 260	260	U	120	< 280	280	U	130	< 270	270	U	120	< 260	260	U	120
Pyrene	100,000	100,000	**760**	280	-	140	**190**	280	J	140	**1,300**	310	-	150	**770**	260	-	130	**580**	280	-	140	**240**	270	J	130	< 260	260	U	130
Pyridine			< 280	280	U	99	< 280	280	U	99	< 310	310	U	110	< 260	260	U	90	< 280	280	U	97	< 270	270	U	94	< 260	260	U	91

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1809								B1810				B1811				B1812							
			(10-12') 10/16/2018				(12-14') 11/10/2016				(0-5' bcg) 10/15/2018				(0-5' bcg) 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 260	260	U	130	< 270	270	U	130	< 260	260	U	130	< 260	260	U	130	< 270	270	U	130	< 260	260	U	130
1,2,4-Trichlorobenzene			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	120	< 260	260	U	110
1,2-Dichlorobenzene			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	100
1,2-Diphenylhydrazine			< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120
1,3-Dichlorobenzene			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
1,4-Dichlorobenzene			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
2,4,5-Trichlorophenol			< 260	260	U	200	< 270	270	U	210	< 260	260	U	210	< 260	260	U	< 0.001	< 270	270	U	210	< 260	260	U	200
2,4,6-Trichlorophenol			< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120
2,4-Dichlorophenol			< 190	190	U	130	< 190	190	U	130	< 190	190	U	130	< 190	190	U	130	< 190	190	U	130	< 190	190	U	130
2,4-Dimethylphenol			< 260	260	U	93	< 270	270	U	94	< 260	260	U	93	< 260	260	U	94	< 270	270	U	95	< 260	260	U	92
2,4-Dinitrophenol			< 260	260	U	260	< 270	270	U	270	< 260	260	U	260	< 260	260	U	260	< 270	270	U	270	< 260	260	U	260
2,4-Dinitrotoluene			< 190	190	U	150	< 190	190	U	150	< 190	190	U	150	< 190	190	U	150	< 190	190	U	150	< 190	190	U	150
2,6-Dinitrotoluene			< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120
2-Chloronaphthalene			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
2-Chlorophenol			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
2-Methylnaphthalene			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	**1,900**	270		110	**2,300**	260		110
2-Methylphenol (o-cresol)	330	100,000	< 260	260	U	180	< 270	270	U	180	< 260	260	U	180	< 260	260	U	180	< 270	270	U	180	< 260	260	U	170
2-Nitroaniline			< 260	260	U	260	< 270	270	U	270	< 260	260	U	260	< 260	260	U	260	< 270	270	U	270	< 260	260	U	260
2-Nitrophenol			< 260	260	U	240	< 270	270	U	240	< 260	260	U	240	< 260	260	U	240	< 270	270	U	240	< 260	260	U	240
3&4-Methylphenol (m&p-cresol)	330	100,000	< 260	260	U	150	< 270	270	U	150	< 260	260	U	150	< 260	260	U	150	< 270	270	U	150	< 260	260	U	150
3,3'-Dichlorobenzidine			< 190	190	U	180	< 190	190	U	180	< 190	190	U	180	< 190	190	U	180	< 190	190	U	180	< 190	190	U	180
3-Nitroaniline			< 370	370	U	750	< 380	380	U	760	< 380	380	U	750	< 380	380	U	760	< 380	380	U	760	< 370	370	U	740
4,6-Dinitro-2-methylphenol			< 220	220	U	75	< 230	230	U	76	< 230	230	U	75	< 230	230	U	76	< 230	230	U	76	< 220	220	U	74
4-Bromophenyl phenyl ether			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
4-Chloro-3-methylphenol			< 260	260	U	130	< 270	270	U	130	< 260	260	U	130	< 260	260	U	130	< 270	270	U	130	< 260	260	U	130
4-Chloroaniline			< 300	300	U	170	< 300	300	U	180	< 300	300	U	170	< 300	300	U	180	< 310	310	U	180	< 300	300	U	170
4-Chlorophenyl phenyl ether			< 260	260	U	130	< 270	270	U	130	< 260	260	U	130	< 260	260	U	130	< 270	270	U	130	< 260	260	U	120
4-Nitroaniline			< 370	370	U	120	< 380	380	U	130	< 380	380	U	130	< 380	380	U	130	< 380	380	U	130	< 370	370	U	120
4-Nitrophenol			< 370	370	U	170	< 380	380	U	170	< 380	380	U	170	< 380	380	U	170	< 380	380	U	170	< 370	370	U	170
Acenaphthene	20,000	100,000	< 260	260	U	110	< 270	270	U	120	< 260	260	U	110	< 260	260	U	120	**580**	270	-	120	**1,900**	260	-	110
Acenaphthylene	100,000	100,000	< 260	260	U	100	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	100
Acetophenone			< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120
Aniline			< 300	300	U	300	< 300	300	U	300	< 300	300	U	300	< 300	300	U	300	< 310	310	U	310	< 300	300	U	300
Anthracene	100,000	100,000	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	**190**	260	J	120	**320**	270	-	130	**800**	260	-	120
Benz(a)anthracene	1,000	1,000	**950**	260	-	130	< 270	270	U	130	< 260	260	U	130	**950**	260	-	130	**380**	270	-	130	**690**	260	-	120
Benzidine			< 370	370	U	220	< 380	380	U	220	< 380	380	U	220	< 380	380	U	220	< 380	380	U	220	< 370	370	U	220
Benzo(a)pyrene	1,000	1,000	**710**	190	-	120	< 190	190	U	120	< 190	190	U	120	**1,300**	190	-	120	**170**	190	J	120	**280**	190	-	120
Benzo(b)fluoranthene	1,000	1,000	**270**	260	-	130	< 270	270	U	130	< 260	260	U	130	**920**	260	-	130	< 270	270	U	130	**140**	260	J	130
Benzo(ghi)perylene	100,000	100,000	**560**	260	-	120	< 270	270	U	120	< 260	260	U	120	**1,900**	260	-	120	< 270	270	U	120	**180**	260	J	120
Benzo(k)fluoranthene	800	3,900	**170**	260	J	120	< 270	270	U	130	< 260	260	U	120	**860**	260	-	130	< 270	270	U	130	< 260	260	U	120
Benzoic acid			< 1900	1,900	U	750	< 1900	1,900	U	760	< 1900	1,900	U	750	< 1900	1,900	-	760	< 1900	1,900	U	760	< 1900	1,900	U	740
Benzyl butyl phthalate			< 260	260	U	96	< 270	270	U	98	< 260	260	U	97	< 260	260	U	98	< 270	270	U	99	< 260	260	U	96
Bis(2-chloroethoxy)methane			< 260	260	U	100	< 270	270	U	100	< 260	260	U	100	< 260	260	U	100	< 270	270	U	110	< 260	260	U	100
Bis(2-chloroethyl)ether			< 190	190	U	100	< 190	190	U	100	< 190	190	U	100	< 190	190	U	100	< 190	190	U	100	< 190	190	U	100
Bis(2-chloroisopropyl)ether			< 260	260	U	100	< 270	270	U	110	< 260	260	U	100	< 260	260	U	110	< 270	270	U	110	< 260	260	U	100
Bis(2-ethylhexyl)phthalate			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
Carbazole			< 190	190	U	150	< 190	190	U	150	< 190	190	U	150	< 190	190	U	150	< 190	190	U	150	< 190	190	U	150
Chrysene	1,000	3,900	**1,100**	260	-	130	< 270	270	U	130	< 260	260	U	130	**1,100**	260	-	130	**440**	270	-	130	**840**	260	-	120
Dibenz(a,h)anthracene	330	330	**210**	190	-	120	< 190	190	U	120	< 190	190	U	120	**320**	190	-	120	< 190	190	U	120	< 190	190	U	120
Dibenzofuran	7,000	59,000	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110
Diethyl phthalate			< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120
Dimethylphthalate			< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120
Di-n-butylphthalate			< 260	260	U	99	< 270	270	U	100	< 260	260	U	100	< 260	260	U	100	< 270	270	U	100	< 260	260	U	99
Di-n-octylphthalate			< 260	260	U	96	< 270	270	U	98	< 260	260	U	97	< 260	260	U	98	< 270	270	U	99	< 260	260	U	96
Fluoranthene	100,000	100,000	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	**1,100**	260	-	120	**210**	270	J	120	**470**	260	-	120
Fluorene	30,000	100,000	< 260	260	U	120	< 270	270	U	130	< 260	260	U	120	< 260	260	U	120	**300**	270	-	130	**990**	260	-	120
Hexachlorobenzene			< 190	190	U	110	< 190	190	U	110	< 190	190	U	110	< 190	190	U	110	< 190	190	U	110	< 190	190	U	110
Hexachlorobutadiene			< 260	260	U	140	< 270	270	U	140	< 260	260	U	140	< 260	260	U	140	< 270	270	U	140	< 260	260	U	130
Hexachlorocyclopentadiene			< 260	260	U	110	< 270	270	U	120	< 260	260	U	110	< 260	260	U	120	< 270	270	U	120	< 260	260	U	110
Hexachloroethane			< 190	190	U	110	< 190	190	U	110	< 190	190	U	110	< 190	190	U	110	< 190	190	U	110	< 190	190	U	110
Indeno(1,2,3-cd)pyrene	500	500	< 260	260	U	120	< 270	270	U	130	< 260	260	U	120	**980**	260	-	130	< 270	270	U	130	< 260	260	U	120
Isophorone			< 190	190	U	100	< 190	190	U	110	< 1100	1,100	U	1100	< 190	190	U	110	< 190	190	U	110	< 190	190	U	100
Naphthalene	12,000	100,000	< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	**2,100**	260	-	110
Nitrobenzene			< 190	190	U	130	< 190	190	U	130	< 190	190	U	130	< 190	190	U	130	< 190	190	U	130	< 190	190	U	130
N-Nitrosodimethylamine			< 260	260	U	110	< 270	270	U	110	< 260	260	U	110	< 260	260	U	110	< 270	270	U	110	< 260	260	U	100
N-Nitrosodi-n-propylamine			< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120	< 190	190	U	120
N-Nitrosodiphenylamine			< 260	260	U	140	< 270	270	U	150	< 260	260	U	140	< 260	260	U	150	< 270	270	U	150	< 260	260	U	140
Pentachloronitrobenzene			< 260	260	U	140	< 270	270	U	140	< 260	260	U	140	< 260	260	U	140	< 270	270	U	140	< 260	260	U	140
Pentachlorophenol	800	6,700	< 220	220	U	140	< 230	230	U	140	< 230	230	U	140	< 230	230	U	140	< 230	230	U	140	< 220	220	U	140
Phenanthrene	100,000	100,000	**240**	260	J	110	< 270	270	U	110	< 260	260	U	110	**780**	260	-	110	**960**	270	-	110	**3,000**	260	-	110
Phenol	330	100,000	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120	< 260	260	U	120	< 270	270	U	120	< 260	260	U	120
Pyrene	100,000	100,000	**670**	260	-	130	< 270	270	U	130	< 260	260	U	130	**1,100**	260	-	130	**730**	270	-	130	**1,500**	260	-	130
Pyridine			< 260	260	U	92	< 270	270	U	93	< 260	260	U	92	< 260	260	U	93	< 270	270	U	94	< 260	260	U	91

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 4
Soil Analytical Results
Semi-Volatile Organic Compounds

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1813								B1814				Soil Duplicate 1				Soil Duplicate 2			
			(10-12') 10/16/2018				(13-15') 10/16/2018				(0-3') 10/16/2018				11/2/2018				11/2/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene			< 280	280	U	140	< 270	270	U	130	< 240	240	U	120	< 270	270	U	140	< 250	250	U	130
1,2,4-Trichlorobenzene			< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	120	< 250	250	U	110
1,2-Dichlorobenzene			< 280	280	U	110	< 270	270	U	110	< 240	240	U	98	< 270	270	U	110	< 250	250	U	100
1,2-Diphenylhydrazine			< 280	280	U	130	< 270	270	U	120	< 240	240	U	110	< 270	270	U	130	< 250	250	U	120
1,3-Dichlorobenzene			< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	120	< 250	250	U	110
1,4-Dichlorobenzene			< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	120	< 250	250	U	110
2,4,5-Trichlorophenol			< 280	280	U	220	< 270	270	U	210	< 240	240	U	190	< 270	270	U	220	< 250	250	U	200
2,4,6-Trichlorophenol			< 200	200	U	130	< 190	190	U	120	< 170	170	U	110	< 200	200	U	130	< 180	180	U	120
2,4-Dichlorophenol			< 200	200	U	140	< 190	190	U	130	< 170	170	U	120	< 200	200	U	140	< 180	180	U	130
2,4-Dimethylphenol			< 280	280	U	99	< 270	270	U	94	< 240	240	U	86	< 270	270	U	97	< 250	250	U	89
2,4-Dinitrophenol			< 280	280	U	280	< 270	270	U	270	< 240	240	U	240	< 270	270	U	270	< 250	250	U	250
2,4-Dinitrotoluene			< 200	200	U	160	< 190	190	U	150	< 170	170	U	140	< 200	200	U	150	< 180	180	U	140
2,6-Dinitrotoluene			< 200	200	U	130	< 190	190	U	120	< 170	170	U	110	< 200	200	U	120	< 180	180	U	110
2-Chloronaphthalene			< 280	280	U	110	< 270	270	U	110	< 240	240	U	98	< 270	270	U	110	< 250	250	U	100
2-Chlorophenol			< 280	280	U	110	< 270	270	U	110	< 240	240	U	98	< 270	270	U	110	< 250	250	U	100
2-Methylnaphthalene			< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	120	< 250	250	U	110
2-Methylphenol (o-cresol)	330	100,000	< 280	280	U	190	< 270	270	U	180	< 240	240	U	160	< 270	270	U	180	< 250	250	U	170
2-Nitroaniline			< 280	280	U	280	< 270	270	U	270	< 240	240	U	240	< 270	270	U	270	< 250	250	U	250
2-Nitrophenol			< 280	280	U	250	< 270	270	U	240	< 240	240	U	220	< 270	270	U	250	< 250	250	U	230
3&4-Methylphenol (m&p-cresol)	330	100,000	< 280	280	U	160	< 270	270	U	150	< 240	240	U	140	< 270	270	U	150	< 250	250	U	140
3,3'-Dichlorobenzidine			< 200	200	U	190	< 190	190	U	180	< 170	170	U	160	< 200	200	U	190	< 180	180	U	170
3-Nitroaniline			< 400	400	U	800	< 380	380	U	760	< 350	350	U	690	< 390	390	U	790	< 360	360	U	720
4,6-Dinitro-2-methylphenol			< 240	240	U	80	< 230	230	U	76	< 210	210	U	69	< 240	240	U	79	< 220	220	U	72
4-Bromophenyl phenyl ether			< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	120	< 250	250	U	110
4-Chloro-3-methylphenol			< 280	280	U	140	< 270	270	U	130	< 240	240	U	120	< 270	270	U	140	< 250	250	U	130
4-Chloroaniline			< 320	320	U	190	< 300	300	U	180	< 280	280	U	160	< 310	310	U	180	< 290	290	U	170
4-Chlorophenyl phenyl ether			< 280	280	U	130	< 270	270	U	130	< 240	240	U	120	< 270	270	U	130	< 250	250	U	120
4-Nitroaniline			< 400	400	U	130	< 380	380	U	130	< 350	350	U	120	< 390	390	U	130	< 360	360	U	120
4-Nitrophenol			< 400	400	U	180	< 380	380	U	170	< 350	350	U	160	< 390	390	U	180	< 360	360	U	160
Acenaphthene	20,000	100,000	< 280	280	U	120	< 270	270	U	120	< 240	240	U	110	**160**	270	J	120	< 250	250	U	110
Acenaphthylene	100,000	100,000	< 280	280	U	110	< 270	270	U	110	< 240	240	U	97	< 270	270	U	110	< 250	250	U	100
Acetophenone			< 280	280	U	120	< 270	270	U	120	< 240	240	U	110	< 270	270	U	120	< 250	250	U	110
Aniline			< 320	320	U	320	< 300	300	U	300	< 280	280	U	280	< 310	310	U	310	< 290	290	U	290
Anthracene	100,000	100,000	< 280	280	U	130	< 270	270	U	120	**120**	240	J	110	**270**	270	J	130	**160**	250	J	120
Benz(a)anthracene	1,000	1,000	< 280	280	U	130	< 270	270	U	130	**420**	240	-	120	**560**	270	-	130	**660**	250	-	120
Benzidine			< 400	400	U	240	< 380	380	U	220	< 350	350	U	200	< 390	390	U	230	< 360	360	U	210
Benzo(a)pyrene	1,000	1,000	< 200	200	U	130	< 190	190	U	120	**420**	170	-	110	**470**	200	-	130	**680**	180	-	120
Benzo(b)fluoranthene	1,000	1,000	< 280	280	U	140	< 270	270	U	130	**380**	240	-	120	**430**	270	-	130	**690**	250	-	120
Benzo(ghi)perylene	100,000	100,000	< 280	280	U	130	< 270	270	U	120	**310**	240	-	110	**230**	270	J	130	**510**	250	-	120
Benzo(k)fluoranthene	800	3,900	< 280	280	U	130	< 270	270	U	130	**370**	240	-	120	**440**	270	-	130	**610**	250	-	120
Benzoic acid			< 2000	2,000	U	800	< 1900	1,900	U	760	< 1700	1,700	U	690	< 2000	2,000	U	790	< 1800	1,800	U	720
Benzyl butyl phthalate			< 280	280	U	100	< 270	270	U	98	< 240	240	U	89	< 270	270	U	100	< 250	250	U	93
Bis(2-chloroethoxy)methane			< 280	280	U	110	< 270	270	U	100	< 240	240	U	96	< 270	270	U	110	< 250	250	U	99
Bis(2-chloroethyl)ether			< 200	200	U	110	< 190	190	U	100	< 170	170	U	94	< 200	200	U	110	< 180	180	U	97
Bis(2-chloroisopropyl)ether			< 280	280	U	110	< 270	270	U	110	< 240	240	U	96	< 270	270	U	110	< 250	250	U	100
Bis(2-ethylhexyl)phthalate			< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	110	< 250	250	U	100
Carbazole			< 200	200	U	160	< 190	190	U	150	< 170	170	U	140	< 200	200	U	160	< 180	180	U	140
Chrysene	1,000	3,900	**140**	280	J	130	< 270	270	U	130	**430**	240	-	120	**580**	270	-	130	**680**	250	-	120
Dibenz(a,h)anthracene	330	330	< 200	200	U	130	< 190	190	U	120	< 170	170	U	110	< 200	200	U	130	**140**	180	J	120
Dibenzofuran	7,000	59,000	< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	110	< 250	250	U	100
Diethyl phthalate			< 280	280	U	130	< 270	270	U	120	< 240	240	U	110	< 270	270	U	120	< 250	250	U	110
Dimethylphthalate			< 280	280	U	120	< 270	270	U	120	< 240	240	U	110	< 270	270	U	120	< 250	250	U	110
Di-n-butylphthalate			< 280	280	U	110	< 270	270	U	100	< 240	240	U	92	< 270	270	U	100	< 250	250	U	96
Di-n-octylphthalate			< 280	280	U	100	< 270	270	U	98	< 240	240	U	89	< 270	270	U	100	< 250	250	U	93
Fluoranthene	100,000	100,000	< 280	280	U	130	< 270	270	U	120	**940**	240	-	110	**1,300**	270	-	130	**1,400**	250	-	120
Fluorene	30,000	100,000	< 280	280	U	130	< 270	270	U	130	< 240	240	U	110	**140**	270	J	130	< 250	250	U	120
Hexachlorobenzene			< 200	200	U	120	< 190	190	U	110	< 170	170	U	100	< 200	200	U	110	< 180	180	U	100
Hexachlorobutadiene			< 280	280	U	140	< 270	270	U	140	< 240	240	U	130	< 270	270	U	140	< 250	250	U	130
Hexachlorocyclopentadiene			< 280	280	U	120	< 270	270	U	120	< 240	240	U	110	< 270	270	U	120	< 250	250	U	110
Hexachloroethane			< 200	200	U	120	< 190	190	U	110	< 170	170	U	100	< 200	200	U	120	< 180	180	U	110
Indeno(1,2,3-cd)pyrene	500	500	< 280	280	U	130	< 270	270	U	130	**300**	240	-	120	**290**	270	-	130	**530**	250	-	120
Isophorone			< 200	200	U	110	< 190	190	U	110	< 170	170	U	97	< 200	200	U	110	< 180	180	U	100
Naphthalene	12,000	100,000	< 280	280	U	120	< 270	270	U	110	< 240	240	U	100	< 270	270	U	110	< 250	250	U	100
Nitrobenzene			< 200	200	U	140	< 190	190	U	130	< 170	170	U	120	< 200	200	U	140	< 180	180	U	130
N-Nitrosodimethylamine			< 280	280	U	110	< 270	270	U	110	< 240	240	U	98	< 270	270	U	110	< 250	250	U	100
N-Nitrosodi-n-propylamine			< 200	200	U	130	< 190	190	U	120	< 170	170	U	110	< 200	200	U	130	< 180	180	U	120
N-Nitrosodiphenylamine			< 280	280	U	150	< 270	270	U	150	< 240	240	U	130	< 270	270	U	150	< 250	250	U	140
Pentachloronitrobenzene			< 280	280	U	150	< 270	270	U	140	< 240	240	U	130	< 270	270	U	150	< 250	250	U	130
Pentachlorophenol	800	6,700	< 240	240	U	150	< 230	230	U	140	< 210	210	U	130	< 240	240	U	150	< 220	220	U	140
Phenanthrene	100,000	100,000	**200**	280	J	110	< 270	270	U	110	**470**	240	-	99	**1,300**	270	-	110	**800**	250	-	100
Phenol	330	100,000	< 280	280	U	130	< 270	270	U	120	< 240	240	U	110	< 270	270	U	130	< 250	250	U	120
Pyrene	100,000	100,000	**190**	280	J	140	< 270	270	U	130	**840**	240	-	120	**1,100**	270	-	140	**1,200**	250	-	120
Pyridine			< 280	280	U	98	< 270	270	U	93	< 240	240	U	85	< 270	270	U	97	< 250	250	U	88

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 5
Soil Analytical Results
Pesticides and PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1801								B1802								B1803								B1804							
				(4-6') 11/2/2018				(13-15') 11/2/2018				(10-12') 11/2/2018				(12-14') 11/2/2018				(4-6') 11/2/2018				(10-12') 11/2/2018				(10-12') 11/2/2018				(13-15') 11/2/2018			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	**4,4' -DDD**	3.3	13,000	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 35	35	U	35	< 2.2	2.2	U	2.2	**44**	24		24	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3
	4,4' -DDE	3.3	8,900	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 2.5	2.5	U	2.5	< 2.2	2.2	U	2.2	< 16	16	U	16	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3
	4,4' -DDT	3.3	7,900	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 2.5	2.5	U	2.5	< 3.3	3.3	U	3.3	**42**	24		24	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3
	a-BHC	20	480	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 16	16	U	16	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	a-Chlordane	94	4,200	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.1	4.1	< 0.001	4.1	< 3.6	3.6	U	3.6	< 40	40	U	40	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8
	Aldrin	5	97	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.1	4.1	U	4.1	< 3.6	3.6	U	3.6	< 16	16	U	16	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8
	b-BHC	36	360	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 16	16	U	16	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Chlordane	94	4,200	< 38	38	U	38	< 39	39	U	39	< 40	40	U	40	< 41	41	U	41	< 36	36	U	36	< 400	400	U	400	< 38	38	U	38	< 38	38	U	38
	d-BHC	40	100,000	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 16	16	U	16	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Dieldrin	5	200	< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.1	4.1	U	4.1	< 3.6	3.6	U	3.6	< 16	16	U	16	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8
	Endosulfan I	2,400	24,000	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 80	80	U	80	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Endosulfan II	2,400	24,000	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 80	80	U	80	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Endosulfan sulfate	2,400	24,000	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 30	30	U	30	< 7.3	7.3	U	7.3	< 80	80	U	80	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Endrin	14	11,000	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 14	14	U	14	< 7.3	7.3	U	7.3	< 40	40	U	40	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Endrin aldehyde			< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 20	20	U	20	< 80	80	U	80	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Endrin ketone			< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 80	80	U	80	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	g-BHC			< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 16	16	U	16	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5
	g-Chlordane			< 3.8	3.8	U	3.8	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.1	4.1	U	4.1	< 3.6	3.6	U	3.6	< 40	40	U	40	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8
	Heptachlor	42	2,100	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 40	40	U	40	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Heptachlor epoxide			< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.9	7.9	U	7.9	< 8.2	8.2	U	8.2	< 7.3	7.3	U	7.3	< 80	80	U	80	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7
	Methoxychlor			< 38	38	U	38	< 39	39	U	39	< 40	40	U	40	< 50	50	U	50	< 36	36	U	36	< 400	400	U	400	< 38	38	U	38	< 38	38	U	38
	Toxaphene			< 150	150	U	150	< 150	150	U	150	< 160	160	U	160	< 160	160	U	160	< 150	150	U	150	< 1600	1,600	U	1600	< 150	150	U	150	< 150	150	U	150
PCBs	**PCB-1016**	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1221	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1232	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1242	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1248	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1254	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1260	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1262	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77
	PCB-1268	100	1,000	< 76	76	U	76	< 77	77	U	77	< 79	79	U	79	< 82	82	U	82	< 73	73	U	73	< 80	80	U	80	< 75	75	U	75	< 77	77	U	77

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 5
Soil Analytical Results
Pesticides and PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1805								B1806				B1807								B1808							
				(6-8') 10/15/2018				(13-15') 10/15/2018				(6-8') 10/15/2018				(10-12') 10/15/2018				(13-15') 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 2.3	2.3	U	2.3	< 3.2	3.2	U	3.2	< 3.3	3.3	U	3.3	< 2.2	2.2	U	2.2	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2
	4,4' -DDE	3.3	8,900	< 2.3	2.3	U	2.3	< 2.4	2.4	U	2.4	< 2.7	2.7	U	2.7	< 2.2	2.2	U	2.2	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2
	4,4' -DDT	3.3	7,900	< 2.3	2.3	U	2.3	< 3.2	3.2	U	3.2	< 3.3	3.3	U	3.3	< 2.2	2.2	U	2.2	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2
	a-BHC	20	480	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	a-Chlordane	94	4,200	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.5	4.5	U	4.5	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	Aldrin	5	97	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.5	4.5	U	4.5	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	b-BHC	36	360	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Chlordane	94	4,200	< 39	39	U	39	< 40	40	U	40	< 45	45	U	45	< 37	37	U	37	< 39	39	U	39	< 38	38	U	38	< 37	37	U	37
	d-BHC	40	100,000	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Dieldrin	5	200	< 3.9	3.9	U	3.9	< 4.0	4.0	U	4.0	< 4.5	4.5	U	4.5	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	Endosulfan I	2,400	24,000	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Endosulfan II	2,400	24,000	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Endosulfan sulfate	2,400	24,000	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Endrin	14	11,000	< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Endrin aldehyde			< 7.8	7.8	U	7.8	< 30	30	U	30	< 20	20	U	20	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Endrin ketone			< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	g-BHC			< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.8	1.8	U	1.8	< 1.5	1.5	U	1.5	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5
	g-Chlordane			< 3.9	3.9	U	3.9	< 7.0	7.0	U	7.0	< 4.5	4.5	U	4.5	< 3.7	3.7	U	3.7	< 3.9	3.9	U	3.9	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	Heptachlor	42	2,100	< 7.8	7.8	U	7.8	< 15	15	U	15	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Heptachlor epoxide			< 7.8	7.8	U	7.8	< 8.1	8.1	U	8.1	< 8.9	8.9	U	8.9	< 7.4	7.4	U	7.4	< 7.9	7.9	U	7.9	< 7.5	7.5	U	7.5	< 7.4	7.4	U	7.4
	Methoxychlor			< 39	39	U	39	< 40	40	U	40	< 45	45	U	45	< 37	37	U	37	< 39	39	U	39	< 38	38	U	38	< 37	37	U	37
	Toxaphene			< 160	160	U	160	< 160	160	U	160	< 180	180	U	180	< 150	150	U	150	< 160	160	U	160	< 150	150	U	150	< 150	150	U	150
PCBs	PCB-1016	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1221	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1232	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1242	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1248	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1254	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1260	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1262	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74
	PCB-1268	100	1,000	< 78	78	U	78	< 81	81	U	81	< 89	89	U	89	< 74	74	U	74	< 79	79	U	79	< 75	75	U	75	< 74	74	U	74

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC USCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street

TABLE 5
Soil Analytical Results
Pesticides and PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1809								B1810				B1811				B1812							
				(10-12') 10/16/2018				(12-14') 11/10/2016				(0-5' bcg) 10/15/2018				(0-5' bcg) 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2
	4,4' -DDE	3.3	8,900	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2
	4,4' -DDT	3.3	7,900	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2	< 2.3	2.3	U	2.3	< 2.3	2.3	U	2.3	< 2.2	2.2	U	2.2
	a-BHC	20	480	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	a-Chlordane	94	4,200	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	Aldrin	5	97	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	b-BHC	36	360	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Chlordane	94	4,200	< 37	37	U	37	< 38	38	U	38	< 37	37	U	37	< 38	38	U	38	< 38	38	U	38	< 37	37	U	37
	d-BHC	40	100,000	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Dieldrin	5	200	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	Endosulfan I	2,400	24,000	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Endosulfan II	2,400	24,000	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Endosulfan sulfate	2,400	24,000	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Endrin	14	11,000	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Endrin aldehyde			< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 8.0	8.0	U	8.0	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Endrin ketone			< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	g-BHC			< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5	< 1.5	1.5	U	1.5
	g-Chlordane			< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7	< 3.8	3.8	U	3.8	< 3.8	3.8	U	3.8	< 3.7	3.7	U	3.7
	Heptachlor	42	2,100	< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Heptachlor epoxide			< 7.5	7.5	U	7.5	< 7.7	7.7	U	7.7	< 7.5	7.5	U	7.5	< 7.6	7.6	U	7.6	< 7.7	7.7	U	7.7	< 7.3	7.3	U	7.3
	Methoxychlor			< 37	37	U	37	< 38	38	U	38	< 37	37	U	37	< 38	38	U	38	< 38	38	U	38	< 37	37	U	37
	Toxaphene			< 150	150	U	150	< 150	150	U	150	< 150	150	U	150	< 150	150	U	150	< 150	150	U	150	< 150	150	U	150
PCBs	PCB-1016	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1221	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1232	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1242	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1248	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1254	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1260	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1262	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73
	PCB-1268	100	1,000	< 75	75	U	75	< 77	77	U	77	< 75	75	U	75	< 76	76	U	76	< 77	77	U	77	< 73	73	U	73

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 5
Soil Analytical Results
Pesticides and PCBs

	COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1813								B1814				Soil Duplicate 1				Soil Duplicate 2			
				(10-12') 10/16/2018				(13-15') 10/16/2018				(0-3') 10/16/2018				11/2/2018				11/2/2018			
				µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
				Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Pesticides	4,4' -DDD	3.3	13,000	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.0	2.0	U	2.0	< 2.4	2.4	U	2.4	< 2.1	2.1	U	2.1
	4,4' -DDE	3.3	8,900	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 2.0	2.0	U	2.0	< 2.4	2.4	U	2.4	< 2.1	2.1	U	2.1
	4,4' -DDT	3.3	7,900	< 2.4	2.4	U	2.4	< 2.3	2.3	U	2.3	< 3.0	3.0	U	3.0	< 2.4	2.4	U	2.4	< 2.1	2.1	U	2.1
	a-BHC	20	480	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	a-Chlordane	94	4,200	< 4.0	4.0	U	4.0	< 3.9	3.9	U	3.9	< 3.4	3.4	U	3.4	< 3.9	3.9	U	3.9	< 3.5	3.5	U	3.5
	Aldrin	5	97	< 4.0	4.0	U	4.0	< 3.9	3.9	U	3.9	< 3.4	3.4	U	3.4	< 3.9	3.9	U	3.9	< 3.5	3.5	U	3.5
	b-BHC	36	360	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Chlordane	94	4,200	< 40	40	U	40	< 39	39	U	39	< 34	34	U	34	< 39	39	U	39	< 35	35	U	35
	d-BHC	40	100,000	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Dieldrin	5	200	< 4.0	4.0	U	4.0	< 3.9	3.9	U	3.9	< 3.4	3.4	U	3.4	< 3.9	3.9	U	3.9	< 3.5	3.5	U	3.5
	Endosulfan I	2,400	24,000	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Endosulfan II	2,400	24,000	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Endosulfan sulfate	2,400	24,000	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Endrin	14	11,000	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Endrin aldehyde			< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Endrin ketone			< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	g-BHC			< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.3	1.3	U	1.3	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4
	g-Chlordane			< 4.0	4.0	U	4.0	< 3.9	3.9	U	3.9	< 3.4	3.4	U	3.4	< 3.9	3.9	U	3.9	< 3.5	3.5	U	3.5
	Heptachlor	42	2,100	< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Heptachlor epoxide			< 7.9	7.9	U	7.9	< 7.8	7.8	U	7.8	< 6.7	6.7	U	6.7	< 7.9	7.9	U	7.9	< 7.1	7.1	U	7.1
	Methoxychlor			< 40	40	U	40	< 39	39	U	39	< 34	34	U	34	< 39	39	U	39	< 35	35	U	35
	Toxaphene			< 160	160	U	160	< 160	160	U	160	< 130	130	U	130	< 160	160	U	160	< 140	140	U	140
PCBs	PCB-1016	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1221	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1232	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1242	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1248	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1254	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1260	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1262	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71
	PCB-1268	100	1,000	< 79	79	U	79	< 78	78	U	78	< 67	67	U	67	< 79	79	U	79	< 71	71	U	71

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1801								B1802							
			(4-6') 11/2/2018				(13-15') 11/2/2018				(10-12') 11/2/2018				(12-14') 11/2/2018			
			µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			3,700	35	-	7.0	7,710	35	-	7.0	10,200	41	-	8.2	5,160	37	-	7.4
Antimony			30.6	3.5	-	35	14.3	3.5	-	35	6.5	4.1	-	41	< 3.7	3.7	U	37
Arsenic	13	16	26.9	0.70	-	0.70	15.6	0.70	-	0.70	7.66	0.82	-	0.82	8.99	0.74	-	0.74
Barium	350	350	1,500	7.0	-	3.5	190	0.7	-	0.35	103	0.8	-	0.41	55.4	0.7	-	0.37
Beryllium	7.2	14	0.22	0.28	J	0.14	0.45	0.28	-	0.14	0.76	0.33	-	0.16	0.31	0.30	-	0.15
Cadmium	2.5	2.5	3.58	0.35	-	0.35	2.17	0.35	-	0.35	0.88	0.41	-	0.41	2.5	0.37	-	0.37
Calcium			10,400	3.5	-	3.2	3,590	3.5	-	3.2	3,740	4.1	-	3.8	5,680	3.7	-	< 0.001
Chromium	30	180	376	3.5	-	3.5	948	3.5	-	3.5	23.9	0.41	-	0.41	20.5	0.37	-	0.37
Cobalt			9.58	0.35	-	0.35	10.6	0.35	-	0.35	10.9	0.41	-	0.41	10.6	0.37	-	0.37
Copper	50	270	150	7.0	-	3.5	81.2	0.7	-	0.35	60	0.8	-	0.41	71.4	0.7	-	0.37
Iron			99,400	350	-	350	59,700	35	-	35	24,300	41	-	41	39,900	37	-	37
Lead	63	400	6,900	70	-	35	1,230	7.0	-	3.5	143	0.8	-	0.41	358	7.4	-	3.7
Magnesium			707	3.5	-	3.5	1,650	3.5	-	3.5	2,930	4.1	-	4.1	1,790	3.7	-	3.7
Manganese	1,600	2,000	619	3.5	-	3.5	676	3.5	-	3.5	420	4.1	-	4.1	734	3.7	-	3.7
Mercury	0.18	0.81	2.51	0.14	-	0.08	2.12	0.14	-	0.09	1.64	0.16	-	0.09	< 0.14	0.14	U	0.09
Nickel	30	140	20.6	0.35	-	0.35	20.4	0.35	-	0.35	19	0.41	-	0.41	39.8	0.37	-	0.37
Potassium			592	7	-	2.7	1,030	7	-	2.7	2,070	8	-	3.2	775	7	-	2.9
Selenium	3.9	36	< 1.4	1.4	U	1.2	< 1.4	1.4	U	1.2	< 1.6	1.6	U	1.4	< 1.5	1.5	U	1.3
Silver	2	36	< 0.35	0.35	U	0.35	< 0.35	0.35	U	0.35	< 0.41	0.41	U	0.41	< 0.37	0.37	U	0.37
Sodium			374	7	-	3.0	226	7	-	3.0	192	8	-	3.5	262	7	-	3.2
Thallium			< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5
Vanadium			27.8	0.35	-	0.35	31.6	0.35	-	0.35	39	0.41	-	0.41	25.9	0.37	-	0.37
Zinc	109	2,200	1,120	7.0	-	3.5	287	7.0	-	3.5	192	8.2	-	4.1	287	7.4	-	3.7

COMPOUND	B1803								B1804							
	(4-6') 11/2/2018				(10-12') 11/2/2018				(10-12') 11/2/2018				(13-15') 11/2/2018			
	µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum	6,460	38	-	7.6	5,390	42	-	8.4	4,890	41	-	8.1	7,720	36	-	7.3
Antimony	14	3.8	-	38	8	4.2	-	42	7.8	4.1	-	41	< 3.6	3.6	U	36
Arsenic	20.5	0.76	-	0.76	10.1	0.84	-	0.84	68.8	0.81	-	0.81	45.9	0.73	-	0.73
Barium	643	0.8	-	0.38	282	0.8	-	0.42	238	0.8	-	0.41	68.1	0.7	-	0.36
Beryllium	0.36	0.31	-	0.15	0.32	0.33	J	0.17	0.32	0.32	-	0.16	0.43	0.29	-	0.15
Cadmium	1.92	0.38	-	0.38	1.63	0.42	-	0.42	1.13	0.41	-	0.41	0.86	0.36	-	0.36
Calcium	9,810	38	-	35	2,660	4.2	-	3.8	8,000	4.1	-	3.7	2,050	3.6	-	3.3
Chromium	19.5	0.38	-	0.38	23.6	0.42	-	0.42	27.9	0.41	-	0.41	19.8	0.36	-	0.36
Cobalt	10.8	0.38	-	0.38	9.42	0.42	-	0.42	10.4	0.41	-	0.41	9.06	0.36	-	0.36
Copper	255	7.6	-	3.8	151	8.4	-	4.2	193	8.1	-	4.1	156	7.3	-	3.6
Iron	69,600	38	-	38	61,900	42	-	42	28,500	41	-	41	36,600	36	-	36
Lead	1,710	76	-	38	2,390	84	-	42	788	8.1	-	4.1	298	7.3	-	3.6
Magnesium	1,750	3.8	-	3.8	932	4.2	-	4.2	2,120	4.1	-	4.1	2,410	3.6	-	3.6
Manganese	572	3.8	-	3.8	657	4.2	-	4.2	297	4.1	-	4.1	445	3.6	-	3.6
Mercury	0.28	0.14	-	0.09	0.73	0.15	-	0.09	1.51	0.14	-	0.08	0.32	0.13	-	0.08
Nickel	20.5	0.38	-	0.38	17.6	0.42	-	0.42	26	0.41	-	0.41	19.1	0.36	-	0.36
Potassium	1,030	8	-	3.0	913	8	-	3.3	710	8	-	3.2	1,000	7	-	2.8
Selenium	< 1.5	1.5	U	1.3	< 1.7	1.7	U	1.4	< 1.6	1.6	U	1.4	< 1.5	1.5	U	1.2
Silver	< 0.38	0.38	U	0.38	< 0.42	0.42	U	0.42	< 0.47	0.47	U	0.47	< 0.36	0.36	U	0.36
Sodium	259	8	-	3.3	348	8	-	3.6	308	8	-	3.5	237	7	-	3.1
Thallium	< 1.5	1.5	U	1.5	< 1.7	1.7	U	1.7	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5
Vanadium	22.4	0.38	-	0.38	22.9	0.42	-	0.42	24.8	0.41	-	0.41	22.7	0.36	-	0.36
Zinc	646	7.6	-	3.8	282	8.4	-	4.2	553	8.1	-	4.1	202	7.3	-	3.6

Notes:

* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1805								B1806				B1807								B1808							
			(6-8') 10/15/2018				(13-15') 10/15/2018				(6-8') 10/15/2018				(10-12') 10/15/2018				(13-15') 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			2,420	39	-	7.8	6,310	37	-	7.3	4,400	31	-	6.2	8,280	39	-	7.8	13,500	40	-	8.0	10,500	34	-	6.8	11,700	33	-	6.7
Antimony			8.9	3.9	-	39	< 3.7	3.7	U	37	< 1.6	1.6	U	1.6	< 3.9	3.9	U	39	< 4.0	4.0	U	40	< 3.4	3.4	U	34	< 3.3	3.3	U	33
Arsenic	13	16	**14.2**	0.78	-	0.78	4.37	0.73	-	0.73	1.25	0.62	-	0.62	1.87	0.78	-	0.78	3.49	0.80	-	0.80	2.66	0.68	-	0.68	2.39	0.67	-	0.67
Barium	350	350	105	0.8	-	0.39	89.6	0.7	-	0.37	12.5	0.6	-	0.31	49.4	0.8	-	0.39	147	0.8	-	0.40	57.8	0.7	-	0.34	64.3	0.7	-	0.33
Beryllium	7.2	14	< 0.31	0.31	U	0.16	0.41	0.29	-	0.15	0.2	0.25	B	0.12	0.55	0.31	-	0.16	0.6	0.32	-	0.16	0.51	0.27	-	0.14	0.56	0.27	-	0.13
Cadmium	2.5	2.5	**3.61**	0.39	-	0.39	0.48	0.37	-	0.37	< 0.31	0.31	U	0.31	0.57	0.39	-	0.39	0.6	0.40	-	0.40	0.56	0.34	-	0.34	0.53	0.33	-	0.33
Calcium			1,760	3.9	-	3.6	3,350	3.7	-	3.4	655	3.1	-	2.9	929	3.9	-	< 0.001	1,070	4.0	-	3.7	1,520	3.4	-	3.1	1,710	3.3	-	3.1
Chromium	30	180	**953**	3.9	-	3.9	24.3	3.7	-	3.7	8.72	0.31	-	0.31	19.5	0.39	-	0.39	27.9	0.40	-	0.40	28.1	0.34	-	0.34	20.6	0.33	-	0.33
Cobalt			35.3	0.39	-	0.39	7.22	0.37	-	0.37	3.45	0.31	-	0.31	8.62	0.39	-	0.39	9.88	0.40	-	0.40	10.4	0.34	-	0.34	12	0.33	-	0.33
Copper	50	270	**150**	7.8	-	3.9	**228**	7.3	-	3.7	9.27	0.31	-	0.31	18	7.8	-	3.9	19.5	0.8	-	0.40	44.4	0.7	-	0.34	21.4	0.7	-	0.33
Iron			124,000	390	-	390	14,000	37	-	37	7,640	3.1	-	3.1	21,800	39	-	39	25,900	40	-	40	24,400	34	-	34	23,300	33	-	33
Lead	63	400	**269**	7.8	-	3.9	**749**	7.3	-	3.7	1.6	0.6	-	0.31	9	0.8	-	0.39	14.1	0.8	-	0.40	19.2	0.7	-	0.34	11.1	0.7	-	0.33
Magnesium			403	3.9	-	3.9	1,590	3.7	-	3.7	1,710	3.1	-	3.1	2,500	3.9	-	3.9	2,720	4.0	-	4.0	2,750	3.4	-	3.4	3,370	3.3	-	3.3
Manganese	1,600	2,000	343	3.9	-	3.9	581	3.7	-	3.7	73.8	0.31	N	0.31	249	3.9	-	3.9	479	4.0	-	4.0	434	3.4	-	3.4	433	3.3	-	3.3
Mercury	0.18	0.81	0.17	0.07	-	0.04	**7.73**	0.16	-	0.10	< 0.03	0.03	U	0.02	0.02	0.03	J	0.02	< 0.03	0.03	U	0.02	0.05	0.03	-	0.02	< 0.03	0.03	U	0.02
Nickel	30	140	**48.1**	0.39	-	0.39	13.3	0.37	-	0.37	7.91	0.31	-	0.31	14.7	0.39	-	0.39	15.1	0.40	-	0.40	17.4	0.34	-	0.34	21.2	0.33	-	0.33
Potassium			421	8	-	3.1	976	7	-	2.9	598	6	N	2.4	1,450	8	-	3.0	1,440	8	-	3.1	1,540	7	-	2.7	1,580	7	-	2.6
Selenium	3.9	36	< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.2	1.2	U	1.1	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	< 1.3	1.3	U	1.3
Silver	2	36	< 0.39	0.39	U	0.39	< 0.37	0.37	U	0.37	< 0.31	0.31	U	0.31	< 0.39	0.39	U	0.39	< 0.40	0.40	U	0.40	< 0.34	0.34	U	0.34	< 0.33	0.33	U	0.33
Sodium			372	8	-	3.4	147	7	-	3.2	89	6	N	2.7	166	8	-	3.4	225	8	-	3.5	207	7	-	2.9	154	7	-	2.9
Thallium			< 1.6	1.6	U	1.6	< 1.5	1.5	U	1.5	< 1.2	1.2	U	1.2	< 1.6	1.6	U	1.6	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	< 1.3	1.3	U	1.3
Vanadium			17.6	0.39	-	0.39	15.2	0.37	-	0.37	12.1	0.31	-	0.31	51	0.39	-	0.39	44.7	0.40	-	0.40	36.1	0.34	-	0.34	35.7	0.33	-	0.33
Zinc	109	2,200	**142**	0.8	-	0.39	83.7	0.7	-	0.37	37	0.6	-	0.31	39.5	0.8	-	0.39	38.2	0.8	-	0.40	42.2	0.7	-	0.34	41.9	0.7	-	0.33

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1809								B1810				B1811				B1812							
			(10-12') 10/16/2018				(13-15') 10/16/2018				(0-5' bcg) 10/15/2018				(0-5' bcg) 10/15/2018				(10-12') 10/16/2018				(13-15') 10/16/2018			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			**8,690**	39	-	7.8	**7,870**	35	-	7.0	**10,500**	36	-	7.1	**6,810**	35	-	7.0	**7,610**	42	-	8.3	**6,350**	37	-	7.5
Antimony			< 3.9	3.9	U	39	< 3.5	3.5	U	35	< 3.6	3.6	U	36	< 3.5	3.5	U	35	< 4.2	4.2	U	42	**15.3**	3.7	-	37
Arsenic	13	16	**5.2**	0.78	-	0.78	**1.24**	0.70	-	0.70	**5.62**	0.71	-	0.71	**11.3**	0.70	-	0.70	**1.66**	0.83	-	0.83	< 0.75	0.75	U	0.75
Barium	350	350	**54**	0.8	-	0.39	**47.3**	0.7	-	0.35	**242**	0.7	-	0.36	**754**	0.7	-	0.35	**49.9**	0.8	-	0.42	**85.5**	0.7	-	0.37
Beryllium	7.2	14	**0.55**	0.31	-	0.16	**0.45**	0.28	-	0.14	**0.47**	0.28	-	0.14	**0.38**	0.28	-	0.14	**0.44**	0.33	-	0.17	**0.34**	0.30	-	0.15
Cadmium	2.5	2.5	**0.67**	0.39	-	0.39	**0.52**	0.35	-	0.35	**0.63**	0.36	-	0.36	**1.14**	0.35	-	0.35	**0.49**	0.42	-	0.42	< 0.37	0.37	U	0.37
Calcium			**2,060**	3.9	-	3.6	**688**	3.5	-	3.2	**48,100**	36	-	33	**12,900**	35	-	32	**1,380**	4.2	-	3.8	**4,530**	3.7	-	3.4
Chromium	30	180	**23.2**	0.39	-	0.39	**20.1**	0.35	-	0.35	**14.9**	0.36	-	0.36	**18.2**	0.35	-	0.35	**18.4**	0.42	-	0.42	**1,700**	37	-	37
Cobalt			**11**	0.39	-	0.39	**8.53**	0.35	-	0.35	**5.02**	0.36	-	0.36	**6.46**	0.35	-	0.35	**8.09**	0.42	-	0.42	**6.52**	0.37	-	0.37
Copper	50	270	**20.5**	0.8	-	0.39	**15.5**	0.7	-	0.35	**27.3**	7.1	-	3.6	**138**	0.7	-	0.35	**18.3**	0.8	-	0.42	**16.8**	0.7	-	0.37
Iron			**27,700**	39	-	39	**21,300**	35	-	35	**14,500**	36	-	36	**13,800**	35	-	35	**19,100**	42	-	42	**12,800**	37	-	37
Lead	63	400	**9.3**	0.8	-	0.39	**6.1**	0.7	-	0.35	**114**	0.7	-	0.36	**546**	7.0	-	3.5	**6.1**	0.8	-	0.42	**16.7**	0.7	-	0.37
Magnesium			**2,410**	3.9	-	3.9	**2,060**	3.5	-	3.5	**3,510**	3.6	-	3.6	**2,060**	3.5	-	3.5	**2,170**	4.2	-	4.2	**1,740**	3.7	-	3.7
Manganese	1,600	2,000	**446**	3.9	-	3.9	**228**	3.5	-	3.5	**297**	3.6	-	3.6	**1,040**	3.5	-	3.5	**620**	4.2	-	4.2	**314**	3.7	-	3.7
Mercury	0.18	0.81	< 0.03	0.03	U	0.02	< 0.02	0.02	U	0.01	**0.09**	0.03	-	0.02	**0.11**	0.03	-	0.02	< 0.03	0.03	U	0.02	< 0.08	0.08	U	0.05
Nickel	30	140	**13.5**	0.39	-	0.39	**12.4**	0.35	-	0.35	**9.87**	0.36	-	0.36	**16.2**	0.35	-	0.35	**12.2**	0.42	-	0.42	**70.6**	0.37	-	0.37
Potassium			**1,930**	8	-	3.0	**1,490**	7	-	2.7	**1,060**	7	-	2.8	**1,030**	7	-	2.7	**1,460**	8	-	3.2	**1,150**	7	-	2.9
Selenium	3.9	36	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 2.3	2.3	U	2.3	< 1.7	1.7	U	1.7	< 1.5	1.5	U	1.5
Silver	2	36	< 0.39	0.39	U	0.39	< 0.35	0.35	U	0.35	< 0.36	0.36	U	0.36	< 0.35	0.35	U	0.35	< 0.42	0.42	U	0.42	< 0.37	0.37	U	0.37
Sodium			**163**	8	-	3.3	**383**	7	-	3.0	**1,410**	7	-	3.1	**774**	7	-	3.0	**324**	8	-	3.6	**281**	7	-	3.2
Thallium			< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.7	1.7	U	1.7	< 1.5	1.5	U	1.5
Vanadium			**39**	0.39	-	0.39	**32.5**	0.35	-	0.35	**19.3**	0.36	-	0.36	**21.9**	0.35	-	0.35	**27.9**	0.42	-	0.42	**22.5**	0.37	-	0.37
Zinc	109	2,200	**46.4**	0.8	-	0.39	**33.5**	0.7	-	0.35	**416**	7.1	-	3.6	**594**	7.0	-	3.5	**33.6**	0.8	-	0.42	**85.9**	0.7	-	0.37

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.

S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 6
Soil Analytical Results
Metals

COMPOUND	NYSDEC Part 375.6 Unrestricted Use Soil Cleanup Objectives*	NYDEC Part 375.6 Restricted Residential Soil Cleanup Objectives*	B1813								B1814				Soil Duplicate 1				Soil Duplicate 2			
			(10-12') 10/16/2018				(13-15') 10/16/2018				(0-3') 10/16/2018				11/2/2018				11/2/2018			
			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		µg/Kg		µg/Kg		µg/Kg		µg/Kg	
			Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
Aluminum			**10,100**	41	-	8.3	**8,480**	36	-	7.2	**6,820**	36	-	7.1	**13,100**	39	-	7.8	**7,780**	35	-	7.1
Antimony			< 4.1	4.1	U	41	< 3.6	3.6	U	36	< 3.6	3.6	U	36	< 3.9	3.9	U	39	**11.3**	3.5	-	35
Arsenic	13	16	**1.98**	0.83	-	0.83	**1.63**	0.72	-	0.72	**6.65**	0.71	-	0.71	**6.09**	0.78	-	0.78	**16.3**	0.71	-	0.71
Barium	350	350	**64.8**	0.8	-	0.41	**46.5**	0.7	-	0.36	**72.4**	0.7	-	0.36	**144**	0.8	-	0.39	**436**	0.7	-	0.35
Beryllium	7.2	14	**0.56**	0.33	-	0.17	**0.41**	0.29	-	0.14	**0.47**	0.29	-	0.14	**0.51**	0.31	-	0.16	**0.45**	0.28	-	0.14
Cadmium	2.5	2.5	**0.75**	0.41	-	0.41	**0.42**	0.36	-	0.36	**0.58**	0.36	-	0.36	**0.54**	0.39	-	0.39	**2.53**	0.35	-	0.35
Calcium			**1,030**	4.1	-	3.8	**890**	3.6	-	3.3	**7,400**	3.6	-	3.3	**5,530**	3.9	-	3.6	**11,000**	35	-	32
Chromium	30	180	**25.4**	0.41	-	0.41	**16.8**	0.36	-	0.36	**16**	0.36	-	0.36	**26.7**	0.39	-	0.39	**21.3**	0.35	-	0.35
Cobalt			**12**	0.41	-	0.41	**7.38**	0.36	-	0.36	**6.46**	0.36	-	0.36	**11.3**	0.39	-	0.39	**10.4**	0.35	-	0.35
Copper	50	270	**19.6**	0.8	-	0.41	**14.2**	0.7	-	0.36	**36.7**	0.7	-	0.36	**61.5**	0.8	-	0.39	**327**	7.1	-	3.5
Iron			**31,600**	41	-	41	**16,600**	36	-	36	**14,500**	36	-	36	**22,200**	39	-	39	**75,100**	35	-	35
Lead	63	400	**8.3**	0.8	-	0.41	**5.2**	0.7	-	0.36	**160**	7.1	-	3.6	**231**	7.8	-	3.9	**1,760**	71	-	35
Magnesium			**2,590**	4.1	-	4.1	**2,120**	3.6	-	3.6	**2,350**	3.6	-	3.6	**4,370**	3.9	-	3.9	**1,990**	3.5	-	3.5
Manganese	1,600	2,000	**582**	4.1	-	4.1	**367**	3.6	-	3.6	**274**	3.6	-	3.6	**390**	3.9	-	3.9	**748**	3.5	-	3.5
Mercury	0.18	0.81	< 0.03	0.03	U	0.02	< 0.02	0.02	U	0.01	**0.26**	0.03	-	0.02	**1.49**	0.14	-	0.09	**0.34**	0.14	-	0.08
Nickel	30	140	**15.5**	0.41	-	0.41	**11.5**	0.36	-	0.36	**15.9**	0.36	-	0.36	**22.3**	0.39	-	0.39	**20.4**	0.35	-	0.35
Potassium			**2,120**	8	-	3.2	**1,290**	7	-	2.8	**1,510**	7	-	2.8	**2,510**	8	-	3.1	**1,070**	7	-	2.8
Selenium	3.9	36	< 1.7	1.7	U	1.7	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.6	1.6	U	1.3	< 1.4	1.4	U	1.2
Silver	2	36	< 0.41	0.41	U	0.41	< 0.36	0.36	U	0.36	< 0.36	0.36	U	0.36	< 0.39	0.39	U	0.39	< 0.35	0.35	U	0.35
Sodium			**278**	8	-	3.5	**506**	7	-	3.1	**647**	7	-	3.1	**169**	8	-	3.4	**274**	7	-	3.0
Thallium			< 1.7	1.7	U	1.7	< 1.4	1.4	U	1.4	< 1.4	1.4	U	1.4	< 1.6	1.6	U	1.6	< 1.4	1.4	U	1.4
Vanadium			**45.1**	0.41	-	0.41	**32**	0.36	-	0.36	**20.9**	0.36	-	0.36	**38.7**	0.39	-	0.39	**24.9**	0.35	-	0.35
Zinc	109	2,200	**45.1**	0.8	-	0.41	**29.9**	0.7	-	0.36	**97.5**	0.7	-	0.36	**249**	7.8	-	3.9	**864**	7.1	-	3.5

Notes:
* - 6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 7
Parameters Detected Above Track 1 Soil Cleanup Objectives

COMPOUND	Range in Exceedances	Frequency of Detection	B1801		B1802		B1803		B1804		B1805		B1806	B1807
			(4-6')	(13-15')	(10-12')	(12-14')	(4-6')	(10-12')	(10-12')	(13-15')	(6-8')	(13-15')	(6-8')	(10-12')
			11/2/2018	11/2/2018	11/2/2018	11/2/2018	11/2/2018	11/2/2018	11/2/2018	11/2/2018	10/15/2018	10/15/2018	10/15/2018	10/15/2018
Sample Results in ug/kg														
Acetone	51-970	5	-	-	-	-	-	-	-	-	**79**	**970**	**880**	-
Benzene	87-120	2	-	-	-	**87**	-	-	-	-	**120**	-	-	-
Chloroform	400-1100	3	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	1300-3100	3	**3,100**	**1,300**	-	-	-	-	**1,700**	-	-	-	-	-
Sample Results in ug/kg														
Benz(a)anthracene	1600-32000	4	**12,000**	**1,600**	-	**32,000**	-	**27,000**	-	-	-	-	-	-
Benzo(a)pyrene	1300-31000	5	**13,000**	**1,500**	-	**31,000**	-	**26,000**	-	-	-	-	-	-
Benzo(b)fluoranthene	1200-24000	4	**11,000**	**1,200**	-	**18,000**	-	**24,000**	-	-	-	-	-	-
Benzo(k)fluoranthene	860-10000	5	**10,000**	**1,200**	-	**6,100**	-	**7,400**	-	-	-	-	-	-
Chrysene	1100-51000	6	**15,000**	**1,600**	-	**51,000**	-	**48,000**	-	-	-	-	-	-
Dibenz(a,h)anthracene	2100-19000	3	**2,100**	-	-	**17,000**	-	**19,000**	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	530-18000	7	**9,100**	**790**	-	**9,500**	**760**	**18,000**	-	-	-	-	-	-
Sample Results in ug/kg														
4,4' -DDD	44	1	-	-	-	-	-	**44**	-	-	-	-	-	-
4,4' -DDT	42	1	-	-	-	-	-	**42**	-	-	-	-	-	-
Sample Results in mg/kg														
Arsenic	14.2-68.8	7	**26.9**	**15.6**	-	-	**20.5**	-	**68.8**	**45.9**	**14.2**	-	-	-
Barium	436-1500	4	**1,500**	-	-	-	**643**	-	-	-	-	-	-	-
Cadmium	2.53-3.61	2	**3.58**	-	-	-	-	-	-	-	**3.61**	-	-	-
Chromium	376-1700	4	**376**	**948**	-	-	-	-	-	-	**953**	-	-	-
Copper	60-327	13	**150**	**81.2**	**60**	**71.4**	**255**	**151**	**193**	**156**	**150**	**228**	-	-
Lead	114-6900	15	**6,900**	**1,230**	**143**	**358**	**1,710**	**2,390**	**788**	**298**	**269**	**749**	-	-
Mercury	0.26-7.73	10	**2.51**	**2.12**	**1.64**	-	**0.28**	**0.73**	**1.51**	**0.32**	-	**7.73**	-	-
Nickel	4.81-70.6	3	-	-	-	**39.8**	-	-	-	-	**4.81**	-	-	-
Zinc	142-1120	13	**1,120**	**287**	**192**	**287**	**646**	**282**	**553**	**202**	**142**	-	-	-

Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 7
Parameters Detected Above Track 1 Soil Cleanup Objectives

COMPOUND	Range in Exceedances	Frequency of Detection	B1808		B1809		B1810	B1811	B1812		B1813		B1814	Duplicate 1	Duplicate 2
			(10-12') 10/16/2018	(13-15') 10/16/2018	(10-12') 10/16/2018	(13-15') 10/16/2018	(0-5' bcg) 10/15/2018	(0-5' bcg) 10/15/2018	(10-12') 10/16/2018	(13-15') 10/16/2018	(10-12') 10/16/2018	(13-15') 10/16/2018	(0-3') 10/16/2018	11/21/2018	11/21/2018
Sample Results in ug/kg															
Acetone	51-970	5	-	-	-	-	**51**	**110**	-	-	-	-	-	-	-
Benzene	87-120	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	400-1100	3	-	-	-	-	-	-	**520**	**1,100**	**400**	-	-	-	-
Trichloroethene	1300-3100	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample Results in ug/kg															
Benz(a)anthracene	1600-32000	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	1300-31000	5	-	-	-	-	-	**1,300**	-	-	-	-	-	-	-
Benzo(b)fluoranthene	1200-24000	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	860-10000	5	-	-	-	-	-	**860**	-	-	-	-	-	-	-
Chrysene	1100-51000	6	-	-	**1,100**	-	-	**1,100**	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	2100-19000	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	530-18000	7	-	-	-	-	-	**980**	-	-	-	-	-	-	**530**
Sample Results in ug/kg															
4,4' -DDD	44	1	-	-	-	-	-	-	-	-	-	-	-	-	-
4,4' -DDT	42	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample Results in mg/kg															
Arsenic	14.2-68.8	7	-	-	-	-	-	-	-	-	-	-	-	-	**16.3**
Barium	436-1500	4	-	-	-	-	-	**754**	-	-	-	-	-	-	**436**
Cadmium	2.53-3.61	2	-	-	-	-	-	-	-	-	-	-	-	-	**2.53**
Chromium	376-1700	4	-	-	-	-	-	-	-	**1,700**	-	-	-	-	-
Copper	60-327	13	-	-	-	-	-	**138**	-	-	-	-	-	**61.5**	**327**
Lead	114-6900	15	-	-	-	-	**114**	**546**	-	-	-	-	**160**	**231**	**1,760**
Mercury	0.26-7.73	10	-	-	-	-	-	-	-	-	-	-	**0.26**	**1.49**	**0.34**
Nickel	4.81-70.6	3	-	-	-	-	-	-	-	**70.6**	-	-	-	-	-
Zinc	142-1120	13	-	-	-	-	**416**	**594**	-	-	-	-	-	**249**	**864**

Bold/highlighted- Indicated exceedance of the NYSDEC UUSCO Guidance Value
Bold/highlighted- Indicated exceedance of the NYSDEC RRSCO Guidance Value

TABLE 8
Groundwater Analytical Results
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	18MW1 1/29/2019 µg/L				18MW2 1/29/2019 µg/L				18MW3 1/29/2019 µg/L				18MW4 1/29/2019 µg/L				18MW5 10/18/2018 µg/L			
	µg/L	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,1,1,2-Tetrachlorothane	5	<1.0	1.0	U	0.25	<1.0	1.0	U	0.25	<1.0	1.0	U	0.25	<1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,1-Trichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1,2,2-Tetrachloroethane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,2-Trichloroethane	1	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1-Dichloroethene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloropropene		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 0.001	1.0	U	0.25
1,2,3-Trichlorobenzene		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,3-Trichloropropane	0.04	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2,4-Trichlorobenzene		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,4-Trimethylbenzene	5	< 1.0	1.0	U	0.25	**1.1**	1.0	-	0.25	< 1.0	1.0	U	0.25	**0.93**	1.0	J	0.25	**1.3**	1.0	-	0.25
1,2-Dibromo-3-chloropropane	0.04	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50
1,2-Dibromoethane		< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2-Dichloroethane	0.6	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50
1,2-Dichloropropane	0.94	< 1.0	< 0.010	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3,5-Trimethylbenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**2.2**	1.0	-	0.25	**1.7**	1.0	-	0.25
1,3-Dichlorobenzene		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3-Dichloropropane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,4-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2,2-Dichloropropane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Hexanone (Methyl Butyl Ketone)		< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
2-Isopropyltoluene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**1.3**	1.0	-	0.25	**4.6**	1.0	-	0.25
4-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
4-Methyl-2-Pentanone		< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Acetone	50	< 5.0	5.0	U	2.5	**21**	5.0	S	2.5	<5.0	5.0	U	2.5	**23**	5.0	S	2.5	**6.4**	5.0	S	2.5
Acrolein		<5.0	5.0	U	2.5	<5.0	5.0	U	2.5	<5.0	5.0	U	0.25	<5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Acrylonitrile	5	<5.0	5.0	U	0.25	<5.0	5.0	U	0.25	**2.8**	5.0	JS	2.5	<5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Benzene	1	< 0.70	0.70	U	0.25	**0.9**	0.70	-	0.25	< 0.70	0.70	U	0.25	**0.38**	0.70	J	0.25	< 0.70	0.70	U	0.25
Bromobenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromochloromethane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromodichloromethane		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromoform		< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Bromomethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Carbon Disulfide	60	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Carbon tetrachloride	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Chlorobenzene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroform	7	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloromethane	60	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
cis-1,2-Dichloroethene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**2.3**	1.0	-	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
cis-1,3-Dichloropropene		< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
Dibromochloromethane		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dibromomethane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dichlorodifluoromethane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Ethylbenzene	5	< 1.0	1.0	U	0.25	**0.62**	1.0	J	0.25	< 1.0	1.0	U	0.25	**0.25**	1.0	J	0.25	< 1.0	1.0	U	0.25
Hexachlorobutadiene	0.5	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20
Isopropylbenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**4.3**	1.0	-	0.25	**0.49**	1.0	J	0.25
m&p-Xylenes	5	< 1.0	1.0	U	0.25	**2.4**	1.0	-	0.25	< 1.0	1.0	U	0.25	**0.92**	1.0	J	0.25	**1.3**	1.0	-	0.25
Methyl Ethyl Ketone (2-Butanone)	50	< 2.5	2.5	U	2.5	**10**	2.5	-	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Methyl t-butyl ether (MTBE)	10	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Methylene chloride	5	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0
Naphthalene	10	< 1.0	1.0	U	1.0	**1.4**	1.0	-	1.0	< 1.0	1.0	U	1.0	**3**	1.0	-	1.0	< 1.0	1.0	U	1.0
n-Butylbenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**1**	1.0	-	0.25	< 1.0	1.0	U	0.25
n-Propylbenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**3.8**	1.0	-	0.25	**0.27**	1.0	J	0.25
o-Xylene	5	< 1.0	1.0	U	0.25	**1.1**	1.0	-	0.25	< 1.0	1.0	U	0.25	**0.81**	1.0	J	0.25	**0.57**	1.0	J	0.25
p-Isopropyltoluene		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**67**	5.0	-	1.3
sec-Butylbenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**1.8**	1.0	-	0.25	**0.37**	1.0	J	0.25
Styrene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tert-butyl alcohol		<50	50	U	10	<50	50	U	10	<50	50	U	10	<50	50	U	10	<50	50	U	10
tert-Butylbenzene	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**0.57**	1.0	J	0.25	**0.91**	1.0	J	0.25
Tetrachloroethene	5	**0.7**	1.0	J	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tetrahydrofuran (THF)		< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Toluene	5	< 1.0	1.0	U	0.25	**2.2**	1.0	-	0.25	< 1.0	1.0	U	0.25	**0.51**	1.0	J	0.25	< 1.0	1.0	U	0.25
trans-1,2-Dichloroethene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
trans-1,3-Dichloropropene	0.4	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
trans-1,4-dichloro-2-butene	5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Trichloroethene	5	**8.7**	1.0	-	0.25	< 1.0	1.0	U	0.25	**0.44**	1.0	J	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorofluoromethane	5	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorotrifluoroethane		< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Vinyl Chloride	2	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**1.1**	1.0	-	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,4-dioxane		<0.20	0.20	U	0.20	<0.20	0.20	U	0.20	<0.20	0.20	U	0.20	-	-	-	-	<0.20	0.20	U	0.20

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 8
Groundwater Analytical Results
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	18MW6 10/18/2018 µg/L				18MW7 10/18/2018 µg/L				18MW8 10/17/2018 µg/L				18MW9 10/17/2018 µg/L				Duplicate 10/18/2018 µg/L			
	µg/L	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,1,1,2-Tetrachlorothane	5	<1.0	1.0	U	0.25	<2.0	2.0	U	0.50	<1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,1-Trichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1,2,2-Tetrachloroethane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1,2-Trichloroethane	1	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
1,1-Dichloroethene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,1-Dichloropropene		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 0.001	1.0	U	0.25
1,2,3-Trichlorobenzene		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,3-Trichloropropane	0.04	< 0.25	0.25	U	0.25	< 0.50	0.50	U	0.50	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2,4-Trichlorobenzene		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2,4-Trimethylbenzene	5	**4.8**	1.0	-	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**1.1**	1.0	-	0.25
1,2-Dibromo-3-chloropropane	0.04	< 0.50	0.50	U	0.50	< 1.0	1.0	U	1.0	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50	< 0.50	0.50	U	0.50
1,2-Dibromoethane		< 0.25	0.25	U	0.25	< 0.50	0.50	U	0.50	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25	< 0.25	0.25	U	0.25
1,2-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,2-Dichloroethane	0.6	< 0.60	0.60	U	0.50	< 1.0	1.0	U	1.0	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50	< 0.60	0.60	U	0.50
1,2-Dichloropropane	0.94	< 1.0	< 0.010	U	0.25	< 1.0	1.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3,5-Trimethylbenzene	5	**0.81**	1.0	J	0.25	**0.52**	2.0	J	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**1.5**	1.0	-	0.25
1,3-Dichlorobenzene		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,3-Dichloropropane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,4-Dichlorobenzene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2,2-Dichloropropane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
2-Hexanone (Methyl Butyl Ketone)		< 2.5	2.5	U	2.5	< 5.0	5.0	U	5.0	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
2-Isopropyltoluene	5	**12**	1.0	-	0.25	**1.1**	2.0	J	0.50	**0.33**	1.0	J	0.25	< 1.0	1.0	U	0.25	**4.1**	1.0	-	0.25
4-Chlorotoluene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
4-Methyl-2-Pentanone		< 2.5	2.5	U	2.5	< 5.0	5.0	U	5.0	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Acetone	50	**2.8**	5.0	JS	2.5	< 10	10	U	5.0	**5**	5.0	JS	2.5	**6.1**	5.0	S	2.5	**6.1**	5.0	S	2.5
Acrolein		<5.0	5.0	U	2.5	< 5.0	5.0	U	5.0	<5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Acrylonitrile	5	<5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	<5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Benzene	1	< 0.70	0.70	U	0.25	**1**	0.70	-	0.50	**0.28**	0.70	J	0.25	**0.26**	0.70	J	0.25	< 0.70	0.70	U	0.25
Bromobenzene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromochloromethane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromodichloromethane		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Bromoform		< 5.0	5.0	U	0.25	< 10	10	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Bromomethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Carbon Disulfide	60	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	**4.1**	1.0	-	0.25	**0.69**	1.0	J	0.25	< 1.0	1.0	U	0.25
Carbon tetrachloride	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Chlorobenzene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroethane	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloroform	7	< 5.0	5.0	U	0.25	< 7.0	7.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
Chloromethane	60	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
cis-1,2-Dichloroethene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
cis-1,3-Dichloropropene		< 0.40	0.40	U	0.25	< 0.50	0.50	U	0.50	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
Dibromochloromethane		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dibromomethane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Dichlorodifluoromethane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Ethylbenzene	5	**0.53**	1.0	J	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Hexachlorobutadiene	0.5	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.40	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20	< 0.50	0.50	U	0.20
Isopropylbenzene	5	**24**	1.0	-	0.25	**5.5**	2.0	-	0.50	**1.2**	1.0	-	0.25	< 1.0	1.0	U	0.25	**0.44**	1.0	J	0.25
m&p-Xylenes	5	**0.37**	1.0	J	0.25	< 2.0	2.0	U	0.50	**0.48**	1.0	J	0.25	< 1.0	1.0	U	0.25	**1**	1.0	-	0.25
Methyl Ethyl Ketone (2-Butanone)	50	< 2.5	2.5	U	2.5	< 5.0	5.0	U	5.0	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Methyl t-butyl ether (MTBE)	10	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Methylene chloride	5	< 3.0	3.0	U	1.0	< 5.0	5.0	U	2.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0	< 3.0	3.0	U	1.0
Naphthalene	10	< 1.0	1.0	U	1.0	**11**	2.0	-	2.0	**1.6**	1.0	-	1.0	< 1.0	1.0	U	1.0	< 1.0	1.0	U	1.0
n-Butylbenzene	5	**28**	5.0	-	1.3	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
n-Propylbenzene	5	**22**	1.0	-	0.25	**5.3**	2.0	-	0.50	**0.42**	1.0	J	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
o-Xylene	5	**0.38**	1.0	J	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**0.46**	1.0	J	0.25
p-Isopropyltoluene		**2.4**	1.0	-	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**50**	5.0	-	1.3
sec-Butylbenzene	5	**19**	1.0	-	0.25	**1.4**	2.0	J	0.50	**0.27**	1.0	J	0.25	< 1.0	1.0	U	0.25	**0.32**	1.0	J	0.25
Styrene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tert-butyl alcohol		<50	50	U	10	<100	100	U	20	<50	50	U	10	<50	50	U	10	<50	50	U	10
tert-Butylbenzene	5	**3.4**	1.0	-	0.25	**0.55**	2.0	J	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	**0.86**	1.0	J	0.25
Tetrachloroethene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Tetrahydrofuran (THF)		< 5.0	5.0	U	2.5	< 10	10	U	5.0	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5	< 5.0	5.0	U	2.5
Toluene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	**0.39**	1.0	J	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
trans-1,2-Dichloroethene	5	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.50	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25	< 5.0	5.0	U	0.25
trans-1,3-Dichloropropene	0.4	< 0.40	0.40	U	0.25	< 0.50	0.50	U	0.50	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25	< 0.40	0.40	U	0.25
trans-1,4-dichloro-2-butene	5	< 2.5	2.5	U	2.5	< 5.0	5.0	U	5.0	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5	< 2.5	2.5	U	2.5
Trichloroethene	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorofluoromethane	5	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Trichlorotrifluoroethane		< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
Vinyl Chloride	2	< 1.0	1.0	U	0.25	< 2.0	2.0	U	0.50	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25	< 1.0	1.0	U	0.25
1,4-dioxane		<0.20	0.20	U	0.20	<0.20	0.20	U	0.20	<0.20	0.20	U	0.20	<0.20	0.20	U	0.20	<0.20	0.20	U	0.20

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 9
Groundwater Analytical Results
Semi-Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards µg/L	18MW1 1/29/2019 µg/L				18MW2 1/29/2019 µg/L				18MW3 1/29/2019 µg/L				18MW4 1/29/2019 µg/L				18MW5 10/18/2018 µg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene		< 3.4	3.4	U	3.4	< 3.3	3.3	U	3.3	< 3.4	3.4	U	3.4	< 5.6	5.6	U	2.0	<0.47	0.47	U	0.47
1,2,4-Trichlorobenzene		< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.4	< 4.8	4.8	U	1.4	< 5.6	5.6	U	1.7	< 4.7	4.7	U	1.4
1,2-Dichlorobenzene		< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 4.7	4.7	U	1.6	< 0.94	0.94	U	0.94
1,2-Diphenylhydrazine		< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.6	< 5.6	5.6	U	1.8	< 4.7	4.7	U	1.5
1,3-Dichlorobenzene	3	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 3.0	3.0	U	1.6	< 0.94	0.94	U	0.94
1,4-Dichlorobenzene		< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 5.0	5.0	U	1.6	< 0.94	0.94	U	0.94
2,4,5-Trichlorophenol	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.001	0.94	U	0.94
2,4,6-Trichlorophenol	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
2,4-Dichlorophenol		< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
2,4-Dimethylphenol		< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
2,4-Dinitrophenol	5	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
2,4-Dinitrotoluene	5	< 4.9	4.9	U	1.9	< 4.7	4.7	U	1.9	< 4.8	4.8	U	1.9	< 5.0	5.0	U	2.2	< 4.7	4.7	U	1.9
2,6-Dinitrotoluene	5	< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.5	< 5.0	5.0	U	1.8	< 4.7	4.7	U	1.5
2-Chloronaphthalene	10	< 4.9	4.9	U	1.4	< 4.7	4.7	U	1.3	< 4.8	4.8	U	1.4	< 5.6	5.6	U	1.6	< 4.7	4.7	U	1.3
2-Chlorophenol	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
2-Methylnaphthalene		< 4.9	< 0.010	U	1.4	< 4.7	4.7	U	1.4	< 4.8	4.8	U	1.4	**21**	5.6	-	1.7	< 4.7	4.7	U	1.4
2-Methylphenol (o-cresol)	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
2-Nitroaniline	5	< 4.9	4.9	U	1.9	< 4.7	4.7	U	1.9	< 4.8	4.8	U	1.9	< 5.0	5.0	U	3.9	< 4.7	4.7	U	1.9
2-Nitrophenol	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
3&4-Methylphenol (m&p-cresol)		< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 5.6	5.6	U	1.0	< 0.94	0.94	U	0.94
3,3'-Dichlorobenzidine	5	< 4.9	4.9	U	2.3	< 4.7	4.7	U	2.2	< 4.8	4.8	U	2.3	< 5.0	5.0	U	2.6	< 4.7	4.7	U	2.2
3-Nitroaniline	5	< 4.9	4.9	U	1.9	< 4.7	4.7	U	1.9	< 4.8	4.8	U	1.9	< 5.0	5.0	U	2.2	< 4.7	4.7	U	1.9
4,6-Dinitro-2-methylphenol	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
4-Bromophenyl phenyl ether		< 4.9	4.9	U	1.4	< 4.7	4.7	U	1.4	< 4.8	4.8	U	1.4	< 5.6	5.6	U	1.6	< 4.7	4.7	U	1.4
4-Chloro-3-methylphenol	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
4-Chloroaniline	5	< 3.4	3.4	U	2.3	< 3.3	3.3	U	2.2	< 3.4	3.4	U	2.2	< 5.0	5.0	U	2.2	< 3.3	3.3	U	2.2
4-Chlorophenyl phenyl ether		< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.6	< 4.8	4.8	U	1.6	< 5.6	5.6	U	1.9	< 4.7	4.7	U	1.6
4-Nitroaniline	5	< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.6	< 4.8	4.8	U	1.6	< 5.0	5.0	U	1.9	< 4.7	4.7	U	1.6
4-Nitrophenol		< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
Acenaphthene	20	< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.4	< 4.8	4.8	U	1.5	**3.6**	5.6	J	1.7	< 4.7	4.7	U	1.4
Acenaphthylene		< 0.49	0.49	U	0.49	< 0.47	0.47	U	0.47	< 0.48	0.48	U	0.48	<5.6	5.6	U	1.6	<0.09	0.09	U	0.09
Acetophenone		< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.5	< 5.6	5.6	U	1.7	< 4.7	4.7	U	1.5
Aniline	5	< 3.4	3.4	U	3.4	< 3.3	3.3	U	3.3	< 3.4	3.4	U	3.4	< 5.0	5.0	U	1.1	< 3.3	3.3	U	4.7
Anthracene	50	< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.6	**6.2**	5.6	-	1.8	< 4.7	4.7	U	1.5
Benz(a)anthracene	0.002	**0.23**	0.02	-	0.02	**0.36**	0.02	-	0.02	**0.05**	0.02	-	0.02	**66**	5.6	-	1.9	**0.06**	0.02	-	0.02
Benzidine	5	< 4.4	4.4	U	2.9	< 4.2	4.2	U	2.8	< 4.3	4.3	U	2.8	< 5.0	5.0	U	3.3	< 4.2	4.2	U	2.8
Benzo(a)pyrene	0.002	**0.18**	0.02	-	0.02	**0.65**	0.02	-	0.02	**0.1**	0.02	-	0.02	**61**	5.6	-	1.8	**0.08**	0.02	-	0.02
Benzo(b)fluoranthene	0.002	**0.16**	0.02	-	0.02	**0.08**	0.02	-	0.02	< 0.02	0.02	U	0.02	**31**	5.6	-	1.9	**0.06**	0.02	-	0.02
Benzo(ghi)perylene		< 0.49	0.49	U	0.49	< 0.47	0.47	U	0.47	< 0.48	0.48	U	0.48	**49**	5.6	-	1.8	**0.06**	0.02	-	0.02
Benzo(k)fluoranthene	0.002	**0.14**	0.02	-	0.02	**0.06**	0.02	-	0.02	< 0.02	0.02	U	0.02	**13**	5.6	-	1.8	**0.05**	0.02	-	0.02
Benzoic acid		< 24	24	U	9.7	< 24	24	U	9.4	< 24	24	U	9.6	< 11	11	U	3.9	< 24	24	U	9.4
Benzyl butyl phthalate	50	< 4.9	4.9	U	1.3	< 4.7	4.7	U	1.2	< 4.8	4.8	U	1.2	< 5.6	5.6	U	1.4	< 4.7	4.7	U	1.2
Bis(2-chloroethoxy)methane	5	< 4.9	4.9	U	1.3	< 4.7	4.7	U	1.3	< 4.8	4.8	U	1.3	< 5.0	5.0	U	1.5	< 4.7	4.7	U	1.3
Bis(2-chloroethyl)ether	1	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
Bis(2-chloroisopropyl)ether		< 4.9	4.9	U	1.3	< 4.7	4.7	U	1.3	< 4.8	4.8	U	1.3	< 5.6	5.6	U	1.5	< 4.7	4.7	U	1.3
Bis(2-ethylhexyl)phthalate	5	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 5.0	5.0	U	1.6	<0.94	0.94	U	0.94
Carbazole		< 4.9	4.9	U	3.7	< 4.7	4.7	U	3.6	< 4.8	4.8	U	3.6	< 5.6	5.6	U	4.2	< 4.7	4.7	U	3.6
Chrysene	0.002	**0.2**	0.02	-	0.02	**0.46**	0.02	-	0.02	**0.05**	0.02	-	0.02	**58**	5.6	-	1.9	**0.12**	0.02	-	0.02
Dibenz(a,h)anthracene		< 0.49	0.49	U	0.49	< 0.47	0.47	U	0.47	< 0.48	0.48	U	0.48	**28**	5.6	-	1.8	<0.02	0.02	U	0.02
Dibenzofuran		< 4.9	4.9	U	1.4	< 4.7	4.7	U	1.4	< 4.8	4.8	U	1.4	< 5.0	5.0	U	1.6	< 4.7	4.7	U	1.4
Diethyl phthalate	50	< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.5	< 5.6	5.6	U	1.8	**3.5**	4.7	J	1.5
Dimethylphthalate	50	< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.5	< 5.6	5.6	U	1.7	< 4.7	4.7	U	1.5
Di-n-butylphthalate	50	< 4.9	4.9	U	1.3	< 4.7	4.7	U	1.3	< 4.8	4.8	U	1.3	< 5.6	5.6	U	1.5	< 4.7	4.7	U	1.3
Di-n-octylphthalate	50	< 4.9	4.9	U	1.3	< 4.7	4.7	U	1.2	< 4.8	4.8	U	1.2	< 5.6	5.6	U	1.4	< 4.7	4.7	U	1.2
Fluoranthene	50	< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.6	**11**	5.6	-	1.8	< 4.7	4.7	U	1.5
Fluorene	50	< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.6	< 4.8	4.8	U	1.6	**4.6**	5.6	J	1.8	< 4.7	4.7	U	1.6
Hexachlorobenzene	0.04	< 0.04	0.04	U	0.04	< 0.04	0.04	U	0.04	< 0.04	0.04	U	0.04	< 1.0	1.0	U	1.0	< 0.02	0.02	U	0.02
Hexachlorobutadiene	0.5	< 0.49	0.49	U	0.49	< 0.47	0.47	U	0.47	< 0.48	0.48	U	0.48	< 1.0	1.0	U	1.0	< 0.38	0.38	U	0.38
Hexachlorocyclopentadiene	5	< 4.9	4.9	U	1.5	< 4.7	4.7	U	1.4	< 4.8	4.8	U	1.5	< 5.0	5.0	U	1.7	< 4.7	4.7	U	1.4
Hexachloroethane	5	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 5.0	5.0	U	1.7	< 0.47	0.47	U	0.47
Indeno(1,2,3-cd)pyrene	0.002	**0.11**	0.02	-	0.02	**0.08**	0.02	-	0.02	< 0.02	0.02	U	0.02	**26**	5.6	-	1.8	**0.04**	0.02	-	0.02
Isophorone	50	< 4.9	4.9	U	1.4	< 4.7	4.7	U	1.3	< 4.8	4.8	U	1.3	< 28	28	U	28	< 4.7	4.7	U	1.3
Naphthalene	10	< 4.9	4.9	U	1.4	**1.4**	4.7	J	1.4	< 4.8	4.8	U	1.4	< 5.0	5.0	U	1.6	< 4.7	4.7	U	1.4
Nitrobenzene	0.4	< 0.39	0.39	U	0.39	< 0.38	0.38	U	0.38	< 0.38	0.38	U	0.38	< 1.0	1.0	U	1.0	**0.36**	0.40	J	0.09
N-Nitrosodimethylamine		< 0.10	0.10	U	0.10	< 0.09	0.09	U	0.09	< 0.10	0.10	U	0.10	< 5.6	5.6	U	1.6	< 0.09	0.09	U	0.09
N-Nitrosodi-n-propylamine		< 4.9	4.9	U	1.6	< 4.7	4.7	U	1.5	< 4.8	4.8	U	1.6	< 5.6	5.6	U	1.8	< 4.7	4.7	U	1.5
N-Nitrosodiphenylamine	50	< 4.9	4.9	U	1.9	< 4.7	4.7	U	1.8	< 4.8	4.8	U	1.8	< 5.6	5.6	U	2.1	< 4.7	4.7	U	1.8
Pentachloronitrobenzene		< 2.4	2.4	U	2.4	< 2.4	2.4	U	2.4	< 2.4	2.4	U	2.4	< 5.6	5.6	U	2.1	< 0.09	0.09	U	0.09
Pentachlorophenol	1	< 0.49	0.49	U	0.49	< 0.47	0.47	U	0.47	< 0.48	0.48	U	0.48	< 1.0	1.0	U	1.0	< 0.09	0.09	U	0.09
Phenanthrene	50	< 0.49	0.49	U	0.49	< 0.47	0.47	U	0.47	< 0.48	0.48	U	0.48	**34**	5.6	-	1.6	**0.26**	0.09	-	0.09
Phenol	50	< 0.97	0.97	U	0.97	< 0.94	0.94	U	0.94	< 0.96	0.96	U	0.96	< 1.0	1.0	U	1.0	< 0.94	0.94	U	0.94
Pyrene	50	< 4.9	4.9	U	1.7	< 4.7	4.7	U	1.6	< 4.8	4.8	U	1.7	**58**	5.6	-	1.9	< 4.7	4.7	U	1.6
Pyridine	50	< 9.7	9.7	U	1.2	< 9.4	9.4	U	1.2	< 9.6	9.6	U	1.2	< 5.6	5.6	U	1.4	< 9.4	9.4	U	1.2

Notes:

RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 9
Groundwater Analytical Results
Semi-Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards µg/L	18MW6 10/18/2018 µg/L				18MW7 10/18/2018 µg/L				18MW8 10/17/2018 µg/L				18MW9 10/17/2018 µg/L				Duplicate 10/18/2018 µg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
1,2,4,5-Tetrachlorobenzene		<0.50	0.50	U	0.50	< 4.8	4.8	U	1.7	<0.47	0.47	U	0.47	<0.47	0.47	U	0.47	<0.51	0.51	U	0.51
1,2,4-Trichlorobenzene		< 5.0	5.0	U	1.5	< 4.8	4.8	U	1.4	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.1	5.1	U	1.5
1,2-Dichlorobenzene		< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
1,2-Diphenylhydrazine		< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.1	5.1	U	1.6
1,3-Dichlorobenzene	3	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
1,4-Dichlorobenzene		< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2,4,5-Trichlorophenol	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 0.001	1.0	U	1.0
2,4,6-Trichlorophenol	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2,4-Dichlorophenol		< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2,4-Dimethylphenol		< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2,4-Dinitrophenol	5	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2,4-Dinitrotoluene	5	< 5.0	5.0	U	2.0	< 4.8	4.8	U	1.9	< 4.7	4.7	U	1.9	< 4.7	4.7	U	1.9	< 5.0	5.0	U	2.0
2,6-Dinitrotoluene	5	< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.5	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.0	5.0	U	1.6
2-Chloronaphthalene	10	< 5.0	5.0	U	1.4	< 4.8	4.8	U	1.4	< 4.7	4.7	U	1.3	< 4.7	4.7	U	1.3	< 5.1	5.1	U	1.4
2-Chlorophenol	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2-Methylnaphthalene		< 5.0	< 0.010	U	1.5	**9.2**	4.8	-	1.4	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.1	5.1	U	1.5
2-Methylphenol (o-cresol)	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
2-Nitroaniline	5	< 5.0	5.0	U	2.0	< 4.8	4.8	U	1.9	< 4.7	4.7	U	1.9	< 4.7	4.7	U	1.9	< 5.0	5.0	U	2.0
2-Nitrophenol	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
3&4-Methylphenol (m&p-cresol)		< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
3,3'-Dichlorobenzidine	5	< 5.0	5.0	U	2.4	< 4.8	4.8	U	2.3	< 4.7	4.7	U	2.2	< 4.7	4.7	U	2.2	< 5.0	5.0	U	2.4
3-Nitroaniline	5	< 5.0	5.0	U	2.0	< 4.8	4.8	U	1.9	< 4.7	4.7	U	1.9	< 4.7	4.7	U	1.9	< 5.0	5.0	U	2.0
4,6-Dinitro-2-methylphenol	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
4-Bromophenyl phenyl ether		< 5.0	5.0	U	1.5	< 4.8	4.8	U	1.4	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.1	5.1	U	1.5
4-Chloro-3-methylphenol	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
4-Chloroaniline	5	< 3.5	3.5	U	2.3	< 3.4	3.4	U	2.2	< 3.3	3.3	U	2.2	< 3.3	3.3	U	2.2	< 3.5	3.5	U	2.4
4-Chlorophenyl phenyl ether		< 5.0	5.0	U	1.7	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.6	< 4.7	4.7	U	1.6	< 5.1	5.1	U	1.7
4-Nitroaniline	5	< 5.0	5.0	U	1.7	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.6	< 4.7	4.7	U	1.6	< 5.0	5.0	U	1.7
4-Nitrophenol		< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
Acenaphthene	20	< 5.0	5.0	U	1.5	**2.3**	4.8	J	1.5	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.1	5.1	U	1.5
Acenaphthylene		<0.10	0.10	U	0.10	< 4.8	4.8	U	1.3	<0.09	0.09	U	0.09	<0.09	0.09	U	0.09	<0.10	0.10	U	0.10
Acetophenone		< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.5	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.1	5.1	U	1.6
Aniline	5	< 3.5	3.5	U	5.0	< 3.4	3.4	U	4.8	< 3.3	3.3	U	4.7	< 3.3	3.3	U	4.7	< 3.5	3.5	U	5.1
Anthracene	50	< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.1	5.1	U	1.7
Benz(a)anthracene	0.002	**0.25**	0.02	-	0.02	**1.1**	0.96	-	0.96	**0.03**	0.02	-	0.02	**0.06**	0.02	-	0.02	**0.03**	0.02	-	0.02
Benzidine	5	< 4.5	4.5	U	2.9	< 4.3	4.3	U	2.8	< 4.2	4.2	U	2.8	< 4.2	4.2	U	2.8	< 4.5	4.5	U	3.0
Benzo(a)pyrene	0.002	**0.24**	0.02	-	0.02	< 0.96	0.96	U	0.96	< 0.02	0.02	U	0.02	**0.07**	0.02	-	0.02	**0.03**	0.02	-	0.02
Benzo(b)fluoranthene	0.002	**0.18**	0.02	-	0.02	< 0.96	0.96	U	0.96	< 0.02	0.02	U	0.02	**0.05**	0.02	-	0.02	**0.03**	0.02	-	0.02
Benzo(ghi)perylene		**0.16**	0.02	-	0.02	< 4.8	4.8	U	1.6	< 0.02	0.02	U	0.02	**0.07**	0.02	-	0.02	**0.03**	0.02	-	0.02
Benzo(k)fluoranthene	0.002	**0.18**	0.02	-	0.02	< 0.96	0.96	U	0.96	< 0.02	0.02	U	0.02	**0.03**	0.02	-	0.02	< 0.02	0.02	U	0.02
Benzoic acid		< 25	25	U	10	< 24	24	U	9.6	< 24	24	U	9.4	< 24	24	U	9.4	< 25	25	U	10
Benzyl butyl phthalate	50	< 5.0	5.0	U	1.3	< 4.8	4.8	U	1.2	< 4.7	4.7	U	1.2	< 4.7	4.7	U	1.2	< 5.1	5.1	U	1.3
Bis(2-chloroethoxy)methane	5	< 5.0	5.0	U	1.4	< 4.8	4.8	U	1.3	< 4.7	4.7	U	1.3	< 4.7	4.7	U	1.3	< 5.0	5.0	U	1.4
Bis(2-chloroethyl)ether	1	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
Bis(2-chloroisopropyl)ether		< 5.0	5.0	U	1.4	< 4.8	4.8	U	1.3	< 4.7	4.7	U	1.3	< 4.7	4.7	U	1.3	< 5.1	5.1	U	1.4
Bis(2-ethylhexyl)phthalate	5	<1.0	1.0	U	1.0	**1.7**	4.8	J	1.4	<0.94	0.94	U	0.94	<0.94	0.94	U	0.94	<1.0	1.0	U	1.0
Carbazole		< 5.0	5.0	U	3.8	< 4.8	4.8	U	3.6	< 4.7	4.7	U	3.6	< 4.7	4.7	U	3.6	< 5.1	5.1	U	3.8
Chrysene	0.002	**0.26**	0.02	-	0.02	**1.5**	0.96	-	0.96	< 0.02	0.02	U	0.02	**0.07**	0.02	-	0.02	**0.05**	0.02	-	0.02
Dibenz(a,h)anthracene		**0.05**	0.02	-	0.02	< 4.8	4.8	U	1.6	< 0.02	0.02	U	0.02	**0.02**	0.02	-	0.02	< 0.02	0.02	U	0.02
Dibenzofuran		< 5.0	5.0	U	1.5	< 4.8	4.8	U	1.4	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.0	5.0	U	1.5
Diethyl phthalate	50	**2.6**	5.0	J	1.6	**15**	4.8	-	1.5	**11**	4.7	-	1.5	< 4.7	4.7	U	1.5	**3**	5.1	J	1.6
Dimethylphthalate	50	< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.5	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.1	5.1	U	1.6
Di-n-butylphthalate	50	< 5.0	5.0	U	1.3	< 4.8	4.8	U	1.3	< 4.7	4.7	U	1.3	< 4.7	4.7	U	1.3	< 5.1	5.1	U	1.3
Di-n-octylphthalate	50	< 5.0	5.0	U	1.3	< 4.8	4.8	U	1.2	< 4.7	4.7	U	1.2	< 4.7	4.7	U	1.2	< 5.1	5.1	U	1.3
Fluoranthene	50	< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.1	5.1	U	1.6
Fluorene	50	< 5.0	5.0	U	1.7	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.6	< 4.7	4.7	U	1.6	< 5.1	5.1	U	1.7
Hexachlorobenzene	0.04	< 0.02	0.02	U	0.02	< 0.96	0.96	U	0.96	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02	< 0.02	0.02	U	0.02
Hexachlorobutadiene	0.5	< 0.40	0.40	U	0.40	< 0.96	0.96	U	0.96	< 0.38	0.38	U	0.38	< 0.38	0.38	U	0.38	< 0.40	0.40	U	0.40
Hexachlorocyclopentadiene	5	< 5.0	5.0	U	1.5	< 4.8	4.8	U	1.5	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.0	5.0	U	1.5
Hexachloroethane	5	< 0.50	0.50	U	0.50	< 4.8	4.8	U	1.4	< 0.47	0.47	U	0.47	< 0.47	0.47	U	0.47	< 0.51	0.51	U	0.51
Indeno(1,2,3-cd)pyrene	0.002	**0.14**	0.02	-	0.02	< 0.96	0.96	U	0.96	< 0.02	0.02	U	0.02	**0.04**	0.02		0.02	**0.02**	0.02	-	0.02
Isophorone	50	< 5.0	5.0	U	1.4	< 4.8	4.8	U	1.3	< 4.7	4.7	U	1.3	< 4.7	4.7	U	1.3	< 5.1	5.1	U	1.4
Naphthalene	10	< 5.0	5.0	U	1.4	**7.7**	4.8	-	1.4	< 4.7	4.7	U	1.4	< 4.7	4.7	U	1.4	< 5.0	5.0	U	1.5
Nitrobenzene	0.4	< 0.10	0.10	U	0.10	< 0.96	0.96	U	0.96	< 0.09	0.09	U	0.09	< 0.09	0.09	U	0.09	**0.24**	0.10	-	0.10
N-Nitrosodimethylamine		< 0.10	0.10	U	0.10	< 0.96	0.96	U	0.96	< 0.09	0.09	U	0.09	< 0.09	0.09	U	0.09	< 0.10	0.10	U	0.10
N-Nitrosodi-n-propylamine		< 5.0	5.0	U	1.6	< 4.8	4.8	U	1.6	< 4.7	4.7	U	1.5	< 4.7	4.7	U	1.5	< 5.1	5.1	U	1.6
N-Nitrosodiphenylamine	50	< 5.0	5.0	U	1.9	< 4.8	4.8	U	1.8	< 4.7	4.7	U	1.8	< 4.7	4.7	U	1.8	< 5.1	5.1	U	1.9
Pentachloronitrobenzene		< 0.10	0.10	U	0.10	< 4.8	4.8	U	1.8	< 0.09	0.09	U	0.09	< 0.09	0.09	U	0.09	< 0.10	0.10	U	0.10
Pentachlorophenol	1	< 0.10	0.10	U	0.10	< 1.8	1.8	U	1.8	**0.1**	0.09	-	0.09	< 0.09	0.09	U	0.09	< 0.10	0.10	U	0.10
Phenanthrene	50	**0.89**	0.10	-	0.10	**2.9**	4.8	J	1.4	< 0.09	0.09	U	0.09	< 0.09	0.09	U	0.09	**0.12**	0.10	-	0.10
Phenol	50	< 1.0	1.0	U	1.0	< 0.96	0.96	U	0.96	< 0.94	0.94	U	0.94	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
Pyrene	50	< 5.0	5.0	U	1.7	**2.4**	4.8	J	1.7	< 4.7	4.7	U	1.6	< 4.7	4.7	U	1.6	< 5.1	5.1	U	1.7
Pyridine	50	< 10	10	U	1.2	< 9.6	9.6	U	1.2	< 9.4	9.4	U	1.2	< 9.4	9.4	U	1.2	< 10	10	U	1.2

Notes:

RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 10
Groundwater Analytical Results
Pesticides and PCBs

	Compound	NYSDEC Groundwater Quality Standards µg/L	18MW1 1/29/2019 µg/L				18MW2 1/29/2019 µg/L				18MW3 1/29/2019 µg/L				18MW5 10/18/2018 µg/L			
			Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
PCBs	PCB-1016	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1221	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1232	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1242	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1248	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1254	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1260	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1262	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
	PCB-1268	0.09	< 0.050	0.050	U	0.050	< 0.050	0.050	U	0.050	< 0.048	0.048	U	0.048	< 0.050	0.050	U	0.050
Pesticides	4,4-DDD	0.3	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.005	0.005	U	0.005	< 0.020	0.020	U	0.020
	4,4-DDE	0.2	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.010	0.010	U	0.010	< 0.020	0.020	U	0.020
	4,4-DDT	0.11	< 0.005	0.005	U	0.005	**0.013**	0.010	-	0.010	< 0.005	0.005	U	0.005	< 0.020	0.020	U	0.020
	a-BHC	0.94	< 0.005	0.005	U	0.005	< 0.010	0.010	U	0.010	< 0.005	0.005	U	0.005	< 0.020	0.020	U	0.020
	a-Chlordane		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	Alachlor		< 0.075	0.075	U	0.075	< 0.38	0.38	U	0.38	< 0.071	0.071	U	0.071	< 0.050	0.050	U	0.050
	Aldrin		< 0.002	0.002	U	0.002	< 0.008	0.008	U	0.008	< 0.001	0.001	U	0.001	< 0.020	0.020	U	0.020
	b-BHC	0.04	< 0.005	0.005	U	0.005	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.020	0.020	U	0.020
	Chlordane	0.05	< 0.050	0.050	U	0.050	< 0.25	0.25	U	0.25	< 0.048	0.048	U	0.048	< 0.50	0.50	U	0.50
	d-BHC	0.04	< 0.005	0.005	U	0.005	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.020	0.020	U	0.020
	Dieldrin	0.004	< 0.004	0.004	U	0.004	< 0.010	0.010	U	0.010	< 0.001	0.001	U	0.001	< 0.020	0.020	U	0.020
	Endosulfan I		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	Endosulfan II		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	Endosulfan Sulfate		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	Endrin		< 0.010	0.010	U	0.010	< 0.025	0.025	U	0.025	< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050
	Endrin aldehyde	5	< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	Endrin ketone		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	gamma-BHC	0.05	< 0.005	0.005	U	0.005	< 0.025	0.025	U	0.025	< 0.005	0.005	U	0.005	< 0.050	0.050	U	0.050
	g-Chlordane		< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050	< 0.010	0.010	U	0.010	< 0.10	0.10	U	0.10
	Heptachlor	0.04	< 0.010	0.010	U	0.010	< 0.025	0.025	U	0.025	< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050
	Heptachlor epoxide	0.03	< 0.010	0.010	U	0.010	< 0.025	0.025	U	0.025	< 0.010	0.010	U	0.010	< 0.050	0.050	U	0.050
	Methoxychlor	35	< 0.10	0.10	U	0.10	< 0.50	0.50	U	0.50	< 0.095	0.095	U	0.095	< 1.0	1.0	U	1.0
	Toxaphene		< 0.20	0.20	U	0.20	< 1.0	1.0	U	1.0	< 0.19	0.19	U	0.19	< 2.0	2.0	U	2.0

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 10
Groundwater Analytical Results
Pesticides and PCBs

	Compound	NYSDEC Groundwater Quality Standards µg/L	18MW6 10/18/2018 µg/L				18MW7 10/18/2018 µg/L				18MW8 10/17/2018 µg/L				18MW9 10/17/2018 µg/L				Duplicate 10/18/2018 µg/L			
			Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
PCBs	PCB-1016	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1221	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1232	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1242	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1248	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	< 0.001	< 0.050	0.050	U	0.050
	PCB-1254	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1260	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1262	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	PCB-1268	0.09	< 0.047	0.047	U	0.047	< 0.048	0.048	U	0.048	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
Pesticides	4,4-DDD	0.3	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.005	0.005	U	0.009	< 0.019	0.019	U	0.019	< 0.030	0.030	U	0.030
	4,4-DDE	0.2	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.005	0.005	U	0.009	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	4,4-DDT	0.11	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.005	0.005	U	0.009	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	a-BHC	0.94	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.005	0.005	U	0.005	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	a-Chlordane		< 0.010	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	Alachlor		< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.071	0.071	U	0.071	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	Aldrin		< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.001	0.001	U	0.001	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	b-BHC	0.04	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.005	0.005	U	0.005	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	Chlordane	0.05	< 0.47	0.47	U	0.47	< 0.47	0.47	U	0.47	< 0.047	0.047	U	0.047	< 0.47	0.47	U	0.47	< 0.50	0.50	U	0.50
	d-BHC	0.04	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.005	0.005	U	0.005	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	Dieldrin	0.004	< 0.019	0.019	U	0.019	< 0.019	0.019	U	0.019	< 0.001	0.001	U	0.001	< 0.019	0.019	U	0.019	< 0.020	0.020	U	0.020
	Endosulfan I		< 0.094	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	Endosulfan II		< 0.094	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	Endosulfan Sulfate		< 0.094	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	Endrin		< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.009	0.009	U	0.009	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	Endrin aldehyde	5	< 0.094	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	Endrin ketone		< 0.094	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	gamma-BHC	0.05	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.005	0.005	U	0.005	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	g-Chlordane		< 0.094	0.094	U	0.094	< 0.095	0.095	U	0.095	< 0.009	0.009	U	0.009	< 0.094	0.094	U	0.094	< 0.10	0.10	U	0.10
	Heptachlor	0.04	< 0.056	0.056	U	0.056	< 0.047	0.047	U	0.047	< 0.009	0.009	U	0.009	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	Heptachlor epoxide	0.03	< 0.047	0.047	U	0.047	< 0.047	0.047	U	0.047	< 0.009	0.009	U	0.009	< 0.047	0.047	U	0.047	< 0.050	0.050	U	0.050
	Methoxychlor	35	< 0.94	0.94	U	0.94	< 0.95	0.95	U	0.95	< 0.094	0.094	U	0.094	< 0.94	0.94	U	0.94	< 1.0	1.0	U	1.0
	Toxaphene		< 1.9	1.9	U	1.9	< 1.9	1.9	U	1.9	< 0.19	0.19	U	0.19	< 1.9	1.9	U	1.9	< 2.0	2.0	U	2.0

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 11
Groundwater Analytical Results
Total Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	18MW1 1/29/2019 mg/L				18MW2 1/29/2019 mg/L				18MW3 1/29/2019 mg/L				18MW5 11/17/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	0.1	**14.1**	0.010	-	0.0024	**30.1**	0.10	-	0.024	**0.334**	0.010	-	0.0024	**32.7**	0.10	-	0.0024
Antimony	0.003	< 0.0030	0.0030	U	0.0030	< 0.0030	0.0030	U	0.0030	< 0.0030	0.0030	U	0.0030	< 0.002	0.002	-	0.001
Arsenic	0.025	**0.044**	0.004	-	0.001	< 0.004	0.004	U	0.001	**0.519**	0.004	-	0.001	0.012	0.004	-	0.001
Barium	1	0.331	0.010	-	0.001	0.059	0.010	-	0.001	0.456	0.010	-	0.001	0.507	0.010	U	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	0.002	0.001	-	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	J	0.0005
Cadmium	0.005	0.001	0.004	J	0.0005	**0.006**	0.004	-	0.0005	< 0.004	0.004	U	0.0005	0.003	0.004	-	0.003
Calcium	NS	224	0.10	-	0.030	494	0.10	-	0.030	103	0.010	-	0.003	118	0.010	-	0.001
Chromium	0.05	**0.658**	0.001	-	0.001	0.044	0.001	-	0.001	0.003	0.001	-	0.001	**0.097**	0.001	J	0.001
Cobalt	NS	0.012	0.005	-	0.001	0.022	0.005	-	0.001	0.002	0.005	J	0.001	0.041	0.005	-	0.001
Copper	0.2	0.082	0.005	-	0.001	0.056	0.005	-	0.001	0.011	0.005	-	0.001	0.069	0.005	-	0.01
Iron	0.5	**30.1**	0.01	-	0.01	**226**	0.10	-	0.10	**10.1**	0.01	-	0.01	**133**	0.10	-	0.001
Lead	0.025	**0.313**	0.002	-	0.001	**0.069**	0.002	-	0.001	**0.044**	0.002	-	0.001	0.021	0.002	-	0.01
Magnesium	35	**37**	0.010	-	0.01	**65.7**	0.010	-	0.01	28.8	0.010	-	0.01	**37.8**	0.010	-	0.001
Manganese	0.3	**1.24**	< 0.010	-	0.001	**5.67**	0.050	-	0.010	**0.322**	0.005	-	0.001	**12.1**	0.050	U	0.00015
Mercury	0.0007	0.0006	0.0002	-	0.00015	< 0.0002	0.0002	U	0.00015	**0.0022**	0.0002	-	0.00015	< 0.0002	0.0002	J	0.001
Nickel	0.1	0.019	0.004	-	0.001	0.06	0.004	-	0.001	0.002	0.004	J	0.001	0.069	0.004	-	0.1
Potassium	NS	33.7	0.1	-	0.1	48.7	0.1	-	0.1	35.1	0.1	-	0.1	17.5	0.1	U	0.0029
Selenium	0.01	< 0.010	0.010	U	0.010	**0.035**	0.010	-	0.010	< 0.010	0.010	U	0.010	< 0.002	0.002	U	0.005
Silver	0.05	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	**146**	1.0	-	1.0	**119**	1.0	-	1.0	**123**	1.0	-	1.0	**148**	1.0	-	1.0
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	0.036	0.010	-	0.001	0.055	0.010	-	0.001	0.001	0.010	J	0.001	0.088	0.010	J	0.001
Zinc	2	0.202	0.010	-	0.002	1.71	0.010	-	0.002	0.025	0.010	-	0.002	0.118	0.010	-	0.002

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 11
Groundwater Analytical Results
Total Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	18MW6 11/17/2016 mg/L				18MW7 11/16/2016 mg/L				18MW8 11/16/2016 mg/L				18MW9 11/16/2016 mg/L				Duplicate 11/16/2016 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	0.1	**1.05**	0.010	-	0.0024	**6.04**	0.010	-	0.0024	0.031	0.010	-	0.0024	**6.2**	0.010	-	0.0024	**0.182**	0.010	-	0.0024
Antimony	0.003	< 0.002	0.002	-	0.001	< 0.002	0.002	-	0.001	< 0.002	0.002	-	0.001	< 0.002	0.002	-	0.001	< 0.002	0.002	-	0.001
Arsenic	0.025	< 0.004	0.004	-	0.001	< 0.004	0.004	-	0.001	0.011	0.004	-	0.001	**0.035**	0.004	-	0.001	< 0.004	0.004	-	0.001
Barium	1	0.155	0.010	U	0.001	**1.33**	0.010	-	0.001	0.266	0.010	U	0.001	0.45	0.010	U	0.001	0.198	0.010	U	0.001
Beryllium	0.003	< 0.001	0.001	J	0.0005	< 0.001	0.001	J	0.0005	< 0.001	0.001	J	0.0005	< 0.001	0.001	J	0.0005	< 0.001	0.001	J	0.0005
Cadmium	0.005	0.001	0.004	-	0.003	**0.018**	0.004	-	0.003	0.002	0.004	-	0.003	0.003	0.004	-	0.003	< 0.004	0.004	-	0.003
Calcium	NS	98	0.010	-	0.001	429	0.10	-	0.001	47.5	0.010	-	0.001	162	0.10	-	0.001	120	0.010	-	0.001
Chromium	0.05	0.003	0.001	-	0.001	0.016	0.001	-	0.001	< 0.001	0.001	-	0.001	0.021	0.001	-	0.001	0.002	0.001	J	0.001
Cobalt	NS	0.002	0.005	-	0.001	0.082	0.005	-	0.001	0.018	0.005	-	0.001	0.012	0.005	-	0.001	0.008	0.005	-	0.001
Copper	0.2	0.004	0.005	-	0.01	< 0.005	0.005	-	0.01	< 0.005	0.005	-	0.01	0.022	0.005	-	0.01	< 0.005	0.005	-	0.01
Iron	0.5	**28.2**	0.01	-	0.001	**868**	0.10	-	0.001	**121**	0.01	-	0.001	**151**	0.10	-	0.001	**14.6**	0.01	-	0.001
Lead	0.025	0.006	0.002	-	0.01	**0.059**	0.002	-	0.01	0.007	0.002	-	0.01	0.018	0.002	-	0.01	< 0.002	0.002	-	0.01
Magnesium	35	33.5	0.010	-	0.001	**99.1**	0.10	-	0.001	14.7	0.010	-	0.001	28.7	0.010	-	0.001	**39.7**	0.010	-	0.001
Manganese	0.3	**5.19**	< 0.010	U	0.00015	**33**	0.50	U	0.00015	**3.48**	0.050	U	0.00015	**3.87**	0.050	-	0.00015	**11.4**	0.050	U	0.00015
Mercury	0.0007	< 0.0002	0.0002	-	0.001	< 0.0002	0.0002	-	0.001	< 0.0002	0.0002	-	0.001	< 0.0002	0.0002	-	0.001	< 0.0002	0.0002	-	0.001
Nickel	0.1	0.002	0.004	-	0.1	0.011	0.004	-	0.1	0.004	0.004	-	0.1	0.025	0.004	-	0.1	0.007	0.004	-	0.1
Potassium	NS	4.8	0.1	U	0.0029	23.7	0.1	U	0.0029	5	0.1	-	0.0029	25.2	0.1	U	0.0029	9.6	0.1	U	0.0029
Selenium	0.01	< 0.002	0.002	U	0.005	< 0.002	0.002	U	0.005	< 0.002	0.002	U	0.005	< 0.002	0.002	U	0.005	< 0.002	0.002	U	0.005
Silver	0.05	< 0.005	0.005	U	0.001	0.001	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001	< 0.005	0.005	U	0.001
Sodium	2	**130**	1.0	-	1.0	**233**	1.0	-	10	**107**	1.0	-	10	**151**	1.0	-	10	**122**	1.0	-	1.0
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005
Vanadium	NS	0.004	0.010	J	0.001	0.022	0.010	-	0.001	< 0.010	0.010	-	0.001	0.028	0.010	-	0.001	0.001	0.010	J	0.001
Zinc	2	0.01	0.010	-	0.002	0.141	0.010	-	0.002	0.014	0.010	-	0.002	0.064	0.010	-	0.002	0.009	0.010	-	0.002

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 12
Groundwater Analytical Results
Dissolved Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	18MW1 1/29/2019 mg/L				18MW2 1/29/2019 mg/L				18MW3 1/29/2019 mg/L				18MW5 10/18/2018 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	0.1	**0.056**	0.011	-	0.0026	**28.8**	0.011	-	0.0026	**0.047**	0.011	-	0.0026	**0.046**	0.011	-	0.0026
Antimony	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.003	0.003	U	0.003	< 0.0030	0.0030	-	0.001
Arsenic	0.025	**0.006**	0.003	-	0.001	< 0.003	0.003	U	0.001	**0.219**	0.003	-	0.001	**0.009**	0.003	-	0.001
Barium	1	**0.178**	0.011	-	0.001	**0.06**	0.011	-	0.001	**0.321**	0.011	-	0.001	**0.348**	0.011	U	0.001
Beryllium	0.003	< 0.001	0.001	U	0.001	**0.001**	0.001	-	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.0005
Cadmium	0.005	< 0.004	0.004	U	0.0005	**0.006**	0.004	-	0.0005	< 0.004	0.004	U	0.0005	< 0.004	0.004	-	0.003
Calcium	NS	**217**	1.1	-	1.1	**553**	1.1	-	1.1	**103**	0.01	-	0.01	**114**	0.01	U	0.001
Chromium	0.05	< 0.001	0.001	U	0.001	**0.041**	0.001	-	0.001	< 0.001	0.001	U	0.001	< 0.001	0.001	U	0.001
Cobalt	NS	< 0.005	0.005	U	0.005	**0.02**	0.005	-	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	J	0.001
Copper	0.2	< 0.005	0.005	U	0.001	**0.037**	0.005	-	0.001	< 0.005	0.005	U	0.001	**0.002**	0.005	U	0.0020
Iron	0.5	**0.05**	0.01	-	0.01	**208**	0.11	-	0.11	**0.04**	0.01	-	0.01	**0.27**	0.01	U	0.005
Lead	0.025	< 0.002	0.002	U	0.001	**0.037**	0.002	-	0.001	< 0.002	0.002	U	0.001	< 0.002	0.002	U	0.0001
Magnesium	35	**34.8**	0.01	-	0.01	**65.5**	0.01	-	0.01	**28.4**	0.01	-	0.01	**25.9**	0.01	-	0.01
Manganese	0.3	**0.945**	< 0.010	-	0.001	**5.16**	0.053	-	0.011	**0.311**	0.005	-	0.001	**0.947**	0.005	U	0.001
Mercury	0.0007	**0.0002**	0.0002	-	0.0002	**0.0002**	0.0002	J	0.00015	**0.0002**	0.0002	-	0.00015	< 0.0002	0.0002	-	0.01
Nickel	0.1	**0.003**	0.004	J	0.001	**0.058**	0.004	-	0.001	**0.002**	0.004	J	0.001	**0.001**	0.004	-	0.001
Potassium	NS	**31.8**	0.1	-	0.1	**45.4**	0.1	-	0.1	**34.4**	0.1	-	0.1	**34**	0.1	U	0.00015
Selenium	0.01	< 0.004	0.004	U	0.004	**0.028**	0.010	-	0.010	< 0.004	0.004	U	0.004	< 0.010	0.010	J	0.001
Silver	0.05	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	U	0.005	< 0.005	0.005	-	0.1
Sodium	2	**153**	1.1	-	1.1	**123**	1.1	-	1.1	**124**	1.1	-	1.1	**111**	1.1	U	0.001
Thallium	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0005	0.0005	U	0.0005	< 0.0003	0.0003	-	1.1
Vanadium	NS	**0.003**	0.011	J	0.001	**0.056**	0.011	-	0.001	**0.002**	0.011	J	0.001	**0.002**	0.011	J	0.001
Zinc	2	**0.006**	0.011	J	0.002	**1.78**	0.011	-	0.002	**0.004**	0.011	J	0.002	**0.004**	0.011	J	0.002

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street

TABLE 12
Groundwater Analytical Results
Dissolved Metals

Compound	NYSDEC Groundwater Quality Standards mg/L	18MW6 10/18/2018 mg/L				18MW7 10/18/2018 mg/L				18MW8 10/17/2018 mg/L				18MW9 10/17/2018 mg/L				Duplicate 10/18/2018 mg/L			
		Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Aluminum	0.1	0.046	0.011	-	0.0026	0.033	0.011	-	0.0026	0.048	0.011	-	0.0026	0.04	0.011	-	0.0026	0.044	0.011	-	0.0026
Antimony	0.003	< 0.0030	0.0030	-	0.001	< 0.0030	0.0030	-	0.001	< 0.003	0.003	-	0.001	< 0.0030	0.0030	-	0.001	< 0.0030	0.0030	-	0.001
Arsenic	0.025	0.019	0.003	-	0.001	0.01	0.003	-	0.001	0.014	0.003	-	0.001	0.011	0.003	-	0.001	0.009	0.003	-	0.001
Barium	1	0.265	0.011	U	0.001	0.183	0.011	U	0.001	0.048	0.011	U	0.001	0.013	0.011	U	0.001	0.333	0.011	U	0.001
Beryllium	0.003	< 0.001	0.001	U	0.0005	< 0.001	0.001	U	0.0005	< 0.001	0.001	U	0.0005	< 0.001	0.001	U	0.0005	< 0.001	0.001	U	0.0005
Cadmium	0.005	< 0.004	0.004	-	0.003	< 0.004	0.004	-	0.003	< 0.004	0.004	-	0.003	< 0.004	0.004	-	0.003	< 0.004	0.004	-	0.003
Calcium	NS	117	0.01	U	0.001	74.2	0.01	U	0.001	17	0.01	U	0.001	42.1	0.01	-	0.001	122	0.01	U	0.001
Chromium	0.05	< 0.001	0.001	J	0.001	< 0.001	0.001	J	0.001	< 0.001	0.001	J	0.001	0.002	0.001	J	0.001	< 0.001	0.001	J	0.001
Cobalt	NS	0.003	0.005	U	0.001	0.002	0.005	U	0.001	0.002	0.005	-	0.001	0.004	0.005	U	0.001	0.001	0.005	U	0.001
Copper	0.2	< 0.005	0.005	U	0.0020	< 0.005	0.005	U	0.0020	0.005	0.005	U	0.0020	< 0.005	0.005	U	0.0020	< 0.005	0.005	U	0.0020
Iron	0.5	**1.62**	0.01	U	0.005	0.08	0.01	U	0.005	0.05	0.01	U	0.005	**0.93**	0.01	U	0.005	0.25	0.01	U	0.005
Lead	0.025	< 0.002	0.002	U	0.0001	< 0.002	0.002	U	0.0001	0.002	0.002	U	0.0001	< 0.002	0.002	U	0.0001	< 0.002	0.002	U	0.0001
Magnesium	35	30	0.01	-	0.01	**52.9**	0.01	-	0.01	9.35	0.01	-	0.01	**43.4**	0.01	-	0.01	25.5	0.01	-	0.01
Manganese	0.3	0.202	< 0.010	U	0.001	0.181	0.005	U	0.001	0.024	0.005	J	0.001	**0.487**	0.005	U	0.001	**0.988**	0.005	U	0.001
Mercury	0.0007	< 0.0002	0.0002	-	0.01	< 0.0002	0.0002	-	0.01	< 0.0002	0.0002	-	0.01	< 0.0002	0.0002	-	0.01	< 0.0002	0.0002	-	0.01
Nickel	0.1	0.001	0.004	-	0.001	0.002	0.004	-	0.001	0.002	0.004	-	0.001	0.003	0.004	-	0.001	0.002	0.004	-	0.001
Potassium	NS	32.5	0.1	U	0.00015	35.3	0.1	U	0.00015	31.1	0.1	U	0.00015	28.5	0.1	U	0.00015	32.3	0.1	U	0.00015
Selenium	0.01	< 0.010	0.010	J	0.001	< 0.010	0.010	J	0.001	< 0.010	0.010	J	0.001	< 0.010	0.010	J	0.001	< 0.010	0.010	J	0.001
Silver	0.05	< 0.005	0.005	-	0.1	< 0.005	0.005	-	0.1	< 0.005	0.005	-	0.1	< 0.005	0.005	-	0.1	< 0.005	0.005	-	0.1
Sodium	2	**142**	1.1	U	0.001	**202**	1.1	U	0.001	**410**	11	U	0.001	**608**	11	U	0.001	**118**	1.1	U	0.001
Thallium	0.0005	< 0.0003	0.0003	-	1.1	< 0.0003	0.0003	-	1.1	< 0.0003	0.0003	-	11	< 0.0003	0.0003	-	11	< 0.0003	0.0003	-	1.1
Vanadium	NS	0.003	0.011	J	0.001	0.001	0.011	J	0.001	0.003	0.011	J	0.001	0.002	0.011	J	0.001	0.002	0.011	J	0.001
Zinc	2	0.004	0.011	J	0.002	0.005	0.011	J	0.002	0.007	0.011	J	0.002	0.006	0.011	J	0.002	0.005	0.011	J	0.002

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street

TABLE 13
Groundwater Analytical Results
PFAS Compounds

Compound	18MW1 1/29/2019 ng/L				18MW2 1/29/2019 ng/L				18MW3 1/29/2019 ng/L				18MW5 10/18/2018 ng/L			
	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Perfluorobutanoic Acid (PFBA)	**8.24**	1.94	-	0.363	ND	50	-	9.33	**10.8**	1.91	-	0.356	**23.4**	2.18	-	0.407
Perfluoropentanoic Acid (PFPeA)	**16.1**	1.94	-	0.451	ND	50	-	11.6	**44.9**	1.91	-	0.443	**68.3**	2.18	-	0.506
Perfluorobutanesulfonic Acid (PFBS)	**5.86**	1.94	-	0.37	ND	50	-	9.5	ND	1.91	-	0.362	**5.39**	2.18	-	0.415
Perfluorohexanoic Acid (PFHxA)	**15.1**	1.94	-	0.478	ND	50	-	12.3	**32.4**	1.91	-	0.469	**49.9**	2.18	U	0.537
Perfluoroheptanoic Acid (PFHpA)	**9.2**	1.94	-	0.362	ND	50	-	9.3	**16.7**	1.91	-	0.355	**24.4**	2.18	U	0.406
Perfluorohexanesulfonic Acid (PFHxS)	**2.22**	1.94	-	0.424	ND	50	-	10.9	ND	1.91	-	0.416	ND	2.18	-	0.476
Perfluorooctanoic Acid (PFOA)	**63.3**	1.94	-	0.447	**11.5**	50	J	11.5	**55.8**	1.91	-	0.439	**62.2**	2.18	U	0.502
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	**0.638**	1.94	J	0.189	ND	50	-	4.85	**8.46**	1.91	-	0.185	**9.05**	2.18	J	0.212
Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.94	-	0.506	ND	50	-	13	ND	1.91	-	0.496	ND	2.18	U	0.568
Perfluorononanoic Acid (PFNA)	**0.654**	1.94	J	0.424	ND	50	-	10.9	**0.92**	1.91	J	0.416	ND	2.18	U	0.476
Perfluorooctanesulfonic Acid (PFOS)	**7.11**	1.94	-	0.545	ND	50	-	15	**8.33**	1.91	-	0.534	**6.16**	2.18	U	0.611
Perfluorodecanoic Acid (PFDA)	ND	1.94	-	0.603	ND	50	-	15.5	ND	1.91	-	0.592	ND	2.18	U	0.677
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.94	-	0.283	ND	50	-	7.27	ND	1.91	-	0.277	ND	2.18	-	0.317
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.94	< 0.010	0.244	ND	50	-	6.26	**0.408**	1.91	J	0.239	ND	2.18	U	0.273
Perfluoroundecanoic Acid (PFUnA)	ND	1.94	-	0.412	ND	50	-	10.6	ND	1.91	-	0.404	ND	2.18	-	0.463
Perfluorodecanesulfonic Acid (PFDS)	ND	1.94	-	0.375	ND	50	-	9.65	ND	1.91	-	0.368	ND	2.18	-	0.421
Perfluorooctanesulfonamide (FOSA)	ND	1.94	-	0.541	ND	50	-	13.9	ND	1.91	-	0.53	ND	2.18	U	0.607
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.94	-	0.363	ND	50	-	9.32	ND	1.91	-	0.356	ND	2.18	J	0.407
Perfluorododecanoic Acid (PFDoA)	ND	1.94	-	0.576	ND	50	-	14.8	ND	1.91	-	0.565	ND	2.18	-	0.646
Perfluorotridecanoic Acid (PFTrDA)	ND	1.94	-	0.305	ND	50	-	7.84	ND	1.91	-	0.3	ND	2.18	U	0.343
Perfluorotetradecanoic Acid (PFTA)	ND	1.94	-	0.961	ND	50	-	24.7	ND	1.91	-	0.943	ND	2.18	-	1.08
Combined PFOA and PFOS	**70.41**				**11.5**				**64.13**				**68.36**			
Combined Total Detections	**99.61**				**11.5**				**108.658**				**248.8**			

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
The USEPA Health Advisory Level for drinking water is 70 ng/L (ppt) for combined detections of PFOA and PFOs

TABLE 13
Groundwater Analytical Results
PFAS Compounds

Compound	18MW6 10/18/2018 ng/L				18MW7 10/18/2018 ng/L				18MW8 10/17/2018 ng/L				18MW9 10/17/2018 ng/L				Duplicate 10/18/2018 ng/L			
	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL	Results	RL	Qual	MDL
Perfluorobutanoic Acid (PFBA)	**15.2**	2.12	-	0.395	**5.65**	2.09	-	0.39	**11.9**	1.84	-	0.344	**6.08**	2.12	-	0.395	**23**	2.23	-	0.416
Perfluoropentanoic Acid (PFPeA)	**37.9**	2.12	-	0.492	ND	2.09	-	0.485	**25.3**	1.84	-	0.428	**8.04**	2.12	-	0.492	**67.9**	2.23	-	0.518
Perfluorobutanesulfonic Acid (PFBS)	**3.87**	2.12	-	0.402	ND	2.09	-	0.397	**2.97**	1.84	-	0.35	ND	2.12	-	0.402	**6.15**	2.23	-	0.424
Perfluorohexanoic Acid (PFHxA)	**30.6**	2.12	-	0.521	**10.7**	2.09	-	0.515	**24.9**	1.84	-	0.454	**12.2**	2.12	-	0.521	**51.5**	2.23	-	0.549
Perfluoroheptanoic Acid (PFHpA)	**19.2**	2.12	-	0.394	**8.82**	2.09	-	0.389	**24.7**	1.84	-	0.343	**12.9**	2.12	-	0.394	**24.2**	2.23	-	0.415
Perfluorohexanesulfonic Acid (PFHxS)	ND	2.12	-	0.462	**12.2**	2.09	-	0.456	**27.4**	1.84	-	0.402	ND	2.12	-	0.462	ND	2.23	-	0.487
Perfluorooctanoic Acid (PFOA)	**63.2**	2.12	-	0.487	**38.9**	2.09	-	0.81	**94.6**	1.84	-	0.424	**49.2**	2.12	-	0.487	**62.3**	2.23	-	0.513
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	**3.67**	2.12	-	0.206	**1.11**	2.09	J	0.203	**4.13**	1.84	J	0.179	**0.64**	2.12	J	0.206	**9.83**	2.23	-	0.216
Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.12	-	0.551	ND	2.09	-	0.544	ND	1.84	-	0.48	ND	2.12	-	0.551	ND	2.23	-	0.58
Perfluorononanoic Acid (PFNA)	**1.76**	2.12	J	0.462	ND	2.09	-	0.456	ND	1.84	-	0.402	ND	2.12	-	0.462	**1.76**	2.23	J	0.487
Perfluorooctanesulfonic Acid (PFOS)	**8.77**	2.12	-	0.593	ND	2.09	-	0.586	ND	1.84	-	0.517	**0.7**	2.12	J	0.593	**10.7**	2.23	-	0.625
Perfluorodecanoic Acid (PFDA)	ND	2.12	-	0.657	ND	2.09	-	0.648	ND	1.84	-	0.572	ND	2.12	-	0.657	ND	2.23	-	0.692
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.12	-	0.308	ND	2.09	-	0.304	ND	1.84	-	0.268	ND	2.12	-	0.308	ND	2.23	-	0.324
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	2.12	< 0.010	0.265	ND	2.09	-	0.262	ND	1.84	-	0.231	ND	2.12	-	0.265	ND	2.23	-	0.279
Perfluoroundecanoic Acid (PFUnA)	ND	2.12	-	0.449	ND	2.09	-	0.444	ND	1.84	-	0.391	ND	2.12	-	0.449	ND	2.23	-	0.473
Perfluorodecanesulfonic Acid (PFDS)	ND	2.12	-	0.409	ND	2.09	-	0.404	ND	1.84	-	0.356	ND	2.12	-	0.409	ND	2.23	-	0.431
Perfluorooctanesulfonamide (FOSA)	ND	2.12	-	0.589	ND	2.09	-	0.582	ND	1.84	-	0.513	ND	2.12	-	0.589	ND	2.23	-	0.62
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.12	-	0.395	ND	2.09	-	0.39	ND	1.84	-	0.344	ND	2.12	-	0.395	ND	2.23	-	0.416
Perfluorododecanoic Acid (PFDoA)	ND	2.12	-	0.627	ND	2.09	-	0.619	ND	1.84	-	0.546	ND	2.12	-	0.627	ND	2.23	-	0.661
Perfluorotridecanoic Acid (PFTrDA)	ND	2.12	-	0.333	ND	2.09	-	0.328	ND	1.84	-	0.29	ND	2.12	-	0.333	ND	2.23	-	0.35
Perfluorotetradecanoic Acid (PFTA)	ND	2.12	-	1.05	ND	2.09	-	1.03	ND	1.84	-	0.911	ND	2.12	-	1.05	ND	2.23	-	1.1
Combined PFOA and PFOS	71.97				38.9				94.6				49.9				73			
Combined Total Detections	121.64				77.38				134.37				89.76				257.34			

Notes:
RL- Reporting Limit
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.
The USEPA Health Advisory Level for drinking water is 70 ng/L (ppt) for combined detections of PFOA and PFOs

TABLE 14
Parameters Detected Above Ambient Groundwater Standards

Compound	Range of Exceedances	Frequency of Detection	18MW1 1/29/2019	18MW2 1/29/2019	18MW3 1/29/2019	18MW4 1/29/2019	18MW5 10/18/2018	18MW6 10/18/2018	18MW7 10/18/2018	18MW8 10/17/2018	18MW9 10/17/2018	Duplicate 10/18/2018
Sample Results in ug/L												
2-Isopropyltoluene	12	1	-	-	-	-	-	**12**	-	-	-	-
Benzene	1	1	-	-	-	-	-	-	**1**	-	-	-
Isopropylbenzene	5.5-24	2	-	-	-	-	-	**24**	**5.5**	-	-	-
Naphthalene	11	1	-	-	-	-	-	-	**11**	-	-	-
n-Butylbenzene	28	1	-	-	-	-	-	**28**	-	-	-	-
n-Propylbenzene	5.3-22	2	-	-	-	-	-	**22**	**5.3**	-	-	-
sec-Butylbenzene	19	1	-	-	-	-	-	**19**	-	-	-	-
Trichloroethene	8.7	1	**8.7**	-	-	-	-	-	-	-	-	-
Sample Results in ug/L												
Benz(a)anthracene	0.03-66	8	**0.23**	**0.36**	**0.05**	**66**	**0.06**	**0.25**	**1.1**	**0.03**	**0.06**	**0.03**
Benzo(a)pyrene	0.03-61	8	**0.18**	**0.65**	**0.1**	**61**	**0.08**	**0.24**	-	-	**0.07**	**0.03**
Benzo(b)fluoranthene	0.03-31	7	**0.16**	**0.08**	-	**31**	**0.06**	**0.18**	-	-	**0.05**	**0.03**
Benzo(ghi)perylene	49	1	-	-	-	**49**	-	-	-	-	-	-
Benzo(k)fluoranthene	0.03-13	6	**0.14**	**0.06**	-	**13**	**0.05**	**0.18**	-	-	**0.03**	-
Chrysene	0.05-58	8	**0.2**	**0.46**	**0.05**	**58**	**0.12**	**0.26**	**1.5**	-	**0.07**	-
Indeno(1,2,3-cd)pyrene	0.02-26	7	**0.11**	**0.08**	-	**26**	**0.04**	**0.14**	-	-	**0.04**	**0.02**
Pyrene	58	1	-	-	-	**58**	-	-	-	-	-	-
Sample Results in ug/L												
4,4-DDT	0.013	1	-	**0.013**	-	-	-	-	-	-	-	-
Sample Results in mg/L												
Aluminum (total)	0.182-32.7	8	**14.1**	**30.1**	**0.334**	-	**32.7**	**1.05**	**6.04**	-	**6.2**	**0.182**
Arsenic (total)	0.035-0.519	3	**0.044**	-	**0.519**	-	-	-	-	-	**0.035**	-
Barium (total)	1.33	1	-	-	-	-	-	-	**1.33**	-	-	-
Cadmium (total)	0.006-0.018	2	-	**0.006**	-	-	-	-	**0.018**	-	-	-
Chromium (total)	0.097-0.658	2	**0.658**	-	-	-	**0.097**	-	-	-	-	-
Iron (total)	10.1-868	9	**30.1**	**226**	**10.1**	-	**133**	**28.2**	**868**	**121**	**151**	**14.6**
Lead (total)	0.044-0.313	4	**0.313**	**0.069**	**0.044**	-	-	-	**0.059**	-	-	-
Magnesium (total)	37-99.1	5	**37**	**65.7**	-	-	**37.8**	-	**99.1**	-	-	**39.7**
Manganese (total)	0.322-33	8	**1.24**	**5.67**	**0.322**	-	**12.1**	**5.19**	**33**	**3.48**	**3.87**	**11.4**
Selenium (total)	0.035	1	-	**0.035**	-	-	-	-	-	-	-	-
Sodium (total)	1.3-233	8	**146**	**119**	**123**	-	**148**	**1.3**	**233**	**107**	**151**	**122**
Sample Results in mg/L												
Aluminum (dissolved)	28.8-28.8	1	-	**28.8**	-	-	-	-	-	-	-	-
Arsenic (dissolved)	0.219-0.219	1	-	-	**0.219**	-	-	-	-	-	-	-
Cadmium (dissolved)	0.006-0.006	1	-	**0.006**	-	-	-	-	-	-	-	-
Iron (dissolved)	0.93-208	3	-	**208**	-	-	-	**1.62**	-	-	**0.93**	-
Lead (dissolved)	0.037-43.4	2	-	**0.037**	-	-	-	-	-	-	**43.4**	-
Magnesium (dissolved)	43.4-65.5	3	-	**65.5**	-	-	-	-	**52.9**	-	**43.4**	-
Manganese (dissolved)	0.311-5.16	6	**0.945**	**5.16**	**0.311**	-	**0.947**	-	-	-	**0.487**	**0.988**
Selenium (dissolved)	0.028	1	-	**0.028**	-	-	-	-	-	-	-	-
Sodium (dissolved)	111-608	9	**153**	**123**	**124**	-	**111**	**142**	**202**	**410**	**608**	**118**

Notes:
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

TABLE 15
Soil Vapor Analytical Results
Volatile Organic Compounds

COMPOUNDS	SG1				SG2				SG3				SG4				SG5				SG6				SG7			
	11/5/2018 (µg/m3)				11/5/2018 (µg/m3)				11/5/2018 (µg/m3)				11/5/2018 (µg/m3)				10/17/2018 (µg/m3)				10/17/2018 (µg/m3)				10/17/2018 (µg/m3)			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,1-Trichloroethane	**4.02**	1.00	-	1.00	**13.7**	1.00	-	1.00	< 1.00	1.00	U	1.00	**2.03**	1.00	-	1.00	**9.16**	1.00	-	1.00	**2.03**	1.00	-	1.00	< 1.00	1.00	U	1.00
1,1,2,2-Tetrachloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,2-Trichloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1-Dichloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1-Dichloroethene	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20
1,2,4-Trichlorobenzene	**2.43**	1.00	-	1.00	**1.3**	1.00	-	1.00	**1.23**	1.00	-	1.00	**1.39**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2,4-Trimethylbenzene	**3.19**	1.00	-	1.00	**2.96**	1.00	-	1.00	**3.09**	1.00	-	1.00	**3.16**	1.00	-	< 0.001	**1.47**	1.00	-	1.00	**1.33**	1.00	-	1.00	< 1.00	1.00	U	1.00
1,2-Dibromoethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichlorobenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichloropropane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichlorotetrafluoroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3,5-Trimethylbenzene	**1.14**	1.00	-	1.00	**1.08**	1.00	-	1.00	**1.04**	1.00	-	1.00	**1.08**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3-Butadiene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	**1.02**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3-Dichlorobenzene	**1.7**	1.00	-	1.00	**1.17**	1.00	-	1.00	**1.36**	1.00	-	1.00	**1.3**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,4-Dichlorobenzene	< 0.010	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,4-Dioxane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
2-Hexanone	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	**1.68**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
4-Ethyltoluene	**3.07**	1.00	-	1.00	**2.83**	1.00	-	1.00	**2.75**	1.00	-	1.00	**2.98**	1.00	-	1.00	**1.7**	1.00		1.00	**1.58**	1.00	-	1.00	< 1.00	1.00	U	1.00
4-Isopropyltoluene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
4-Methyl-2-pentanone	**3.94**	1.00	-	1.00	**3.05**	1.00	-	1.00	**2.68**	1.00	-	1.00	**2.72**	1.00	-	1.00	< 1.00	1.00	U	1.00	**3.95**	1.00	-	1.00	< 1.00	1.00	U	1.00
Acetone	**87.4**	1.00	-	1.00	**83.6**	1.00	-	1.00	**96.6**	9.99	DS	9.99	**75.5**	1.00	-	1.00	< 1.00	1.00	U	1.00	**129**	5.01	-	5.01	< 1.00	1.00	U	1.00
Acrylonitrile	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Benzene	**3.74**	1.00	-	1.00	**2.56**	1.00	-	1.00	**3.77**	1.00	-	1.00	**3.7**	1.00	-	1.00	**12.8**	1.00	-	1.00	**2.76**	1.00	-	1.00	**14.1**	1.00	-	1.00
Benzyl Chloride	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromodichloromethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromoform	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromomethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Carbon Disulfide	**2.63**	1.00	-	1.00	**1.29**	1.00	-	1.00	**4.67**	1.00	-	1.00	**3.45**	1.00	-	1.00	**98**	1.00	-	1.00	**16.5**	1.00	-	1.00	**30.8**	1.00	-	1.00
Carbon Tetrachloride	**0.33**	0.20	-	0.20	< 0.20	0.20	U	0.20	**0.38**	0.20	-	0.20	**0.35**	0.20	-	0.20	**0.41**	0.20	-	0.20	**0.38**	0.20	-	0.20	**0.28**	0.20	-	0.20
Chlorobenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloroform	**2.26**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloromethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
cis-1,2-Dichloroethene	**1.41**	0.20	-	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20
cis-1,3-Dichloropropene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Cyclohexane	**1.57**	1.00	-	1.00	**1.86**	1.00	-	1.00	**1.68**	1.00	-	1.00	**1.81**	1.00	-	1.00	**62.6**	1.00	-	1.00	**2.09**	1.00	-	1.00	**64**	1.00	-	1.00
Dibromochloromethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Dichlorodifluromethane	**2.2**	1.00	-	1.00	**1.96**	1.00	-	1.00	**2.16**	1.00	-	1.00	**2.15**	1.00	-	1.00	**1.54**	1.00	-	1.00	**1.77**	1.00	-	1.00	< 1.00	1.00	U	1.00
Ethanol	**61**	1.00	-	1.00	**55.9**	1.00	-	1.00	**50.7**	1.00	-	1.00	**54.4**	1.00	-	1.00	< 1.00	1.00	U	1.00	**30.1**	1.00	-	1.00	< 1.00	1.00	U	1.00
Ethyl Acetate	**7.67**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Ethylbenzene	**3.31**	1.00	-	1.00	**2.79**	1.00	-	1.00	**3.15**	1.00	-	1.00	**3.22**	1.00	-	1.00	**1.28**	1.00	-	1.00	**1.15**	1.00	-	1.00	< 1.00	1.00	U	1.00
Heptane	**4.42**	1.00	-	1.00	**2.83**	1.00	-	1.00	**3.58**	1.00	-	1.00	**3.22**	1.00	-	1.00	**795**	75.0	-	75.0	**40.1**	1.00	-	1.00	**7.99**	1.00	-	1.00
Hexachlorobutadiene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Hexane	< 1.00	1.00	U	1.00	**8.42**	1.00	S	1.00	**13**	1.00	-	1.00	**11.4**	1.00	-	1.00	**1,730**	75.0	-	75.0	**123**	1.00	-	1.00	**107**	1.00	-	1.00
Isopropylalcohol	**3.68**	1.00	-	1.00	**3.44**	1.00	-	1.00	**2.97**	1.00	-	1.00	**3.05**	1.00	-	1.00	< 1.00	1.00	U	1.00	**13.9**	1.00	-	1.00	**3.49**	1.00	-	1.00
Isopropylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Xylene (m&p)	**10.7**	1.00	-	1.00	**9.16**	1.00	-	1.00	**9.94**	1.00	-	1.00	**10**	1.00	-	1.00	**4.64**	1.00	-	1.00	**3.96**	1.00	-	1.00	**3.15**	1.00	-	1.00
Methyl Ethyl Ketone	**7.81**	1.00	-	1.00	**7.1**	1.00	-	1.00	**7.16**	1.00	-	1.00	**7.49**	1.00	-	1.00	< 1.00	1.00	U	1.00	**5.39**	1.00	-	1.00	**9.79**	1.00	-	1.00
MTBE	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Methylene Chloride	< 3.00	3.00	U	3.00	< 3.00	3.00	U	3.00	**3.58**	3.00	S	3.00	< 3.00	3.00	U	3.00	< 3.00	3.00	U	3.00	**54.5**	3.00	-	3.00	**30.7**	3.00	-	3.00
n-Butylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Xylene (o)	**4.56**	1.00	-	1.00	**3.78**	1.00	-	1.00	**4.09**	1.00	-	1.00	**4.34**	1.00	-	1.00	**1.99**	1.00	-	1.00	**1.62**	1.00	-	1.00	**1.38**	1.00	-	1.00
Propylene	**11.9**	1.00	-	1.00	< 1.00	1.00	U	1.00	**23**	1.00	-	1.00	**33**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
sec-Butylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Styrene	**1.21**	1.00	-	1.00	< 1.00	1.00	U	1.00	**1**	1.00	-	1.00	**1.23**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Tetrachloroethene	**1.7**	0.25	-	0.25	**1.15**	0.25	-	0.25	**1.46**	0.25	-	0.25	**1.1**	0.25	-	0.25	**2.59**	0.25	-	0.25	**2.35**	0.25	-	0.25	**0.37**	0.25	-	0.25
Tetrahydrofuran	**9.67**	1.00	-	1.00	**8.58**	1.00	-	1.00	**8.13**	1.00	-	1.00	**9.2**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Toluene	**31.6**	1.00	-	1.00	**24.1**	1.00	-	1.00	**27.5**	1.00	-	1.00	**26.7**	1.00	-	1.00	**6.21**	1.00	-	1.00	**3.71**	1.00	-	1.00	**7.08**	1.00	-	1.00
trans-1,2-Dichloroethene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
trans-1,3-Dichloropropene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Trichloroethene	**320**	1.00	D	1.00	**5.28**	0.20	-	0.20	**30.9**	0.20	-	0.20	**10.7**	0.20	-	0.20	**35.7**	0.20	-	0.20	< 0.20	0.20	U	0.20	**2.28**	0.20	-	0.20
Trichlorofluoromethane	**1.72**	1.00	-	1.00	**3.43**	1.00	-	1.00	**1.58**	1.00	-	1.00	**2.12**	1.00	-	1.00	< 1.00	1.00	U	1.00	**1.82**	1.00	-	1.00	< 1.00	1.00	U	1.00
Trichlorotrifluoroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Vinyl Chloride	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	**0.31**	0.20	-	0.20	< 0.20	0.20	U	0.20	**1.17**	0.20	-	0.20
BTEX	**53.91**				**42.39**				**48.45**				**47.96**				**26.92**				**13.2**				**25.71**			
Total VOCs	**602.0**				**253.32**				**315.85**				**282.8**				**2765.4**				**443.0**				**283.6**			

Notes:
NA No guidance value or standard available
Vapor Intrusion in the State of New
York. October 2006. New York State
(b) NYSDOH Guidance for Evaluating
Soil Vapor Intrusion in the State of New
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.

TABLE 15
Soil Vapor Analytical Results
Volatile Organic Compounds

COMPOUNDS	SG8				SG9				SG10				SG11				SG12				SG13			
	10/17/2018 (µg/m3)				10/17/2018 (µg/m3)				10/17/2018 (µg/m3)				10/17/2018 (µg/m3)				10/17/2018 (µg/m3)				10/17/2018 (µg/m3)			
	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL	Result	RL	Qual	MDL
1,1,1,2-Tetrachloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,1-Trichloroethane	**4.21**	1.00	-	1.00	< 1.00	1.00	U	1.00	**5.22**	1.00	-	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,2,2-Tetrachloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1,2-Trichloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1-Dichloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.02	5.02	U	5.02	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,1-Dichloroethene	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 1.00	1.00	U	1.00	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20
1,2,4-Trichlorobenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2,4-Trimethylbenzene	**1.8**	1.00	-	1.00	**1.51**	1.00	-	1.00	**1.28**	1.00	-	1.00	< 5.01	5.01	U	< 0.001	**1.41**	1.00	-	1.00	**1.24**	1.00	-	1.00
1,2-Dibromoethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichlorobenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.02	5.02	U	5.02	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichloropropane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.99	4.99	U	4.99	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,2-Dichlorotetrafluoroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3,5-Trimethylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3-Butadiene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,3-Dichlorobenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,4-Dichlorobenzene	< 0.010	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
1,4-Dioxane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
2-Hexanone	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.99	4.99	U	4.99	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
4-Ethyltoluene	**2.53**	1.00	-	1.00	**1.72**	1.00	-	1.00	**1.62**	1.00	-	1.00	< 5.01	5.01	U	5.01	**1.53**	1.00	-	1.00	**1.47**	1.00	-	1.00
4-Isopropyltoluene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
4-Methyl-2-pentanone	**3.58**	1.00	-	1.00	< 1.00	1.00	U	1.00	**3.59**	1.00	-	1.00	< 4.99	4.99	U	4.99	**3.19**	1.00	-	1.00	**3.1**	1.00	-	1.00
Acetone	**108**	5.01	-	5.01	**172**	5.01	-	5.01	**41.8**	1.00	-	1.00	< 5.01	5.01	U	5.01	**65.5**	1.00	-	1.00	**54.4**	1.00	-	1.00
Acrylonitrile	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Benzene	**16.8**	1.00	-	1.00	**48.2**	1.00	-	1.00	**8.52**	1.00	-	1.00	< 5.01	5.01	U	5.01	**1.36**	1.00	-	1.00	**1.25**	1.00	-	1.00
Benzyl Chloride	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromodichloromethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromoform	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Bromomethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Carbon Disulfide	**196**	5.01	-	5.01	**128**	5.01	-	5.01	**16.7**	1.00	-	1.00	**7.56**	5.01	-	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Carbon Tetrachloride	**0.48**	0.20	-	0.20	**0.43**	0.20	-	0.20	**0.48**	0.20	-	0.20	< 1.00	1.00	U	1.00	**0.51**	0.20	-	0.20	**0.54**	0.20	-	0.20
Chlorobenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloroform	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	**3.5**	1.00	-	1.00	< 4.98	4.98	U	4.98	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Chloromethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.99	4.99	U	4.99	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
cis-1,2-Dichloroethene	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 1.00	1.00	U	1.00	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20
cis-1,3-Dichloropropene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.99	4.99	U	4.99	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Cyclohexane	**4.23**	1.00	-	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	**11,200**	120	-	120	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Dibromochloromethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Dichlorodifluromethane	**2.39**	1.00	-	1.00	**1.88**	1.00	-	1.00	**2.28**	1.00	-	1.00	< 4.99	4.99	U	4.99	**2.07**	1.00	-	1.00	**2.26**	1.00	-	1.00
Ethanol	**19.8**	1.00	-	1.00	**20.5**	1.00	-	1.00	**19.4**	1.00	-	1.00	< 5.01	5.01	U	5.01	**22.2**	1.00	-	1.00	**23.7**	1.00	-	1.00
Ethyl Acetate	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Ethylbenzene	**1.64**	1.00	-	1.00	**2.15**	1.00	-	1.00	**1.09**	1.00	-	1.00	< 4.99	4.99	U	4.99	**1.18**	1.00	-	1.00	**1.14**	1.00	-	1.00
Heptane	**8.15**	1.00	-	1.00	**56.1**	1.00	-	1.00	**2.73**	1.00	-	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Hexachlorobutadiene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Hexane	**34.9**	1.00	-	1.00	**230**	5.00	-	5.00	**16.3**	1.00	-	1.00	< 5.00	5.00	U	5.00	**1.16**	1.00	S	1.00	**1.16**	1.00	S	1.00
Isopropylalcohol	**10.3**	1.00	-	1.00	**10.8**	1.00	-	1.00	**8.6**	1.00	-	1.00	< 5.01	5.01	U	5.01	**11.1**	1.00	-	1.00	**12.9**	1.00	-	1.00
Isopropylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Xylene (m&p)	**5.08**	1.00	-	1.00	**5.25**	1.00	-	1.00	**4.05**	1.00	-	1.00	< 4.99	4.99	U	4.99	**4.08**	1.00	-	1.00	**3.87**	1.00	-	1.00
Methyl Ethyl Ketone	**6.96**	1.00	-	1.00	**18.7**	1.00	-	1.00	**2.05**	1.00	-	1.00	< 5.01	5.01	U	5.01	**3.07**	1.00	-	1.00	**1.89**	1.00	-	1.00
MTBE	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Methylene Chloride	**25.7**	3.00	S	3.00	< 3.00	3.00	U	3.00	**51.4**	3.00	-	3.00	**179**	15.0	-	15.0	**15.6**	3.00	S	3.00	**4.1**	3.00	S	3.00
n-Butylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Xylene (o)	**1.86**	1.00	-	1.00	**1.75**	1.00	-	1.00	**1.56**	1.00	-	1.00	< 4.99	4.99	U	4.99	**1.54**	1.00	-	1.00	**1.46**	1.00	-	1.00
Propylene	**53**	1.00	-	1.00	**187**	5.01	-	5.01	**34.2**	1.00	-	1.00	< 5.01	5.01	U	5.01	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
sec-Butylbenzene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Styrene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.98	4.98	U	4.98	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Tetrachloroethene	**1.71**	0.25	-	0.25	**2**	0.25	-	0.25	**3.14**	0.25	-	0.25	**16.3**	1.25	-	1.25	**0.69**	0.25	-	0.25	**0.7**	0.25	-	0.25
Tetrahydrofuran	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.01	5.01	U	5.01	**1.13**	1.00	-	1.00	< 1.00	1.00	U	1.00
Toluene	**7.01**	1.00	-	1.00	**12.5**	1.00	-	1.00	**4.03**	1.00	-	1.00	**7.57**	5.01	-	5.01	**3.74**	1.00	-	1.00	**3.43**	1.00	-	1.00
trans-1,2-Dichloroethene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.99	4.99	U	4.99	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
trans-1,3-Dichloropropene	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 4.99	4.99	U	4.99	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Trichloroethene	< 0.20	0.20	U	0.20	**0.93**	0.20	-	0.20	**21.4**	0.20	-	0.20	< 1.00	1.00	U	1.00	**0.24**	0.20	-	0.20	< 0.20	0.20	U	0.20
Trichlorofluoromethane	**3.39**	1.00	-	1.00	**1.35**	1.00	-	1.00	**2.7**	1.00	-	1.00	**73**	5.00	-	5.00	**21.5**	1.00	-	1.00	**2.4**	1.00	-	1.00
Trichlorotrifluoroethane	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00	< 5.00	5.00	U	5.00	< 1.00	1.00	U	1.00	< 1.00	1.00	U	1.00
Vinyl Chloride	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20	< 1.00	1.00	U	1.00	< 0.20	0.20	U	0.20	< 0.20	0.20	U	0.20
BTEX	32.39				69.85				19.25				7.57				11.9				11.15			
Total VOCs	519.52				902.77				257.6				11483.4				162.8				121.0			

Notes:
NA No guidance value or standard available
Intrusion in the State of New York. October 2006.
New York State Department of Health.
(b) NYSDOH Guidance for Evaluating Soil Vapor
Intrusion in the State of New York, February 2005,
U- The compound was anlayzed for but not detected at or above the MDL.
J- The value is estimated.
N- The concentration is based on the response fo the nearest internal.
S- This compound is a solvent that is used in the laboratory.
D- The reported concentration is the result of a diluted analysis.

TABLE 16
Project Permit Listing
To Be Updated as Project Progresses

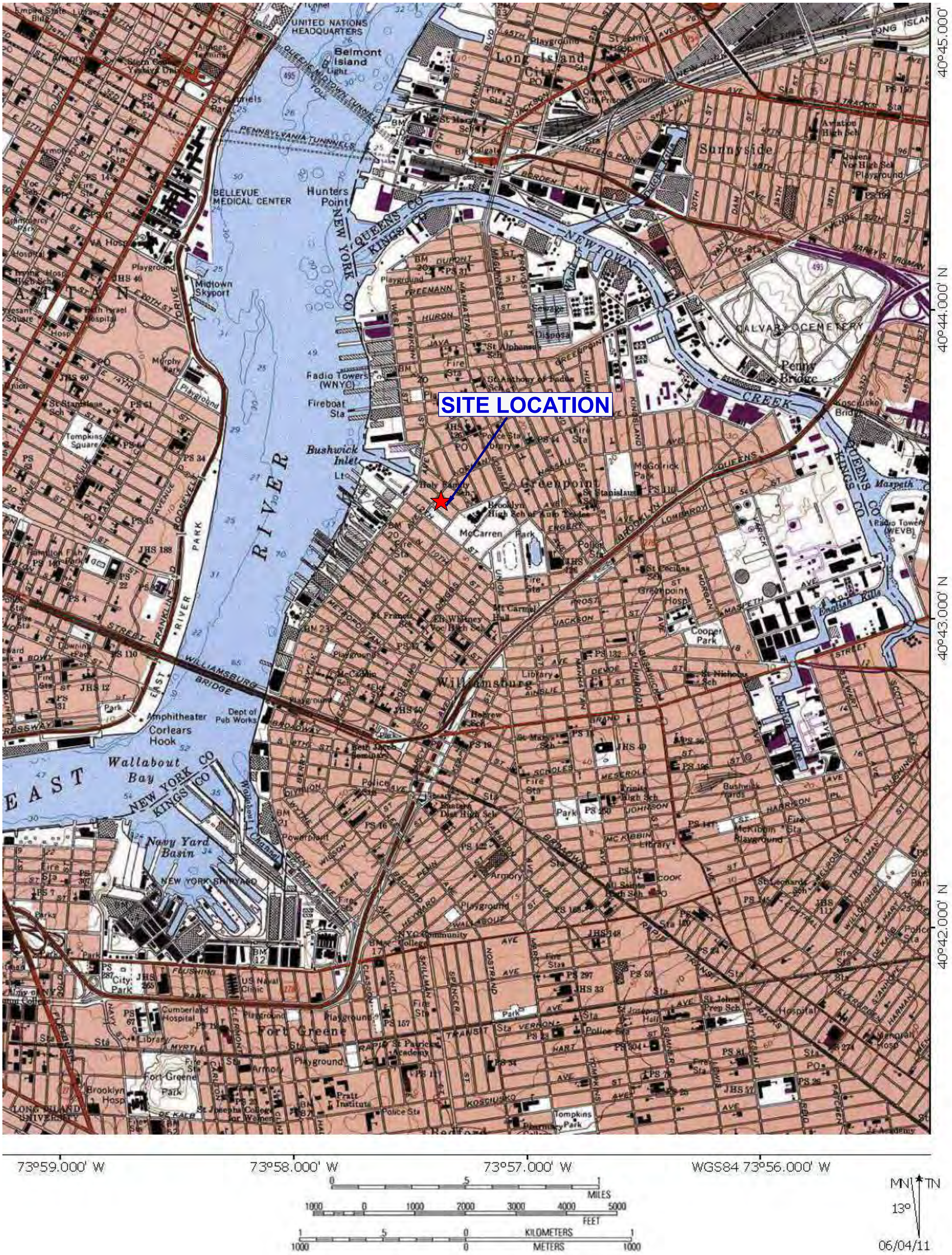
Permit	*Permit Number*	*Originating Agency*	*Pursuant to*	*Issued*	*Expires*	*Contact Phone*
FULL DEMOLITION - Two Story Commercial Building Demolition	321485488-01-DM	NYC Department of Buildings	Charly F Ayoub	12/5/2018	6/5/2019	917-346-3977
FULL DEMOLITION - One Story Commercial Building Demolition	321485497-01-DM	NYC Department of Buildings	Charly F Ayoub	11/30/2018	5/30/2019	917-346-3977

Note: This list will be updated as the project progresses

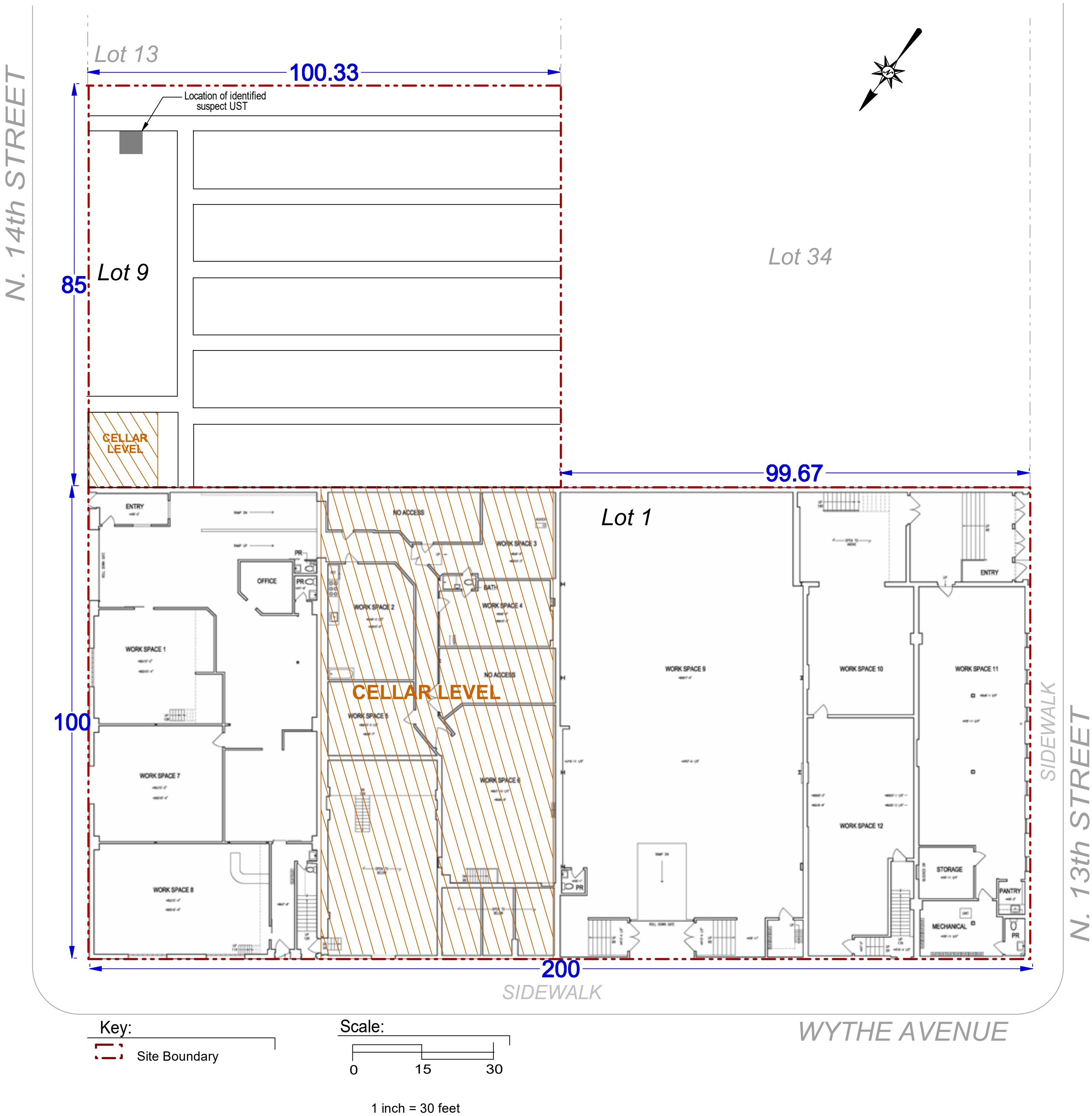
Table 17
Emergency Contact List

General Emergencies		911
NYC Police		911
NYC Fire Department		911
NYC Health + Hospitals - Woodhull		(718) 963-8000
NYSDEC Spills Hotline		1-800-457-7362
NYSDEC Project Manager		(518) 402-9687
NYC Department of Health		(212) 676-2400
National Response Center		1-800-424-8802
Poison Control		1-800-222-1222
EBC Project Manager	Keith Butler	(631) 504-6000
EBC BCP Program Manager	Charles Sosik	(631) 504-6000
EBC Site Safety Officer	Thomas Gallo	(631) 504-6000
Remedial Engineer	Ariel Czemerinski	(516) 987-1662

FIGURES



EBC Environmental Business Consultants Phone 631.504.6000 Fax 631.924.2870	Figure No. 1	Site Name:	Former Dutch Masters Paint and Varnish Co. Site
		Site Address:	29-41 Wythe Avenue and 180 North 14th Street Brooklyn, New York
		Drawing Title:	Site Location



EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924.2870

Figure No.
2

Site Name: Former Dutch Masters Paint and Varnish Co. Site

Site Address: 29-41 Wythe Avenue, Brooklyn, NY

Drawing Title: Site Map

Note: No sensitive receptors (i.e. nusrsing homes, day care centers, etc.) have been identified downgradient of the Site.

0 50 100 200

1 Inch = 50 feet

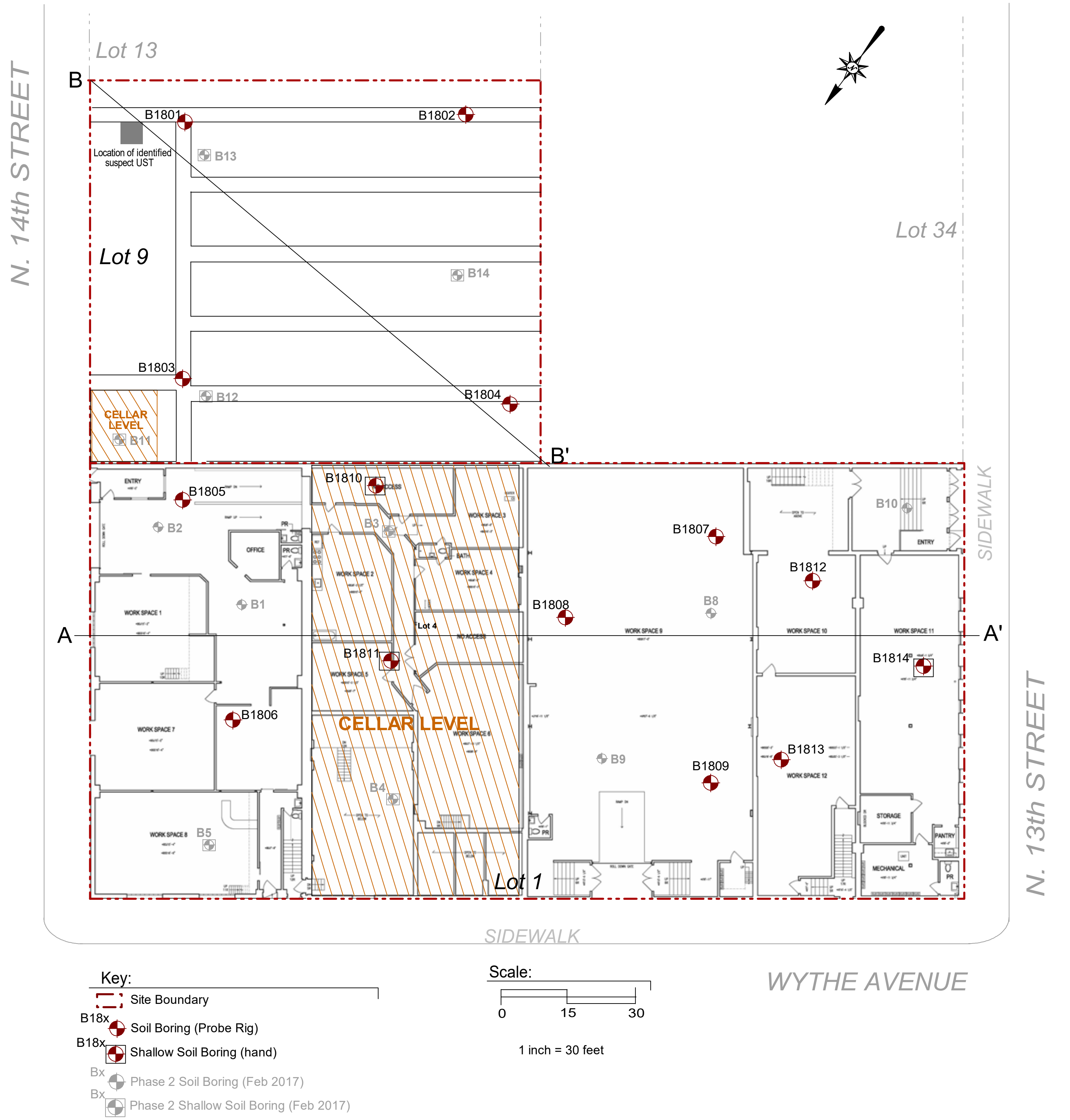
EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631.924.2870

Figure No.
3

Site Name: Former Dutch Masters Paint and Varnish Co. Site

Site Address: 29-41 Wythe Avenue, Brooklyn, NY

Drawing Title: Adjacent Properties



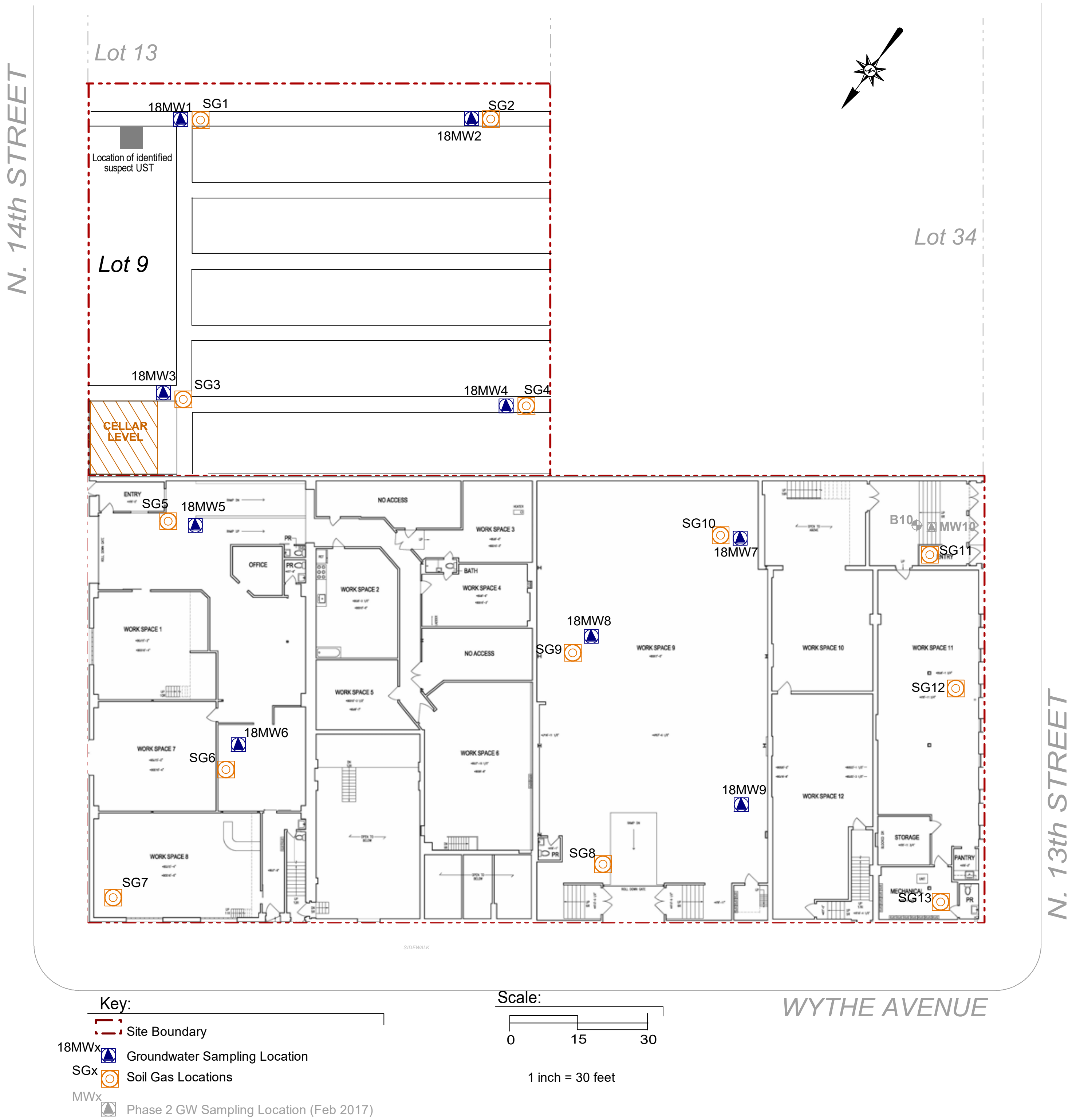
EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924 .2870

Figure No.
4

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: SOIL BORING LOCATIONS



EBC Environmental Business Consultants

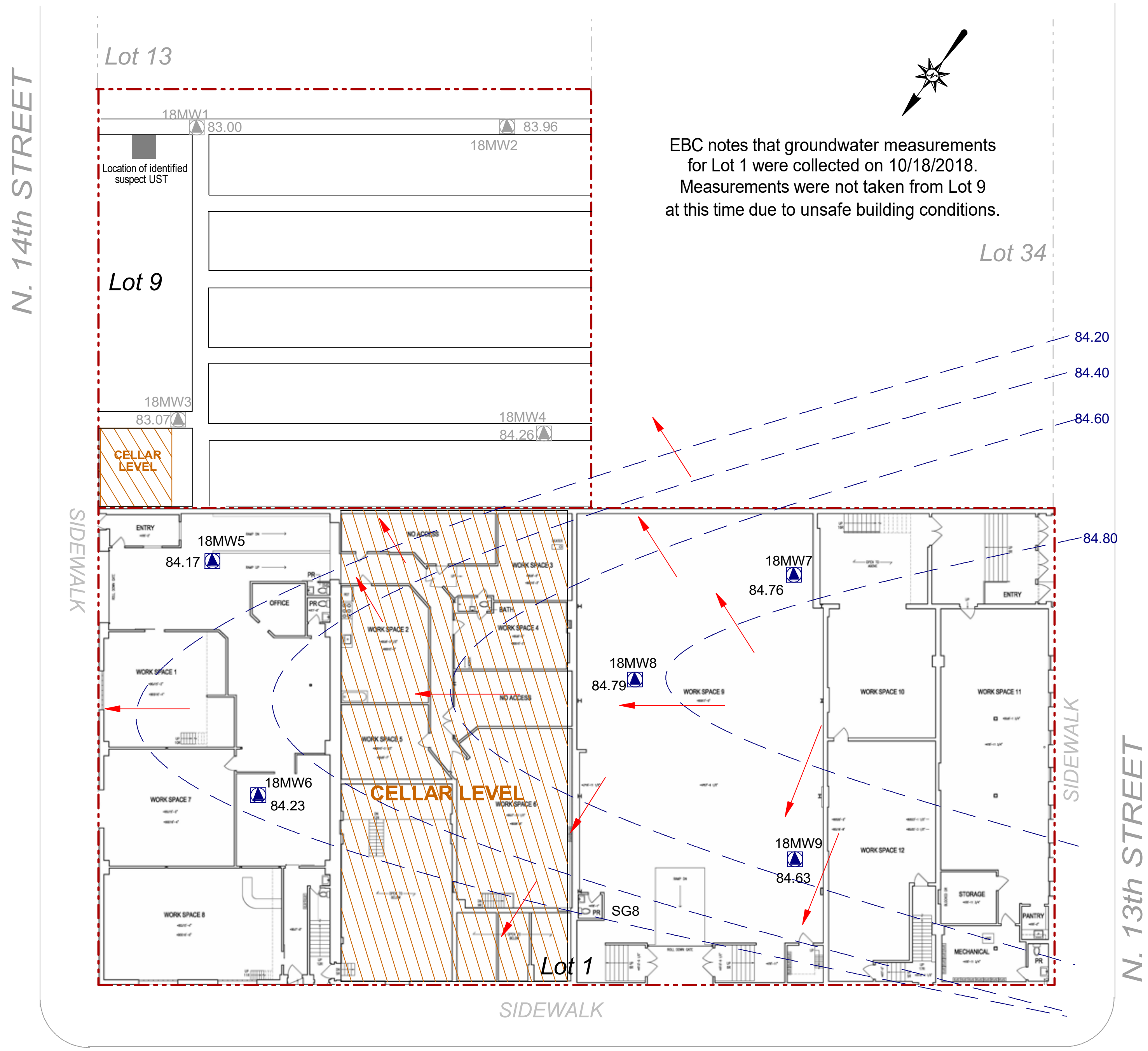
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 5

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: GROUNDWATER AND SOIL GAS LOCATIONS



Key:

Site Boundary

18MWx Groundwater Sampling Location

Groundwater Flow Direction

Scale:

0 15 30

1 inch = 30 feet

EBC

Phone 631.504.6000
Fax 631. 924 .2870

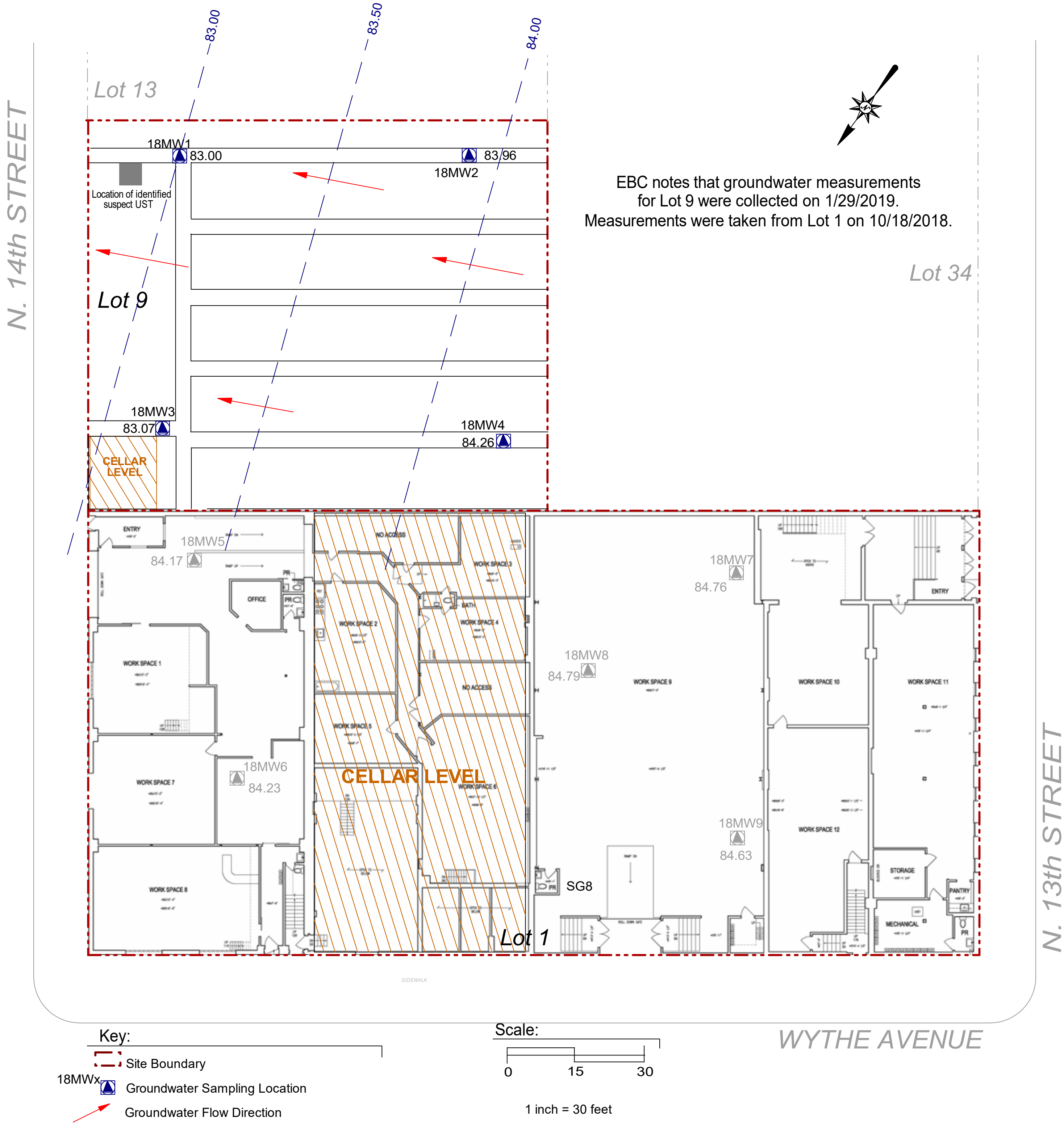
Environmental Business Consultants

Figure No.
6A

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH C0. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: GROUNDWATER CONTOUR MAP - LOT 1



EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924 .2870

Figure No.
6B

Site Name:	FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE
Site Address:	29-41 WYTHE AVENUE, BROOKLYN, NY
Drawing Title:	GROUNDWATER CONTOUR MAP - LOT 9

B1801 (4-6') - 11/2/2018	
VOCs (µg/Kg)	
Trichloroethene	3,100
SVOCs (µg/Kg)	
Benz(a)anthracene	12,000
Benzo(a)pyrene	13,000
Benzo(b)fluoranthene	11,000
Benzo(k)fluoranthene	10,000
Chrysene	15,000
Dibenz(a,h)anthracene	2,100
Indeno(1,2,3-cd)pyrene	9,100
Metals (mg/Kg)	
Arsenic	26.9
Barium	1,500
Cadmium	3.58
Chromium	376
Copper	150
Lead	6,900
Mercury	2.51
Zinc	1,120

B1801 (13-15') - 11/2/2018	
VOCs (µg/Kg)	
Trichloroethene	1,300
SVOCs (µg/Kg)	
Benz(a)anthracene	1,600
Benzo(a)pyrene	1,500
Benzo(b)fluoranthene	1,200
Benzo(k)fluoranthene	1,200
Chrysene	1,600
Indeno(1,2,3-cd)pyrene	790
Metals (mg/Kg)	
Arsenic	15.6
Chromium	948
Copper	81.2
Lead	1,230
Mercury	2.12
Zinc	287

B1804 (10-12') - 11/2/2018	
VOCs (µg/Kg)	
Trichloroethene	1,700
Metals (mg/Kg)	
Arsenic	68.8
Copper	193
Lead	788
Mercury	1.51
Zinc	553

B14 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	14.9
Cadmium	2.69
Copper	237
Lead	1,630
Mercury	0.4
Zinc	609

B1802 (10-12') - 11/2/2018	
Metals (mg/Kg)	
Copper	60
Lead	143
Mercury	1.64
Zinc	192

B1802 (12-14') - 11/2/2018	
VOCs (µg/Kg)	
Benzene	87
SVOCs (µg/Kg)	
Benz(a)anthracene	32,000
Benzo(a)pyrene	31,000
Benzo(b)fluoranthene	18,000
Benzo(k)fluoranthene	6,100
Chrysene	51,000
Dibenz(a,h)anthracene	17,000
Indeno(1,2,3-cd)pyrene	9,500
Metals (mg/Kg)	
Copper	71.4
Lead	358
Nickel	1,230
Zinc	2.12

B10 (2-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	17.8
Chromium	584
Copper	523
Lead	208
Mercury	1.04
Nickel	98.8
Silver	2.78
Zinc	205

B10 (4-5') - 2/22/2017	
VOCs (µg/Kg)	
Benzene	77
m&p-Xylenes	2,300
o-Xylene	640
SVOCs (µg/Kg)	
Benz(a)anthracene	8,100
Benzo(a)pyrene	3,300
Chrysene	8,900

B10 (10-12') - 2/22/2017
No Exceedences

B10 (10' Green) - 2/22/2017	
VOCs (µg/Kg)	
Dibenz(a,h)anthracene	390
Indeno(1,2,3-cd)pyrene	1,600

B1812 (10-12') - 10/16/2018	
VOCs (µg/Kg)	
Chloroform	520

B1812 (13-15') - 10/16/2018	
VOCs (µg/Kg)	
Chloroform	1,100
Metals (mg/Kg)	
Chromium	1,700
Nickel	70.6

B8 (2-5') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	20.7
Barium	2,870
Cadmium	6.61
Chromium	102
Copper	278
Lead	11,700
Mercury	69.6
Zinc	3,900

B8 (10-11') - 2/22/2017	
SVOCs (µg/Kg)	
Benz(a)anthracene	2,700
Benzo(a)pyrene	2,000
Benzo(b)fluoranthene	1,100
Chrysene	3,000
Dibenz(a,h)anthracene	560
Indeno(1,2,3-cd)pyrene	620

B1803 (4-6') - 11/2/2018	
SVOCs (µg/Kg)	
Indeno(1,2,3-cd)pyrene	760
Metals (mg/Kg)	
Arsenic	20.5
Barium	643
Copper	255
Lead	1,710
Mercury	0.28
Zinc	646

B13 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Copper	68.7
Lead	513
Zinc	351

B1808 - 10/16/2018
No Exceedences

B1807 - 10/15/2018
No Exceedences

B2 (1-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	16.6
Barium	2,090
Cadmium	4.5
Chromium	98
Copper	196
Lead	9,470
Mercury	3.27
Zinc	2,260

B1803 (10-12') - 11/2/2018		
SVOCs (µg/Kg)		
Benz(a)anthracene		27,000
Benzo(a)pyrene		26,000
Benzo(b)fluoranthene		24,000
Benzo(k)fluoranthene		7,400
Chrysene		48,000
Dibenz(a,h)anthracene		19,000
Indeno(1,2,3-cd)pyrene		18,000
Pesticides (µg/Kg)		
4,4' -DDD		44
4,4' -DDT		42
Metals (mg/Kg)		
Copper		151
Lead	2,390	1,230
Mercury		0.73
Zinc		282

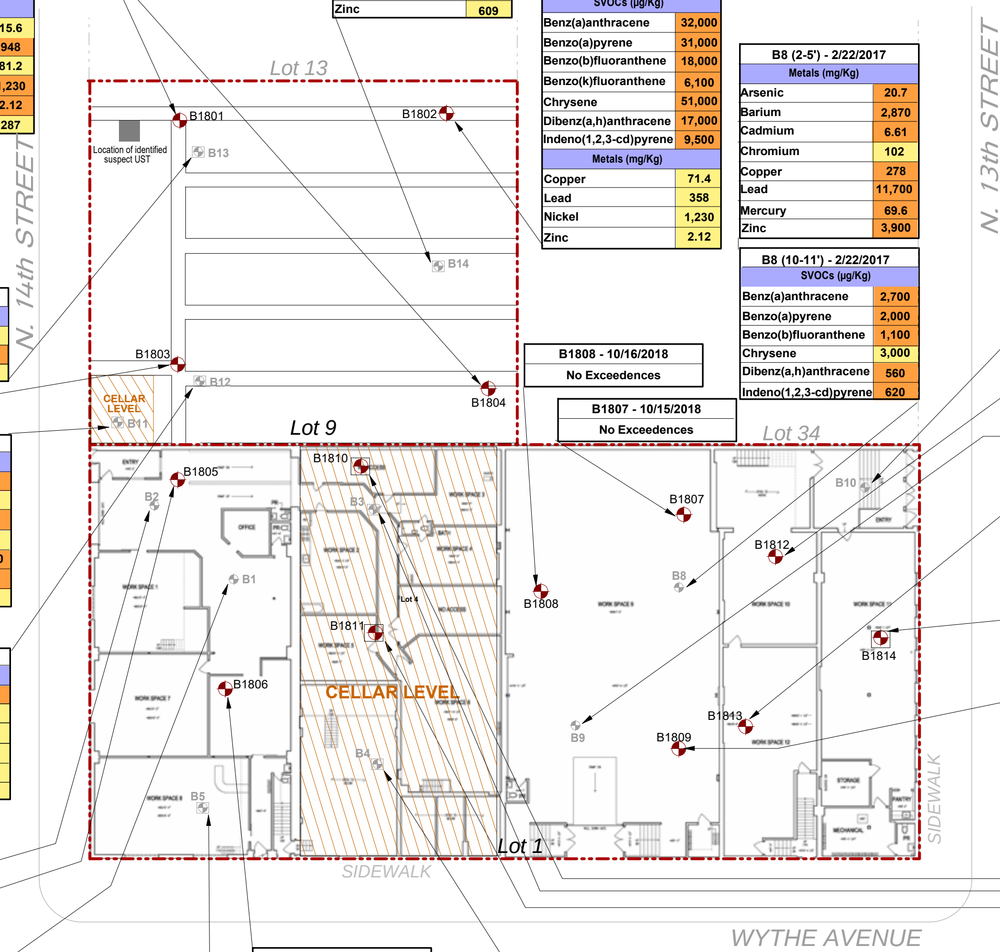
B11 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	20.7
Barium	354
Chromium	337
Copper	110
Lead	2,930
Mercury	2.86
Zinc	509

B12 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	38
Cadmium	3.23
Copper	126
Lead	307
Nickel	39.7
Zinc	246

B2 (3-5') - 2/22/2017	
VOCs (µg/Kg)	
Trichloroethene	760
SVOCs (µg/Kg)	
Benz(a)anthracene	1,500
Benzo(a)pyrene	1,100
Benzo(k)fluoranthene	1,000
Chrysene	1,600
Indeno(1,2,3-cd)pyrene	520

B2 (10-12') - 2/22/2017	
VOCs (µg/Kg)	
Acetone	69

B2 (15-17') - 2/22/2017	
VOCs (µg/Kg)	
Acetone	4,600
SVOCs (µg/Kg)	
Benz(a)anthracene	3,400
Benzo(a)pyrene	4,400
Benzo(b)fluoranthene	2,000
Chrysene	5,700



B1806 (6-18') - 10/15/2018	
VOCs (µg/Kg)	
Acetone	880

B1813 (10-12') - 10/16/2018	
VOCs (µg/Kg)	
Chloroform	400

B1814 (0-3') - 10/16/2018	
Lead	160
Mercury	0.26

B1809 (10-12') - 10/16/2018	
SVOCs (µg/Kg)	
Chrysene	1,100

B1810 (0-5' bcg) - 10/15/2018	
VOCs (µg/Kg)	
Acetone	51
Metals (mg/Kg)	
Copper	170
Lead	399
Mercury	0.65
Zinc	431

B1811 (0-5' bcg) - 10/15/2018	
VOCs (µg/Kg)	
Acetone	110
SVOCs (µg/Kg)	
Benzo(a)pyrene	1,300
Benzo(k)fluoranthene	860
Chrysene	1,100
Indeno(1,2,3-cd)pyrene	980

B9 (2-3') - 2/22/2017	
Metals (mg/Kg)	
Barium	565
Copper	86.5
Lead	1,160
Mercury	0.69
Zinc	512

B9 (10-11') - 2/22/2017	
VOCs (µg/Kg)	
Acetone	740

B9 (12-15') - 2/22/2017
No Exceedences

B3 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	18.8
Copper	254
Lead	384
Mercury	0.32
Zinc	196

B4 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	17.6
Copper	119
Lead	648
Mercury	0.48
Zinc	462

B1805 (6-8') - 10/15/2018	
VOCs (µg/Kg)	
Acetone	79
Benzene	120

B1805 (13-15') - 10/15/2018	
VOCs (µg/Kg)	
Acetone	970
Copper	222
Lead	749
Mercury	7.73

B1 (0-2') - 2/22/2017	
VOCs (µg/Kg)	
Acetone	300
Metals (mg/Kg)	
Arsenic	26.8
Barium	1,810
Cadmium	4.58
Chromium	31.4
Copper	222
Lead	3,230
Mercury	0.53
Zinc	3,100

B5 (0-3') - 2/22/2017	
Metals (mg/Kg)	
Arsenic	42
Barium	1,600
Cadmium	3.2
Chromium	43
Copper	119
Lead	1,640
Mercury	3.97
Zinc	1,260

Key:

- Site Boundary
- B18x Soil Boring (Probe Rig)
- B18x Shallow Soil Boring (hand)
- Bx Phase 2 Soil Boring (Feb 2017)
- Bx Phase 2 Shallow Soil Boring (Feb 2017)
- Exceedance of NYSDEC Unrestricted Use SCOs
- Exceedance of NYSDEC Restricted Residential SCOs

Scale:

0 22.5 45

1 inch = 45 feet

EBC
Phone 631.504.6000
Fax 631. 924 .2870
ENVIRONMENTAL BUSINESS CONSULTANTS

Figure No.
7

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: SOIL EXCEEDANCES MAP

18MW1 - 1/29/2019	
VOCs (µg/L)	
Trichloroethene	8.7
SVOCs (µg/L)	
Benz(a)anthracene	0.23
Benzo(a)pyrene	0.18
Benzo(b)fluoranthene	0.16
Benzo(k)fluoranthene	0.14
Chrysene	0.2
Indeno(1,2,3-cd)pyrene	0.11
Total Metals (mg/L)	
Aluminum	14.1
Arsenic	0.044
Chromium	0.658
Iron	30.1
Lead	0.313
Magnesium	37
Manganese	1.24
Sodium	146
Dissolved Metals (mg/L)	
Manganese	0.945
Sodium	153

18MW2 - 1/29/2019	
SVOCs (µg/L)	
Benz(a)anthracene	0.36
Benzo(a)pyrene	0.65
Benzo(b)fluoranthene	0.08
Benzo(k)fluoranthene	0.06
Chrysene	0.46
Indeno(1,2,3-cd)pyrene	0.08
Pesticides (µg/L)	
4,4-DDT	0.013
Total Metals (mg/L)	
Aluminum	30.1
Cadmium	0.006
Iron	226
Lead	0.069
Magnesium	65.7
Manganese	5.67
Selenium	0.035
Sodium	119
Dissolved Metals (mg/L)	
Aluminum	28.8
Cadmium	0.006
Iron	208
Lead	0.037
Magnesium	65.5
Manganese	5.16
Selenium	0.028
Sodium	123

18MW8 - 10/17/2018	
SVOCs (µg/L)	
Benz(a)anthracene	0.03
Total Metals (mg/L)	
Iron	121
Manganese	3.48
Sodium	107
Dissolved Metals (mg/L)	
Sodium	410

18MW3 - 1/29/2019	
SVOCs (µg/L)	
Benz(a)anthracene	0.05
Benzo(a)pyrene	0.1
Chrysene	0.05
Total Metals (mg/L)	
Aluminum	0.334
Arsenic	0.519
Iron	10.1
Lead	0.044
Manganese	0.322
Sodium	123
Dissolved Metals (mg/L)	
Arsenic	0.219
Manganese	0.311
Sodium	124

18MW7 - 10/18/2018	
VOCs (µg/L)	
Benzene	12
Isopropylbenzene	5.5
Naphthalene	11
n-Propylbenzene	5.3
SVOCs (µg/L)	
Benz(a)anthracene	1.1
Chrysene	1.5
Total Metals (mg/L)	
Aluminum	6.04
Barium	1.33
Cadmium	0.018
Iron	868
Lead	0.059
Magnesium	99.1
Manganese	33
Sodium	233
Dissolved Metals (mg/L)	
Magnesium	52.9
Sodium	202

18MW4 - 1/29/2019	
SVOCs (µg/L)	
Benz(a)anthracene	66
Benzo(a)pyrene	61
Benzo(b)fluoranthene	31
Benzo(ghi)perylene	49
Benzo(k)fluoranthene	13
Chrysene	58
Indeno(1,2,3-cd)pyrene	26
Pyrene	58

18MW5 - 10/18/2018	
SVOCs (µg/L)	
Benz(a)anthracene	0.06
Benzo(a)pyrene	0.08
Benzo(b)fluoranthene	0.06
Benzo(k)fluoranthene	0.05
Chrysene	0.12
Indeno(1,2,3-cd)pyrene	0.04
Total Metals (mg/L)	
Aluminum	32.7
Chromium	0.097
Iron	133
Magnesium	37.8
Manganese	12.1
Sodium	148
Dissolved Metals (mg/L)	
Manganese	0.947
Sodium	111

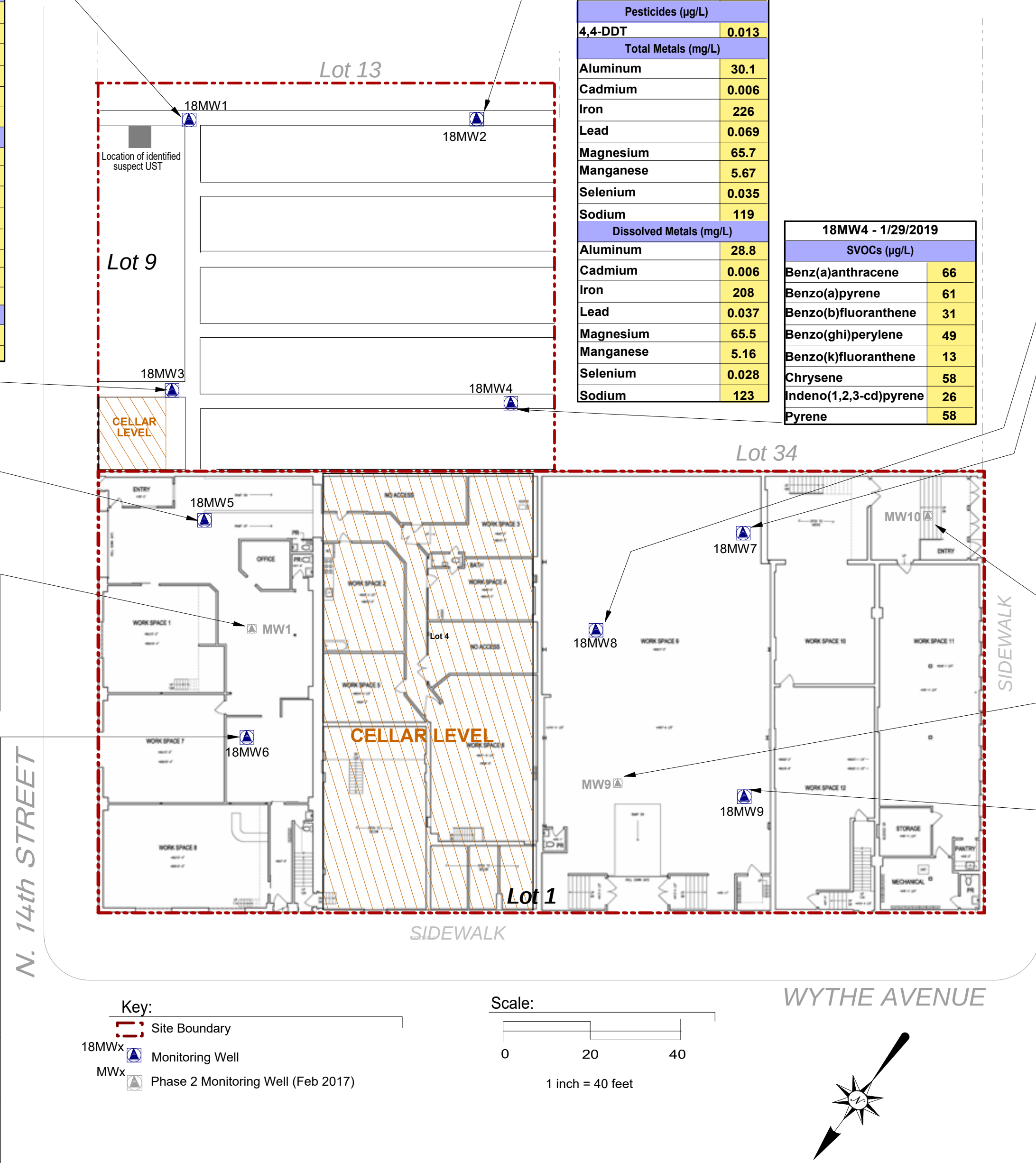
MW1 - 2/22/2017	
VOCs (µg/L)	
2-Isopropyltoluene	7.1
Isopropylbenzene	18
n-Butylbenzene	27
n-Propylbenzene	7.3
sec-Butylbenzene	20

MW10 - 2/22/20107	
VOCs (µg/L)	
Benzene	2

MW9 - 2/22/20107
No Exceedances Noted

18MW6 - 10/18/2018	
VOCs (µg/L)	
2-Isopropyltoluene	12
Isopropylbenzene	24
n-Butylbenzene	28
n-Propylbenzene	22
sec-Butylbenzene	19
SVOCs (µg/L)	
Benz(a)anthracene	0.25
Benzo(a)pyrene	0.24
Benzo(b)fluoranthene	0.18
Benzo(k)fluoranthene	0.18
Chrysene	0.26
Indeno(1,2,3-cd)pyrene	0.14
Total Metals (mg/L)	
Aluminum	1.05
Iron	28.2
Manganese	5.19
Sodium	130
Dissolved Metals (mg/L)	
Iron	1.62
Sodium	142

18MW9 - 10/17/2018	
SVOCs (µg/L)	
Benz(a)anthracene	0.06
Benzo(a)pyrene	0.07
Benzo(b)fluoranthene	0.05
Benzo(k)fluoranthene	0.03
Chrysene	0.07
Indeno(1,2,3-cd)pyrene	0.04
Total Metals (mg/L)	
Aluminum	6.2
Arsenic	0.035
Iron	151
Manganese	3.87
Sodium	151
Dissolved Metals (mg/L)	
Iron	0.93
Magnesium	43.4
Manganese	0.487
Sodium	608



EBC
ENVIRONMENTAL BUSINESS CONSULTANTS

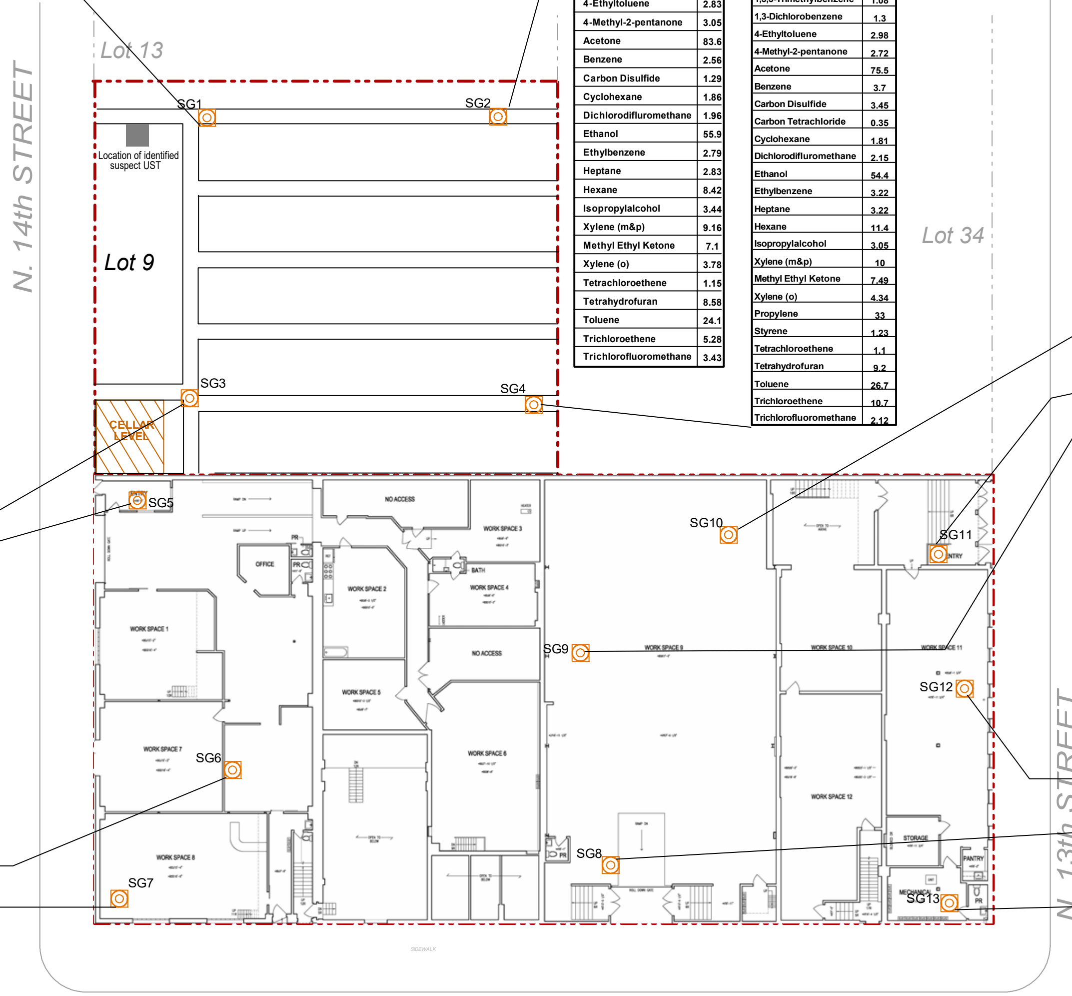
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 8

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: GROUNDWATER EXCEEDANCES MAP



Key:

Site Boundary

SGx Soil Gas Location

Scale:

0 17.5 35

1 inch = 35 feet

SG3 - 11/5/2018	
1,2,4-Trichlorobenzene	1.23
1,2,4-Trimethylbenzene	3.09
1,3,5-Trimethylbenzene	1.04
1,3-Butadiene	1.02
1,3-Dichlorobenzene	1.36
2-Hexanone	1.68
4-Ethyltoluene	2.75
4-Methyl-2-pentanone	2.68
Acetone	96.6
Benzene	3.77
Carbon Disulfide	4.67
Carbon Tetrachloride	0.38
Cyclohexane	1.68
Dichlorodifluromethane	2.16
Ethanol	50.7
Ethylbenzene	3.15
Heptane	3.58
Hexane	13
Isopropylalcohol	2.97
Xylene (m&p)	9.94
Methyl Ethyl Ketone	7.16
Methylene Chloride	3.58
Xylene (o)	4.09
Propylene	23
Styrene	1
Tetrachloroethene	1.46
Tetrahydrofuran	8.13
Toluene	27.5
Trichloroethene	30.9
Trichlorofluoromethane	1.58

SG1 - 11/5/2018	
1,1,1-Trichloroethane	4.02
1,2,4-Trichlorobenzene	2.43
1,2,4-Trimethylbenzene	3.19
1,3,5-Trimethylbenzene	1.14
1,3-Dichlorobenzene	1.7
4-Ethyltoluene	3.07
4-Methyl-2-pentanone	3.94
Acetone	87.4
Benzene	3.74
Carbon Disulfide	2.63
Carbon Tetrachloride	0.33
Chloroform	2.26
cis-1,2-Dichloroethene	1.41
Cyclohexane	1.57
Dichlorodifluromethane	2.2
Ethanol	61
Ethyl Acetate	7.67
Ethylbenzene	3.31
Heptane	4.42
Isopropylalcohol	3.68
Xylene (m&p)	10.7
Methyl Ethyl Ketone	7.81
Xylene (o)	4.56
Propylene	11.9
Styrene	1.21
Tetrachloroethene	1.7
Tetrahydrofuran	9.67
Toluene	31.6
Trichloroethene	320
Trichlorofluoromethane	1.72

SG2 - 11/5/2018	
1,1,1-Trichloroethane	13.7
1,2,4-Trichlorobenzene	1.3
1,2,4-Trimethylbenzene	2.96
1,3,5-Trimethylbenzene	1.08
1,3-Dichlorobenzene	1.17
4-Ethyltoluene	2.83
4-Methyl-2-pentanone	3.05
Acetone	83.6
Benzene	2.56
Carbon Disulfide	1.29
Cyclohexane	1.86
Dichlorodifluromethane	1.96
Ethanol	55.9
Ethylbenzene	2.79
Heptane	2.83
Hexane	8.42
Isopropylalcohol	3.44
Xylene (m&p)	9.16
Methyl Ethyl Ketone	7.1
Xylene (o)	3.78
Tetrachloroethene	1.15
Tetrahydrofuran	8.58
Toluene	24.1
Trichloroethene	5.28
Trichlorofluoromethane	3.43

SG4 - 11/5/2018	
1,1,1-Trichloroethane	2.03
1,2,4-Trichlorobenzene	1.39
1,2,4-Trimethylbenzene	3.16
1,3,5-Trimethylbenzene	1.08
1,3-Dichlorobenzene	1.3
4-Ethyltoluene	2.98
4-Methyl-2-pentanone	2.72
Acetone	75.5
Benzene	3.7
Carbon Disulfide	3.45
Carbon Tetrachloride	0.35
Cyclohexane	1.81
Dichlorodifluromethane	2.15
Ethanol	54.4
Ethylbenzene	3.22
Heptane	3.22
Hexane	11.4
Isopropylalcohol	3.05
Xylene (m&p)	10
Methyl Ethyl Ketone	7.49
Xylene (o)	4.34
Propylene	33
Styrene	1.23
Tetrachloroethene	1.1
Tetrahydrofuran	9.2
Toluene	26.7
Trichloroethene	10.7
Trichlorofluoromethane	2.12

SG10 - 10/17/2018	
1,1,1-Trichloroethane	5.22
1,2,4-Trimethylbenzene	1.28
4-Ethyltoluene	1.62
4-Methyl-2-pentanone	3.59
Acetone	41.8
Benzene	8.52
Carbon Disulfide	16.7
Carbon Tetrachloride	0.48
Chloroform	3.5
Dichlorodifluromethane	2.28
Ethanol	19.4
Ethylbenzene	1.09
Heptane	2.73
Hexane	16.3
Isopropylalcohol	8.6
Xylene (m&p)	4.05
Methyl Ethyl Ketone	2.05
Methylene Chloride	51.4
Xylene (o)	1.56
Propylene	34.2
Tetrachloroethene	3.14
Toluene	4.03
Trichloroethene	21.4
Trichlorofluoromethane	2.7

SG11 - 10/17/2018	
Carbon Disulfide	7.56
Cyclohexane	11,200
Methylene Chloride	179
Tetrachloroethene	16.3
Toluene	7.57
Trichlorofluoromethane	73

SG5 - 10/17/2018	
1,1,1-Trichloroethane	9.16
1,2,4-Trimethylbenzene	1.47
4-Ethyltoluene	1.7
Benzene	12.8
Carbon Disulfide	98
Carbon Tetrachloride	0.41
Cyclohexane	62.6
Dichlorodifluromethane	1.54
Ethylbenzene	1.28
Heptane	795
Hexane	1,730
Xylene (m&p)	4.64
Xylene (o)	1.99
Tetrachloroethene	2.59
Toluene	6.21
Trichloroethene	35.7
Vinyl Chloride	0.31

SG9 - 10/17/2018	
1,2,4-Trimethylbenzene	1.51
4-Ethyltoluene	1.72
Acetone	172
Benzene	48.2
Carbon Disulfide	128
Carbon Tetrachloride	0.43
Dichlorodifluromethane	1.88
Ethanol	20.5
Ethylbenzene	2.15
Heptane	56.1
Hexane	230
Isopropylalcohol	10.8
Xylene (m&p)	5.25
Methyl Ethyl Ketone	18.7
Propylene	187
Tetrachloroethene	2
Toluene	12.5
Trichloroethene	0.93
Trichlorofluoromethane	1.35

SG12 - 10/17/2018	
1,2,4-Trimethylbenzene	1.41
4-Ethyltoluene	1.53
4-Methyl-2-pentanone	3.19
Acetone	65.5
Benzene	1.36
Carbon Tetrachloride	0.51
Dichlorodifluromethane	2.07
Ethanol	22.2
Ethylbenzene	1.18
Hexane	1.16
Isopropylalcohol	11.1
Xylene (m&p)	4.08
Methyl Ethyl Ketone	3.07
Methylene Chloride	15.6
Xylene (o)	1.54
Tetrachloroethene	0.69
Tetrahydrofuran	1.13
Toluene	3.74
Trichloroethene	0.24
Trichlorofluoromethane	21.5

SG6 - 10/17/2018	
1,1,1-Trichloroethane	2.03
1,2,4-Trimethylbenzene	1.33
4-Ethyltoluene	1.58
4-Methyl-2-pentanone	3.95
Acetone	129
Benzene	2.76
Carbon Disulfide	16.5
Carbon Tetrachloride	0.38
Cyclohexane	2.09
Dichlorodifluromethane	1.77
Ethanol	30.1
Ethylbenzene	1.15
Heptane	40.1
Hexane	123
Isopropylalcohol	13.9
Xylene (m&p)	3.96
Methyl Ethyl Ketone	5.39
Methylene Chloride	54.5
Xylene (o)	1.62
Tetrachloroethene	2.35
Toluene	3.71
Trichlorofluoromethane	1.82

SG7 - 10/17/2018	
Benzene	14.1
Carbon Disulfide	30.8
Carbon Tetrachloride	0.28
Cyclohexane	64
Heptane	7.99
Hexane	107
Isopropylalcohol	3.49
Xylene (m&p)	3.15
Methyl Ethyl Ketone	9.79
Methylene Chloride	30.7
Xylene (o)	1.38
Tetrachloroethene	0.37
Toluene	7.08
Trichloroethene	2.28
Vinyl Chloride	1.17

SG13 - 10/17/2018	
1,2,4-Trimethylbenzene	1.24
4-Ethyltoluene	1.47
4-Methyl-2-pentanone	3.1
Acetone	54.4
Benzene	1.25
Carbon Tetrachloride	0.54
Dichlorodifluromethane	2.26
Ethanol	23.7
Ethylbenzene	1.14
Hexane	1.16
Isopropylalcohol	12.9
Xylene (m&p)	3.87
Methyl Ethyl Ketone	1.89
Methylene Chloride	4.1
Xylene (o)	1.46
Tetrachloroethene	0.7
Toluene	3.43
Trichlorofluoromethane	2.4

SG8 - 10/17/2018	
1,1,1-Trichloroethane	4.21
1,2,4-Trimethylbenzene	1.8
4-Ethyltoluene	2.53
4-Methyl-2-pentanone	3.58
Acetone	108
Benzene	16.8
Carbon Disulfide	196
Carbon Tetrachloride	0.48
Cyclohexane	4.23
Dichlorodifluromethane	2.39
Ethanol	19.8
Ethylbenzene	1.64
Heptane	8.15
Hexane	34.9
Isopropylalcohol	10.3
Xylene (m&p)	5.08
Methyl Ethyl Ketone	6.96
Methylene Chloride	25.7
Xylene (o)	1.86
Propylene	53
Tetrachloroethene	1.71
Toluene	7.01
Trichlorofluoromethane	3.39

EBC
Environmental Business Consultants

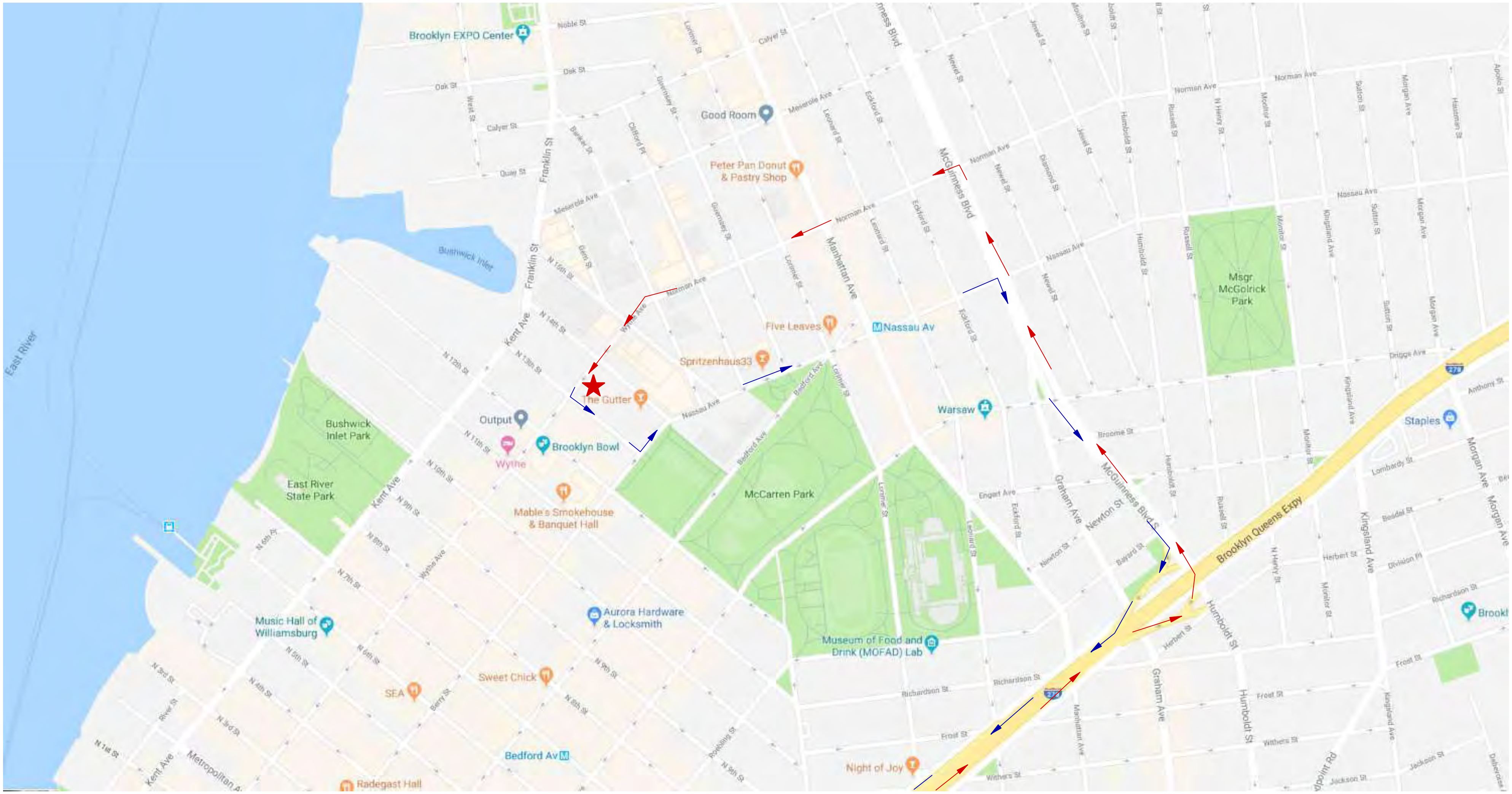
Phone 631.504.6000
Fax 631. 924 .2870

Figure No.
9

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: SOIL GAS DETECTIONS MAP



Key:

Site Location

Truck Route From Site

Truck Route To Site

EBC

Environmental Business Consultants

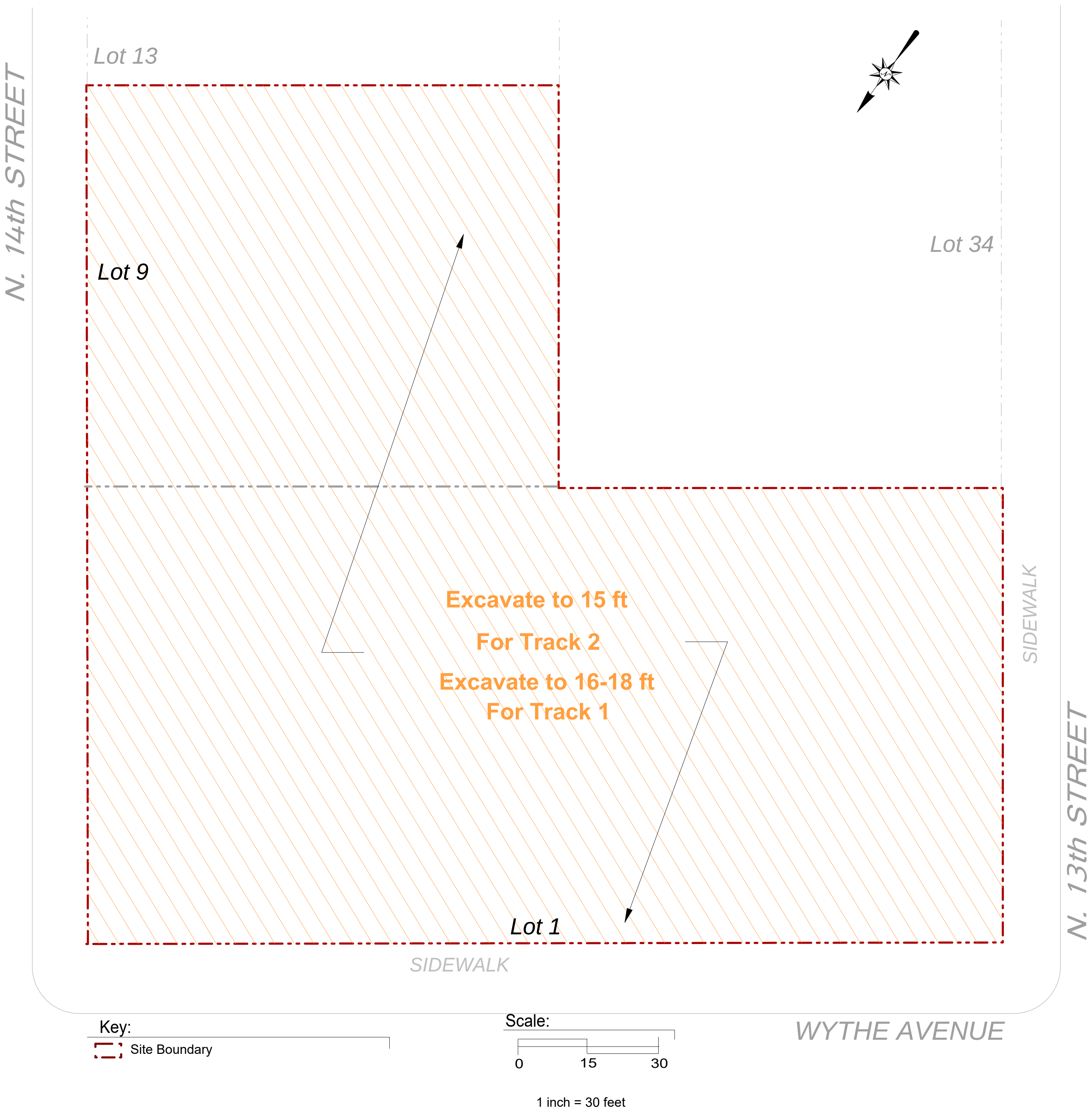
Phone 631.504.6000
Fax 631. 924 .2870

Figure No.
10

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO.

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: TRUCK ROUTE

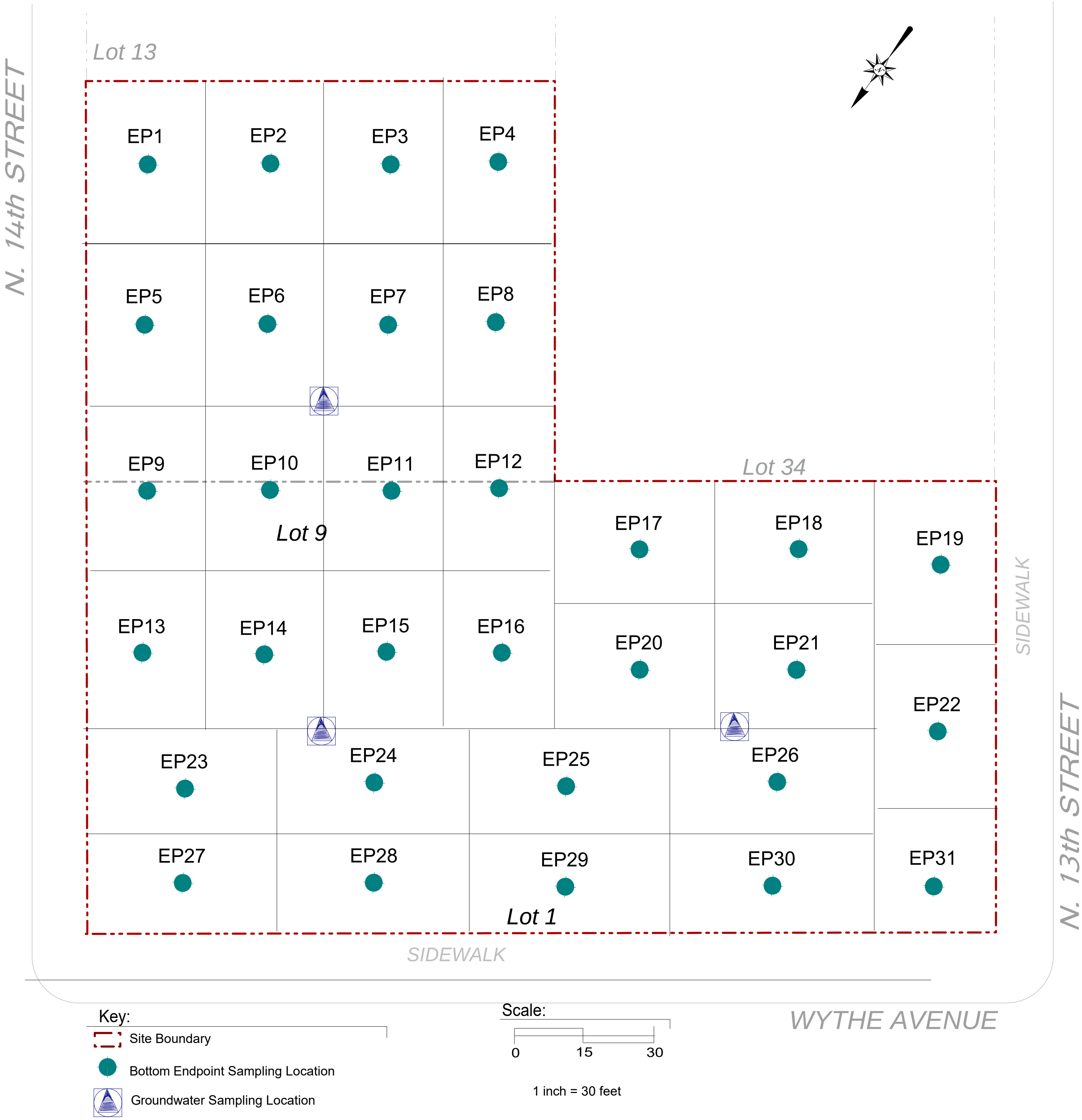


AMC Engineeting, PLLC
18-36 42nd Street
Astoria, NY 11105

Figure No.
11

Date: 5/31/2020

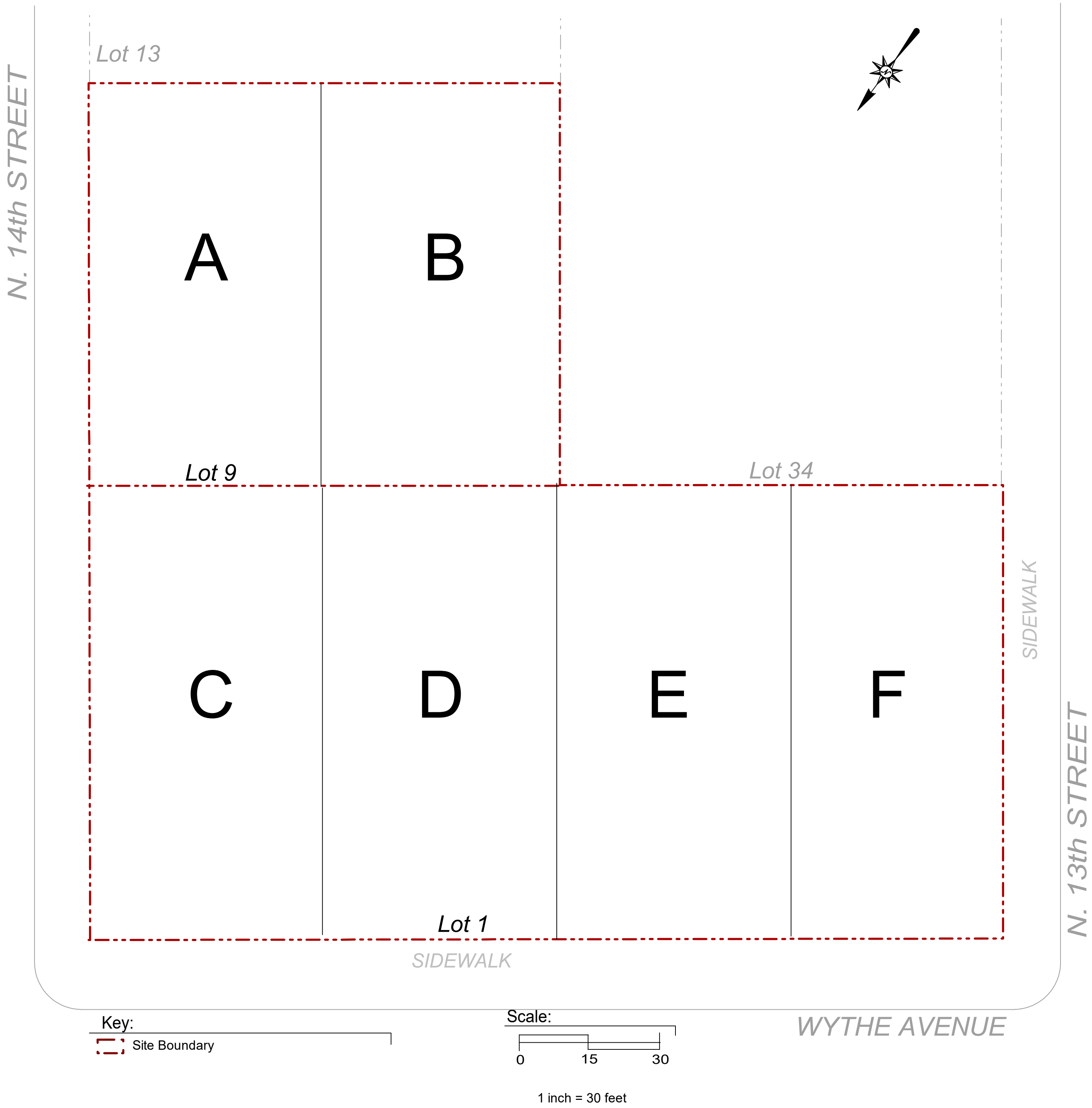
Site Name:	FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE
Site Address:	29-41 WYTHE AVENUE, BROOKLYN, NY
Drawing Title:	EXCAVATION PLAN



AMC Engineering, PLLC
18-36 42nd Street
Astoria, NY 11105

Figure No.
12
Date: 3/31/2020

Site Name:	FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE
Site Address:	29-41 WYTHE AVENUE, BROOKLYN, NY
Drawing Title:	ENDPOINT SAMPLING MAP



EBC
Environmental Business Consultants
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 13

Site Name: FORMER DUTCH MASTERS PAINT AND VARNISH CO. SITE

Site Address: 29-41 WYTHE AVENUE, BROOKLYN, NY

Drawing Title: GRID MAP

ATTACHMENT A
Metes and Bounds Description of Property

LOT 1

BEGINNING At the corner formed by the intersection of the Southeasterly side of Wythe Avenue with the Northeasterly side of North 13th Street:

RUNNING THENCE Northeasterly along the Southeasterly side of Wythe Avenue, 200 feet to the corner formed by the intersection Southeasterly side of Wythe Avenue with the Southeasterly side of North 14th Street;

THENCE Southeasterly along the Southeasterly side of North 14th Street 100 feet;

THENCE Southwesterly parallel with the Southeasterly side of Wythe Avenue, 200 feet to the Northeasterly side of North 13th Street;

THENCE Northwesterly along Northeasterly side of North 13th Street, 100 feet to the corner the point or place of BEGINNING.

LOT 9

BEGINNING at a point on the southwesterly side of North 14th Street, distant 100.00 feet southeasterly from the corner formed by the intersection of the southwesterly side of North 14th street with the southeasterly side of Wythe Avenue;

RUNNING THENCE southwesterly parallel with Wythe Avenue 100 feet 4 inches;

THENCE southeasterly parallel with North 14th Street and part of the distance through a party wall 85.00 feet;

THENCE northeasterly parallel with Wythe Avenue 100 feet 4 inches to the Southwesterly side of North 14th Street;

THENCE northwesterly along the southwesterly side of North 14th Street 85.00 feet to the point or place of BEGINNING.

ATTACHMENT B
Health and Safety Plan

FORMER DUTCH MASTERS PAINT AND VARNSIH CO.

29-41 WYTHE AVENUE AND 180 N. 14th STREET
BROOKLYN, NEW YORK 11249
Block 2279, Lots 1 and 9

CONSTRUCTION
HEALTH AND SAFETY PLAN

May 2020

Prepared for:
False Alarm LTD and M.A.J. Associates, Inc.
530 7th Avenue, Suite 1902
New York, NY 10018

Prepared by:

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961

TABLE OF CONTENTS
CONSTRUCTION HEALTH AND SAFETY PLAN
Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, New York

TABLE OF CONTENTS
CONSTRUCTION HEALTH AND SAFETY PLAN
Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, New York

STATEMENT OF COMMITMENT

This Construction Health and Safety Plan (CHASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during the Remedial Actions at 29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, NY

This CHASP, which applies to persons present at the site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This CHASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees.

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed by Environmental Business Consultants (EBC) for the planned Remedial Action at 29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, New York to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during remedial activities. In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule, this CHASP, including the attachments, addresses safety and health hazards related to excavation, loading and other soil disturbance activities and is based on the best information available. The CHASP may be revised by EBC at the request of the owner and/or a regulatory agency upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by EBC's project manager, site safety officer and/or the EBC health and safety consultant.

Work performed under the remedial action will not involve confined space entry since the excavations will be large and sloped back in accordance with NYCDOB shoring requirements and will not have a limited or restricted means for entry or exit.

1.1 Training Requirements

Personnel entering the exclusion zone or decontamination zone are required to be certified in health and safety practices for hazardous waste site operations as specified in the Federal OSHA Regulations CFR 1910.120e (revised 3/6/90).

Paragraph (e - 3) of the above referenced regulations requires that all on-site management personnel directly responsible for or who supervise employees engaged in hazardous waste operations, must initially receive 8 hours of supervisor training related to managing hazardous waste work.

Paragraph (e - 8) of the above referenced regulations requires that workers and supervisors receive 8 hours of refresher training annually on the items specified in Paragraph (e-1) and/or (e-3).

Additionally, all on-site personnel must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.

- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

Health and Safety meetings will be conducted on a daily basis and will cover protective clothing and other equipment to be used that day, potential and chemical and physical hazards, emergency procedures, and conditions and activities from the previous day.

1.2 Medical Monitoring Requirements

Field personnel and visitors entering the exclusion zone or decontamination zone must have completed appropriate medical monitoring required under OSHA 29 CFR 1910.120(f) if respirators or other breathing related PPE is needed. Medical monitoring enables a physician to monitor each employee's health, physical condition, and his fitness to wear respiratory protective equipment and carry out on-site tasks.

1.3 Site Safety Plan Acceptance, Acknowledgment and Amendments

The project superintendent and the site safety officer are responsible for informing personnel (EBC employees and/or owner or owners representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included in **Appendix A**.

Site conditions may warrant an amendment to the CHASP. Amendments to the CHASP are acknowledged by completing forms included in **Appendix B**.

1.4 Key Personnel - Roles and Responsibilities

Personnel responsible for implementing this Health and Safety Plan are:

Name	Title	Address	Contact Numbers
Mr. Keith Butler	Project Manager	1808 Middle Country Rd Ridge, NY 11961	(631) 504-6000
Ms. Chawinie Reilly	Site Safety Coordinator	1808 Middle Country Rd Ridge, NY 11961	(631) 504-6000
Mr. Thomas Gallo	Site Safety Officer	1808 Middle Country Rd Ridge, NY 11961	(631) 504-6000

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this CHASP. The site safety officer will conduct daily (tail gate or tool box) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is also responsible for coordinating health and safety activities related to hazardous material exposure on-site. The site safety officer is responsible for the following:

1. Educating personnel about information in this CHASP and other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.

2. Coordinating site safety decisions with the project manager.

3. Designating exclusion, decontamination and support zones on a daily basis.

4. Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this CHASP.

5. Maintaining the work zone entry/exit log and site entry/exit log.

6. Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

2.0 SITE BACKGROUND AND SCOPE OF WORK

The street address for the Site is 29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, NY (Figure 1). The Site is located in the City of New York in the East Williamsburg neighborhood of the Borough of Brooklyn. The Site is comprised of two tax parcels identified as Block 2279, Lots 1 and 9 and totaling 28,528 sq. ft (0.65 acres). The Site has approximately 200 ft of street frontage on Wythe Avenue and 185 feet of street frontage on North 14th Street (**Figure 2**).

The property has historically been occupied by a varnish factory, foundry, type writer ribbon manufacturer, bed spring manufacturer, warehouse, motorcycle repair shop, art studio and music studios. The north side of the site is bordered by North 14th Street; the east side by Block 2279, Lot Nos. 34 and 13; the south side by Block 2279, Lot 34 and North 13th Street; and the west side by Wythe Street.

2.1 Remedial Investigation

A Remedial Investigation was completed at the Site from October 15, 2018, through January 29, 2019, and documented in a Remedial Investigation Report dated April 2019. The goals of the Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination.
Activities completed under the RI:

- The installation of fourteen soil borings to collect twenty-four soil samples for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides, pesticides, organophosphate pesticides, PCBs, and/or metals;
- The installation of nine groundwater monitoring wells and the collection of nine groundwater samples for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and total and dissolved metals;
- The collection of analysis of soil gas samples for VOCs from thirteen soil gas sampling locations.

The results of sampling performed during this RI identified contamination associated with historic fill, spill areas on/near Lot 9 of the chlorinated VOC trichloroethylene (TCE) that has impacted both groundwater and/or soil gas, and petroleum VOC contaminated soil in the southeast corner of Lot 1 that has slightly impacted groundwater.

The chlorinated VOC trichloroethylene (TCE) was detected within soil samples collected from three of the soil borings performed on Lot 9 (B1801, B1803, and B1804). TCE was detected above SCOs in several isolated samples at the site, including B1801 located in the northeast corner of Lot 9 and B1804 located in the southwest corner of Lot 9. TCE was reported above SCO's at higher concentrations in shallow vs deep samples indicating incidental surface spillage. TCE concentrations did not exceed Restricted Residential SCOs and ranged in concentration from 760 ug/kg to 3,100 ug/kg.

Petroleum related VOCs were detected at low concentrations in the majority of the soil samples collected at the Site, including soil samples collected at the groundwater interface and soil samples collected above the groundwater interface. However, detections above Unrestricted Use

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

SCOs were limited to soil sample B10 located in the southeast corner of lot 1, (4-5), soil sample B1802 (10-12) located in the southeast corner of Lot 9, and soil sample B1805(6-8) located in the northeast corner of Lot 1. Total petroleum VOC concentrations in these samples ranged from 87 ug/kg to 1,017 ug/kg. Although polycyclic aromatic hydrocarbons (PAHs) were reported at elevated concentrations in some of the samples they did not appear to be related to petroleum. Petroleum impacts do not appear to be related to any definable source as elevated concentrations of VOCs and PAHs were not reported near any of the suspect underground storage tanks (USTs) or piping.

The historic fill material was found across the Site to depths of 10 to 12 feet below grade, extending as deep as 17 feet in some areas of the Site. Depending on location, the historic fill material contains one or more metals including arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel and zinc, pesticides and polycyclic aromatic hydrocarbons (PAHs) above Unrestricted Use and / or Restricted Residential SCOs.

2.2 Redevelopment Plans

The redevelopment project consists of the construction of a new 7-story mixed-use commercial building which will cover the entirety of the Site. The project includes light manufacturing, commercial office, and retail space. Plans include a full height cellar level requiring excavation to a depth of approximately 28 ft below grade. With groundwater present at depths ranging between 7.50 to 11.78 feet below grade, dewatering will be required during construction of the building's foundation.

2.3 Description of Remedial Action

Site activities included within the Remedial Action that are included within the scope of this CHASP include the following:

1. Demolition of existing structures to allow impacted soil to be excavated (previously completed).
2. Excavation of soil/fill exceeding Commercial Use SCOs as listed in **Table 1** to a minimum depth of 15 feet across the Site with additional excavation to 16 to 18 feet to meet Track 1 Unrestricted Use SCOs;
3. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
4. Collection and analysis of end-point samples to evaluate the performance of the remedy with respect to attainment of Track 2 Commercial Use SCOs or Track 1 Unrestricted Use SCOs;
5. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
6. Dewatering and treatment of VOC impacted groundwater before discharging to the NYC sewer system under a NYCDEP sewer discharge permit;
7. Import of materials to be used for backfill and cover in compliance with: (1) chemical limits and other specifications included in **Table 1**, (2) all Federal, State and local rules and regulations for handling and transport of material;

8. If Engineering controls are needed, implementation of a Site Management Plan (SMP) for long term maintenance of the Engineering Controls. An SMP will not be needed if Track 1 SCOs are achieved.
9. An Environmental Easement will be filed against the Site to restrict Site use to Commercial or Industrial use if a Track 2 cleanup is achieved. An Environmental Easement will not be needed if a Track 1 cleanup is achieved as intended.

Although the goal of the remedy will be to achieve Track 2 Commercial Use SCOs, over excavation will be performed to try and achieve Track 1 Unrestricted Use SCOs.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

3.0 HAZARD ASSESSMENT

This section identifies the hazards associated with the proposed scope of work, general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against using engineering controls and/or personal protective equipment.

3.1 Physical Hazards

3.1.1 Tripping Hazards

An area of risk associated with on-site activities are presented by uneven ground, concrete, curbstones or equipment which may be present at the site thereby creating a potential tripping hazard. During intrusive work, care should be taken to mark or remove any obstacles within the exclusion zone.

3.1.2 Climbing Hazards

During site activities, workers may have to work on excavating equipment by climbing. The excavating contractor will conform with any applicable NIOSH and OSHA requirements or climbing activities.

3.1.3 Cuts and Lacerations

Field activities that involve excavating activities usually involve contact with various types of machinery. A first aid kit approved by the American Red Cross will be available during all intrusive activities.

3.1.4 Lifting Hazards

Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the excavation program may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.5 Utility Hazards

Before conducting any excavation, the excavation contractor will be responsible for locating and verifying all existing utilities at each excavation.

3.1.6 Traffic Hazards

All traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state and federal agency regulations regarding such traffic and in accordance with NYCDOT guidelines. The excavation contractor shall carry on his operations without undue interference or delays to traffic. The excavation contractor shall furnish all labor, materials, guards, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public, during operations.

3.2 Work in Extreme Temperatures

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress.

EBC
Environmental Business Consultants
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

3.2.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress.

The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention
    a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.
    b. Work in Pairs. Individuals should avoid undertaking any activity alone.
    c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
    d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment
    a Heat Rash (or prickly heat):
    Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.
    Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.
    Treatment: Remove source or irritation and cool skin with water or wet cloths.

    b. Heat Cramps (or heat prostration)
    Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.
    Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.
    Treatment: Perform the following while making arrangement for transport to a medical facility. Remove the worker to a contamination reduction zone. Remove protective clothing. Lie worker down on back in a cool place and raise feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport to a medical facility.

    c. Heat Stroke
    Cause: Same as heat exhaustion. This is also an extremely serious condition.
    Symptoms: Dry hot skin, dry mouth, dizziness, nausea, headache, rapid pulse.
    Treatment: Cool worker immediately by immersing or spraying with cool water or sponge bare skin after removing protective clothing. Transport to hospital.

3.2.2 Cold Exposure

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

loss of body heat (hypothermia) and /or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of frost bite and hypothermia such as:

- Shivering;
- reduced blood pressure;
- reduced coordination;
- drowsiness;
- impaired judgment;
- fatigue;
- pupils dilated but reactive to light; and,
- numbing of the toes and fingers.

3.3 Chemical Hazards

"Urban fill" materials, present throughout the New York City area typically contain elevated levels of semi-volatile organic compounds and metals. These "contaminants" are not related to a chemical release occurring on the site, but are inherent in the reworked fill material in the area which contains ash and bits of tar and asphalt. Considering the previous sampling results and the past and present use of the site, the following compounds are considered for the site as potential contaminants: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and heavy metals such as arsenic, chromium, lead and mercury.

Based on the findings of the Remedial Investigation and the inherent properties of urban fill, the following compounds are considered for the site as potential contaminants: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and heavy metals.

Volatile organic compounds reported to be present in soil and / or fill include the following:

Acetone	Benzene	Chloroform	Trichloroethene

Semi-Volatile organic compounds reported to be present in soil and / or fill materials include the following:

Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene
Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	

Pesticides reported to be present in soil and / or fill materials include the following:

4,4'-DDD	4,4'-DDT		

Metals reported to be present in soil and / or fill materials include the following:

Arsenic	Barium	Cadmium	Chromium
Copper	Lead	Mercury	Nickel
Zinc			

The primary routes of exposure to these contaminants are inhalation, ingestion and absorption. **Appendix C** includes information sheets for suspected chemicals that may be encountered at the site.

3.3.1 Respirable Dust

Dust may be generated from vehicular traffic and/or excavation activities. If visible observation detects elevated levels of dust, a program of wetting will be employed by the site safety officer. If elevated dust levels persist, the site safety office will employ dust monitoring using a particulate monitor (Miniram or equivalent). If monitoring detects concentrations greater than 150 µg/m3 over daily background, the site safety officer will take corrective actions as defined herein, including the use of water for dust suppression and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

Absorption pathways for dust and direct contact with soils or groundwater will be mitigated with the implementation of latex gloves, hand washing and decontamination exercises when necessary.

3.3.2 Dust Control and Monitoring During Earthwork

Dust generated during excavation activities or other earthwork may contain contaminants identified in soils at the site. Dust will be controlled by wetting the working surface with water. Calcium chloride may be used if the problem cannot be controlled with water. Air monitoring and dust control techniques are specified in a site specific Dust Control Plan (if applicable). Site workers will not be required to wear APR's unless dust concentrations are consistently over 150 $\mu g/m^3$ over site-specific background in the breathing zone as measured by a dust monitor unless the site safety officer directs workers to wear APRs. The site safety officer will use visible dust as an indicator to implement the dust control plan.

3.3.3 Organic Vapors

Elevated levels of chlorinated VOCs were detected in soil, soil gas and groundwater samples collected during previous investigations at the site. Therefore, excavation activities may cause the release of organic vapors to the atmosphere. The site safety officer will periodically monitor organic vapors with a Photoionization Detector (PID) during excavation activities to determine whether organic vapor concentrations exceed action levels shown in Section 5 and/or the Community Air Monitoring Plan.

3.3.4 Covid 19

For the duration of the pandemic, all workers must follow NYSDOH Guidelines for personal protection and in the prevention of spreading the virus. These include:

- Wash your hands often with soap and water for at least 20 seconds, or use a waterless disinfectant, especially before you eat.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Avoid close contact with people who are sick. Keep a distance of at least 6 feet.
- Do not come to work if you have symptoms.
- Cover your cough and sneezes with a tissue and discard it in a closed container.
- Clean frequently touched surfaces and objects.
- Wear a mask when around others.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be NIOSH approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection. **It is anticipated that work will be performed in Level D PPE.**

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work uniform, coveralls, or tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

Level C PPE shall be donned when the concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), but are less than 5 ppm. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves (surgical gloves);
- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

- chemical resistant coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves;
- disposable outer gloves;
- hard hat; and,
- ankles/wrists taped.

The exact PPE ensemble is decided on a site-by-site basis by the Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 4.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection engineering controls (i.e. Facing equipment away from the wind and placing site personnel upwind of drilling locations, active venting, etc.) will be implemented before requiring the use of respiratory protection.

5.0 AIR MONITORING AND ACTION LEVELS

29 CFR 1910.120(h) specifies that monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

Note that air monitoring to prevent exposure to the surrounding community is detailed under a Community Air Monitoring Plan (CAMP), included as an attachment to the Remedial Action Work Plan.

5.1 Air Monitoring Requirements

If excavation work is performed, air will be monitored for VOCs with a portable ION Science 3000EX photoionization detector, or the equivalent. If necessary, Lower Explosive Limit (LEL) and oxygen will be monitored with a Combustible Gas Indicator (CGI). If appropriate, fugitive dust will be monitored using a MiniRam Model PDM-3 aerosol monitor. Air will be monitored when any of the following conditions apply:

- initial site entry;
- during any work where a potential IDLH condition or flammable atmosphere could develop;
- excavation work begins on another portion of the site;
- contaminants, other than those previously identified, have been discovered;
- each time a different task or activity is initiated;
- during trenching and/or excavation work.

The designated site safety officer will record air monitoring data and ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. Instruments will be zeroed daily and checked for accuracy. Monitoring results will be recorded in a field notebook and will be transferred to instrument reading logs.

5.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage are exceeded:

1 The SSO will be consulted immediately
2 All personnel (except as necessary for continued monitoring and contaminant migration, if applicable) will be cleared from the work area (eg from the exclusion zone).
3 Monitoring will be continued until intrusive work resumes.

5.3 Action Levels During Excavation Activities

Instrument readings will be taken in the breathing zone above the excavation pit unless otherwise noted. Each action level is independent of all other action levels in determining responses.

Organic Vapors (PID)	LEL %	Responses
0-1 ppm above background	0%	• Continue excavating • Level D protection • Continue monitoring every 10 minutes
1-5 ppm Above Background, Sustained Reading	1-10%	• Continue excavating • Go to Level C protection or employ engineering controls • Continue monitoring every 10 minutes
5-25 ppm Above Background, Sustained Reading	10-20%	• Discontinue excavating, unless PID is only action level exceeded. • Level C protection or employ engineering controls • Continue monitoring for organic vapors 200 ft downwind • Continuous monitoring for LEL at excavation pit
>25 ppm Above Background, Sustained Reading	>20%	• Discontinue excavating • Withdraw from area, shut off all engine ignition sources. • Allow pit to vent • Continuous monitoring for organic vapors 200 ft downwind.

Notes: Air monitoring will occur in the breathing zone 30 inches above the excavation pit. Readings may also be taken in the excavation pit but will not be used for action levels.

If action levels for any one of the monitoring parameters are exceeded, the appropriate responses listed in the right hand column should be taken. If instrument readings do not return to acceptable levels after the excavation pit has been vented for a period of greater than one-half hour, a decision will then be made whether or not to seal the pit with suppressant foam.

If, during excavation activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one-half hour, excavation will stop until sustained levels are less then 5 ppm (see Community Air Monitoring Plan).

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

6.0 SITE CONTROL

6.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the site safety officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The site safety officer will outline these locations before work begins and when zones change. The site safety officer records this information in the site log book. **It is expected that the entire fenced in area of the Site will be the exclusion zone, with the decontamination zone the Site entrance.** The support zone will be the office trailer.

Tasks requiring OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training are carried out in the exclusion zone. The exclusion zone is defined by the site safety officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the site Health and Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is decontaminated. All personnel and equipment exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

The support zone is used for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water are kept at a central location designated by the site safety officer.

6.2 General Site Work

An excavation contractor with appropriate experience, personnel and training (40 hr OSHA Hazardous Waste Operations and Emergency Response Operations - HAZWOPER) is required to perform the removal of the CVOC and naphthalene impacted soil. After this material is removed the contractor will remove historic fill and uncontaminated soil. The excavation contractor’s on-site personnel engaged in historic fill and native soil removal will have a minimum of 24 hour HAZWOPER training.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

7.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

7.1 Emergency Equipment On-site

Private telephones:	Site personnel.
Two-way radios:	Site personnel where necessary.
Emergency Alarms:	On-site vehicle horns*.
First aid kits:	On-site, in vehicles or office.
Fire extinguisher:	On-site, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

7.2 Emergency Telephone Numbers

General Emergencies	911
New York City Police	911
NYC Health and Hospitals, Woodhull	1-718-963-8000
NYSDEC Spills Division	1-800-457-7362
NYSDEC Division of Env. Remediation	1-718-482-4900
NYCDEP	1-718-699-9811
NYC Department of Health	1-212-788-4711
NYC Fire Department	911
National Response Center	1-800-424-8802
Poison Control	1-212-340-4494
Site Safety Officer	1-631-504-6000
Alternate Site Safety Officer	1-631-504-6000

7.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, evacuate and secure the site, or upgrade/downgrade the level of protective clothing and respiratory protection;

- Ensure that appropriate federal, state, and local agencies are informed and emergency response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;

- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;

- Determine the cause of incidents and make recommendations to prevent recurrence; and,

- Ensure that all required reports have been prepared.

The following key personnel are planned for this project:

- Project Manager Keith Butler (631) 504-6000
- Construction Superintendent Jason Giller 718-871-2433 ext. 107
- Site Safety Officer Thomas Gallo (631) 504-6000

7.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix D**) must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (**Appendix D**).and information on the chemical(s) to which they may have been exposed (**Appendix C**).

7.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- use fire fighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

7.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these instructions:

- Keep upwind of smoke, vapors, or spill location.

- Exit through the decontamination corridor if possible.

- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.

- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.

- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

7.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

7.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped.

If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

- contact the local police;
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are below 5 ppm (non-methane), off-site air monitoring will be halted.
- All property line and off site air monitoring locations and results associated with vapor releases will be recorded in the site safety log book.

APPENDIX A

SITE SAFETY ACKNOWLEDGEMENT FORM

DAILY BREIFING SIGN-IN SHEET

Date:______________________________ Person Conducting Briefing:______________________

Project Name and Location:____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc…):

____

____

____

____

2. OTHER ISSUES (HASP changes, attendee comments, etc…):

____

____

____

3. ATTENDEES (Print Name):

1.	11.
2.	12.
3.	13.
4.	14.
5.	15.
6.	16.
7.	17.
8.	18.
9.	19.
10.	20.

APPENDIX B

SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #:____

Site Name: ____

Reason for Amendment:____

Alternative Procedures:____

Required Changes in PPE:____

Project Superintendent (signature)	**Date**
Health and Safety Consultant (signature)	**Date**
Site Safety Officer (signature)	**Date**

APPENDIX C
CHEMICAL HAZARDS

CHEMICAL HAZARDS

The attached International Chemical Safety Cards are provided for contaminants of concern that have been identified in soils and/or groundwater at the site.

International Chemical Safety Cards

BENZENE

ICSC: 0015

Cyclohexatriene
Benzol
C_6H_6
Molecular mass: 78.1

ICSC # 0015
CAS # 71-43-2
RTECS # CY1400000
UN # 1114
EC # 601-020-00-8
May 06, 2003 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, AFFF, foam, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive. Risk of fire and explosion: see Chemical Dangers.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Shortness of breath. Convulsions. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	MAY BE ABSORBED! Dry skin. Redness. Pain. (Further see Inhalation).	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
•EYES	Redness. Pain.	Face shield, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Sore throat. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Personal protection: complete protective clothing including self-contained breathing apparatus.	Fireproof. Separated from food and feedstuffs oxidants halogens	Do not transport with food and feedstuffs. Note: E F symbol T symbol R: 45-46-11-36/38-48/23/24/25-65 S: 53-45 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0015

International Chemical Safety Cards

BENZENE

ICSC: 0015

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts violently with oxidants, nitric acid, sulfuric acid and halogens causing fire and explosion hazard. Attacks plastic and rubber.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.5 ppm as TWA 2.5 ppm as STEL (skin) A1 BEI (ACGIH 2004).
MAK: H
Carcinogen category: 1 Germ cell mutagen group: 3A (DFG 2004).
OSHA PEL: 1910.1028 TWA 1 ppm ST 5 ppm See Appendix F
NIOSH REL: Ca TWA 0.1 ppm ST 1 ppm See Appendix A
NIOSH IDLH: Ca 500 ppm See: 71432

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation through the skin and by ingestion

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in lowering of consciousness Exposure far above the occupational exposure limit value may result in unconsciousness death

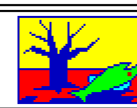
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the bone marrow immune system , resulting in a decrease of blood cells. This substance is carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 80°C
Melting point: 6°C
Relative density (water = 1): 0.88
Solubility in water, g/100 ml at 25°C: 0.18
Vapour pressure, kPa at 20°C: 10
Relative vapour density (air = 1): 2.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.2
Flash point:
-11°C c.c.
Auto-ignition temperature: 498°C
Explosive limits, vol% in air: 1.2-8.0
Octanol/water partition coefficient as log Pow: 2.13

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms.



NOTES

Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. The odour warning when the exposure limit value is exceeded is insufficient.

Transport Emergency Card: TEC (R)-30S1114 / 30GF1-II
NFPA Code: H2; F3; R0

ADDITIONAL INFORMATION

ICSC: 0015 **BENZENE**

International Chemical Safety Cards

ACETONE

ICSC: 0087

2-Propanone
Dimethyl ketone
Methyl ketone
C_3H_6O / CH_3COCH_3
Molecular mass: 58.1

ICSC # 0087
CAS # 67-64-1
RTECS # AL3150000
UN # 1090
EC # 606-001-00-8
April 22, 1994 Validated
Fi, review at IHE: 10/09/89

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, alcohol-resistant foam, water in large amounts, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE			
•INHALATION	Sore throat. Cough. Confusion. Headache. Dizziness. Drowsiness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness. Pain. Blurred vision. Possible corneal damage.	Safety spectacles or face shield . Contact lenses should not be worn.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Nausea. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Then wash away with plenty of water.	Fireproof. Separated from strong oxidants. Store in an area without drain or sewer access.	F symbol Xi symbol R: 11-36-66-67 S: 2-9-16-26 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

ACETONE

ICSC: 0087

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. **PHYSICAL DANGERS:** The vapour is heavier than air and may travel along the ground; distant ignition possible. **CHEMICAL DANGERS:** The substance can form explosive peroxides on contact with strong oxidants such as acetic acid, nitric acid, hydrogen peroxide. Reacts with chloroform and bromoform under basic conditions, causing fire and explosion hazard. Attacks plastic. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 500 ppm as TWA, 750 ppm as STEL; A4 (not classifiable as a human carcinogen); BEI issued; (ACGIH 2004). MAK: 500 ppm 1200 mg/m³ Peak limitation category: I(2); Pregnancy risk group: D; (DFG 2006). OSHA PEL†: TWA 1000 ppm (2400 mg/m^3) NIOSH REL: TWA 250 ppm (590 mg/m^3) NIOSH IDLH: 2500 ppm 10%LEL See: 67641	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation and through the skin. **INHALATION RISK:** A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster. **EFFECTS OF SHORT-TERM EXPOSURE:** The vapour irritates the eyes and the respiratory tract. The substance may cause effects on the central nervous system , liver , kidneys and gastrointestinal tract . **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the blood and bone marrow .
PHYSICAL PROPERTIES	Boiling point: 56°C Melting point: -95°C Relative density (water = 1): 0.8 Solubility in water: miscible Vapour pressure, kPa at 20°C: 24	Relative vapour density (air = 1): 2.0 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.2 Flash point: -18°C c.c. Auto-ignition temperature: 465°C Explosive limits, vol% in air: 2.2-13 Octanol/water partition coefficient as log Pow: -0.24
ENVIRONMENTAL DATA		

NOTES

Use of alcoholic beverages enhances the harmful effect.

Transport Emergency Card: TEC (R)-30S1090

NFPA Code: H 1; F 3; R 0;
Card has been partially updated in July 2007: see Occupational Exposure Limits.
Card has been partially updated in January 2008: see Storage.

ADDITIONAL INFORMATION

ICSC: 0087 **ACETONE**

International Chemical Safety Cards

CHLOROFORM

ICSC: 0027

National Institute for Occupational Safety and Health

Trichloromethane
Methane trichloride
Formyl trichloride
$CHCl_3$
Molecular mass: 119.4

ICSC # 0027
CAS # 67-66-3
RTECS # FS9100000
UN # 1888
EC # 602-006-00-4
November 04, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. See Notes. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!	
•INHALATION	Cough. Dizziness. Drowsiness. Headache. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Redness. Pain. Dry skin.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
•EYES	Redness. Pain.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Give plenty of water to drink. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: complete protective clothing including self-contained breathing apparatus.	Separated from food and feedstuffs and incompatible materials ,(see Chemical Dangers). Ventilation along the floor.	Unbreakable packaging; put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs. Xn symbol R: 22-38-40-48/20/22 S: 2-36/37 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the

ICSC: 0027

International Chemical Safety Cards

CHLOROFORM

ICSC: 0027

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
VOLATILE COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride ICSC0163,phosgene ICSC0007 andchlorine fumes ICSC0126). Reacts violently withstrong bases,strong oxidants, some metals, such as aluminium, magnesium and zinc, causing fire and explosion hazard. Attacks plastic, rubber and coatings.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 10 ppm as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans); (ACGIH 2004).
MAK: 0.5 ppm, 2.5 mg/m^3;
Peak limitation category: II(2);
skin absorption (H);
Carcinogen category: 4; Pregnancy risk group: C;
(DFG 2004).
OSHA PEL†: C 50 ppm (240 mg/m^3)
NIOSH REL: Ca ST 2 ppm (9.78 mg/m^3) 60-minute See Appendix A
NIOSH IDLH: Ca 500 ppm See: 67663

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes . The substance may cause effects on the central nervous system , liver and kidneys . The effects may be delayed. Medical observation is indicated.

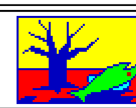
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the liver and kidneys . This substance is possibly carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 62°C
Melting point: -64°C
Relative density (water = 1): 1.48
Solubility in water, g/100 ml at 20°C: 0.8
Vapour pressure, kPa at 20°C: 21.2
Relative vapour density (air = 1): 4.12
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.7
Octanol/water partition coefficient as log Pow: 1.97

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.



NOTES

Turns combustible on addition of small amounts of a flammable substance or an increase in the oxygen content of the air. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is indicated. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1888

NFPA Code: H 2; F 0; R 0;

ADDITIONAL INFORMATION

ICSC: 0027 **CHLOROFORM**

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

National Institute for Occupational Safety and Health

1,1,2-Trichloroethylene
Trichloroethene
Ethylene trichloride
Acetylene trichloride
C_2HCl_3 / $ClCH=CCl_2$
Molecular mass: 131.4

ICSC # 0081
CAS # 79-01-6
RTECS # KX4550000
UN # 1710
EC # 602-027-00-9
April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions. See Notes.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION		Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Weakness. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment.	Separated from metals (see Chemical Dangers), strong bases, food and feedstuffs . Dry. Keep in the dark. Ventilation along the floor. Store in an area without drain or sewer access.	Do not transport with food and feedstuffs. Marine pollutant. T symbol R: 45-36/38-52/53-67 S: 53-45-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (phosgene , hydrogen chloride). The substance decomposes on contact with strong alkali producing dichloroacetylene , which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 50 ppm as TWA; 100 ppm as STEL; A5; BEI issued; (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3B; (DFG 2007).
OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)
NIOSH REL: Ca See Appendix A See Appendix C
NIOSH IDLH: Ca 1000 ppm See: 79016

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin . Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in respiratory failure . Exposure could cause lowering of consciousness.

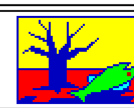
EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system , resulting in loss of memory. The substance may have effects on the liver and kidneys (see Notes). This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 87°C
Melting point: -73°C
Relative density (water = 1): 1.5
Solubility in water, g/100 ml at 20°C: 0.1
Vapour pressure, kPa at 20°C: 7.8
Relative vapour density (air = 1): 4.5
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.3
Auto-ignition temperature: 410°C
Explosive limits, vol% in air: 8-10.5
Octanol/water partition coefficient as log Pow: 2.42
Electrical conductivity: 800pS/m

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.



NOTES

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.

Transport Emergency Card: TEC (R)-61S1710

NFPA Code: H2; F1; R0;
Card has been partially updated in October 2004: see Occupational Exposure Limits, EU Classification, Emergency Response.
Card has been partially updated in April 2010: see Occupational Exposure Limits, Ingestion First Aid, Storage.

ADDITIONAL INFORMATION

International Chemical Safety Cards

1,2,4-TRICHLOROBENZENE

ICSC: 1049

1,2,4-Trichlorobenzol
unsym-Trichlorobenzene
$C_6H_3Cl_3$
Molecular mass: 181.5

ICSC # 1049
CAS # 120-82-1
RTECS # DC2100000
UN # 2321
EC # 602-087-00-6
November 26, 2003 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Powder, water spray, foam, carbon dioxide.
EXPLOSION			
EXPOSURE		PREVENT GENERATION OF MISTS!	
•INHALATION	Cough. Sore throat. Burning sensation.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness. Roughness.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention.
•EYES	Redness. Pain.	Safety goggles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Sore throat. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Give plenty of water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Sweep spilled substance into sealable containers , if solid. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Separated from strong oxidants, acids, food and feedstuffs .	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 22-38-50/53 S: 2-23-37/39-60-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 1049

International Chemical Safety Cards

1,2,4-TRICHLOROBENZENE

ICSC: 1049

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID OR WHITE CRYSTALS , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
The substance decomposes on burning producing toxic fumes including hydrogen chloride . Reacts violently with oxidants .

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 5 ppm; (Ceiling value); (ACGIH 2003).
EU OEL: as TWA 2 ppm, 15.1 mg/m³; as STEL 5 ppm, 37.8 mg/m³; (skin); (EU 2003).
OSHA PEL†: none
NIOSH REL: C 5 ppm (40 mg/m^3)
NIOSH IDLH: N.D. See: IDLH INDEX

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract .

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the liver .

PHYSICAL PROPERTIES

Boiling point: 213°C
Melting point: 17°C
Relative density (water = 1): 1.5
Solubility in water: 34.6 mg/l
Vapour pressure, Pa at 25°C: 40
Relative vapour density (air = 1): 6.26
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.002
Flash point: 105°C c.c.
Auto-ignition temperature: 571°C
Explosive limits, vol% in air: 2.5-6.6 (at 150°C)
Octanol/water partition coefficient as log Pow: 3.98

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish.

N O T E S

The occupational exposure limit value should not be exceeded during any part of the working exposure. Also consult ICSC0344 1,3,5-Trichlorobenzene, and ICSC1222 1,2,3-Trichlorobenzene.

Transport Emergency Card: TEC (R)-61GT1-III

NFPA Code: H2; F1; R0;

ADDITIONAL INFORMATION

ICSC: 1049 **1,2,4-TRICHLOROBENZENE**

BENZ(a)ANTHRACENE

ICSC: 0385

1,2-Benzoanthracene
Benzo(a)anthracene
2,3-Benzphenanthrene
Naphthanthracene
$C_{18}H_{12}$
Molecular mass: 228.3

ICSC # 0385
CAS # 56-55-3
RTECS # CV9275000
EC # 601-033-00-9
October 23, 1995 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.		Water spray, powder. In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety goggles face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Personal protection: complete protective clothing including self-contained breathing apparatus.	Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0385

BENZ(a)ANTHRACENE

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS TO YELLOW BROWN FLUORESCENT FLAKES OR POWDER.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:

OCCUPATIONAL EXPOSURE LIMITS:
TLV: A2 (suspected human carcinogen); (ACGIH 2004).
MAK:
Carcinogen category: 2 (as pyrolysis product of organic materials)
(DFG 2005).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Sublimation point: 435°C
Melting point: 162°C
Relative density (water = 1): 1.274
Solubility in water:
none

Vapour pressure, Pa at 20°C: 292
Octanol/water partition coefficient as log Pow: 5.61

ENVIRONMENTAL DATA

Bioaccumulation of this chemical may occur in seafood.

N O T E S

This substance is one of many polycyclic aromatic hydrocarbons - standards are usually established for them as mixtures, e.g., coal tar pitch volatiles. However, it may be encountered as a laboratory chemical in its pure form. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken. Do NOT take working clothes home. Tetraphene is a common name. Card has been partly updated in October 2005 and August 2006: see sections Occupational Exposure Limits, EU classification.

ADDITIONAL INFORMATION

ICSC: 0385 **BENZ(a)ANTHRACENE**

BENZO(a)PYRENE

ICSC: 0104

Benz(a)pyrene
3,4-Benzopyrene
Benzo(d,e,f)chrysene
$C_{20}H_{12}$
Molecular mass: 252.3

ICSC # 0104
CAS # 50-32-8
RTECS # DJ3675000
EC # 601-032-00-3
October 17, 2005 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Water spray, foam, powder, carbon dioxide.
EXPLOSION			
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	AVOID ALL CONTACT! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN	MAY BE ABSORBED!	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Separated from strong oxidants.	T symbol N symbol R: 45-46-60-61-43-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0104

BENZO(a)PYRENE

ICSC: 0104

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
PALE-YELLOW CRYSTALS

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Reacts with strong oxidants causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: Exposure by all routes should be carefully controlled to levels as low as possible A2 (suspected human carcinogen); (ACGIH 2005).
MAK:
Carcinogen category: 2; Germ cell mutagen group: 2; (DFG 2005).

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
This substance is carcinogenic to humans. May cause heritable genetic damage to human germ cells. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 496°C
Melting point: 178.1°C
Density: 1.4 g/cm³
Solubility in water: none (<0.1 g/100 ml)
Vapour pressure : negligible
Octanol/water partition coefficient as log Pow: 6.04

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in fish, in plants and in molluscs. The substance may cause long-term effects in the aquatic environment.

N O T E S

Do NOT take working clothes home. Benzo(a)pyrene is present as a component of polycyclic aromatic hydrocarbons (PAHs) in the environment, usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.

ADDITIONAL INFORMATION

ICSC: 0104 **BENZO(a)PYRENE**

International Chemical Safety Cards

BENZO(b)FLUORANTHENE

ICSC: 0720

Benz(e)acephenanthrylene
2,3-Benzofluoroanthene
Benzo(e)fluoranthene
3,4-Benzofluoranthene
$C_{20}H_{12}$
Molecular mass: 252.3

ICSC # 0720
CAS # 205-99-2
RTECS # CU1400000
EC # 601-034-00-4
March 25, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE			In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.	Provision to contain effluent from fire extinguishing. Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0720

International Chemical Safety Cards

BENZO(b)FLUORANTHENE

ICSC: 0720

I	**PHYSICAL STATE; APPEARANCE:** COLOURLESS CRYSTALS	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation

M P O R T A N T D A T A

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: A2 (suspected human carcinogen); (ACGIH 2004).
MAK:
Carcinogen category: 2;
(DFG 2004).

of its aerosol and through the skin.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
This substance is possibly carcinogenic to humans. May cause genetic damage in humans.

PHYSICAL PROPERTIES	Boiling point: 481°C Melting point: 168°C Solubility in water: none	Octanol/water partition coefficient as log Pow: 6.12
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to air quality and water quality.	

N O T E S

Benzo(b)fluoranthene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.ACGIH recommends environment containing benzo(b)fluoranthene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m^3. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

ICSC: 0720 **BENZO(b)FLUORANTHENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

BENZO(k)FLUORANTHENE

ICSC: 0721

Dibenzo(b,jk)fluorene
8,9-Benzofluoranthene
11,12-Benzofluoranthene
$C_{20}H_{12}$
Molecular mass: 252.3

ICSC # 0721
CAS # 207-08-9
RTECS # DF6350000
EC # 601-036-00-5
March 25, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE			In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.	Provision to contain effluent from fire extinguishing. Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0721

International Chemical Safety Cards

BENZO(k)FLUORANTHENE

ICSC: 0721

I **M**	**PHYSICAL STATE; APPEARANCE:** YELLOW CRYSTALS	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and through the skin.

PORTANT DATA	**PHYSICAL DANGERS:** **CHEMICAL DANGERS:** Upon heating, toxic fumes are formed. **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established. MAK: Carcinogen category: 2; (DFG 2004).	**INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** This substance is possibly carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 480°C Melting point: 217°C Solubility in water: none	Octanol/water partition coefficient as log Pow: 6.84
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to air quality and water quality. Bioaccumulation of this chemical may occur in crustacea and in fish.	

N O T E S

Benzo(k)fluoranthene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.ACGIH recommends environment containing benzo(k)fluoranthene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m^3. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

ICSC: 0721 **BENZO(k)FLUORANTHENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

CHRYSENE

ICSC: 1672

Benzoaphenanthrene
1,2-Benzophenanthrene
1,2,5,6-Dibenzonaphthalene
$C_{18}H_{12}$
Molecular mass: 228.3

ICSC # 1672
CAS # 218-01-9
RTECS # GC0700000
UN # 3077
EC # 601-048-00-0
October 12, 2006 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Water spray. Dry powder. Foam. Carbon dioxide.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety goggles	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: P3 filter respirator for toxic particles. Do NOT let this chemical enter the environment. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place.	Separated from strong oxidants, Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.	T symbol N symbol R: 45-68-50/53 S: 53-45-60-61 UN Hazard Class: 9 UN Packing Group: III Signal: Warning Aqua-Cancer Suspected of causing cancer Very toxic to aquatic life with long lasting effects Very toxic to aquatic life

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

CHRYSENE

ICSC: 1672

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS TO BEIGE CRYSTALS OR POWDER

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
The substance decomposes on burning producing toxic fumes Reacts violently with strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: A3 (confirmed animal carcinogen with unknown relevance to humans); (ACGIH 2006).
MAK not established.

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol, through the skin and by ingestion.

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
This substance is possibly carcinogenic to humans.

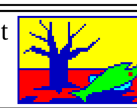
PHYSICAL PROPERTIES

Boiling point: 448°C
Melting point: 254 - 256°C
Density: 1.3
g/cm³

Solubility in water:
very poor
Octanol/water partition coefficient as log Pow: 5.9

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. Bioaccumulation of this chemical may occur in seafood. It is strongly advised that this substance does not enter the environment.



N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home. This substance does not usually occur as a pure substance but as a component of polyaromatic hydrocarbon (PAH) mixtures. Human population studies have associated PAH's exposure with cancer and cardiovascular diseases.

Transport Emergency Card: TEC (R)-90GM7-III

ADDITIONAL INFORMATION

ICSC: 1672 CHRYSENE

International Chemical Safety Cards

DIBENZO(a,h)ANTHRACENE

ICSC: 0431

1,25,6-Dibenzanthracene
$C_{22}H_{14}$
Molecular mass: 278.4

ICSC # 0431
CAS # 53-70-3
RTECS # HN2625000
EC # 601-041-00-2
October 23, 1995 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Water spray, powder.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN	Redness. Swelling. Itching.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness.	Face shield or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Personal protection: P3 filter respirator for toxic particles.	Well closed.	T symbol N symbol R: 45-50/53 S: 53-45-60-61

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0431

International Chemical Safety Cards

DIBENZO(a,h)ANTHRACENE

ICSC: 0431

I

M

P

O

PHYSICAL STATE; APPEARANCE:
COLOURLESS CRYSTALLINE POWDER.

PHYSICAL DANGERS:

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration

R T A N T D A T A	**CHEMICAL DANGERS:** **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established.	of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** The substance may have effects on the skin , resulting in photosensitization. This substance is probably carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 524°C Melting point: 267°C Relative density (water = 1): 1.28	Solubility in water: none Octanol/water partition coefficient as log Pow: 6.5
ENVIRONMENTAL DATA	Bioaccumulation of this chemical may occur in seafood.	

N O T E S

This is one of many polycyclic aromatic hydrocarbons - standards are usually established for them as mixtures, e.g., coal tar pitch volatiles. However, it may be encountered as a laboratory chemical in its pure form. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken. Do NOT take working clothes home. DBA is a commonly used name. This substance is one of many polycyclic aromatic hydrocarbons (PAH).

ADDITIONAL INFORMATION

ICSC: 0431 **DIBENZO(a,h)ANTHRACENE**

International Chemical Safety Cards

INDENO(1,2,3-cd)PYRENE

ICSC: 0730

o-Phenylenepyrene
2,3-Phenylenepyrene
$C_{22}H_{12}$
Molecular mass: 276.3

ICSC # 0730
CAS # 193-39-5
RTECS # NK9300000
March 25, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE			In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		AVOID ALL CONTACT!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into covered containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.	Provision to contain effluent from fire extinguishing. Well closed.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0730

International Chemical Safety Cards

INDENO(1,2,3-cd)PYRENE

ICSC: 0730

I **M** **P**	**PHYSICAL STATE; APPEARANCE:** YELLOW CRYSTALS **PHYSICAL DANGERS:**	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and through the skin. **INHALATION RISK:**

O R T A N T D A T A	**CHEMICAL DANGERS:** Upon heating, toxic fumes are formed. **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established. MAK: Carcinogen category: 2; (DFG 2004).	Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly. **EFFECTS OF SHORT-TERM EXPOSURE:** **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** This substance is possibly carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 536°C Melting point: 164°C Solubility in water: none	Octanol/water partition coefficient as log Pow: 6.58
ENVIRONMENTAL DATA	This substance may be hazardous to the environment; special attention should be given to air quality and water quality. Bioaccumulation of this chemical may occur in fish.	

N O T E S

Indeno(1,2,3-cd)pyrene is present as a component of polycyclic aromatic hydrocarbons (PAH) content in the environment usually resulting from the incomplete combustion or pyrolysis of organic matters, especially fossil fuels and tobacco.ACGIH recommends environment containing Indeno(1,2,3-c,d)pyrene should be evaluated in terms of the TLV-TWA for coal tar pitch volatile, as benzene soluble 0.2 mg/m^3. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

ADDITIONAL INFORMATION

ICSC: 0730 **INDENO(1,2,3-cd)PYRENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

Material Safety Data Sheet

Version 4.0
Revision Date 03/12/2010
Print Date 12/09/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	4,4'-DDD PESTANAL,250 MG (2,2-BIS(4-CHL&
Product Number	:	35486
Brand	:	Fluka
Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone #	:	(314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Toxic by ingestion, Harmful by skin absorption., Possible carcinogen.

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)

H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	0
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	Harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethane 4,4′-DDD TDE
Formula	:	$C_{14}H_{10}Cl_4$
Molecular Weight	:	320.04 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane			
72-54-8	200-783-0	-	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid

Safety data

pH	no data available
Melting point	94.0 - 96.0 °C (201.2 - 204.8 °F)
Boiling point	193.0 °C (379.4 °F) at 1.3 hPa (1.0 mmHg)
Flash point	no data available
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	< 0.00001 hPa (< 0.00001 mmHg) at 25.0 °C (77.0 °F)
Density	1.38 g/cm3
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 6.02

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - Hamster - > 5,000 mg/kg

TDLo Oral - Human - 428.5 mg/kg
Remarks: Endocrine:Adrenal cortex hypoplasia.

TDLo Oral - rat - 6,000 mg/kg
Remarks: Cardiac:Other changes. Gastrointestinal:Other changes. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.

TDLo Oral - rat - 14 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Estrogenic. Musculoskeletal:Other changes.

TDLo Oral - rat - 2,100 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).

LD50 Dermal - rabbit - 1,200 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Skin irritation

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity

no data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)
no data available

Specific target organ toxicity - repeated exposure (GHS)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Harmful if absorbed through skin. May cause skin irritation.

Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: KI0700000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - other fish - 1.18 - 9 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 0.04 - 0.05 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.06 - 0.09 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 3.47 - 5.58 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia pulex (Water flea) - 0.01 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
Indication of bioaccumulation.

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product
Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Marine pollutant: No

IATA
UN-Number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)

15. REGULATORY INFORMATION

OSHA Hazards

Toxic by ingestion, Harmful by skin absorption., Possible carcinogen.

DSL Status

This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. 2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

International Chemical Safety Cards

DDT

ICSC: 0034

Dichlorodiphenyltrichloroethane
1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane
2,2-bis(p-Chlorophenyl)-1,1,1-trichloroethane
1,1'-(2,2,2-Trichloroethylidene)bis(4-chlorobenzene)
p,p'-DDT
$C_{14}H_9Cl_5$
Molecular mass: 354.5

ICSC # 0034
CAS # 50-29-3
RTECS # KJ3325000
UN # 2761
EC # 602-045-00-7
April 20, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Liquid formulations containing organic solvents may be flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames.	Powder, water spray, foam, carbon dioxide.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST! STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Cough.	Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness.	Safety goggles, or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Tremors. Diarrhoea. Dizziness. Headache. Vomiting. Numbness. Paresthesias. Hyperexcitability. Convulsions.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give a slurry of activated charcoal in water to drink. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Do NOT let this chemical enter the environment. Sweep spilled substance into sealable non-metallic containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Personal protection: P3 filter respirator for toxic particles.	Provision to contain effluent from fire extinguishing. Separated from iron, aluminum and its salts, food and feedstuffs See Chemical Dangers.	Do not transport with food and feedstuffs. Severe marine pollutant. T symbol N symbol R: 25-40-48/25-50/53 S: 1/2-22-36/37-45-60-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

DDT

ICSC: 0034

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS CRYSTALS WHITE POWDER. TECHNICAL PRODUCT IS WAXY SOLID.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
On combustion, forms toxic and corrosive fumesincludinghydrogen chloride. Reacts with aluminium and iron.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 1 mg/m³ as TWA A3 (ACGIH 2004).
MAK: 1 mg/m³ H
Peak limitation category: II(8)
(DFG 2003).
OSHA PEL: TWA 1 mg/m^3 skin
NIOSH REL: Ca TWA 0.5 mg/m^3 See Appendix A
NIOSH IDLH: Ca 500 mg/m^3 See: 50293

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly especially if powdered.

EFFECTS OF SHORT-TERM EXPOSURE:
May cause mechanical irritation. The substance may cause effects on the central nervous system , resulting in convulsions and respiratory depression Exposure at high levels may result in death. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the central nervous system and liver. This substance is possibly carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 260°C
Melting point: 109°C
Density: 1.6
g/cm3
Solubility in water: poor
Octanol/water partition coefficient as log Pow: 6.36

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. This substance may be hazardous to the environment; special attention should be given to birds. Bioaccumulation of this chemical may occur along the food chain, for example in milk and aquatic organisms. This substance does enter the environment under normal use. Great care, however, should be given to avoid any additional release, e.g. through inappropriate disposal.

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. Carrier solvents used in commercial formulations may change physical and toxicological properties. Do NOT take working clothes home. Consult national legislation. Agritan, Azotox, Anofex, Ixodex, Gesapon, Gesarex, Gesarol, Guesapon, Clofenotane, Zeidane, Dicophane, Neocid are trade names.

Transport Emergency Card: TEC (R)-61GT7-III

ADDITIONAL INFORMATION

ICSC: 0034 **DDT**

International Chemical Safety Cards

ARSENIC

ICSC: 0013

Grey arsenic
As
Atomic mass: 74.9

ICSC # 0013
CAS # 7440-38-2
RTECS # CG0525000
UN # 1558
EC # 033-001-00-X
October 18, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames. NO contact with strong oxidizers. NO contact with hot surfaces.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Risk of fire and explosion is slight when exposed to hot surfaces or flames in the form of fine powder or dust.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT! AVOID EXPOSURE OF (PREGNANT) WOMEN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Cough. Sore throat. Shortness of breath. Weakness. See Ingestion.	Closed system and ventilation.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Face shield or eye protection in combination with breathing protection if powder.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Nausea. Vomiting. Burning sensation in the throat and chest. Shock or collapse. Unconsciousness.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Sweep spilled substance into sealable containers. Carefully collect remainder, then remove to safe place. Chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment.	Separated from strong oxidants, acids, halogens, food and feedstuffs. Well closed.	Do not transport with food and feedstuffs. Marine pollutant. T symbol N symbol R: 23/25-50/53 S: 1/2-20/21-28-45-60-61 UN Hazard Class: 6.1 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0013

International Chemical Safety Cards

ARSENIC

ICSC: 0013

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODOURLESS, BRITTLE, GREY, METALLIC-LOOKING CRYSTALS.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with strong oxidants and halogens, causing fire and explosion hazard. Reacts with acids to produce

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.01 mg/m³ as TWA A1 (confirmed human carcinogen); BEI issued (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3A; (DFG 2004).
OSHA PEL: 1910.1018 TWA 0.010 mg/m^3
NIOSH REL: Ca C 0.002 mg/m^3 15-minute See Appendix A
NIOSH IDLH: Ca 5 mg/m^3 (as As) See: 7440382

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly, when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes the skin and the respiratory tract. The substance may cause effects on the gastrointestinal tract cardiovascular system central nervous system kidneys , resulting in severe gastroenteritis, loss of fluid, and electrolytes, cardiac disorders shock convulsions and kidney impairment Exposure above the OEL may result in death. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the mucous membranes, skin, peripheral nervous system liver bone marrow , resulting in pigmentation disorders, hyperkeratosis, perforation of nasal septum, neuropathy, liver impairment anaemia This substance is carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Sublimation point: 613°C
Density: 5.7 g/cm³

Solubility in water: none

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. It is strongly advised that this substance does not enter the environment.

N O T E S

The substance is combustible but no flash point is available in literature. Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home. Refer also to cards for specific arsenic compounds, e.g., Arsenic pentoxide (ICSC 0377), Arsenic trichloride (ICSC 0221), Arsenic trioxide (ICSC 0378), Arsine (ICSC 0222).

Transport Emergency Card: TEC (R)-61GT5-II

ADDITIONAL INFORMATION

ICSC: 0013 **ARSENIC**

International Chemical Safety Cards

BARIUM SULFATE

ICSC: 0827

Barium sulphate
Blanc fixe
Artificial barite
$BaSO_4$
Molecular mass: 233.43

ICSC # 0827
CAS # 7727-43-7
RTECS # CR0600000
October 20, 1999 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Personal protection: P1 filter respirator for inert particles.		R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0827

International Chemical Safety Cards

BARIUM SULFATE

ICSC: 0827

<table>
<tr><td rowspan="1">I M P O R T A N T

D A T A</td><td>PHYSICAL STATE; APPEARANCE:
ODOURLESS TASTELESS, WHITE OR YELLOWISH CRYSTALS OR POWDER.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Reacts violently with aluminium powder.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 10 mg/m³ as TWA; (ACGIH 2004).
MAK: (Inhalable fraction) 4 mg/m³; (Respirable fraction) 1.5 mg/m³; (DFG 2004).
OSHA PEL†: TWA 15 mg/m³ (total) TWA 5 mg/m³ (resp)
NIOSH REL: TWA 10 mg/m³ (total) TWA 5 mg/m³ (resp)
NIOSH IDLH: N.D. See: IDLH INDEX</td><td>ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its aerosol.

INHALATION RISK:
Evaporation at 20°C is negligible; a nuisance-causing concentration of airborne particles can, however, be reached quickly.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Lungs may be affected by repeated or prolonged exposure to dust particles , resulting in baritosis (a form of benign pneumoconiosis).</td></tr>
<tr><td>PHYSICAL PROPERTIES</td><td>Melting point (decomposes): 1600°C
Density: 4.5
g/cm³</td><td>Solubility in water: none</td></tr>
<tr><td>ENVIRONMENTAL DATA</td><td colspan="2"></td></tr>
<tr><td colspan="3">N O T E S</td></tr>
<tr><td colspan="3">Occurs in nature as the mineral barite; also as barytes, heavy spar. Card has been partly updated in October 2005. See section Occupational Exposure Limits.</td></tr>
</table>

<table>
<tr><td colspan="2">ADDITIONAL INFORMATION</td></tr>
<tr><td></td><td></td></tr>
<tr><td>ICSC: 0827</td><td>BARIUM SULFATE</td></tr>
</table>

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

CADMIUM

ICSC: 0020

Cd
Atomic mass: 112.4

ICSC # 0020
CAS # 7440-43-9
RTECS # EU9800000
UN # 2570
EC # 048-002-00-0
April 22, 2005 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable in powder form and spontaneously combustible in pyrophoric form. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with heat or acid(s).	Dry sand. Special powder. NO other agents.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Cough. Sore throat.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Diarrhoea. Headache. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Personal protection: chemical protection suit including self-contained breathing apparatus. Remove all ignition sources. Sweep spilled substance into containers. Carefully collect remainder, then remove to safe place.	Fireproof. Dry. Keep under inert gas. Separated from igntion sources, oxidants acids, food and feedstuffs	Airtight. Unbreakable packaging; put breakable packaging into closed unbreakable container. Do not transport with food and feedstuffs. Note: E T+ symbol N symbol R: 45-26-48/23/25-62-63-68-50/53 S: 53-45-60-61 UN Hazard Class: 6.1

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0020

International Chemical Safety Cards

CADMIUM

ICSC: 0020

IMPORTANT DATA		
	PHYSICAL STATE; APPEARANCE: SOFT BLUE-WHITE METAL LUMPS OR GREY POWDER. MALLEABLE. TURNS BRITTLE ON EXPOSURE TO 80°C AND TARNISHES ON EXPOSURE TO MOIST AIR. **PHYSICAL DANGERS:** Dust explosion possible if in powder or granular form, mixed with air. **CHEMICAL DANGERS:** Reacts with acids forming flammable/explosive gas (hydrogen - see ICSC0001.) Dust reacts with oxidants, hydrogen azide, zinc, selenium or tellurium , causing fire and explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: (Total dust) 0.01 mg/m³ (Respirable fraction) 0.002 mg/m³ as TWA A2 (suspected human carcinogen); BEI issued (ACGIH 2005). MAK: skin absorption (H); Carcinogen category: 1; Germ cell mutagen group: 3A; (DFG 2004). OSHA PEL*: 1910.1027 TWA 0.005 mg/m^3 *Note: The PEL applies to all Cadmium compounds (as Cd). NIOSH REL*: Ca See Appendix A *Note: The REL applies to all Cadmium compounds (as Cd). NIOSH IDLH: Ca 9 mg/m^3 (as Cd) See: IDLH INDEX	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and by ingestion. **INHALATION RISK:** A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered. **EFFECTS OF SHORT-TERM EXPOSURE:** The fume is irritating to the respiratory tract Inhalation of fume may cause lung oedema (see Notes). Inhalation of fumes may cause metal fume fever. The effects may be delayed. Medical observation is indicated. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Lungs may be affected by repeated or prolonged exposure to dust particles. The substance may have effects on the kidneys , resulting in kidney impairment This substance is carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 765°C Melting point: 321°C Density: 8.6 g/cm3	Solubility in water: none Auto-ignition temperature: (cadmium metal dust) 250°C
ENVIRONMENTAL DATA		

N O T E S

Reacts violently with fire extinguishing agents such as water,foam,carbon dioxideand halons. Depending on the degree of exposure, periodic medical examination is indicated. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Do NOT take working clothes home. Cadmium also exists in a pyrophoric form (EC No. 048-011-00-X), which bears the additional EU labelling symbol F, R phrase 17, and S phrases 7/8 and 43. UN numbers and packing group will vary according to the physical form of the substance.

ADDITIONAL INFORMATION

ICSC: 0020 **CADMIUM**

International Chemical Safety Cards

CHROMIUM

ICSC: 0029

Chrome
Cr
Atomic mass: 52.0
(powder)

ICSC # 0029
CAS # 7440-47-3
RTECS # GB4200000
October 27, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions.	No open flames if in powder form.	In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION		Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Cough.	Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Personal protection: P2 filter respirator for harmful particles.		R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0029

International Chemical Safety Cards

CHROMIUM

ICSC: 0029

I **M** **P**	**PHYSICAL STATE; APPEARANCE:** GREY POWDER **PHYSICAL DANGERS:** Dust explosion possible if in powder or granular form, mixed with air.	**ROUTES OF EXPOSURE:** **INHALATION RISK:** A harmful concentration of airborne particles can be reached quickly when dispersed.

O R T A N T D A T A	**CHEMICAL DANGERS:** Chromium is a catalytic substance and may cause reaction in contact with many organic and inorganic substances , causing fire and explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: (as Cr metal, Cr(III) compounds) 0.5 mg/m³ as TWA A4 (ACGIH 2004). MAK not established. OSHA PEL*: TWA 1 mg/m^3 See Appendix C *Note: The PEL also applies to insoluble chromium salts. NIOSH REL: TWA 0.5 mg/m^3 See Appendix C NIOSH IDLH: 250 mg/m^3 (as Cr) See: 7440473	**EFFECTS OF SHORT-TERM EXPOSURE:** May cause mechanical irritation tothe eyesandthe respiratory tract. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:**
PHYSICAL PROPERTIES	Boiling point: 2642°C Melting point: 1900°C Density: 7.15 g/cm³	Solubility in water: none
ENVIRONMENTAL DATA		

N O T E S

The surface of the chromium particles is oxidized to chromium(III)oxide in air. See ICSC 1531 Chromium(III) oxide.

ADDITIONAL INFORMATION

ICSC: 0029 **CHROMIUM**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

COPPER

ICSC: 0240

Cu
(powder)

ICSC # 0240
CAS # 7440-50-8
RTECS # GL5325000
September 24, 1993 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible.	NO open flames.	Special powder, dry sand, NO other agents.
EXPLOSION			
EXPOSURE		PREVENT DISPERSION OF DUST!	
•INHALATION	Cough. Headache. Shortness of breath. Sore throat.	Local exhaust or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers. Carefully collect remainder. Then remove to safe place. (Extra personal protection: P2 filter respirator for harmful particles).	Separated from - See Chemical Dangers.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0240

International Chemical Safety Cards

COPPER

ICSC: 0240

I

M

P

PHYSICAL STATE; APPEARANCE:
RED POWDER, TURNS GREEN ON EXPOSURE TO MOIST AIR.

PHYSICAL DANGERS:

CHEMICAL DANGERS:

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

O R T A N T D A T A	Shock-sensitive compounds are formed with acetylenic compounds, ethylene oxides and azides. Reacts with strong oxidants like chlorates, bromates and iodates, causing explosion hazard. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 0.2 mg/m^3 fume (ACGIH 1992-1993). TLV (as Cu, dusts & mists): 1 mg/m^3 (ACGIH 1992-1993). Intended change 0.1 mg/m^3 Inhal., A4 (not classifiable as a human carcinogen); MAK: 0.1 mg/m^3 (Inhalable fraction) Peak limitation category: II(2) Pregnancy risk group: D (DFG 2005). OSHA PEL*: TWA 1 mg/m^3 *Note: The PEL also applies to other copper compounds (as Cu) except copper fume. NIOSH REL*: TWA 1 mg/m^3 *Note: The REL also applies to other copper compounds (as Cu) except Copper fume. NIOSH IDLH: 100 mg/m^3 (as Cu) See: 7440508	**EFFECTS OF SHORT-TERM EXPOSURE:** Inhalation of fumes may cause metal fume fever. See Notes. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact may cause skin sensitization.
PHYSICAL PROPERTIES	Boiling point: 2595°C Melting point: 1083°C Relative density (water = 1): 8.9	Solubility in water: none
ENVIRONMENTAL DATA		

N O T E S

The symptoms of metal fume fever do not become manifest until several hours.

ADDITIONAL INFORMATION

ICSC: 0240 **COPPER**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

LEAD

ICSC: 0052

Lead metal
Plumbum
Pb
Atomic mass: 207.2
(powder)

ICSC # 0052
CAS # 7439-92-1
RTECS # OF7525000
October 08, 2002 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE	See EFFECTS OF LONG-TERM OR REPEATED EXPOSURE.	PREVENT DISPERSION OF DUST! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION		Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Give plenty of water to drink. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Sweep spilled substance into containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment. Personal protection: P3 filter respirator for toxic particles.	Separated from food and feedstuffs incompatible materials See Chemical Dangers.	R: S:

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0052

International Chemical Safety Cards

LEAD

ICSC: 0052

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
BLUISH-WHITE OR SILVERY-GREY SOLID IN VARIOUS FORMS. TURNS TARNISHED ON EXPOSURE TO AIR.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air.

CHEMICAL DANGERS:
On heating, toxic fumes are formed. Reacts with oxidants. Reacts with hot concentrated nitric acid, boiling concentrated hydrochloric acid and sulfuric acid. Attacked by pure water and by weak organic acids in the presence of oxygen.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.05 mg/m³ A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued (ACGIH 2004).
MAK:
Carcinogen category: 3B; Germ cell mutagen group: 3A; (DFG 2004).
EU OEL: as TWA 0.15 mg/m³ (EU 2002).
OSHA PEL*: 1910.1025 TWA 0.050 mg/m^3 See Appendix C *Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.
NIOSH REL*: TWA 0.050 mg/m^3 See Appendix C *Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.
NIOSH IDLH: 100 mg/m^3 (as Pb) See: 7439921

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful concentration of airborne particles can be reached quickly when dispersed, especially if powdered.

EFFECTS OF SHORT-TERM EXPOSURE:

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the blood bone marrow central nervous system peripheral nervous system kidneys , resulting in anaemia, encephalopathy (e.g., convulsions), peripheral nerve disease, abdominal cramps and kidney impairment. Causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 1740°C
Melting point: 327.5°C
Density: 11.34 g/cm3
Solubility in water: none

ENVIRONMENTAL DATA

Bioaccumulation of this chemical may occur in plants and in mammals. It is strongly advised that this substance does not enter the environment.

NOTES

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home.

Transport Emergency Card: TEC (R)-51S1872

ADDITIONAL INFORMATION

ICSC: 0052 **LEAD**

International Chemical Safety Cards

MERCURY

ICSC: 0056

Quicksilver
Liquid silver
Hg
Atomic mass: 200.6

ICSC # 0056
CAS # 7439-97-6
RTECS # OV4550000
UN # 2809
EC # 080-001-00-0
April 22, 2004 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION	Risk of fire and explosion.		In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN! AVOID EXPOSURE OF ADOLESCENTS AND CHILDREN!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Abdominal pain. Cough. Diarrhoea. Shortness of breath. Vomiting. Fever or elevated body temperature.	Local exhaust or breathing protection.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
•SKIN	MAY BE ABSORBED! Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.
•EYES		Face shield, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work. Wash hands before eating.	Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area in case of a large spill! Consult an expert! Ventilation. Collect leaking and spilled liquid in sealable non-metallic containers as far as possible. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Chemical protection suit including self-contained breathing apparatus.	Provision to contain effluent from fire extinguishing. Separated from food and feedstuffs Well closed.	Special material. Do not transport with food and feedstuffs. T symbol N symbol R: 23-33-50/53 S: 1/2-7-45-60-61 UN Hazard Class: 8 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

MERCURY

ICSC: 0056

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODOURLESS, HEAVY AND MOBILE SILVERY LIQUID METAL.

PHYSICAL DANGERS:

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. Reacts violently with ammonia and halogens causing fire and explosion hazard. Attacks aluminium and many other metals forming amalgams.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 0.025 mg/m³ as TWA (skin) A4 BEI issued (ACGIH 2004).
MAK: 0.1 mg/m³ Sh
Peak limitation category: II(8) Carcinogen category: 3B (DFG 2003).
OSHA PEL†: C 0.1 mg/m^3
NIOSH REL: Hg Vapor: TWA 0.05 mg/m^3 skin
Other: C 0.1 mg/m^3 skin
NIOSH IDLH: 10 mg/m^3 (as Hg) See: 7439976

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapour and through the skin , also as a vapour!

INHALATION RISK:
A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the skin. Inhalation of the vapours may cause pneumonitis. The substance may cause effects on the central nervous systemandkidneys. The effects may be delayed. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the central nervous system kidneys , resulting in irritability, emotional instability, tremor, mental and memory disturbances, speech disorders. Danger of cumulative effects. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

PHYSICAL PROPERTIES

Boiling point: 357°C
Melting point: -39°C
Relative density (water = 1): 13.5
Solubility in water:
none

Vapour pressure, Pa at 20°C: 0.26
Relative vapour density (air = 1): 6.93
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.009

ENVIRONMENTAL DATA

The substance is very toxic to aquatic organisms. In the food chain important to humans, bioaccumulation takes place, specifically in fish.

NOTES

Depending on the degree of exposure, periodic medical examination is indicated. No odour warning if toxic concentrations are present. Do NOT take working clothes home.

Transport Emergency Card: TEC (R)-80GC9-II+III

ADDITIONAL INFORMATION

ICSC: 0056 **MERCURY**

International Chemical Safety Cards

NICKEL

ICSC: 0062

Ni
Atomic mass: 58.7
(powder)

ICSC # 0062
CAS # 7440-02-0
RTECS # QR5950000
EC # 028-002-00-7
October 17, 2001 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable as dust. Toxic fumes may be released in a fire.		Dry sand. NO carbon dioxide. NO water.
EXPLOSION	Finely dispersed particles form explosive mixtures in air.	Prevent deposition of dust; closed system, dust explosion-proof electrical equipment and lighting.	
EXPOSURE		PREVENT DISPERSION OF DUST! AVOID ALL CONTACT!	
•INHALATION	Cough. Shortness of breath.	Local exhaust or breathing protection.	Fresh air, rest.
•SKIN		Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES		Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	Rinse mouth.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Vacuum spilled material. Carefully collect remainder, then remove to safe place. Personal protection: P2 filter respirator for harmful particles.	Separated from strong acids.	Xn symbol R: 40-43 S: 2-22-36

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0062

International Chemical Safety Cards

NICKEL

ICSC: 0062

I

PHYSICAL STATE; APPEARANCE:
SILVERY METALLIC SOLID IN VARIOUS FORMS.

PHYSICAL DANGERS:

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of the dust.

M P O R T A N T D A T A	Dust explosion possible if in powder or granular form, mixed with air. **CHEMICAL DANGERS:** Reacts violently, in powder form, with titanium powder and potassium perchlorate, and oxidants such as ammonium nitrate, causing fire and explosion hazard. Reacts slowly with non-oxidizing acids and more rapidly with oxidizing acids. Toxic gases and vapours (such as nickel carbonyl) may be released in a fire involving nickel. **OCCUPATIONAL EXPOSURE LIMITS:** TLV: (Inhalable fraction) 1.5 mg/m³ as TWA A5 (not suspected as a human carcinogen); (ACGIH 2004). MAK: (Inhalable fraction) sensitization of respiratory tract and skin (Sah); Carcinogen category: 1; (DFG 2004). OSHA PEL*†: TWA 1 mg/m^3 *Note: The PEL does not apply to Nickel carbonyl. NIOSH REL*: Ca TWA 0.015 mg/m^3 See Appendix A *Note: The REL does not apply to Nickel carbonyl. NIOSH IDLH: Ca 10 mg/m^3 (as Ni) See: 7440020	**INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed. **EFFECTS OF SHORT-TERM EXPOSURE:** May cause mechanical irritation. Inhalation of fumes may cause pneumonitis. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** Repeated or prolonged contact may cause skin sensitization. Repeated or prolonged inhalation exposure may cause asthma. Lungs may be affected by repeated or prolonged exposure. This substance is possibly carcinogenic to humans.
PHYSICAL PROPERTIES	Boiling point: 2730°C Melting point: 1455°C Density: 8.9 g/cm3	Solubility in water: none
ENVIRONMENTAL DATA		

N O T E S

At high temperatures, nickel oxide fumes will be formed. Depending on the degree of exposure, periodic medical examination is suggested. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Anyone who has shown symptoms of asthma due to this substance should avoid all further contact with this substance.

ADDITIONAL INFORMATION

ICSC: 0062 **NICKEL**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

ZINC POWDER

ICSC: 1205

Blue powder
Merrillite
Zn
Atomic mass: 65.4
(powder)

ICSC # 1205
CAS # 7440-66-6
RTECS # ZG8600000
UN # 1436 (zinc powder or dust)
EC # 030-001-00-1
October 24, 1994 Peer reviewed

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable. Many reactions may cause fire or explosion. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with acid(s), base (s) and incompatible substances (see Chemical Dangers).	Special powder, dry sand, NO other agents. NO water.
EXPLOSION	Risk of fire and explosion on contact with acid(s), base(s), water and incompatible substances.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Prevent deposition of dust.	In case of fire: cool drums, etc., by spraying with water but avoid contact of the substance with water.
EXPOSURE		PREVENT DISPERSION OF DUST! STRICT HYGIENE!	
•INHALATION	Metallic taste and metal fume fever. Symptoms may be delayed (see Notes).	Local exhaust.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Rinse and then wash skin with water and soap.
•EYES		Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. Nausea. Vomiting.	Do not eat, drink, or smoke during work. Wash hands before eating.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Extinguish or remove all ignition sources. Do NOT wash away into sewer. Sweep spilled substance into containers. then remove to safe place. Personal protection: self-contained breathing apparatus.	Fireproof. Separated from acids, bases oxidants Dry.	Airtight. F symbol N symbol R: 15-17-50/53 S: 2-7/8-43-46-60-61 UN Hazard Class: 4.3 UN Subsidiary Risks: 4.2

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

ZINC POWDER

ICSC: 1205

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
ODOURLESS GREY TO BLUE POWDER.

PHYSICAL DANGERS:
Dust explosion possible if in powder or granular form, mixed with air. If dry, it can be charged electrostatically by swirling, pneumatic transport, pouring, etc.

CHEMICAL DANGERS:
Upon heating, toxic fumes are formed. The substance is a strong reducing agent and reacts violently with oxidants. Reacts with water and reacts violently with acids and bases forming flammable/explosive gas (hydrogen - see ICSC0001) Reacts violently with sulfur, halogenated hydrocarbons and many other substances causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV not established.

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

EFFECTS OF SHORT-TERM EXPOSURE:
Inhalation of fumes may cause metal fume fever. The effects may be delayed.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis.

PHYSICAL PROPERTIES

Boiling point: 907°C
Melting point: 419°C
Relative density (water = 1): 7.14
Solubility in water: reaction
Vapour pressure, kPa at 487°C: 0.1
Auto-ignition temperature: 460°C

ENVIRONMENTAL DATA

NOTES

Zinc may contain trace amounts of arsenic, when forming hydrogen, may also form toxic gas arsine (see ICSC 0001 and ICSC 0222). Reacts violently with fire extinguishing agents such as water, halons, foam and carbon dioxide. The symptoms of metal fume fever do not become manifest until several hours later. Rinse contaminated clothes (fire hazard) with plenty of water.

Transport Emergency Card: TEC (R)-43GWS-II+III
NFPA Code: H0; F1; R1;

ADDITIONAL INFORMATION

ICSC: 1205 **ZINC POWDER**

APPENDIX D

HOSPITAL INFORMATION AND MAP

FIELD ACCIDENT REPORT

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME ______________________________ PROJECT. NO.____________

Date of Accident ___________________ Time _______ Report By _______________

Type of Accident (Check One):

( ) Vehicular ( ) Personal ( ) Property

Name of Injured _______________________________________ DOB or Age ________

How Long Employed ____

Names of Witnesses ____

____

Description of Accident ____

____

____

Action Taken ____

____

____

Did the Injured Lose Any Time? _______ How Much (Days/Hrs.)? _________________

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? ____

____

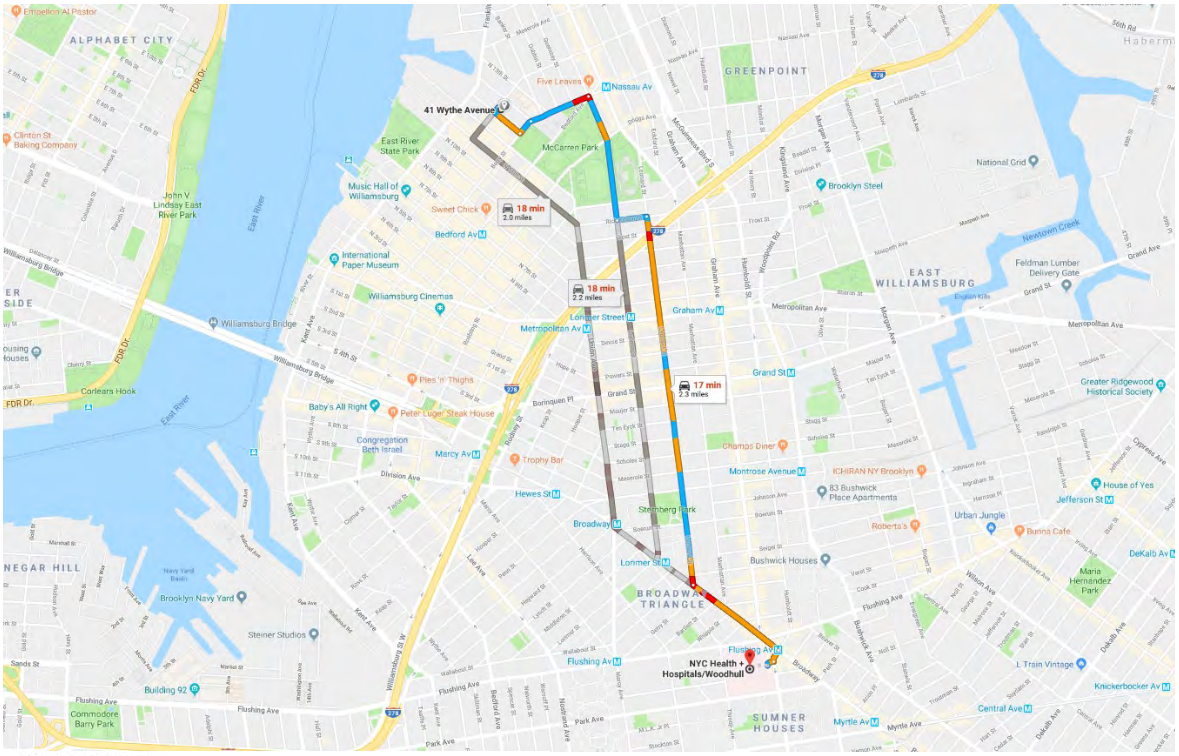
(If not, it is the EMPLOYEE'S sole responsibility to process his/her claim through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

HOSPITAL INFORMATION AND MAP

The hospital nearest the site is:

NYC Health + Hospitals/Woodhull
760 Broadway, Brooklyn, NY 11206
718-963-8000
2.3 Miles – About 17 Minutes



41 Wythe Ave
Brooklyn, NY 11211

Take Lorimer St and Leonard St to Broadway

12 min (1.9 mi)

- Head southwest on Wythe Ave toward N 13th St
  92 ft
- Turn left at the 1st cross street onto N 13th St
  0.1 mi
- Turn left onto Berry St
  253 ft
- Continue onto Nassau Ave
  0.2 mi
- Turn right onto Lorimer St
  0.4 mi
- Turn left onto Richardson St
  459 ft
- Turn right at the 1st cross street onto Leonard St
  0.1 mi

Drive

3 min (0.3 mi)

- Turn left onto Broadway
  Pass by McDonald's (on the right)
  0.3 mi
- Turn right onto Marcus Garvey Blvd/Sumner Ave
  107 ft

Turn right
Destination will be on the right
26 s (135 ft)

NYC Health + Hospitals/Woodhull
760 Broadway, Brooklyn, NY 11206

ATTACHMENT C
Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN
FORMER DUTCH MASTERS PAINT AND VARNISH CO.
29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, NY

Prepared on behalf of:

False Alarm LTD and M.A.J. Associates, Inc.
530 7th Avenue, Suite 1902
New York, NY 10018

May 2020

Prepared by:

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961

TABLE OF CONTENTS

QUALITY ASSURANCE PROJECT PLAN

FORMER DUTCH MASTERS PAINT AND VARNISH CO.
29-41 Wythe Avenue and 180 N. 14th Street, Brooklyn, NY

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by the approved work plan.

To ensure the successful completion of the project each individual responsible for a given component of the project must be aware of the quality assurance objectives of his / her particular work and of the overall project. The EBC Project Director, Charles Sosik, will be directly responsible to the client for the overall project conduct and quality assurance/quality control (QA/QC) for the project. The Project Director will be responsible for overseeing all technical and administrative aspects of the project and for directing QA/QC activities. Ms Chawinie Reilly will serve as the Quality Assurance Officer (QAO) and in this role may conduct:

- conduct periodic field and sampling audits;
- interface with the analytical laboratory to resolve problems; and
- interface with the data validator and/or the preparer of the DUSR to resolve problems.

Keith Butler will serve as the Project Manager and will be responsible for implementation of the Remedial Action and coordination with field sampling crews and subcontractors. Reporting directly to the Project Manager will be the Field Operations Officer, Thomas Gallo; who will serve as the on-Site qualified environmental professional who will record observations, direct the drilling crew and be responsible for the collection and handling of all samples.

1.1 Organization

Project QA will be maintained under the direction of the Project Manager, in accordance with this QAPP. QC for specific tasks will be the responsibility of the individuals and organizations listed below, under the direction and coordination of the Project Manager.

GENERAL RESPONSIBILITY	SCOPE OF WORK	RESPONSIBILITY OF QUALITY CONTROL
Field Operations	Supervision of Field Crew, sample collection and handling	Thomas Gallo, EBC
Project Manager	Implementation of the RI according to the RIWP.	Keith Butler, EBC
Laboratory Analysis	Analysis of soil samples by NYSDEC ASP methods Laboratory	NYSDOH-Certified Laboratory
Data review	Review for completeness and compliance	3rd party validation

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

2.0 QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

2.1 Overview

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative Statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan.

In this plan, Quality Assurance and Quality Control are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.

- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

2.2 QA / QC Requirements for Analytical Laboratory

Samples will be analyzed by a New York State Department of Health (NYSDOH) certified laboratory that is certified in the appropriate categories. Data generated from the laboratory will be used to evaluate contaminants such as chlorinated and other volatile organic compounds (VOCs) in soil, soil gas and groundwater. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. The data generated by the analytical laboratory for this project are required to be sensitive enough to achieve required quantification limits as specified in NYSDEC Analytical Services Protocol (NYSDEC ASP, 07/2005) and useful for comparison with clean-up objectives. The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this remedial program as described in the work plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

2.2.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of calibration curves and initial calibration response factors must be consistent with method requirements presented in the most recent version of NYSDEC ASP 07/2005).

2.2.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hrs by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

2.2.3 Method Blanks

Method blank or preparation blank is prepared from an analyte·free matrix which includes the same reagents, internal standards and surrogate standards as me related samples. II is carried through the entire sample preparation and analytical procedure. A method blank analysis will be performed once for each 12 hr period during the analysis of samples for volatiles. An acceptable method blank will contain less than two (2) times the CRQL of methylene chloride, acetone and 2-butanone. For all other target compounds, the method blank must contain less than or equal to the CRQL of any single target compound. For non-target peaks in the method blank, the peak area must be less than 10 percent of the nearest internal standard. The method blank will be used to demonstrate the level of laboratory background and reagent contamination that might result from the analytical process itself.

2.2.4 Trip Blanks.

Trip blanks consist of a single set of sample containers filled at the laboratory with deionized. laboratory-grade water. The water used will be from the same source as that used for the laboratory method blank. The containers will be carried into the field and handled and transported in the same way as the samples collected that day. Analysis of the trip blank for VOCs is used to identify contamination from the air, shipping containers, or from other items coming in contact with the sample bottles. (The bottles holding the trip blanks will be not opened during this procedure.) A complete set of trip blanks will be provided with each shipment of samples to the certified laboratory.

2.2.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NY5DEC ASP protocols for samples falling within the quantification limits without dilution.

2.2.6 Matrix Spike / Matrix Spike Duplicate / Matrix Spike Blank (MS/MSDIMSB) Analysis

MS, MSD and MSB analyses will be performed to evaluate the matrix effect of the sample upon the analytical methodology along with the precision of the instrument by measuring recoveries. The MS / MSD / MSB samples will be analyzed for each group of samples of a similar matrix at a rate of 5% (one for every 20 field samples). The RPD will be calculated from the difference between the MS and MSD. Matrix spike blank analysis will be performed to indicate the appropriateness of the spiking solution(s) used for the MS/MSD. 10% of the samples of each matrix should be sampled and anlayzed as Duplicates.

2.3 Accuracy

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%REC = \frac{SSR - SR}{SA} \times 100$$

Where:
SSR = spike sample results
SR = sample results
SA = spike added from spiking mix

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

2.4 Precision

Precision is defined as the measurement of agreement of a set of replicate results among themselves without a Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analyses.

Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formula:

$$RPD = \frac{D^1 - D^2}{(D^1 + D^2)/2} \times 100$$

Where:
RPD = relative percent difference
D^1 = first sample value
D^2 = second sample value (duplicate)

2.5 Sensitivity

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by NYSDEC ASP and to meet all site-specific standards, criteria and guidance values (SGCs) established for this project.

2.6 Representativeness

Representativeness is a measure of the relationship of an individual sample taken from a particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Remedial ActionWork Plan.

2.7 Completeness

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers, and should be between 70 and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP Category B reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory's ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).
6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road Ridge, NY 11961 | Phone 631.504.6000 Fax 631.924.2870

2.8 Laboratory Custody Procedures

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. Approximate sampling locations will be marked on a map with a description of the sample location. The number, type of sample, and sample identification will be entered into the field logbook. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

2.9 Sample Handling and Decontamination Procedures

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or cold-pak(s) to maintain a temperature of 4^{o}C.

Dedicated disposable sampling materials will be used for both soil and groundwater samples (if collected), eliminating the need to prepare field equipment (rinsate) blanks. However, if non-disposable equipment is used, (stainless steel scoop, etc.) field rinsate blanks will be prepared at the rate of 1 for every eight samples collected. No field filtering will be conducted; any required filtration will be completed by the laboratory.

Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil;
- Rinse with tap water;
- Wash with alconox® detergent solution and scrub ;
- Rinse with tap water;
- Rinse with distilled or deionized water.

Prepare field blanks by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory and duplicate samples will be collected at a rate of one per ten samples submitted to the laboratory.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

3.0 ANALYTICAL PROCEDURES

3.1 Laboratory Analysis

Samples will be analyzed by the NYSDOH ELAP laboratory for one or more of the following parameters: VOCs in soil / groundwater by USEPA Method 8260C, SVOCs in soil / groundwater by USEPA Method 8270D, Target Analyte List (TAL) Metals 6010 in soil, pesticides / PCBs by USEPA Method 8081B/8082A and VOCs in air by USEPA Method TO15. If any modifications or additions to the standard procedures are anticipated and if any nonstandard sample preparation or analytical protocol is to be used, the modifications and the nonstandard protocol will be explicitly defined and documented. Prior approval by EBC's PM will be necessary for any nonstandard analytical or sample preparation protocol used by the laboratory, i.e., dilution of samples or extracts by greater than a factor of five (5).

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 Middle Country Road
Ridge, NY 11961
Phone 631.504.6000
Fax 631.924.2870

4.0 DATA REDUCTION, REVIEW, AND REPORTING

4.1 Overview

The process of data reduction, review, and reporting ensures the assessments or a conclusion based on the final data accurately reflects actual site conditions. This plan presents the specific procedures, methods, and format that will be employed for data reduction, review and reporting of each measurement parameter determined in the laboratory and field. Also described in this section is the process by which all data, reports, and work plans are proofed and checked for technical and numerical errors prior to final submission.

4.2 Data Reduction

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review.

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Analytical results shall be presented on standard NYSDEC ASP-B forms or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Note that if waste characterization samples are analyzed they will be in results only format and will not be evaluated in the DUSR.

Laboratory QA/QC information required by the method protocols will be compiled, including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data. Specifics on internal laboratory data reduction protocols are identified in the laboratory's SOPs.

Following receipt of the laboratory analytical results by EBC, the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability.

4.3 Laboratory Data Reporting

All sample data packages submitted by the analytical laboratory will be required to be reported in conformance to the NYSDEC ASP (7/2005), Category B data deliverable requirements as applicable to the method utilized. All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Note that waste characterization samples, if analyzed, will be in results only format and will not be evaluated in the DUSR.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

5.0 CORRECTIVE ACTION

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the EBC PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

All changes to the sampling program will be documented in field logs/sheets and the EBC PM advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

TABLE 1
SUMMARY OF
SAMPLING PROGRAM RATIONALE AND ANALYSIS

Matrix	Location	Approximate Number of Samples	Frequency	Rationale for Sampling	Laboratory Analysis	Duplicates	Matrix Spikes	Spike Duplicates	Trip Blanks
Soil	Site Wide Excavation	31	1 per 900 square feet of excavation base	Endpoint Verification of excavations	VOCs EPA Method 8260B, pesticides, SVOCs EPA Method 8270, Pesticides / PCBs by EPA 8081/8082, and TAL Metals EPA 6010	1 per day	1 per 20 samples	1 per 20 samples	1 per trip
Soil	Site Wide Excavation	6	20% of excavation base	Endpoint Verification of excavations	PFAS by EPA 537, 1,4 dioxane by EPA 8270	1 per day	1 per 20 samples	1 per 20 samples	1 per trip
Groundwater	Three dewatering well locations	6	3 baseline (before dewatering). 3 post excavation	Monitor groundwater quality	VOCs EPA Method 8260B	1 per day	1 per 20 samples	1 per 20 samples	1 per trip

TABLE 2
SAMPLE COLLECTION AND ANALYSIS PROTOCOLS

Sample Type	Matrix	Sampling Device	Parameter	Sample Container	Sample Preservation	Analytical Method#	CRQL / MDLH	Holding Time
Grab	Soil	Scoop Direct into Jar	VOCs	(1) 2 oz Jar	Cool to 4^o C	EPA Method 8260C (test method 5035A)	Compound specific (1-5 ug/kg)	14 days
Grab	Soil	Scoop Direct into Jar	SVOCs	(1) 8 oz jar	Cool to 4^o C	EPA Method 8270D	Compound specific (1-5 ug/kg)	14 day ext/40 days
Grab	Soil	Scoop Direct into Jar	Pest/PCBs	from 8oz jar above	Cool to 4^o C	EPA Method 8081B/8082A	Compound specific (1-5 ug/kg)	14 day ext/40 days
Grab	Soil	Scoop Direct into Jar	Metals	from 8oz jar above	Cool to 4^o C	TAL Metals 6010	Compound specific (01-1 mg/kg)	6 months
Grab	Soil	Scoop Direct into Jar	1,4-dioxane	(1) 8 oz jar	Cool to 4^o C Water ice only	Method 8270 SIM	[0.1 mg/kg (ppm)]	14 days 40 days after extraction
Grab	Soil	Scoop Direct into Jar	PFAS	(1) 8 oz jar	Cool to 4^o C Water ice only	EPA Method 537 Modified	Compound specific [but less than 1 ug/kg (ppb)]	14 days 40 days after extraction
Grab	Water	Direct from sampling pump tubing	VOCs	(3) 40ml VOCs	Cool to 4^o C 1:1 HCL	EPA Method 8260C	Compound specific (1-5 ug/L)	14 days

Notes:
All holding times listed are from Verified Time of Sample Receipt (VTSR) unless noted otherwise. * Holding time listed is from time of sample collection.
The number in parentheses in the "Sample Container" column denotes the number of containers needed.
Triple volume required when collected MS/MSD samples
The number of trip blanks are estimated.
CRQL / MDL = Contract Required Quantitation Limit / Method Detection Limit
NA = Not available or not applicable.

ATTACHMENT D
Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

FORMER DUTCH MASTERS PAINT AND VARNISH CO.
29-41 WYTHE AVENUE and 180 N. 14th STREET,
BROOKLYN, NY

MAY - 2019

Prepared on behalf of:

False Alarm LTD and M.A.J. Associates, Inc.
530 7th Avenue, Suite 1902
New York, NY 10018

Prepared by:

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961

COMMUNITY AIR MONITORING PLAN
TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for the drilling and sampling activities to be performed under a Remedial Investigation Work Plan (RIWP) at the Former Dutch Masters Paint and Varnish Co. The CAMP provides measures for protection for the downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the remedial activities) from potential airborne contaminant releases resulting from soil disturbance and other remedial activities at the site.

Compliance with this CAMP is required during all activities associated with soil disturbance activities that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs). These activities include the removal of an underground storage tank, pumping of free phase fuel oil and the excavation and loading of affected soil. This CAMP has been prepared to ensure that remedial activities do not adversely affect passersby, residents, or workers in the area immediately surrounding the Site and to preclude or minimize airborne migration of site-related contaminants to off-site areas.

1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan as presented in DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC May 3, 2010). This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air;

2.0 AIR MONITORING

Petroleum VOCs and semi-volatile organic compounds (SVOCS) and chlorinated solvents are the constituents of concern at the Site along with metals in historic fill. The appropriate method to monitor air for these constituents during remediation activities is through real-time VOC and air particulate (dust) monitoring.

2.1 Meteorological Data

At a minimum, wind direction will be evaluated at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to position the monitoring equipment in appropriate upwind and downwind locations.

2.2 Community Air Monitoring Requirements

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before activities begin. These points will be monitored periodically in series during the site work. When the excavation area is within 20 feet of potentially exposed populations or occupied structures, the perimeter monitoring points will be located to represent the nearest potentially exposed individuals at the downwind location and will take into account the locations of ventilation system intakes of nearby structures.

Fugitive respirable dust will be monitored using a MiniRam Model PDM-3 aerosol monitor (or equivalent). Air will be monitored for VOCs with a portable Rae Systems MiniRae 3000 detector (PID), or equivalent. All air monitoring data will be documented in a site log book by the designated site safety officer. The site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and two additional times (per workday) thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present.

The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report, as shown in Appendix A, will be completed.

3.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during remediation activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- limiting the excavation size;
- limiting the drop-height when loading soil into trucks;
- spraying chemical odorants onto the soil;
- covering soil stockpiles with 6-mil plastic sheeting or tarps;
- hauling waste materials in properly tarped containers; and/or
- applying vapor suppressant foam.

4.0 PARTICULATE MONITORING

Air monitoring for particulates (i.e., dust) will be performed continuously during excavation and loading activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM10) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately four to five feet above land surface (i.e., the breathing zone). Monitoring equipment will be MIE Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter (μg/m3). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 $\mu g/m^3$ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive work activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in Section 2.3.1 below) and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report as shown in **Appendix A** will be completed.

4.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 $\mu g/m^3$ at any time during remediation activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- limiting the excavation size;
- spraying water onto the excavation faces and equipment;
- covering soil stockpiles with plastic sheeting or tarps;
- Use of gravel paths / roadways;
- hauling waste materials in properly tarped containers; and/or
- limiting vehicle speeds onsite.

Work may continue with dust suppression techniques provided that downwind PM_{10} levels are not more than 150 µg/m^3 greater than the upwind levels.

There may also be situations where the dust is generated by remediation activities and migrates to downwind locations, but is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the working area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 µg/m^3, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review.

5.0 DATA QUALITY ASSURANCE

5.1 Calibration

Instrument calibration shall be documented on instrument calibration and maintenance sheets or in the designated field logbook. All instruments shall be calibrated as required by the manufacturer. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

5.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the SSO for reference.

5.3 Data Review

The SSO will interpret all monitoring data based the established criteria and his/her professional judgment. The SSO shall review the data with the PM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PM.

6.0 RECORDS AND REPORTING

All air readings must be recorded on daily air monitoring log sheets and made available for review by personnel from NYSDEC and NYSDOH.

APPENDIX A
ACTION LIMIT REPORT

CAMP
ACTION LIMIT REPORT

Project Location: ____

Date: ______________________ Time: ______________________

Name: ______________________

Contaminant: ______________________ PM-10: __________ VOC: ______________________

Wind Speed: ______________________ Wind Direction: ______________

Temperature: ______________________ Barometric Pressure: __________

DOWNWIND DATA

Monitor ID #: ______________________ Location: __________ Level Reported: ______________

Monitor ID#: ______________________ Location: __________ Level Reported: ______________

UPWIND DATA

Monitor ID #: ______________________ Location: __________ Level Reported: ______________

Monitor ID#: ______________________ Location: __________ Level Reported: ______________

BACKGROUND CORRECTED LEVELS

Monitor ID #: Location: ______________ Level Reported: Level Reported: __________________

ACTIONS TAKEN

____

____

____

____

____

____

____

____

____

____

____

____

ATTACHMENT E
Citizen Participation Plan

New York State Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan

for

FORMER DUTCH MASTERS PAINT AND VARNISH CO.

False Alarm LTD and M.A.J. Associates, Inc.
530 7th Avenue Suite 1902
New York, NY 10018

October 2017

Updated April 2020

Contents

*** * * * ***

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the Site's investigation and cleanup process.

Applicant: **False Alarm LTD and M.A.J. Associates, Inc.**
Site Name: Former Dutch Masters Paint and Varnish Co. **("Site")**
Site Address: **29-41 Wythe Avenue and 180 N. 14th Street**
Site County: **Kings**
Site Number: **C224262**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants that conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html.

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interest in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment;
- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process;

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process;

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community; and

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the Site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the Site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the Site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the Site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC website. If this occurs, NYSDEC will inform the public in fact sheets distributed about the Site and by other means, as appropriate.

Site Contact List

Appendix B contains the Site contact list. This list has been developed to keep the community informed about, and involved in, the Site's investigation and cleanup process. The Site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the Site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The Site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the Site is located;
- Residents, owners, and occupants of the Site and properties adjacent to the Site;
- The public water supplier which services the area in which the Site is located;

- Any person who has requested to be placed on the Site contact list;
- The administrator of any school or day care facility located on or near the Site for purposes of posting and/or dissemination of information at the facility; and
- Location(s) of reports and information.

The Site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the Site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the Site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the Site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the Site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

- **Document repositories** allow the public to access and review project documents including investigation and cleanup work plans and final reports.

The public is encouraged to contact project staff at any time during the Site's investigation and cleanup process with questions, comments, or requests for information. This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the Site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the Site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the Site, as described in Section 5.

If the Site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the Site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the Site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the Site.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html.

Note: The table identifying the citizen participation activities related to the Site's investigation and cleanup program follows on the next page:

Citizen Participation Requirements (Activities)	Timing of CP Activity(ies)
Application Process:	
• Prepare Site contact list • Establish document repositories	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to Site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the Site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement:	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to Site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to Site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to Site contact list about proposed RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to Site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to Site contact list that announces that cleanup action has been completed and that summarizes the Final Engineering Report • Distribute fact sheet to Site contact list announcing issuance of Certificate of Completion (COC)	At the time NYSDEC approves Final Engineering Report. These two fact sheets are combined if possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the Site. Additional major issues of public concern may be identified during the course of the Site's investigation and cleanup process.

The major issues of concern to the public will be potential impacts of nuisance odors and dust during the removal of affected soil at the Site. Another example of a major issue of public concern would be the impact of increased truck traffic on the surrounding neighborhood. Construction safety issues will also be addressed.

This work will be performed in accordance with procedures which will be specified under a detailed Remedial Program which considers and takes preventive measures for exposures to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a Health and Safety Plan (HASP) and a Community Air Monitoring Plan (CAMP) are required components of the remedial program. Implementation of these plans will be under the direct oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

These plans will specify the following worker and community health and safety activities during remedial activity at the Site:

- On-Site air monitoring for worker protection;
- Perimeter air monitoring for community protection;
- The use of odor, vapor, and dust controls, such as water or foam sprays, as needed;
- Monitoring and control of soil, sediments, and water generated during remediation; and
- Truck routes which avoid residential streets.

The HASP and the CAMP will be prepared as part of the Remedial Action Work Plan (RAWP) and will be available for public review at the document repository as identified in Appendix A (page 11).

Furthermore, the Applicant has prepared a Scoping Sheet for Major Issues of Public Concern which will assist them in identifying any concerns. Experience from similar projects, 311 complaints and other construction projects in the area will help in identifying such issues.

4. Site Information

Appendix C contains a map identifying the location of the Site.

Site Description

The Site to be remediated and redeveloped is located in the Williamsburg section of Kings County and is comprised of two contiguous tax parcels totaling 28,528 square feet (0.65 acres). The tax parcels are identified as 29-41 Wythe Avenue (Block 2279, Lot 1) and 180 North 14th Street (Block 2279, Lot 9). The Site is located in the City of New York and Borough of Brooklyn. The lots encompass approximately 25% of the block with approximately 200 ft of street frontage on Wythe Avenue, 100 ft of street front on N. 13th Street, and 185 feet of street frontage on N. 14th Streets.

The Site is currently a vacant construction Site. The elevation of the Site is 13 feet above the National Geodetic Vertical Datum (NGVD). The area topography gradually slopes to the west. The depth to groundwater beneath the Site is approximately 10 feet below grade. Groundwater flow is reportedly to the west.

The land use in the immediate vicinity of the Site includes an industrial manufacturing building (W. side of Wythe Avenue) and new development project (SW Corner of Wythe and N. 13th Street) to the west, a new hotel and retail shops to the south, new construction and an existing office building to the east and an industrial/manufacturing property to the north.

The area surrounding the Site is highly urbanized and predominantly consists of older heavy industry properties along the waterfront east to Kent and Wythe Avenues. Many of these properties are being renovated and repurposed, and are being redeveloped with new commercial buildings such as hotels, office and retail space. The areas east of Wythe Avenue have been undergoing a transformation as former industrial property are being redeveloped for residential use. This transformation was related to the upzoning of many commercial industrial properties to residential as part of the Greenpoint-Willamsburg Rezoning Action. The proposed project is compatible with the surrounding land use and will be in compliance with current zoning.

History of Site Use, Investigation, and Cleanup

The property is currently owned by False Alarm LTD and M.A.J. Associates, Inc. The property is currently partially occupied.

A review of Sanborn maps indicated that a portion of Lot 1 (33-35) Wythe Avenue was occupied by a varnish factory beginning sometime prior to 1887. The varnish works expanded to cover the entire lot by 1942. By 1951 the Site was relabeled as the Dutch Masters Paint and Varnish company and remains shown as such through 2007. However, according to property transactions the lot was purchased in 1978 by Victor Barouh, a manufacturer of type writer ribbons. The building was reportedly used as a warehouse by Barouh Eaton Allen Corp when the requestor purchased the building in 1995 and used it as a clothing warehouse. It remained in this use through 2009 when portions of the building were rented out to a motorcycle repair shop and art studio.

A portion of Lot 9 was used as a foundry for the manufacture of window weights from 1902 through at least 1916. By 1942 (next available map) the property is shown as a bed spring manufacturer. It remained in the use through 1979 when it is simply shown as manufacturing. According to property transaction listings, Dutch Masters Paint and Varnish took a mortgage on the property in 1969. In 1979 the property was purchased by Barouh Eaton Allen Corp and according to the current owner was used as a warehouse for typewriter ribbons. The property remained in this use through 1995 when it was purchased by the Requestor and used as a clothing warehouse through 2009 when it was rented out as music studios.

A Remedial Investigation was completed at the Site from October 15, 2018, through January 29, 2019, and documented in a Remedial Investigation Report dated April 2019. The goals of the

Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination.
Activities completed under the RI:

- The installation of fourteen soil borings to collect twenty-four soil samples for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides, pesticides, organophosphate pesticides, PCBs, and/or metals;
- The installation of nine groundwater monitoring wells and the collection of nine groundwater samples for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and total and dissolved metals;
- The collection of analysis of soil gas samples for VOCs from thirteen soil gas sampling locations.

The results of sampling performed during this RI identified contamination associated with historic fill, spill areas on/near Lot 9 of the chlorinated VOC trichloroethylene (TCE) that has impacted both groundwater and/or soil gas, and petroleum VOC contaminated soil in the southeast corner of Lot 1 that has slightly impacted groundwater.

The chlorinated VOC trichloroethylene (TCE) was detected within soil samples collected from three of the soil borings performed on Lot 9 (B1801, B1803, and B1804). TCE was detected above SCOs in several isolated samples at the site, including B1801 located in the northeast corner of Lot 9 and B1804 located in the southwest corner of Lot 9. TCE was reported above SCO's at higher concentrations in shallow vs deep samples indicating incidental surface spillage. TCE concentrations did not exceed Restricted Residential SCOs and ranged in concentration from 760 ug/kg to 3,100 ug/kg.

Petroleum related VOCs were detected at low concentrations in the majority of the soil samples collected at the Site, including soil samples collected at the groundwater interface and soil samples collected above the groundwater interface. However, detections above Unrestricted Use SCOs were limited to soil sample B10 located in the southeast corner of lot 1, (4-5), soil sample B1802 (10-12) located in the southeast corner of Lot 9, and soil sample B1805(6-8) located in the northeast corner of Lot 1. Total petroleum VOC concentrations in these samples ranged from 87 ug/kg to 1,017 ug/kg. Although polycyclic aromatic hydrocarbons (PAHs) were reported at elevated concentrations in some of the samples they did not appear to be related to petroleum.
Petroleum impacts do not appear to be related to any definable source as elevated concentrations of VOCs and PAHs were not reported near any of the suspect underground storage tanks (USTs) or piping.

The historic fill material was found across the Site to depths of 10 to 12 feet below grade, extending as deep as 17 feet in some areas of the Site. Depending on location, the historic fill material contains one or more metals including arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel and zinc, pesticides and polycyclic aromatic hydrocarbons (PAHs) above Unrestricted Use and / or Restricted Residential SCOs.

5. Investigation and Cleanup Process

Application

The Applicant has applied for acceptance into New York's Brownfield Cleanup Program (BCP) as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the Site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination on-Site, and must conduct a qualitative exposure assessment, (a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the Site and to contamination that has migrated from the Site).

The Applicant proposes that the Site will be used for the construction of a new 5-story mixed-use commercial retail and office building which will cover the entire Site. Plans include excavating the entirety of the Site to a depth of approximately 11 feet below grade for inclusion of a cellar for the proposed building. With groundwater present at 10 feet below grade, dewatering will be required during construction of the building's foundation.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the Site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement (BCA) executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the Site.

Investigation

The Applicant did not complete a Remedial Investigation before it applied to the BCP. The NYSDEC will use the information in the investigation report to determine if the Site poses a significant threat to public health or the environment. If the Site is a significant threat, it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the Site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Remedy Selection

The Applicant has recommended in its subsurface investigation report that action needs to be taken to address Site contamination and has yet to provide a cleanup plan, which will officially be called a Remedial Work Plan, to the NYSDEC for approval. The Remedial Work Plan will describe the Applicant's proposed remedy for addressing contamination related to the Site.

After reviewing the Remedial Work Plan, the NYSDEC will announce the availability of the proposed plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy.

The Applicant may then design and perform the cleanup action to address the Site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the Site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the Site, it will approve the FER. NYSDEC then will issue a COC to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for Site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the Site after it receives a COC.

Site Management

Site management is the last phase of the Site cleanup program. This phase begins when the COC is issued. Site management may be conducted by the Applicant under NYSDEC oversight, if contamination will remain in place. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the Site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan (SMP). An institutional control is a non-physical restriction on use of the Site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the Site suitable for some, but not all uses. An engineering control is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that is pumping and treating groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the Site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Steve Walsh
Assistant Engineer (Environmental)
Bureau B, Section B
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233
(518) 402-9824
steven.walsh@dec.ny.gov

Thomas Panzone
Regional Citizen Participation Specialist
NYSDEC Region 2
Office of Communications Services
47-40 21st Street
Long Island City, NY 11101-5407
Tel: (718) 482-4953
Email: thomas.panzone(@dec.state.ny.gov

New York State Department of Health (NYSDOH):
Renata E. Ockerby
New York State Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza – Corning Tower Room 1787
Albany, New York 12237
Tel: (518) 402-7860
Email: BEEI@Health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Brooklyn Public Library – Leonard Library
81 Devoe Street at Leonard Street
Brooklyn, NY 11211

Hours:

Monday	10:00 pm – 6:00 pm
Tuesday	1:00 pm – 8:00 pm
Wednesday	10:00 pm – 6:00 pm
Thursday	10:00 pm – 8:00 pm
Friday	10:00 am – 6:00 pm
Saturday	10:00 am – 5:00 pm
Sunday	Closed

Appendix B - Site Contact List

Local Government Contacts:

<u>*City of New York*</u>
Hon. William de Blasio
Mayor of New York City
City Hall
New York, NY 10007

Hon. Eric Adams
Brooklyn Borough President
209 Joralemon Street
New York, NY 11201

Ms. Dealice Fuller
Chair, Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY 11211

Mr. Gerald Esposito
District Manager, Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY 11211

Mr. Ryan Kuonen, Chairman
Environmental Committee
Brooklyn Community Board 1
435 Graham Avenue
Brooklyn, NY 11211

Hon. Stephen Levin, NYC Council Member
33rd District
410 Atlantic Avenue
Brooklyn, NY 11217

Mr. Carl Weisbrod
Chair of City Planning (Zoning)
22 Reade St.
Third Floor
New York, NY 10007

Mr. Keith Bray
New York City Department of Transportation
Brooklyn Borough Commissioner
55 Water Street, 9th Floor
New York, NY 10041

Kings County Clerk’s Office
Nancy Sunshine, County Clerk
360 Adams Street, Room 189
Brooklyn, NY 11201

Hon. Letitia James
Public Advocate
1 Centre Street, 15th Floor
New York, NY 10007

Hon. Scott M. Stringer
Office of the Comptroller
1 Centre Street
New York, NY 10007

Ms. Julie Stein
Office of Environmental Planning & Assessment
NYC Dept. of Environmental Protection
96-05 Horace Harding Expressway
Flushing, NY 11373

Ms. Nilda Mesa, Director
NYC Office of Environmental Coordination
100 Gold Street, 2nd Floor
New York, NY 10038

Mr. Daniel Walsh
NYC Department of Environmental Remediation
100 Gold Street, 2nd Floor
New York, NY 10038

New York State
Hon. Daniel Squadron
NYS Senator
209 Joralemon Street, Suite 300
Brooklyn, NY 11201

Hon. Joseph Lentol
NYS Assembly Member
619 Lorimer Street
Brooklyn, NY 11211

Federal
Hon. Charles Schumer
US Senator
757 Third Avenue, Suite 17-02
New York, NY 10017

Hon. Kirsten Gillibrand
US Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Carolyn Maloney
US House of Representatives
619 Lorimer Street
Brooklyn, NY 11211

Adjacent Property Owner / Occupant Contacts

Contact information for the identified owners, as listed in the New York City ACRIS Database, are as follows:

East

1. PATTI 3, LLC
   8 Berry Street
   Brooklyn, NY 11249-1013

2. Occupant
   16 Berry Street
   Brooklyn, NY 11222-1013

3. Occupant
   190 North 14TH Street
   Brooklyn, NY 11249-1052

4. North 14TH Street Realty Associates LLC
   200 North14TH Street
   Brooklyn, NY 11249-1012

5. Occupant
   200 North 14TH Street
   Brooklyn, NY 11249-1012

6. North 14TH Street Realty Associates LLC
   4 Berry Street
   Brooklyn, NY 11249-1013

7. Occupant
   4 Berry Street
   Brooklyn, NY 11249-1013

North

8. Nash Metalware Co. Inc.
72 North 15TH Street
Brooklyn, NY 11222-2802

West

9. Albert Metal Stamping Corp.
9 Kent Avenue
Brooklyn, NY 11249

South

10. 19 Kent Acquisition LLC
C/O Rubenstein Partners
2929 Arche Street 28TH Floor
Philadelphia, PA 19104-2857

4.3 Local News Media

The Brooklyn Paper
One Metrotech Center, Suite 1001
Brooklyn, NY 11201

New York Daily News
450 W. 33 Street
New York, NY 10001

New York Post
1211 Avenue of the Americas
New York, NY 10036-8790

NY 1 News
75 Ninth Avenue
New York, NY 10011

Courier-Life Publications
One Metrotech Center North, 10th Floor
Brooklyn, NY 11201

Brooklyn Daily Eagle
30 Henry Street
Brooklyn, NY 11201

Greenpoint Star
69-60 Grand Avenue
Maspeth, NY 11378

Greenpoint Gazette
597 Manhattan Avenue
Brooklyn, NY 11222

Nowy Dziennik (Polish Daily News)
70 Outwater Lane
Garfield, NJ 070726

Hoy Nueva York
One Metrotech Center, 18th Floor
Brooklyn, NY 11201

El Diario La Prense
One Metrotech Center, 18th Floor
Brooklyn, NY 11201

Impacto New York
225 West 35th Street, Suite 305
New York, NY 10001

La Voz Hispana NY
159 East 116th Street
New York, NY 10029

4.4 Public Water Supplier

Emily Lloyd, Commissioner
New York City Department of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

4.5 Requested Contacts

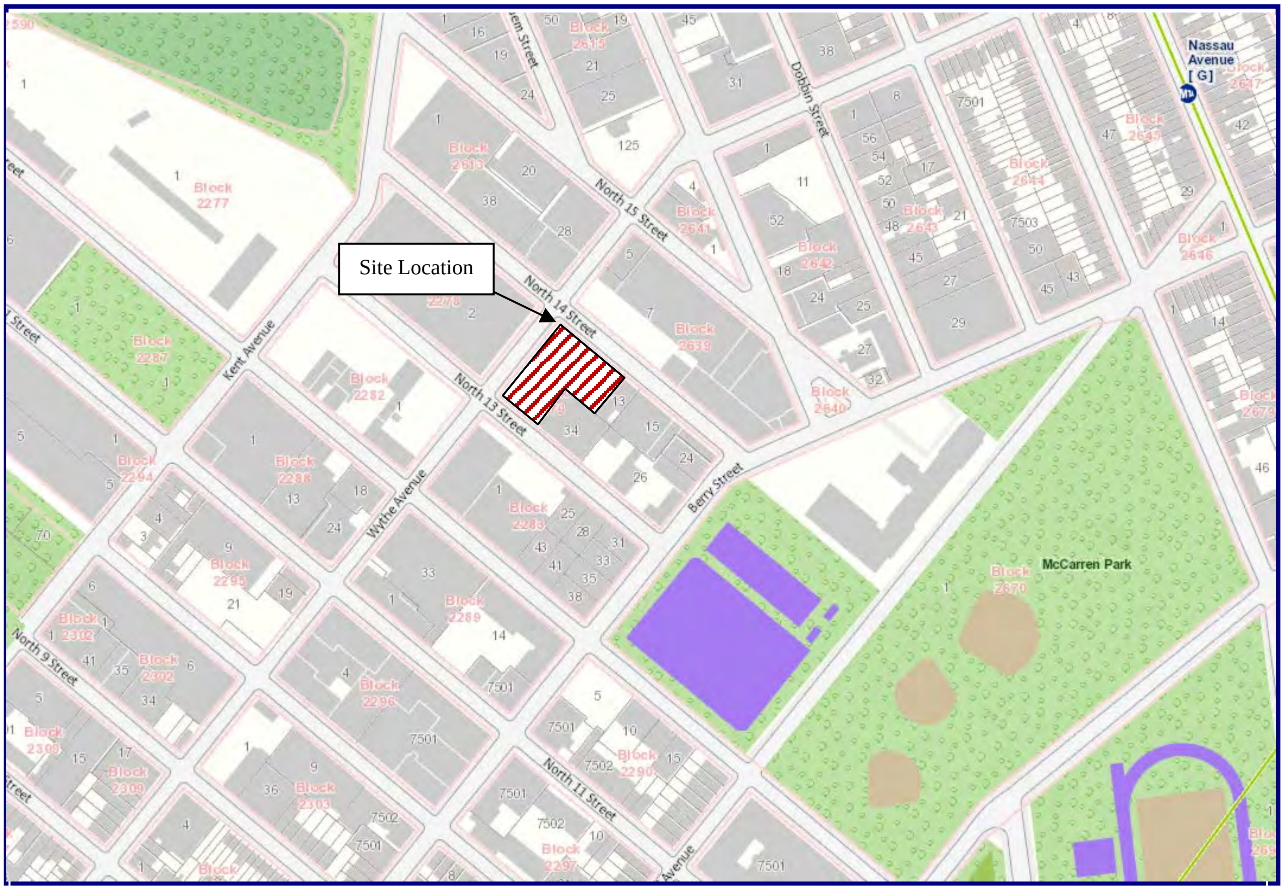
No requests have been made at this time.

4.6 Schools and Daycare Facilities

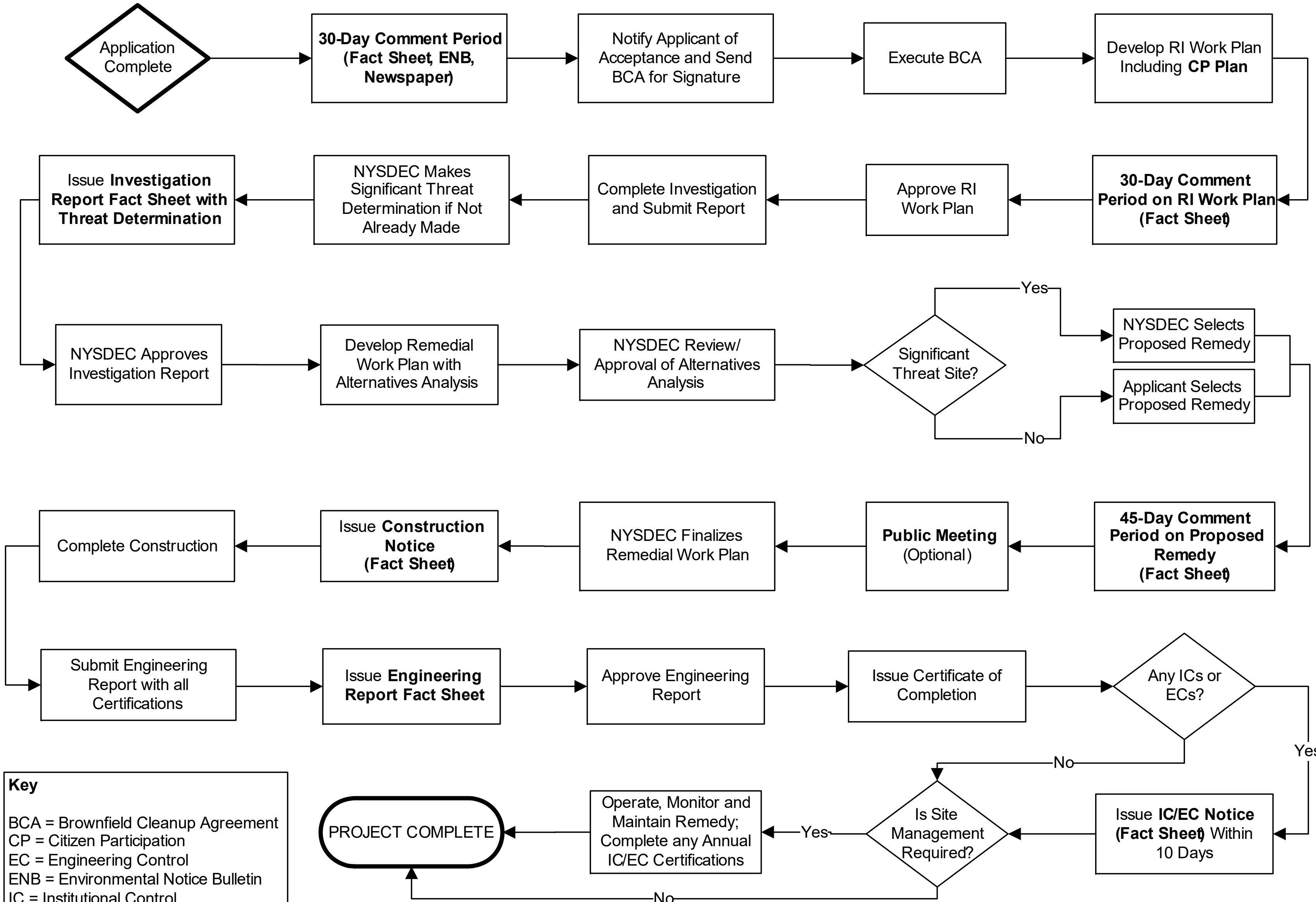
The following Schools and Daycare facilities were identified within a one-quarter mile radius of the project Site:

1. Automotive High School
   50 Bedford Avenue
   Brooklyn, NY 11222
   (718) 218-9301
   Attn: Caterina Lafergola (Principal)

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

ATTACHMENT F
Resumes

AMC Engineering
99 Jericho Turnpike, Suite 300J
Jericho, NY 11590
Phone: (516) 417-8588

ARIEL CZEMERINSKI, P.E.

Mr. Czemerinski is a New York State Professional Engineer and CEO of AMC Engineering PLLC an EBC affiliate. Mr. Czemerinski has with 20 years of experience in the chemical and environmental areas. Areas of expertise include environmental compliance, permitting, remedial system design, process and plant safety, and management of a production facility. Mr. Czemerinski is a Registered Professional Engineer in NY, IN, IL, and MI.

Professional Experience
AMC: 14
Prior: 6 years

Education
Master of Science in Chemical Engineering, Columbia University, New York, NY, Feb. 1990. Bachelor of Science in Chemical Engineering, University Of Buenos Aires, Buenos Aires, Argentina, May 1987

Areas of Expertise

- Vapor Intrusion - Barrier and Sub Slab Venting System Design
- Environmental Assessment Statements and Environmental Impact Assessments under CEQR, ULURP
- Remedial Program Design and Management
- Environmental Compliance, Clean Water Act, Clean Air Act, Hazardous Materials
- Dewatering & Treatment System Design
- NYCDEP Sewer Discharge Permitting
- Transfer Station Permitting and Compliance
- Chemical Process Design and Optimization
- Wastewater Treatment Systems and Permitting, SPEDES, Air
- Zoning Regulations and Permitting
- Safety and Environmental Training
- Waste Management Plans

Professional Certifications

- OSHA 40-hr HAZWOPER
- OSHA 10-hr Construction Safety and Health

~~PROJECT EXPERIENCE (Representative Projects)~~

Project: Domsey Fiber Corp. - 431 Kent Avenue, Brooklyn NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Express Builders
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Springfield Gardens Residential Area BMP - Springfield Gardens, Queens, NY
Project Description: NYC Residential infrastructure (sewer, gas, water) upgrade, drainage channel installation and pond restoration. Soil contaminated with, petroleum and heavy metals requiring excavation, soil management and disposal under a Materials Handling Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: EIC Associates - NYCEDC
Regulatory Authority: NYSDEC, NYCParks
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Domino Sugar Site - Kent Avenue, Brooklyn NY
Project Description: NYC E-Designation. Soil contaminated with semi-volatile organic compounds and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Two Trees Management
Regulatory Authority: NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Uniforms For Industry Site - Jamaica Avenue, Queens NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, mop oil and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Arker Companies
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

PROJECT EXPERIENCE (Representative Projects)

Project: Former Charles Pfizer & Co. Site - 407 Marcy Avenue, Brooklyn, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Rabsky Group
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former East Coast Industrial Uniforms Site - 39 Skillman Street, Brooklyn, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Riverside Builders
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former BP Amoco Service Station Site - 1800 Southern Boulevard, Bronx, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: SoBro, Joy Construction
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Dico G Auto & Truck Repair Site - 3035 White Plains Road, Bronx, NY
Project Description: NYS Brownfield cleanup project. Soil contaminated with petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Arker Companies
Regulatory Authority: NYSDEC
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Charles B. Sosik, PG, PHG, Principal

Professional Experience

28 years

Education

MS, Hydrogeology, Adelphi University, NY
BS, Geology, Northern Arizona University, AZ

Areas of Expertise

- Brownfields Redevelopment
- Hazardous Waste Site Investigations
- Pre-purchase Site Evaluations and Support
- Regulatory Negotiations
- Remedial Planning and “Cost to Cure” Analysis
- Strategic Planning
- Real Estate Transactions
- NYC “E” Designations

Professional Certification

- Professional Geologist, NH
- Professional Geologist, Hydrogeologist, WA
- OSHA 40-hr HAZMAT
- OSHA 8-hr. Supervisor
- NYC OER Qualified Environmental Professional

Professional Affiliation / Committees

- NYS Council of Professional Geologists (NYSCPG)
- Association of Groundwater Scientists & Engineers (AGSE)
- NYS RBCA Advisory Committee
- Massachusetts LSP Association
- New Hampshire Association of Professional Geologists
- Interstate Technology Regulatory Council/MTBE Team
- Environmental Business Association, Brownfields Task Force
- Part 375 Working Group

PROFILE

Mr. Sosik has 28 years of experience in environmental consulting. He specializes in advising clients on managing environmental compliance with federal, state, and municipal agencies and has successfully directed numerous investigation and remediation projects involving petroleum, pesticides, chlorinated solvents, heavy metals and radiologically activated media. His work included extensive three-dimensional investigations on MTBE, which have been used effectively to help shape public policy. He also has experience in applying models to groundwater related problems and has completed several large-scale projects to determine fate and transport of contaminants, establish spill scenarios, and closure criteria. His experience and expertise in the area of contaminant hydrogeology has resulted in requests from environmental attorneys, property owners and New York State to serve as an expert witness and technical advisor on a variety of legal disputes.

For the past 15 years Mr. Sosik has been primarily engaged in providing environmental consulting to developers responding to the extensive re-zoning of former industrial and commercial properties, which is currently taking place throughout New York City. These services include everything from pre-purchase evaluations and contract negotiations to gaining acceptance in and moving projects through the NYS Brownfields Program. Mr. Sosik has taken a pro-active role in the continued development of the NYS Brownfields Program and related policy, by attending numerous working seminars, active participation in work groups and task forces and by providing commentary to draft versions of new guidance documents. Throughout his professional career, Mr. Sosik has remained committed to developing innovative cost- efficient solutions to environmental issues, specifically tailored to the needs of his clients.

SELECTED PROJECTS

Scavenger Waste Treatment Facility (SWTF), Suffolk County, NY

Water Treatment Plant EIS - Focused EIS - In response to requests from the Suffolk County Council on Environmental Quality and the Brookhaven Conservation Advisory Council, Mr. Sosik prepared a focused EIS to evaluate the potential impacts to an important surface water resource from the proposed facility including cumulative and synergistic effects with established contaminant plumes in the area.

Advanced Residential Communities, Rockville Centre, NY

Brownfield Project – As the senior project manager on this large scale, high profile redevelopment project, Mr. Sosik was asked to develop a plan to accelerate the regulatory process in the face of general community opposition. Through numerous discussions with the BCP management team, He was able to condense the schedule and review period, through the submission of supporting documents (Investigation Report, Remedial Work Plan) with the BCP application package. Community opposition, which focused on the environmental condition of the site as a means to block the project, was used to advantage in expediting approval of the aggressive interim remedial plan. This will allow the developer to begin remedial work approximately 5 months ahead of schedule.

Former Temco Uniform site, West Haverstraw, NY

Brownfield Project – Mr. Sosik took over management of this project from another consultant following transition of this VCP site to the BCP. Mr. Sosik used the opportunity to renegotiate and revise the scope of work to allow a more cost effective and focused investigation plan without re-writing or resubmitting the RIWP. During the NYSDEC’s review of the transition package, he met with and coordinated changes with the NYSDEC Project Manager to gain approval. The result saved the client a significant amount of money, but perhaps more importantly in this case, did so without loss of time.

Grovick Properties, Jackson Heights, NY

Brownfield Project – This Brownfield property is somewhat unique in that it had been investigated and partially remediated by the NYSDEC through the petroleum spill fund. The client was interested in purchasing the property and redeveloping it as office and retail space. Mr. Sosik reviewed the NYSDEC investigation and developed a supplemental plan to meet the requirements of an RI under the BCP program. By performing this limited amount of field work "up-front" he was able to complete an RI Report and Remedial Plan and submit both with the BCP application package. The NYSDEC and NYSDOH approved the RI Report and the Remedial Plan with minor changes. This cut 120 days from the review process and allowed the client to arrange financing and move his project forward knowing what the clean-up costs would be at the outset.

Metro Management, Bronx, NY

Brownfield Project – The site of a former gas station, the developer had planned to construct a 12-story affordable housing apartment complex with first floor retail space. Since the site was located in an Environmental zone, potential tax credits of 22% for site development, remediation and tangible property could be realized under the BCP. In a pre-application meeting with the NYSDEC, Mr. Sosik realized that the department did not believe the site was eligible for the BCP, since it had been previously investigated and closed under the spills program.

Mr. Sosik assisted the developer in securing financing, and due to the demands of an aggressive construction schedule developed an Interim Remedial Measure (IRM), based on chemical oxidation treatment. Working closely with the clients environmental counsel, Mr. Sosik was able to get the IRM approved without a public comment period. Implementation of the IRM is currently underway.

The project was awarded the 2009 NYC Brownfield Award for Innovation.

Brandt Airflex, NY

Technical Consulting Services - Mr. Sosik provided senior level technical advice and strategic planning in developing an off-site RI/FS for the site, in negotiating a tax reduction for the property due to the environmental condition and in preparing a cost to cure estimate for settlement between business partners. After achieving a favorable tax consideration and settlement agreement for his client

Allied Aviation Services, Dallas, Fort Worth, Airport, Dallas, TX

Jet Fuel Investigation - Mr. Sosik developed and managed an investigative plan to quickly identify the extent and source of jet fuel which was discharging from the Airport's storm drain system to a creek a mile away. Through the use of a refined conceptual model, accelerated investigative techniques and a flexible work plan, he was able to identify the source of the fuel and the migration route within a single week. He then identifed remedial options and successfully negotiated a risk based plan with the Texas regulatory agency that had issued a notice of enforcement action against the facility.

KeySpan – Former LILCO Facilities, Various NY Locations

Pesticide Impact Evaluation - Mr. Sosik developed, negotiated and implemented a site screening procedure to evaluate impact to public health and the environment as the result of past herbicide use at 211 utility sites. Using an unsaturated zone leaching model (PRZM) on a small subset of the sites, he was able to establish mass loading schedules for the remaining sites. This was combined with public well data in a GIS environment to perform queries with respect to mass loading, time transport and proximity to vunerable public supply wells. Using this approach Mr. Sosik was able to show that there were no concerns for future impact. This effort satisfied the public health and resource concerns of the state environmental agency and county health department in a reasonable amount of time and at a fraction of the cost of a full scale investigation.

Former Computer Circuits (Superfund) Site, Hauppauge, NY

CERCLA RI/FS - As Senior Project Manager for the site, he played a major role in regaining control of the investigation activites for the PRP. This action prevented the USEPA from initiating an extensive investigation at the site using a RAC II contractor allowing the client to perform a more efficient investigation. He was involved in all negotiations with EPA and was the project lead in developing a revised site characterization plan (work plan, field sampling plan, quality assurance plan, etc.). By carefully managing all phases of the investigation and continued interaction with each of the three regulatory agencies involved, Mr. Sosik was able to keep the project focused and incrementally reinforce the clients position. The estimated cost of the revised investigation is expected to save the client 1.5 to 2 million dollars.

Sun Oil, Seaford, NY

Remediation Consuliting Services & Project Management - Under an atmosphere of regulatory distrust, political pressure and mounting public hostility toward the client, Mr. Sosik conducted an off-site 3-D investigation to define the extent of contamination and the potential impact on public health. By designing and implementing an aggressive source area remediation program and personal interaction with the public and regulatory agencies, he was able to successfully negotiate a limited off-site remediation favorable to the client. Source area remediation was completed within 6 months and the project successfully closed without damage to the client's public image or working relationship with the regulatory agencies.

Con Edison, Various Locations, NY

Hydrogeologic Consulting Services - Under a general consulting contract, Mr. Sosik conducted detailed subsurface hydrogeologic investigations at five locations to assist in the development of groundwater contingency planning. He also developed and implemented work plans to investigate and remediate existing petroleum, cable fluid, and PCB releases at many of the generating facilities and substations. An important aspect of his role was in assisting the client in strategic planning and negotiations with the regulatory agency.

Keyspan - Tuthill Substation, Aqueboque, NY

Accelerated Site Characterization - Using accelerated site characterization techniques, Mr. Sosik presented the project as a case study in establishing the transport of an herbacide and its metobolites aplied at utility sites in the 1980's The results were then used to establish a screening method for evaluating 211 similar sites controlled by the client in a reasonable and eficient manner.

NYSDEC Spill, East Moriches, NY

Spill Release Analysis - With recognized expertise in the area of gasoline plume development on Long Island, Mr. Sosik was asked by the State to establish the release date (and principal responsible party) of an extensive petroleum spill, which impacted a residential neighborhood. He used multiple lines of evidence, and a new EPA model (HSSM), which he has helped to refine, to reconstruct the release scenario and spill date, in support of the State Attorney General's cost recovery effort from the PRP.

Minmilt Realty, Farmingdale, NY

Fate & Transport Modeling - He completed an RI/FS at this location for a PCE plume that had been in transit for over 30 years. Mr. Sosik applied a conservative model to evaluate time/concentration impacts under a variety of transport scenarios to a municipal wellfield located 13,000 feet away. Through the use of the model and careful interpretation of an extensive data set compiled from several sources, Mr. Sosik was able to propose a plan which was both acceptable to the regulator and favorable to the client.

Sebonack Golf Course Project, Town of Southampton, NY

IPM Pesticide Study - Provided professional hydrogeologic services in support of the EIS prepared for the development of the site. The proposed development included an 18-hole golf course, clubhouse, dormitory facility, cottages, associated structures, and a 6,000 square foot research station for Southampton College. Mr. Sosik performed an extensive evaluation (using a pesticide-leaching model) on the effects of pesticide and nitrogen loading to groundwater as part of the projects commitment to an Integrated Pest Management (IPM) approach.

NYSDEC, Spills Division, Regions 1 – 4

Petroleum Spills Investigation & Remediation - As a prime contractor/consultant for the NYSDEC in Regions 1-4, Mr. Sosik has managed the investigation and remediation of numerous petroleum spills throughout the State. Many of these projects required the development of innovative investigation and remediation techniques to achieve project goals. He was also involved in many pilot projects and research studies to evaluate innovative investigation techniques such as accelerated site characterization, and alternative approaches to remediation such as monitored natural attenuation and risk based corrective action.

Sun Oil, E. Meadow, NY

Exposure Assessment - Performed to seek closure of the spill file, despite the presence of contaminants above standards, Mr. Sosik determined after the extended assessment that the level of remaining contamination would not pose a future threat to human health or the environment. He used multiple lines of evidence, and a fate and transport model to show that degradation processes would achieve standards within a reasonable time.

Sand & Gravel Mine, NY

Property Development - As part of the development of a sand and gravel mine, Mr. Sosik provided environmental consulting services to assist in obtaining a mining permit, which would result in the construction of a 150-acre lake. Specifically, Mr. Sosik investigated if the proposed lake would reduce groundwater quantity to domestic and public well fields, and/or accelerate the migration of potential surface contaminants to the lower part of the aquifer. After assuming the lead role in negotiations with the regulatory agency, Mr. Sosik was able to obtain a permit for the client by adequately addressing water quality and quantity issues, and by preparing a monitoring plan and spill response plan, acceptable to all parties.

NYSDEC, Mamaroneck, NY

Site Characterization / Source Identification - In a complex hydrogeologic setting consisting of contaminant transport through fractured metomorphic bedrock and variable overburden materials, Mr. Sosik was able to develop and implement a sub-surface investigation to differentiate and separate the impact associated with each of two sources. The results of this investigation were successful in encouraging the spiller to accept responsibility for the release.

Riverhead Municipal Water District, NY

Site Characterization / Remedial Planning - Using accelerated characterization techniques, he implemented a 3-D site investigation to identify two service stations 4,000 ft. away as the source of contamination impacting a municipal wellfield. In accordance with the strict time table imposed by the need to return the wellfield to production by early spring, he designed and implemented a multi-point (9 RW, 6 IW) recovery and injection well system using a 3-d numerical flow model, and completed the project on time. Using a contaminant transport model, Mr. Sosik developed clean-up goals which were achieved in 9 months of operation, well below the projected 3 to 5 year project duration.

Montauk Fire Department, NY

Site Assessment - Mr. Sosik performed a limited investigation and used a 2-D flow model to demonstrate that the property could not have been the source of contamination which had impacted an adjacent wellfield as per the results of a previous investigation. This small focused effort successfully reversed a $500,000, and rising, claim against the department by the water district and the NYSDEC.

PREVIOUS EXPERIENCE

P.W. Grosser Consulting, Bohemia, NY
Senior Project Manager, 1999-2006

Environmental Assessment & Remediation, Patchogue, NY
Senior Project Manager, 1994-1999

Miller Environmental Group, Calverton, NY
Project Manager, 1989-1994

DuPont Biosystems, Aston, PA
Hydrogeologist, 1988-1989

Charles B. Sosik, PG, PHG, Principal

EXPERT WITNESS TESTIMONY AND DEPOSITIONS

Fact Witness -Testimony on relative age of petroleum spill based on nature and extent of residual and dissolved components at the Delta Service Station in Uniondale, NY Fall/1999

Expert Witness / Expert Report for defendant in cost recovery case by NYS Attorney General regarding a Class II Inactive Hazardous Waste (State Superfund) project by the NYSDEC (October 2004 – present, Report: March 2005, Deposition: April 2005, 2nd Report: Aug. 2013, 2nd Deposition Nov. 2013, Bench Trial: December 2013 - qualified as expert in Federal Court),

Expert Witness / Fact Witness for plaintiff seeking compensation for partial expenses incurred during the investigation and remediation of a USEPA CERCLA site due to the release and migration of contaminants from an "upgradient" industrial property. (Deposition May 2005, case settled April 2007).

Expert Witness / Fact Witness for NYS Attorney General with respect to cost recovery for a NYSDEC petroleum spill site in Holtzville, NY (Deposition April 2005 - case settled).

Expert Witness – Statement of opinion and expert testimony at trial for plaintiff seeking damages from a major oil corporation for contamination under a prior leasing agreement in Rego Park, NY. Case decided in favor of plaintiff. Trial July 2007, in favor of Plaintiff. Qualified as Expert.

Expert Witness / Fact Witness for NYS Attorney General with respect to cost recovery for a NYSDEC petroleum spill site in Lindenhurst, NY (Trial date Dec. 2009, in favor of plaintiff. Qualified as Expert State Supreme Court.

Expert Witness - for NYS Attorney General regarding NYSDEC cost recovery for a petroleum spill site at Riverhead, NY. Case settled July 2008.

Expert Witness for plaintiffs in class action case with respect to damages from chlorinated plume impact to residences in Dayton, OH. (Draft Report – May 2013).

Expert Witness / Fact Witness for defendant with respect to cost recovery and third party responsibility for a NYSDEC petroleum spill site in Lindenhurst, NY (Expert Statement of Fact – October 2005).

Expert Witness for plaintiff seeking damages related to a petroleum spill from the previous owner/operator of a gas station in College Point, NY. Case settled 2009.

Expert Witness for plaintiff (municipal water supply purveyor) seeking damages from major oil companies and manufacturer of MTBE at various locations in Suffolk County, NY. Expert reports July 2007, August 2007 and October 2007, Case settled August, 2008.

Expert Witness - Deposition for NYS Attorney General regarding NYSDEC cost recovery for a petroleum spill site at Sag Harbor, NY. August 2002

Expert Witness for defendant responding to a claim from adjacent commercial property owner on the origin of chlorinated solvents on plaintiff's property located in Cedarhurst, NY. Expert opinion submitted to lead counsel on March 6, 2009, case settled April 2009.

Expert Report - for Attorney General on modeling performed to determine the spill release scenario at a NYSDEC petroleum spill site in East Moriches, NY. June 2000.

Expert Witness - for plaintiff in case regarding impact to private wells from a spill at adjacent Town and County properties with open gasoline spill files in Goshen, NY. Expert report submitted August 2013.

Expert Witness for defendant with respect to cost recovery from Sunoco for a NYSDEC petroleum spill site. (Declaration – January 2013).

Expert Witness - for plaintiff (municipal water supply purveyor) seeking damages from Dow Chemical for PCE impact at various locations in Suffolk County, NY. Affidavit submitted 2011.

MODELING EXPERIENCE (PARTIAL LISTING)

PROJECT	MODEL	APPLICATION
Riverhead Water District, Riverhead, NY	MODFLOW, MODPATH	Remediation system design to intercept MTBE plume and prevent continued impact to municipal well field.
NYSDEC - Region 1, Holbrook, NY	MODFLOW, MODPATH	Simulate transport of MTBE plume to predict future impact.
NYSDEC - Region 1, East Moriches, NY	HSSM	Evaluate release scenario and start date of petroleum spill in support of cost recovery by NYS AG office.
AMOCO, Deer Park, NY	HSSM	Estimate release amount, start date and spill scenario to evaluate the potential for mass unaccounted for
Keyspan Energy, Nassau/Suffolk Counties Substations	PRZM	Estimate mass load of simazine used at 211 electric substations and screen sites according to potential for human health and ecological impacts.
Saboneck Golf Club, Southampton NY	PRZM	Estimate mass load of proposed pesticides on new golf course to evaluate acceptability under an IPM program.
Suffolk County Department of Public Works (SCDPW) Scavenger Waste Treatment Plant, Yaphank, NY	DYNFLOW, DYNTRAC	Evaluate time-transport and nitrogen impact on local river system.
SCDPW SUNY Waste Water Treatment Plant, Stony Brook, NY	DYNFLOW, DYNTRAC	Determine outfall location and time-transport of nitrogen from proposed upgrades to an existing wastewater treatment plant
Water Authority of Great Neck North Great Neck, NY	MODFLOW, MODPATH, MT3D	Review of modeling study performed by EPA to evaluate potential future impact to Well field from PCE plume. Identified serious flaws in model construction and implementation, which invalidated conclusions

PUBLICATIONS / PROFESSIONAL PAPERS

Smart Pump & Treat Strategy for MTBE Impacting a Public Water Supply (14th Annual Conference on Contaminated Soils Proceedings, 1998)
Transport & Transformation of BTEX & MTBE in a Sand Aquifer (Groundwater Monitoring & Remediation 05/1998)
Characteristics of Gasoline Releases in the Water Table Aquifer of Long Island (Petroleum Hydrocarbons Conference Proceedings, 1999)
Field Applications of the Hydrocarbon Spill Screening Model (HSSM) (USEPA Interactive Modeling Web Course www.epa.gov/athens/software/training/webcourse Authored module on model application and applied use of calculators, 02/2000)
Comparative Evaluation of MTBE Sites on Long Island, US EPA Workshop on MTBE Bioremediation (Cincinnati, 02/2000)
Comparison of Four MTBE Plumes in the Upper Glacial Aquifer of Long Island (American Geophysical Union, San Francisco, 12/1996)
Analysis and Simulation of the Gasoline Spill at East Patchogue, New York (American Geophysical Union, San Francisco, 12/1998)

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Chawinie Reilly, Senior Project Manager / Industrial Hygienist

Professional Experience
EBC: March 2013
Prior: 8 years

Education
Bachelor of Science, Health Sciences, Concentration in Environmental Health and Safety, Stony Brook University, NY

Areas of Expertise
- Remedial Investigation Work Plans, Remedial Investigation Reports, Remedial Action Work Plans
- Phase I / Property Condition Assessments
- Occupational Health and Safety Sampling
- Indoor Air Quality (IAQ) Investigations
- Mold Investigations and Remediation
- Soil and Ground Water Investigations
- Noise Studies
- Lead Paint and Asbestos Surveys
- Hazardous Materials Assessments

Professional Certification
- OSHA 40-hr HAZWOPER
- NYS Asbestos Inspector
- NYC Asbestos Investigator
- USEPA Lead Risk Assessor
- OSHA 10-hr Construction Health and Safety
- Hazard Analysis and Critical Control Point (HACCP) Certified

PROFILE

Mrs. Reilly has 14 years' experience as an environmental consultant/contractor and has worked on and managed a wide range of environmental projects. Major responsibilities include Remedial Investigation Work Plans, Remedial Investigation Reports, Remedial Action Work Plan and Noise Remedial Action Work Plans. Mrs. Reilly has conducted Phase Is and Property Condition Assessments for commercial, industrial, and residential properties in New York, New Jersey and Connecticut. In addition, Mrs. Reilly has conducted various IAQ, asbestos, mold and occupational health and safety sampling investigations for a variety of city, state, federal and private clients.

PREVIOUS EXPERIENCE

The Louis Berger Group, New York, New York-Industrial Hygienist, 2008-2013
AEI Consultants, Jersey City, New Jersey- Environmental Scientist, 2005-2008

EBC

ENVIRONMENTAL BUSINESS CONSULTANTS

Thomas Gallo, Field Manager / Project Manager

Professional Experience
EBC: July 2015

Education
Bachelor of Arts, Geology, State University of New York at Potsdam, NY

Areas of Expertise
- Phase I Property Assessments
- Phase II Subsurface Investigations
- Indoor Air Quality (IAQ) Investigations
- NYSDEC Spill Site Investigations
- Asbestos Surveys
- Hazardous Materials Assessments
- Remedial Investigation Work Plans, Remedial Investigation Reports, Remedial Action Work Plans
- Remedial Oversight of NYC E-Designation Sites

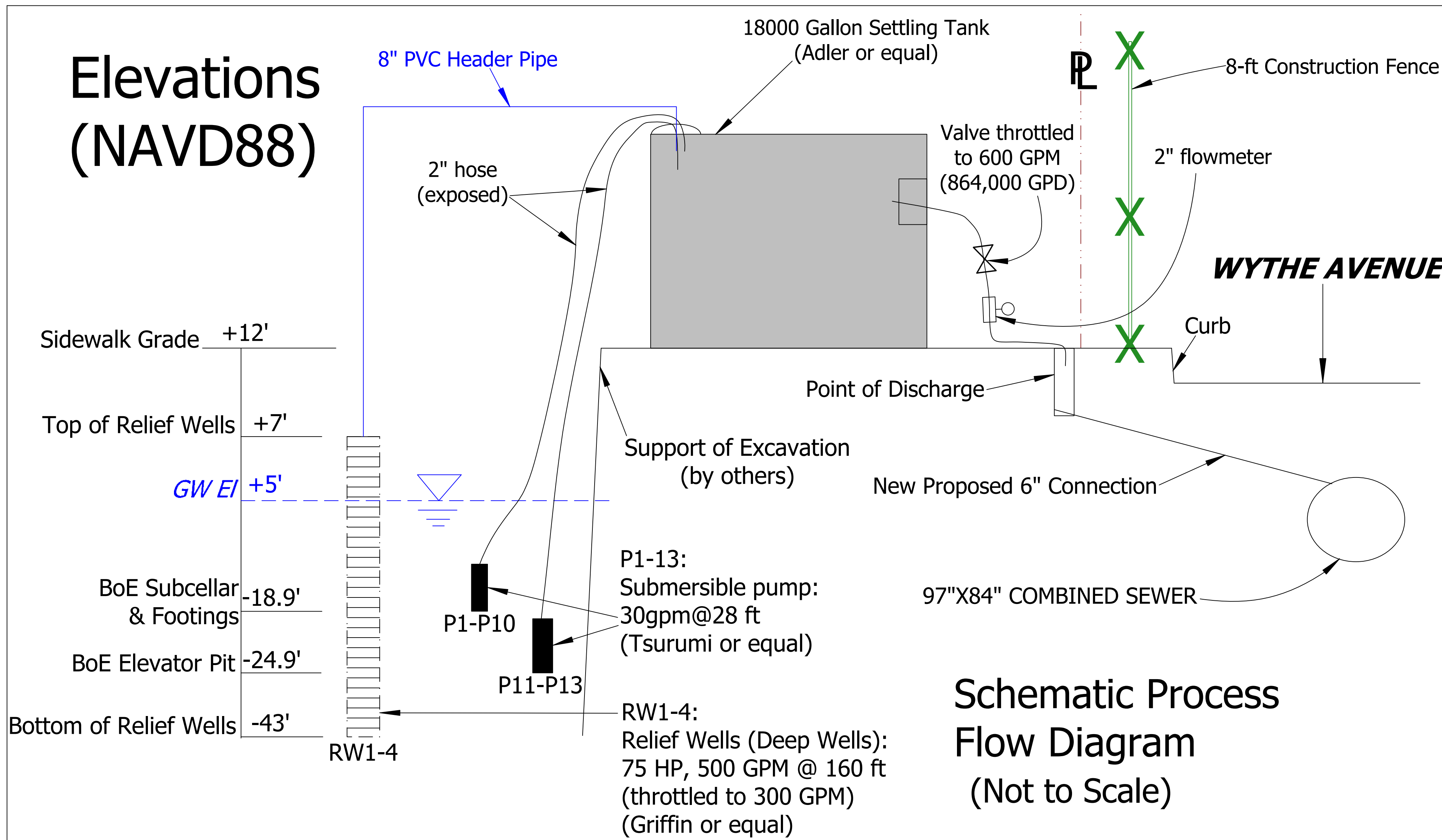
Professional Certification
- OSHA 40-hr HAZWOPER
- NYS Asbestos Inspector
- OSHA 10-hr Construction Health and Safety

PROFILE

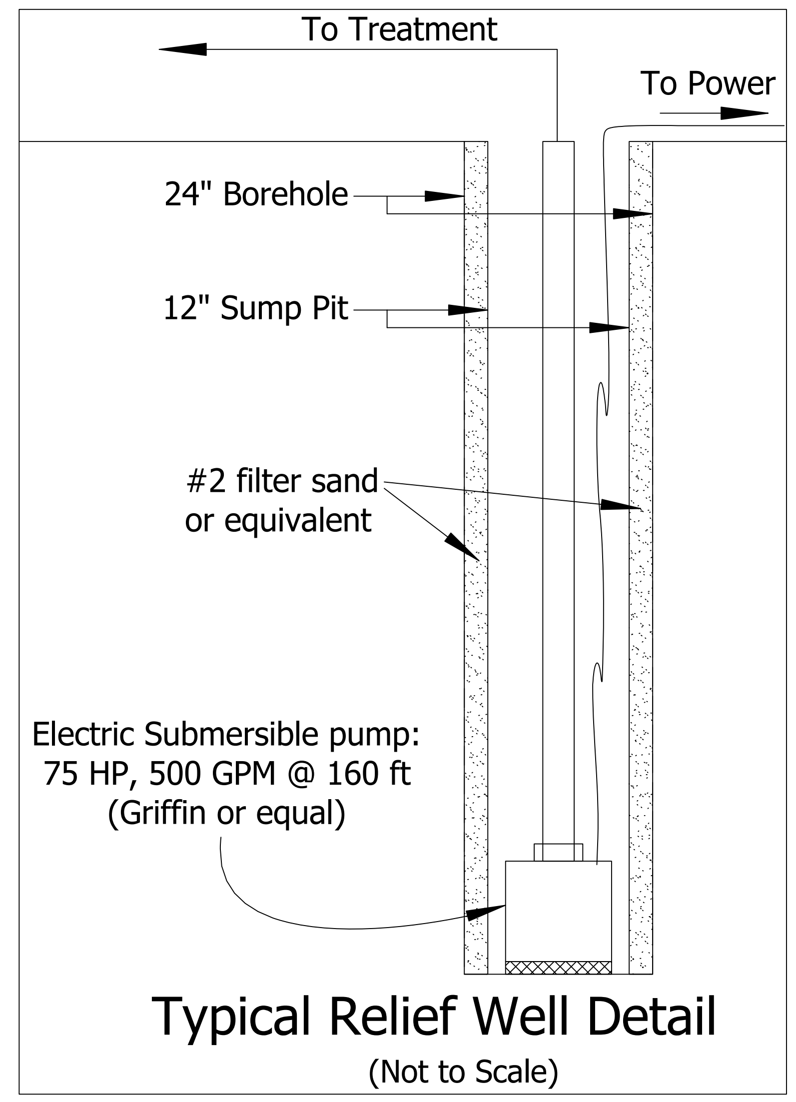
Mr. Gallo has 4 years' experience as an environmental consultant and has worked on and managed a wide range of environmental projects. Major responsibilities include Phase I and Phase II Site Assessments and Investigations for commercial, industrial, and residential properties in New York and New Jersey. Additional responsibilities include Remedial Investigation Work Plans, Remedial Investigation Reports, and Remedial Investigation Work Plans.

Mr. Gallos' field experience includes environmental sampling (groundwater, soil, surface water, air, soil gas), the oversight of soil boring and well installations, managing remediation on Site, tank removals, and spill management and closure. Mr. Gallo has prepared reports for both regulatory and client use.

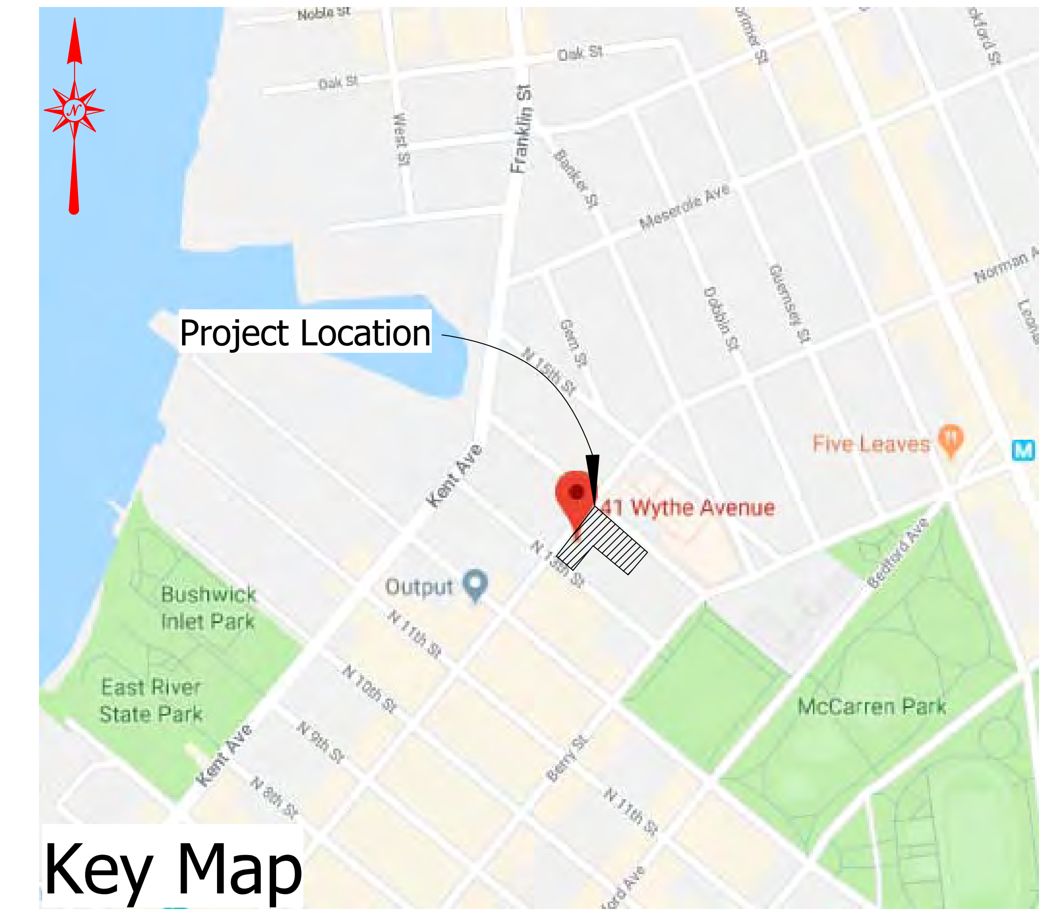
ATTACHMENT G
Dewatering Permit / Specifications



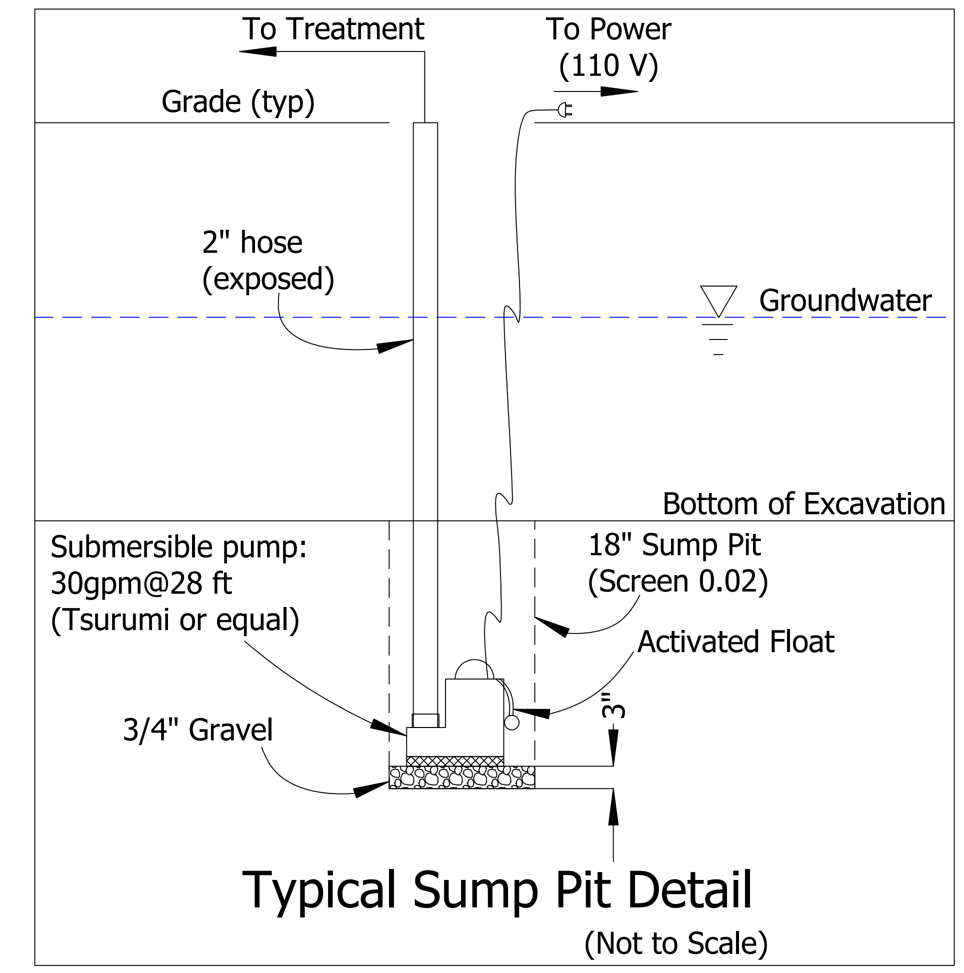
Schematic Process Flow Diagram
(Not to Scale)



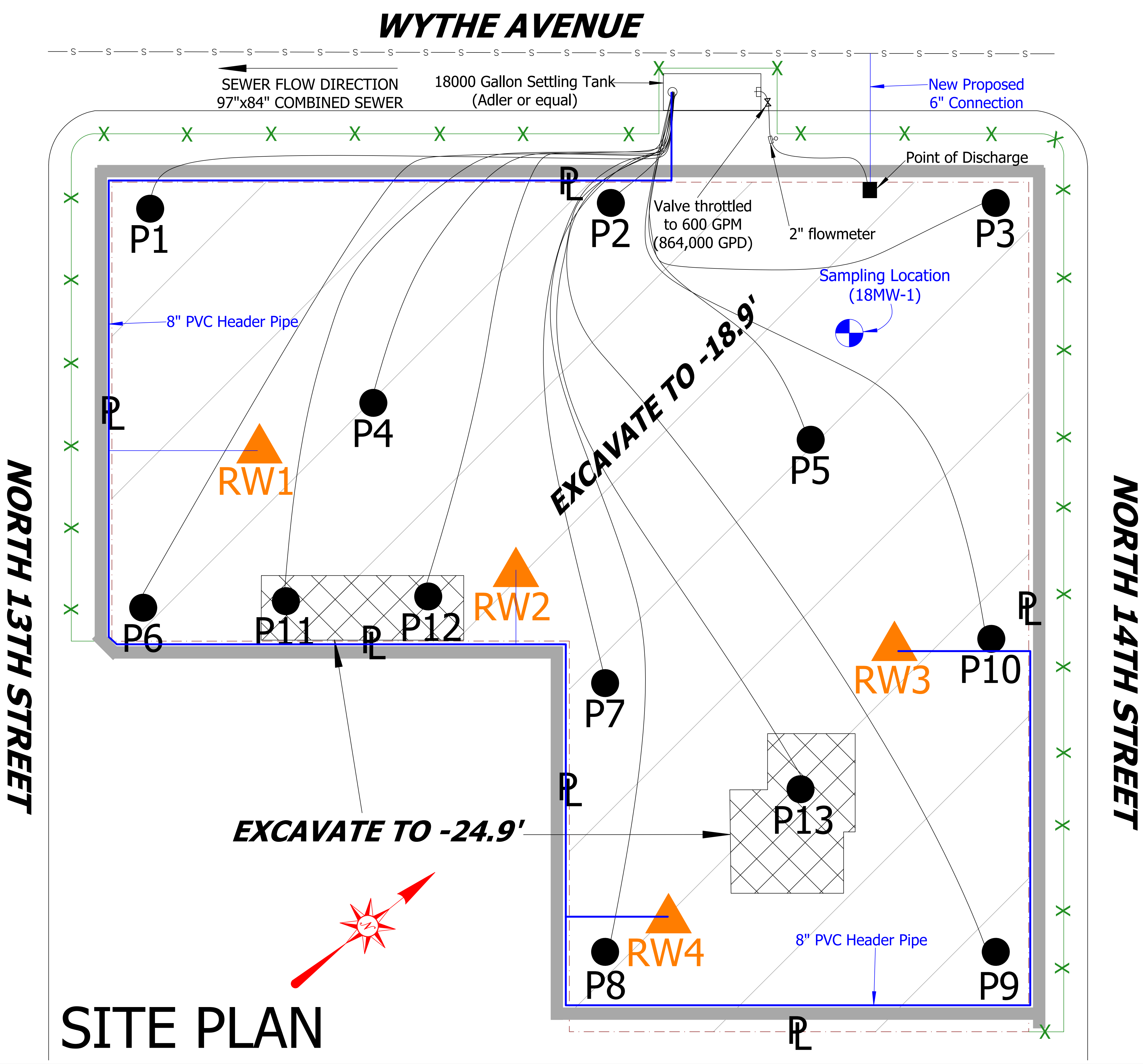
Typical Relief Well Detail
(Not to Scale)



Key Map



Typical Sump Pit Detail
(Not to Scale)



SITE PLAN

Plan Notes:
Contractor to obtain permits from NYC DOT to:
1) close off sidewalk and street for treatment
2) place treatment on sidewalk and street
3) place construction fence on street and sidewalk

NOTES TO GC:
1. ENSURE THAT ALL UTILITIES ARE MARKED OUT AND SITE IS SAFE FOR EXCAVATION. FOLLOW ALL CITY, STATE AND FEDERAL REGULATIONS WHEN WORKING AT THIS SITE.
2. PROVIDE PROOF OF UTILITY MARK OUT TO ENGINEER OF RECORD.
3. OBTAIN APPROVAL FROM OWNER OR STRUCTURAL ENGINEER THAT LOCATION OF TREATMENT SYSTEM IS ADEQUATELY SUPPORTED. DO NOT PLACE TREATMENT EQUIPMENT UNTIL INDICATED SO BY STRUCTURAL ENGINEER.
4. A DEWATERING PERMIT WILL BE OBTAINED FROM NYCDEP. DO NOT COMMENCE DISCHARGE UNTIL SUCH PERMIT IS SECURED.
5. ALL CONDITIONS MUST BE VIF. ANY DISCREPANCIES MUST BE BROUGHT UP TO THE ATTENTION OF THE DEWATERING CONTRACTOR AND ENGINEER.
6. IF DISCHARGE EXCEEDS 10,000 GPD, DISCHARGE MUST OCCUR THROUGH A CONNECTION. OBTAIN SUCH APPOVAL FROM THE BWSO.
7. IF DISCHARGE EXCEEDS 45 GPM, A LONG ISLAND WELL PERMIT MUST BE OBTAINED FROM THE NYSDEC.
8. If excavation / construction activities occur within 200 ft of a rail line (MTA), plans must be filed with respective MTA agency to obtain letter of no exception.
9. Site information and elevations obtained from plans by permission from owner.
10. Existing subsurface information assumes that a homogenous clay layer is present below the proposed bottom of excavations for this project.

Important Note: Dewatering system may affect subsurface conditions on adjacent properties, and must be continuously monitored. Precautions will be needed to limit the risk of cracks, heave or settlement of adjacent structures.

ENGINEERING NOTES:
1. Treatment consists of one (1) settling tank (see plan for details).
2. Treatment to be located on grade as indicated.
3a. Submersible pumps to be installed as shown on the plan.
3b. Four (4) relief wells will be installed to 55' below grade (El: -43'). Each well will be fitted with a pump capable of dewatering upwards of 500 GPM, but throttled to 300 GPM. Relief wells are not expected to be used for the duration of this project, and only utilized if boils are visible after penetrating the existing clay layer below the job site. Only two (2) relief wells are expected to be utilized at any point, for emergencies.
4. The effluent will be discharge by gravity from the tank into a new proposed 8" connection, which connects to the 97"x84" combined sewer.
5. Exposed hoses can be manifolded into a main PVC header provided that each connection is fitted with a check valve and an adjustable flow valve.

DEWATERING NOTES:
1. Obtain approval from structural engineer to position treatment where indicated.
2. Dewatering required for remediation purposes and allow for deep excavation for construction.
3. Groundwater El is approximately 7' below grade, or El: +5'.
4a. Bottom of excavation for sub-cellar slab and footings is El: -18.9'
4b. Bottom of excavation for elevator pits is El: -24.9'.
5. Monitor movement of adjacent structures: Vibration settling and optical monitoring (by others). Coordinate these activities with geotechnical engineer.
6. Using pumps will require a continuous power supply, and back up generators to ensure continuous pumps operation.

Disclaimer:
This plan has been prepared for the purpose of obtaining a dewatering permit from the overseeing agency. This plan (and supplemental documents) have been prepared based on the information provided by others and through reasonable engineering assumptions. The recommendations expressed in this plan are not an opinion concerning the compliance of any past or present owner or operator of the site with any federal, state, or local law or regulation. No warranty or guarantee, whether express or implied, is made with respect to the data reported or conclusions expressed in this plan. The project construction manager and thereabouts the project owner hereby agree to indemnify and to save harmless AMC Engineering, PLLC and its professionals from and against any and all claims, suits, actions, proceedings, and losses that may arise after the date of this agreement from the construction, maintenance, operation, or use of any equipment (direct or indirect) for the purpose of dewatering at this location. Additionally, AMC Engineering, PLLC is held harmless due to any harmful side effects of lowering the water table, such as but not limited to: impact of drawdown on the perimeter of the site, salt water intrusion, movement of adjacent structures, movement of contaminated groundwater, backflow due to surcharge of outlet sewer and effect on any wetlands. Monitoring procedures for securing adjacent structures against any impacts during dewatering such as settlement, drawing of fines from beneath existing structures, and formation of cracks should be adopted.

Property Owner:
Jay Weitzman
False Alarm Ltd.
816 Avenue I
Brooklyn, NY 11230

AMC ENGINEERING PLLC
18-36 42nd Street
Astoria, NY 11105
718 545-0474

PROJECT
29-41 Wythe Avenue
Brooklyn, NY 11101
Block: 2279 Lot: 1

TITLE:
Proposed Dewatering Plan

SEAL & SIGNATURE:

DATE: JUN 10, 2020
PROJECT No:
DRAWING BY: AS
CHK BY:
DWG No:
DW-1.03

Environmental Protection

Vincent Sapienza, P.E.
Commissioner

Pam Elardo, P.E.
Deputy Commissioner

Bureau of Wastewater Treatment
96-05 Horace Harding Expressway – 2nd Floor
Corona, NY 11368

June 22, 2020

False Alarm Ltd.
816 Avenue I
Brooklyn, NY 11230
Attn: Jay Weitzman

Re: Groundwater Discharge, 29-41 Wythe Avenue, Brooklyn
File # C-7052

Dear Mr. Weitzman:

This Letter of Approval is an amendment to the Letter of Approval issued on March 27, 2020.

This is in response to the June 1, 2020 submission requesting permission to discharge up to **864,000 gallons per day (gpd)** of groundwater generated during the construction of a new 8-story mixed-use building located at 29-41 Wythe Avenue, Brooklyn, NY 11249 (New York State Department of Environmental Conservation Brownfield Cleanup Program Site Code C224262). The groundwater will be treated through one 18,000 gallon settling tank, per provided schematic and information, before discharging to a new proposed 8" sewer connection. The sewer connection leads to the 97" x 84" combined sewer located at Wythe Avenue between North 13th and North 14th Streets in Brooklyn, NY.

Based upon the information, schematic and analytical data submitted, the property owner False Alarm Ltd. and agents of the property owner who are authorized to act on the property owner's behalf in this matter (hereinafter referred to as "the owner and its authorized agents") are hereby conditionally authorized, to discharge up to 864,000 gpd of the groundwater, treated through the above system, per provided schematic and information, as specified in your submissions, **for a total of 181 days**, to the combined sewer at the above mentioned location. **This Letter of Approval shall expire at midnight on December 19, 2020.**

This conditional approval, however, is subject to your obtaining a groundwater discharge Approval, specifying allowable flow rates, from the Chief of Permitting and Compliance, Bureau of Water and Sewer Operations. The owner and its authorized agents are required to follow manufacturer specifications for the operation and maintenance of the selected equipment. **This Letter of Approval is contingent upon compliance on the part of the owner and its authorized agents with any federal, state, or local requirements applicable to the permitted activity.**

<u>Under no circumstances shall muddy groundwater be discharged into the public sewer.</u>

Payment shall be made to and permit obtained from the Bureau of Customer Service for groundwater discharge into the New York City Wastewater System in accordance with the Water and Wastewater Rate Schedule established by the New York City Water Board.

The owner or its authorized agents must notify this section in writing prior to the commencement of discharge. You are required to hold the groundwater to the maximum extent practicable during wet weather events. Please refer to File # C-7052 in any correspondence to this office.

The owner or its authorized agents must collect samples of the groundwater after the pretreatment system *in each quarter of the calendar year.* **The samples must be analyzed for the parameter(s) included in the attached chart by a New York State Department of Health certified laboratory. The results must be submitted to this office within 14 days after each sampling date. If the sampling results, or any other sampling results, exceed the DEP limits, the discharge must cease and the Bureau of Wastewater Treatment must be notified immediately by phone at (718) 595-4715 and by email at shulbert@dep.nyc.gov.**

<u>The owner and its authorized agents are prohibited from discharging any groundwater that exceeds the attached discharge limit(s), as well as those contained in Title 15 Rules of the City of New York Chapter 19.</u>

This Letter of Approval is an Order of the Commissioner of the Department of Environmental Protection, and applies to the owner and its authorized agents. Please be advised that failure to comply with this Letter of Approval by the owner and its authorized agents may result in the issuance of summonses to either the owner or its authorized agents, or both (returnable to the New York City Office of Administrative Trials and Hearings) and/or revocation of the Letter of Approval. Summonses carry penalties of up to $10,000 a day, per violation.

If you have any questions concerning this matter, please contact Sean H. Hulbert, P.E., Wastewater Resource Management Unit, at (718) 595-4715.

Sincerely,

Sean Hulbert for

Frances Leung, P.E., Chief
Industrial Resource Management
and Permitting Section

enc: Sampling Requirements and Limitations

SAMPLING REQUIREMENTS AND LIMITATIONS

Parameter[1]	**Daily Limit**	**Units**	**Sample Type**	**Monthly Limit**
Non-polar material[2]	50	mg/l	Instantaneous	---
pH	5-12	SU's	Instantaneous	---
Temperature	< 150	Degree F	Instantaneous	---
Flash Point	> 140	Degree F	Instantaneous	---
Cadmium	2 0.69	mg/l mg/l	Instantaneous Composite	--- ---
Chromium (VI)	5	mg/l	Instantaneous	---
Copper	5	mg/l	Instantaneous	---
Lead	2	mg/l	Instantaneous	---
Mercury	0.05	mg/l	Instantaneous	---
Nickel	3	mg/l	Instantaneous	---
Zinc	5	mg/l	Instantaneous	---
Benzene	134	ppb	Instantaneous	57
Carbontetrachloride	---	---	Composite	---
Chloroform	---	---	Composite	---
1,4 Dichlorobenzene	---	---	Composite	---
Ethylbenzene	380	ppb	Instantaneous	142
MTBE (Methyl-Tert-Butyl-Ether)	50	ppb	Instantaneous	---
Naphthalene	47	ppb	Composite	19
Phenol	---	---	Composite	---
Tetrachloroethylene (Perc)	20	ppb	Instantaneous	---
Toluene	74	ppb	Instantaneous	28
1,2,4 Trichlorobenzene	---	---	Composite	---
1,1,1 Trichloroethane	---	---	Composite	---
Xylenes (Total)	74	ppb	Instantaneous	28
PCB's (Total)[3]	1	ppb	Composite	---
Total Suspended Solids (TSS)	350	mg/l	Instantaneous	---
CBOD	---	---	Composite	---
Chloride	---	---	Instantaneous	---
Total Nitrogen[4]	---	---	Composite	---
Total Solids	---	---	Instantaneous	---
Other				

1 All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection level less than the lowest applicable regulatory discharge limit. If a parameter does not have a limit, then the detection level is defined as the method detection limit (MDL) and limit of quantitation (LOQ) required by the analytical method that is used to analyze the parameter. If the method does not contain an MDL or LOQ, the lab must use an approved method that does contain an MDL or LOQ. If none of the approved methods contain an MDL or LOQ for that parameter then the lab must develop its own LOQ, and report it with the analytical results.

2 Non-polar material means that portion of the oil and grease that is not eliminated from a solution containing N-Hexane, or any other extractant the EPA shall prescribe, by silica gel or any other means of adsorption the EPA shall prescribe.

3 Analysis for PCB's must be done by EPA method 608 with MDL=<65 ppt. PCB's (total) is the sum of PCB-1242 (Aroclor 1242), PCB-1254 (Aroclor 1254), PCB-1221 (Aroclor 1221), PCB-1232 (Aroclor 1232), PCB-1248 (Aroclor 1248), PCB-1260 (Aroclor 1260) and PCB-1016 (Aroclor 1016).

4 Total Nitrogen = Total Kjeldahl Nitrogen (TKN) + Nitrite (NO_2) + Nitrate (NO_3).

Environmental Protection

Vincent Sapienza, P.E.
Commissioner

Anastasios Georgelis, P.E.
Deputy Commissioner
Bureau of Water &
Sewer Operations

59-17 Junction Blvd,
Flushing, NY 11373

SewerInfo@dep.nyc.gov

April 10, 2020

Ariel Czemerinski, P.E.
AMC Engineering, PLLC
18-36 42nd Street
Astoria, NY 11105

Re: Dewatering for 29-41 Wythe Avenue
Block # 2279, Lot # 1
Borough of Brooklyn

Dear Mr. Czemerinski:

We are in receipt of your dewatering submissions dated March 31, 2020, requesting permission to temporarily discharge up to 864,000 gallons per day (gpd) of groundwater, continuously for a period of one year, during remediation, through a proposed 6" diameter (dia.) connection to the 97" x 84" combined sewer in Wythe Avenue between North 13th Street and North 14th Street in the Borough of Brooklyn.

Based upon the information, schematic and analytical data submitted, you are hereby authorized to obtain DEP permit to temporarily discharge during the remediation up to 864,000 gallons per day (gpd) of ground water at the rate not to exceed 1.337 cubic feet per second (cfs) for a period of one year as specified in your submission, during dry weather only to the combined sewer at the above referenced location. The Industrial Resource Management and Permitting Section has given the approval # C-7052 for this dewatering discharge by a letter dated March 27, 2020.

The discharger shall indemnify and hold the City harmless for any damage or liability incurred by the City due to the dewatering and in the event that the discharge results in overloading the capacity of the discharge sewer. See the copy of the Special Indemnity Agreement, to be signed and filed with the discharge permit application.

Please note that no dewatering permit will be issued until application for a sewer connection is approved by the Brooklyn Borough Records Office and the payment is made to the Bureau of Customer Service for groundwater discharge into the New York City Wastewater System in accordance with the Water and Wastewater Rate Schedule established by the New York City Water Board.

If you have any further questions concerning this matter, please contact:
Mr. Suresh Kumar at (718) 595-5205.

Very truly yours,

Andrawis

Ketki Patel, P.E., Deputy Chief
Site Connection & Application Review

RE: 41 Wythe Ave - C7052

Kumar, Suresh <sukumar@dep.nyc.gov>

Tue 6/23/2020 2:24 PM

To: Ariel Czemerinski <ariel@amc-engineering.com>; Balter, Polina <pbalter@dep.nyc.gov>
Cc: Andrew Sung <asung@amc-engineering.com>; Patel, Ketki <kpatel@dep.nyc.gov>

I will be in the office tomorrow. You can call me , if you need to clarify.
If the quantity and location of sewer is same, you do not need revised approval.
Quantity to be discharged to a particular sewer is determined by BWSO.
BWT determines overall capacity at Treatment Plant.
Thanks.

From: Ariel Czemerinski <ariel@amc-engineering.com>
Sent: Tuesday, June 23, 2020 2:17 PM
To: Balter, Polina <pbalter@dep.nyc.gov>
Cc: Kumar, Suresh <sukumar@dep.nyc.gov>; Andrew Sung <asung@amc-engineering.com>; Patel, Ketki <kpatel@dep.nyc.gov>
Subject: Re: 41 Wythe Ave - C7052

Hi Polina,
Thanks for your response. The reason of my inquiry was that your approval letter refers to BWT's March 27, 2020 letter, which has since been superseded. In light of that, I wanted to make sure that BWSO approval is still valid, and we do not require another approval letter which references the new letter.

You are correct about the rephrasing of the statement regarding wet weather events, however it was very clear from our discussions with Sean that once dewatering commences and excavation reaches a certain level, dewatering activities cannot cease until there is enough structure built to overcome the groundwater uplift pressure. That is probably why he stated "to the extent practicable.."

thanks
ariel

Ariel Czemerinski, PE

AMC Engineering PLLC

18-36 42nd Street

Astoria, NY 11105

w 718 545-0474

f 516 706-3214

c 516 987-1662

From: Balter, Polina <pbalter@dep.nyc.gov>
Sent: Tuesday, June 23, 2020 9:47 AM
To: Ariel Czemerinski <ariel@amc-engineering.com>
Cc: Kumar, Suresh <sukumar@dep.nyc.gov>; Andrew Sung <asung@amc-engineering.com>; Patel, Ketki <kpatel@dep.nyc.gov>
Subject: RE: 41 Wythe Ave - C7052

Good Morning,

The requirement not to discharge groundwater during wet events, was not removed from the Quality approval letter, dated June 22, 2020, it was rephrased (see below):

"You are required to hold the groundwater to the maximum extent practicable during wet weather events".

Quality approval shows the duration of the discharge one hundred eighty one (181) days. Quantity approval letter, dated April 10, 2020, was issued for one year.

Please submit an updated request letter, signed and sealed, and a Site Plan, reflecting changes, in order to process an amended approval letter. Please expedite.

Polina Balter | Associate Project Manager, Application Review Unit

NYC Environmental Protection
(O) 718 595 5202 | Pbalter@dep.nyc.gov

From: Ariel Czemerinski <ariel@amc-engineering.com>
Sent: Monday, June 22, 2020 3:31 PM
To: Balter, Polina <pbalter@dep.nyc.gov>
Cc: Kumar, Suresh <sukumar@dep.nyc.gov>; Andrew Sung <asung@amc-engineering.com>
Subject: 41 Wythe Ave - C7052

Hi Polina,
Hope you are doing well.

Sean Hulbert just issued a revised approval letter in which he removed the requirement that we stopped dewatering during wet weather event. Do we need to get a revised letter from BWSO? The BWSO approval references the previous BWT approval.

Please, let me know. Attached for your reference are:

1. New BWT approval
2. Old BWT approval
3. BWSO approval

thanks
ariel

Ariel Czemerinski, PE

AMC Engineering PLLC

18-36 42nd Street

Astoria, NY 11105

w 718 545-0474

f 516 706-3214

c 516 987-1662

AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105
718.545.0474
Fax 516.706.3214

March 6, 2020

Mr. Sean H. Hulbert, P.E.
NYCDEP
IPP Inspection & Permit Section
Bureau of Wastewater Treatment
96-05 Horace Harding Expwy, 4th Floor
Corona, NY 11368-5107

Ref.: **File# C-7052 – Dewatering Approval Modification #1**
29-41 Wythe Avenue
Brooklyn, NY 11249
Block 2279, Lot 1
GROUNDWATER DISCHARGE TO COMBINED SEWER

Dear Mr. Hulbert:

Dewatering activities, under DEP case# C-7052, have not started yet. Your Letter of Approval (dated December 20, 2019) is still valid until December 19, 2020. This letter has been prepared for the following amendments:

1) Increase the discharge flow rate from 30 GPM (43,200 GPD) to 600 GPM (864,000 GPD);
2) Increase the size of the settling tank from 8,400 gallons (Adler or equal) to 18,000 gallons (Adler or equal);
3) Installation of four (4) relief deep wells to 55' below grade, and each throttled to 300 GPM;
4) Installation of 8" PVC header pipe around a portion of the site;

Four (4) relief deep wells will be installed to 55' below grade around the new pits, to alleviate the groundwater pressure buildup from below the existing clay layer. When excavation activities reach the clay layer depth, the upwards force that the groundwater exerts onto the clay layer may become detrimental for construction activities. These relief wells will be installed to equalize the atmospheric and subsurface pressures. A maximum of two (2) relief wells are expected to be running simultaneously, for a total of 600 GPM (if pressure relief is required). However, "normal" dewatering conditions will be limited to the 30 GPM, as indicated in your Letter of Approval (dated December 20, 2019).

All other conditions (sample quality, discharge location) remain the same. A letter from the owner requesting for this change and an amended plan with the amendments are attached.

Please, let me know if you require any additional information.

Yours truly,

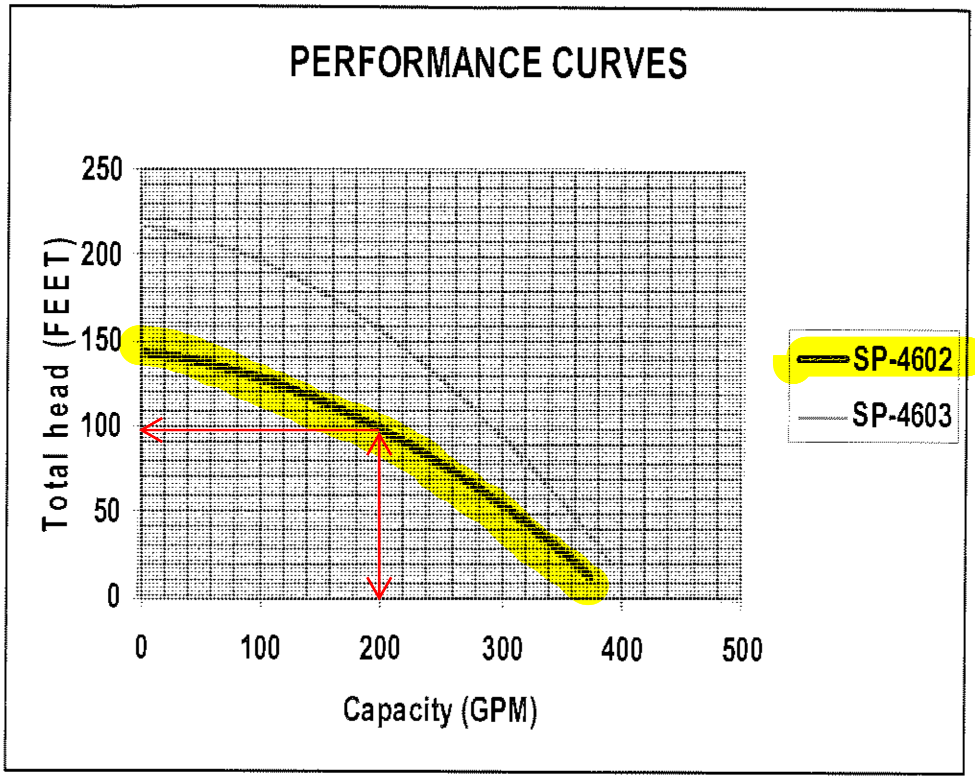
Andrew Sung, EIT
AMC Engineering, PLLC

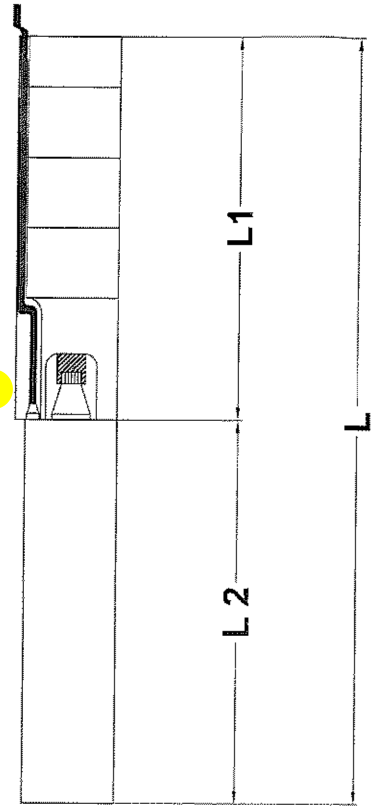
Ariel Czemerinski, PE
AMC Engineering, PLLC

Attachments:
1) Letter from the Owner Requesting Amendments
2) Letter of Approval expiring December 19, 2020
3) New Dewatering Equipment Cut Sheets and Specifications;
4) Amended Site Plan

Typical Submersible Turbine Pump - Actual
Pump utilized will be same or equal

6” Stainless Steel Submersible Pump by Griffin Pump





60Hz 3450 rpm 6” Deep Well Submersible Pumps									
		MOTORS				PUMPS			
							DIMENSIONS		
TYPE	STAGES	KW	HP	L2 (inch)	WT (LB)	DISCH (inch)	L1 (inch)	L (inch)	WT (LB)
SP-4602	2	5.6	7.5				3		18
SP-4603	3	7.46	10				3		24

Description	Material
Discharge bowl	SUS304
Intermediate chamber	SUS304
Intermediate bearing	
Shaft seal	
Impeller assembly	SUS304
Suction interconnector	SUS304
Shaft	SUS431 QT
Strap	SUS304
Bearing	

Easy-to-clean, smooth-wall interior

18,000 Gallon

Open-Top Weir Tank

Capacity: 18,060 gal (430 bbl)
Height: 13'
Width: 8'
Length: 43' 6"
Tare Weight: 30,000 lbs

All sizes are approximate

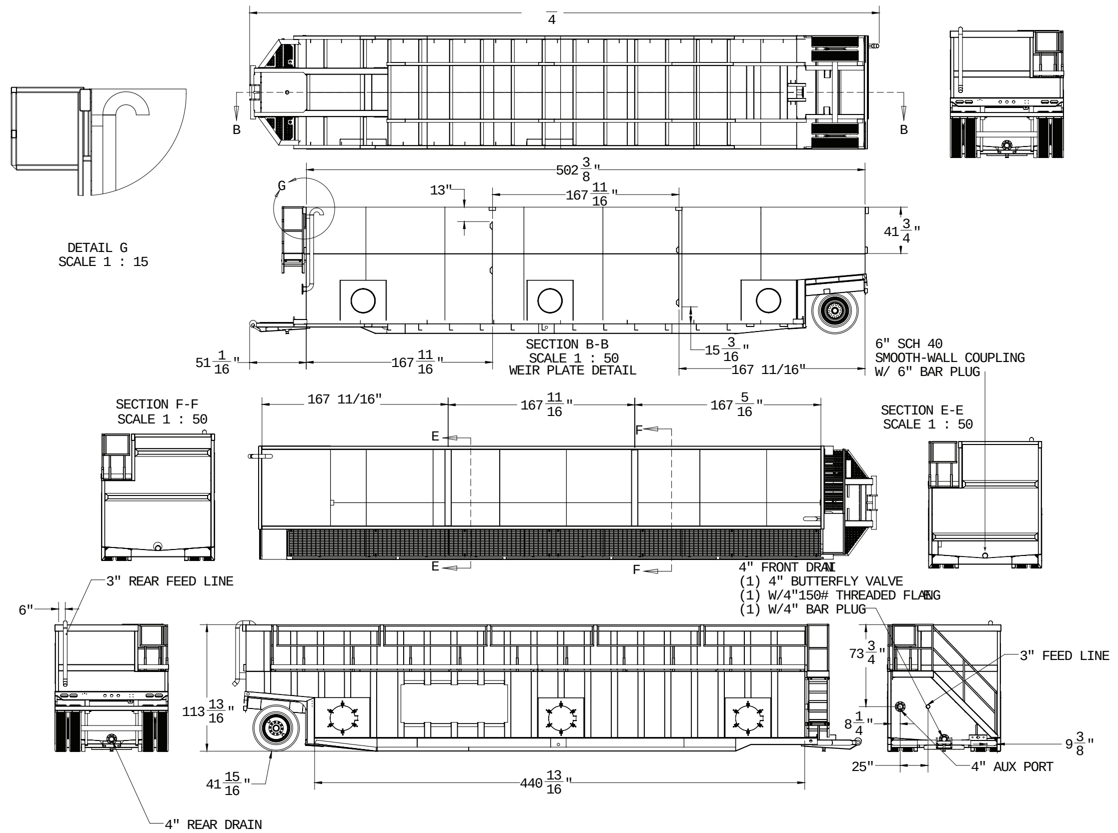
At Adler Tank Rentals, we are committed to providing safe and reliable containment solutions for all types of applications where performance matters.

Designed with internal weirs to promote faster separation of oils and particulate contaminants from stored groundwater, the 18,000 Gallon Open-Top Weir Tank can efficiently accommodate flows of up to 100 GPM or more in either pump-through or batch-treatment capacities.

Mechanical Features

- 3" fill line
- Three (3) standard 22" side-hinged manways
- Multiple 4" valved fill/drain ports, including floor-level valves for low point drain out
- Sloped and V bottom for quicker drain out and easier cleaning
- Easy-to-clean design with smooth-wall interior, no corrugations and no internal rods
- Front-mounted ladderwell for top access
- Fixed rear axle for increased maneuverability
- Nose rail cut-out for easy access when installing hose and fittings on the front/bottom of tank
- Internal baffles, or weirs (over and under), to accelerate settling of unwanted solids and fine sediments; may also be used in the separation of unwanted floating materials
- Can be used in a pump-through or batch-treatment capacity
- Flows of up to 100 GPM achievable depending on circumstances; may also be modified to achieve higher flows while maintaining efficiency
- One (1) front and one (1) rear 4" valved fill/drain port

18,000 Gallon Open-Top Weir Tank



Safety Features

- Non-slip step materials on ladderwells and catwalks
- “Safety yellow” rails and catwalks for high visibility
- Safe operation reminder decals
- Built-in stair and walkway

Options

- Weirs
- Audible alarms, strobes and level gauges (digital and mechanical)

Comprehensive Service

Adler Tank Rentals provides containment solutions for hazardous and non-hazardous liquids and solids. We offer 24-hour emergency service, expert planning assistance, transportation, repair and cleaning services. All of our rental equipment is serviced by experienced Adler technicians and tested to exceed even the most stringent industry standards.

ADLER TANK RENTALS

800-421-7471 www.adlertankrentals.com

AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105
718.545.0474
Fax 516.706.3214

December 4, 2019

Mr. Sean H. Hulbert, P.E.
NYCDEP
IPP Inspection & Permit Section
Bureau of Wastewater Treatment
96-05 Horace Harding Expwy, 4th Floor
Corona, NY 11368-5107

Ref.: **29-41 Wythe Avenue**
Brooklyn, NY 11249
Block 2279 Lot 1
GROUNDWATER DISCHARGE TO COMBINED SEWER

Dear Mr. Hulbert:

Please find attached the application forms and other supporting information to obtain approval to temporarily discharge groundwater into the New York City combined sewer.

Site Background and Proposed Use

False Alarm LTD is the owner of the property at 29-41 Wythe Avenue, Brooklyn NY 11249. The property is identified as Block 2279 Lot 1 on the Brooklyn Borough Tax Map. The Site is L-shaped with frontage on Wythe Avenue, North 14th Street, and North 13th Street. The site has an approximate area of 28,528 square feet.

The site is currently vacant. Proposed development consists of the excavation and construction of a new 8-story mixed-use building with cellar and subcellar.

The site is a private development, and zoned M1-2 – Light Manufacturing District (High Performance). There are no known environmental restrictions for this site. This project is currently enrolled in the New York State Brownfield Cleanup Program (BCP) under site number C224262.

Dewatering will be required for the installation of new sub-cellar slab and new elevator pits. Grade elevation is approximately El +12’ (NAVD88). As per Geotechnical Investigation, groundwater was encountered at El: -7’. The bottom of excavation for new sub-cellar slab is approximately El: -18.9’ (31’ below grade). Bottom of elevator pits are El: -24.9’ (37’ below grade).

According to the Geotechnical Investigation by Structural Engineering Technologies, P.C. [dated November 1, 2019], the site is largely underlain by silt and clayey materials to the bottom of excavation. A confining (clay) layer was found at 40’ below grade (El -18’) across the entire Site. In addition, a secant wall will be installed around the entire site, creating complete cutoff for dewatering activities.

The Water Pollution Control Plant for this area is Newtown Creek WWTP. There is a 97”x84” combined sewer on Wythe Avenue. The proposed discharge is through a new connection, which feeds into the 97”x84” combined sewer.

Proposed Dewatering Activities and Treatment

Through localized dewatering, it is proposed to dewater a maximum of 30 GPM (43,200 GPD) during construction activities for one year (365 days), for the installation of underground structures.

An estimated thirteen (13) submersible pumps installed in sump pits are expected to be used for dewatering activities for the new building. Submersible pumps will be installed 2’ below the bottom of excavation, as shown in the Site Plan. The effluent from the submersible pumps discharges into a 8,400 gallon frac tank (Adler or equal). The treated effluent discharges into a new proposed 8” connection, which discharges into the 97”x84” combined sewer on Wythe Avenue.

A throttling valve and flowmeter are installed at the discharge end of the treatment to cap the discharge flow to 30 GPM (43,200 GPD).

Dewatering will cease during wet weather events.

Sampling Events and Explanation of Analytical Testing Results:

On November 18, 2019, AMC personnel mobilized onsite to a groundwater sample from an onsite monitoring well. Prior to sampling, monitoring well was purged three (3) well-volumes. The location of the sampling point is indicated on the attached plan.

Temperature and pH were measured onsite using a portable pH – temperature meter:

T = 60.8 °F   pH= 7.34

Both samples were immediately labeled and stored in laboratory-supplied containers, maintained at 4 degrees C. The laboratory courier from Phoenix (ELAP #11301) picked up the samples from the AMC office on November 18, 2019. Chains of custody were relinquished from AMC personnel to the lab personnel. The untreated sample was tested for the full DEP discharge parameters.

All parameters were found below the DEP’s limitations for discharge to a combined sewer outlined in **Table A**.

Attached, and for your reference, please find:

1. Filled out Wastewater Quality Control Application form
   Table A: Analytical parameters
   Authorization to sign on owner's behalf
2. Analytical results of water to be discharged
3. Technical information of proposed treatment system
4. DEP Sewer Map
5. Site Plan and Proposed Process Flow Diagram

Please, let me know if you require any additional information.

Yours truly,

Andrew Sung, EIT
AMC Engineering, PLLC

Ariel Czemerinski, PE
AMC Engineering, PLLC

1. Filled out Wastewater Quality Control Application form

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTEWATER TREATMENT

FOR OFFICIAL USE ONLY
C-

Wastewater Quality Control Application

PLEASE PRINT OR TYPE. APPLICANT MUST COMPLETE BOTH PAGES OF THIS FORM. INCORRECT OR INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED AND WILL BE RETURNED. WRITE N/A IF NOT APPLICABLE. PLEASE RETURN COMPLETED FORM TO:

New York City Department of Environmental Protection
Division of Pollution Control and Monitoring
IPP Inspection and Permit Section
96-05 Horace Harding Expressway, 1st Floor
Corona, NY 11368

1. LOCATION	TAX BLOCK # **2279**	LOT#: **1**
PROJECT NAME: **29-41 Wythe Avenue**		BOROUGH: **Brooklyn**
HOUSE#: **29-41**	STREET NAME: **Wythe Avenue**	ZIP: **11249**
IS THIS A DEP PROJECT? [ ]YES [**X**]NO	IS THIS PROJECT DEP FUNDED? [ ] YES [**X**]NO	

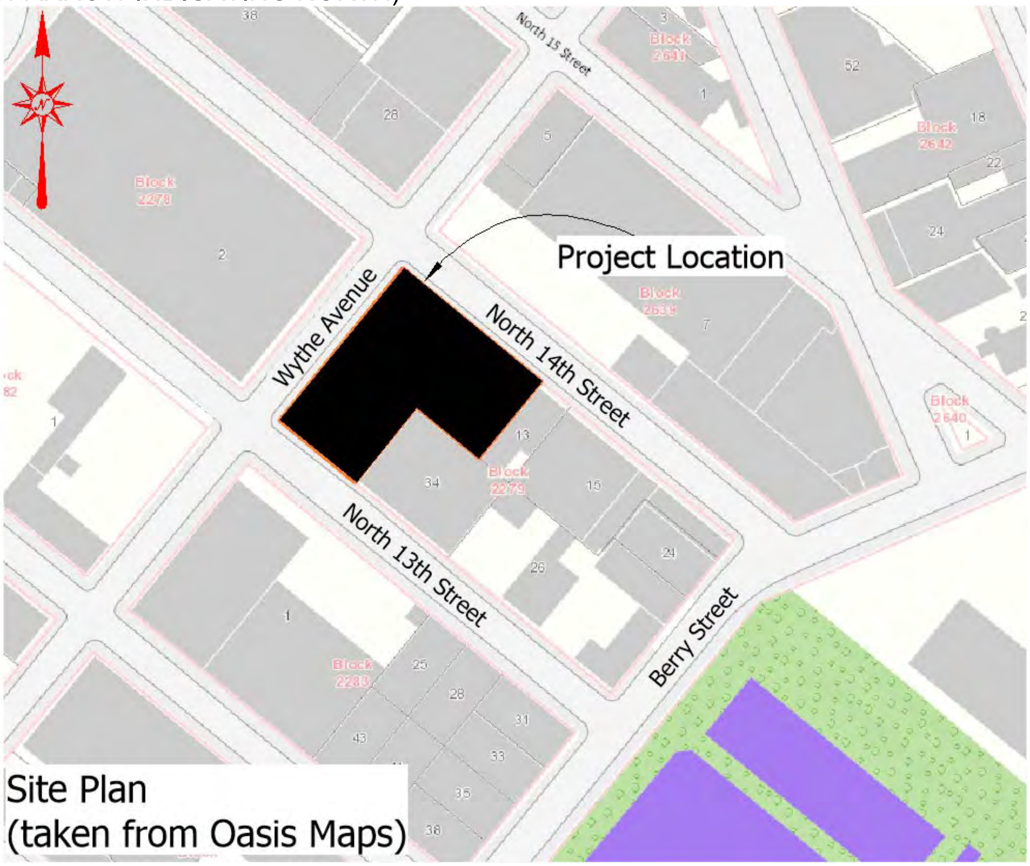
2. APPLICANT			
LAST NAME: **Weitzman**	FIRST NAME: **Jay**		M.I.:
LEGAL BUSINESS NAME: **False Alarm Ltd.**			TELEPHONE: **718-871-2433**
ADDRESS: **816 Avenue I**	CITY: **Brooklyn**	STATE: **NY**	ZIP: **11230**
CONTACT PERSON: **Jay Weitzman**		TELEPHONE: **718-871-2433**	

3. OWNER			
TYPE OF OWNERSHIP: [ ] INDIVIDUAL [ ]CORPORATION [ ]PARTNERSHIP [ ]GOVERNMENT [**X**]OTHER: **LLC**			
LAST NAME: **Weitzman**	FIRST NAME: **Jay**		M.I.:
LEGAL BUSINESS NAME/AGENCY: **False Alarm Ltd.**			TELEPHONE: **718-871-2433**
ADDRESS: **816 Avenue I**	CITY: **Brooklyn**	STATE: **NY**	ZIP: **11230**

4. PROJECT USE	
[**X**]RESIDENTIAL:	NUMBER OF DWELLING UNITS: **40**
[**X**]COMMERCIAL TYPE: **Mixed-Use**	GROSS FLOOR AREA: **10,000** SQ. FT.
[ ]INDUSTRIAL TYPE:	GROSS FLOOR AREA: SQ. FT.
[ ]OTHER, EXPLAIN:	

5. LOCATION		
OBTAIN FROM BOROUGH OFFICE AND INDICATE THE CORRECT STREET LINES FROM THE CITY PLAN;THE PLOT TO BE BUILT UPON IN RELATION TO THE STREET LINES AND THE PORTION OF THE LOT TO BE OCCUPIED BY THE BUILDING; THE HOUSE NUMBERS AND THE BLOCK AND LOT NUMBERS.		
BLOCK: **2279**	LOT(S): **1**	HOUSE NO(S): **29-41**

DIAGRAM (SHOW ARROW INDICATING NORTH)



6. WASTEWATER & SEWAGE	
EXISTING AVERAGE: 0 GALLONS/DAY	PROPOSED AVERAGE: GALLONS/DAY
PROPOSED HOURLY PEAK: GALLONS/HR.	
IF NO SEWERS AVAILABLE, INDICATE THE METHOD OF DISPOSAL OF WASTEWATER & SEWAGE:	

7. INDUSTRIAL/COMMERCIAL/MANUFACTURING ONLY		
TYPE OF ESTABLISHMENT:		FLOOR AREA: SQ. FT.
WORK AREA: SQ. FT.		STORAGE AREA: SQ. FT.
[ ] NEW SEWER CONNECTION AT:		
[ ] EXISTING SEWER CONNECTION AT:		
CONNECTION TO: [ ] SANITARY [ ] COMBINED [ ] STORM [ ] OTHER:		
LIST ALL CHEMICALS OR HAZARDOUS WASTES, IF ANY:		
MSDS ATTACHED? [ ] YES [ ] NO		

8. DEWATERING/SPECIAL DISCHARGES			
[**X**] GROUNDWATER	[ ] STORMWATER	[ ] WASTEWATER	
DISCHARGE FLOW RATE: **43,200** GPD	DURATION: **365 days** D/M/Y		
[**X**] GRAVITY	[ ] PUMP	PUMP CAPACITY:	
DISCHARGE TO (NAME OF WASTEWATER SEWER TREATMENT PLANT): **Newtown Creek**			
DISCHARGE SEWER SIZE: **97"x84"**	[ ] SANITARY	[**X**] COMBINED	[ ] STORM
MSDS OF CHEMICALS USED ATTACHED: [ ] YES [**X**] NO			
NYS LABORATORY ANALYTICAL RESULTS: [**X**] ATTACHED [ ] NOT AVAILABLE			

NYSDEC PERMIT:	[ ] ATTACHED	[**X**] NOT AVAILABLE

9. PRETREATMENT EQUIPMENT		
[ ] GREASE INTERCEPTOR	NO. OF UNIT:	SIZE/RATE:
[ ] OIL/WATER SEPARATOR	NO. OF UNIT:	SIZE/RATE:
[ ] CARBON UNIT	NO. OF UNIT:	SIZE/RATE:
[ ] AIR STRIPPER	NO. OF UNIT:	SIZE/RATE:
[**X**] SETTLING TANK/BASIN	NO. OF UNIT: **1**	SIZE/RATE: **8,400 gallon**
[ ] pH NEUTRALIZATION	NO. OF UNIT:	SIZE/RATE:
[ ] WIRE BASKET	NO. OF UNIT:	SIZE/RATE:
[ ] PLASTER TRAP	NO. OF UNIT:	SIZE/RATE:
[ ] AMALGAM SEPARATOR	NO. OF UNIT:	SIZE/RATE:
[ ] OTHER, EXPLAIN:		
MANUFACTURER: **Adler**		SERIAL NUMBER:
MEA/BSA NUMBER:		REAGENT(S):
		GROSS FLOOR AREA:

10. PROJECT DESCRIPTION/HISTORY:
Proposed development consists of the construction of a new 8-story mixed-use building.

11. STATEMENTS AND SIGNATURES:		
OWNER'S NAME: **Jay Weitzman**	OWNER'S SIGNATURE:	DATE
APPLICANT'S NAME: **Jay Weitzman**	APPLICANT'S SIGNATURE:	DATE:
NAME OF NYS PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT: **Ariel Czemerinski**		
SEAL & SIGNATURE (NYS P.E. OR R.A.) SIGNATURE OF NYS P.E. OR R.A.: DATE: **12/4/2019**	I HAVE PREPARED OR SUPERVISED THE PREPARATION OF THE PLANS, SPECIFICATIONS AND OTHER DOCUMENTS HEREWITH SUBMITTED AND, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE PLANS AND WORK SHOWN THEREIN COMPLY WITH THE PROVISIONS OF ALL NEW YORK CITY AND STATE CODES AND OTHER APPLICABLE LAWS AND REGULATIONS. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBLITILITY OF FINE AND/OR IMPRISONMENT.	

Authorization to sign on owner's behalf

2. Analytical results of water to be discharged

TABLE A: – 29-41 Wythe Avenue, Brooklyn
Sampling Event: 11/18/2019
LIMITATIONS FOR EFFLUENT TO ***SANITARY OR COMBINED*** SEWERS

Parameter[1]	Daily Limit	Analytical Results	Units	Sample Type	Monthly Limit
Non-polar material[2]	50	<1.5	mg/l	Instantaneous	---
pH	5-12	7.34	SU's	Instantaneous	---
Temperature	< 150	60.8	Degree F	Instantaneous	---
Flash Point	> 140	>200	Degree F	Instantaneous	---
Cadmium	2 0.69	<0.001	mg/l mg/l	Instantaneous Composite	--- ---
Chromium (VI)	5	<0.01	mg/l	Instantaneous	---
Copper	5	0.008	mg/l	Instantaneous	---
Lead	2	0.032	mg/l	Instantaneous	---
Mercury	0.05	<0.0002	mg/l	Instantaneous	---
Nickel	3	0.006	mg/l	Instantaneous	---
Zinc	5	0.065	mg/l	Instantaneous	---
Benzene	134	<0.50	ppb	Instantaneous	57
Carbontetrachloride	---	<0.50	ppb	Composite	---
Chloroform	---	<0.50	ppb	Composite	---
1,4 Dichlorobenzene	---	<0.50	Ppb	Composite	---
Ethylbenzene	380	<0.50	ppb	Instantaneous	142
MTBE (Methyl-Tert-Butyl-Ether)	50	<0.50	ppb	Instantaneous	---
Naphthalene	47	<5.3	ppb	Composite	19
Phenol	---	<5.3	ppb	Composite	---
Tetrachloroethylene (Perc)	20	<0.50	ppb	Instantaneous	---
Toluene	74	<0.50	ppb	Instantaneous	28
1,2,4 Trichlorobenzene	---	<5.3	ppb	Composite	---
1,1,1 Trichloroethane	---	<0.50	ppb	Composite	---
Xylenes (Total)	74	<1.0	ppb	Instantaneous	28
PCB's (Total)[3]	1	<0.486	ppb	Composite	---
Total Suspended Solids (TSS)	350[4]	35	mg/l	Instantaneous	---
CBOD[5]	---	<4.0	ppm	Composite	---
Chloride[5]	---	93.7	ppm	Instantaneous	---
Total Nitrogen[5]	---	10.2	Mg/L	Composite	---
Total Solids[5]	---	1300	Mg/L	Instantaneous	---
Other					

1I All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection level less than the lowest applicable regulatory discharge limit. If a parameter does not have a limit, then the detection level is defined as the least of the Practical Quantitation Limits identified in NYSDEC's Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters, December 1988

2 Analysis for ***non-polar materials*** must be done by EPA method 1664 Rev. A. Non-Polar Material shall mean that portion of the oil and grease that is not eliminated from a solution containing N–Hexane, or any other extraction solvent the EPA shall prescribe, by silica gel absorption.

3 Analysis for PCB=s is required if ***both*** conditions listed below are met:
1) if proposed discharge ≥ 10,000 gpd;
2) if duration of a discharge > 10 days.
Analysis for PCB=s must be done by EPA method 608 with MDL=<65 ppt. PCB's (total) is the sum of PCB-1242 (Arochlor 1242), PCB-1254 (Arochlor 1254), PCB-1221 (Arochlor 1221), PCB-1232 (Arochlor 1232), PCB-1248 (Arochlor 1248), PCB-1260 (Arochlor 1260) and PCB-1016 (Arochlor 1016).

4 For discharge ≥ 10,000 gpd, the TSS limit is 350 mg/l. For discharge < 10,000gpd, the limit is determined on a case by case basis.

5 Analysis for Carbonaceous Biochemical Oxygen Demand (CBOD), Chloride, Total Solids and Total Nitrogen are required if proposed discharge ≥ 10,000 gpd.

Tuesday, November 26, 2019

Attn: Ariel Czemerinski
AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105

Project ID: 29-41 WYTHE AVENUE, BROOKLYN
SDG ID: GCE62361
Sample ID#s: CE62361

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

Phyllis Shiller

Phyllis Shiller
Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #M-CT007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B

NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
UT Lab Registration #CT00007
VT Lab Registration #VT11301

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Telephone (860) 645-1102 Fax (860) 645-0823

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

Sample Id Cross Reference

November 26, 2019

SDG I.D.: GCE62361

Project ID: 29-41 WYTHE AVENUE, BROOKLYN

Client Id	Lab Id	Matrix
18MW-1	CE62361	GW DISCHARGE

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac
NY # 11301

Analysis Report

November 26, 2019

FOR: Attn: Ariel Czemerinski
AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105

Sample Information		Custody Information		Date	Time
Matrix:	GW DISCHARGE	Collected by:		11/18/19	8:00
Location Code:	AMC-ENG	Received by:	CP	11/18/19	15:29
Rush Request:	72 Hour	Analyzed by:	see "By" below		
P.O.#:					

Laboratory Data

SDG ID: GCE62361
Phoenix ID: CE62361

Project ID: 29-41 WYTHE AVENUE, BROOKLYN
Client ID: 18MW-1

Parameter	Result	RL/ PQL	LOD/ MDL	Units	Dilution	Date/Time	By	Reference	
Cadmium	< 0.001	0.001		mg/L	1	11/21/19	CPP	E200.7	
Copper	0.008	0.003		mg/L	1	11/21/19	CPP	E200.7	
Mercury	< 0.0002	0.0002		mg/L	1	11/19/19	RS	E245.1	
Nickel	0.006	0.001		mg/L	1	11/21/19	CPP	E200.7	
Lead	0.032	0.001		mg/L	1	11/21/19	CPP	E200.7	
Zinc	0.065	0.002		mg/L	1	11/21/19	CPP	E200.7	
Carbonaceous BOD	< 4.0	4.0		mg/L	2	11/18/19 16:00	RVM/RM	SM5210B-11	
Carbonaceous BOD End Incubation						11/23/19 15:17	RVM/RM	SM5210B-11	
Chloride	93.7	3.0		mg/L	1	11/18/19	TB	SM4500CLE-11	
Flash Point	>200	200		Degree F	1	11/20/19	KT	1010/CH7/ASTMD92	
Chromium, Hexavalent	< 0.01	0.01		mg/L	1	11/18/19 19:13	O	SM3500CRB-09	
Ignitability	Passed	140		degree F	1	11/20/19	KT	SW846-Ignit	1
Nitrite-N	0.012	0.010		mg/L	1	11/18/19 18:48	TB	E353.2	
Nitrate-N	0.20	0.02		mg/L	1	11/18/19 18:48	TB	E353.2	
pH	7.84	1.00		pH Units	1	11/18/19 22:22	AP/KDB	SM4500-H B-00	1
Nitrogen Tot Kjeldahl	9.94	0.20		mg/L	2	11/21/19	KDB	E351.1	
Total Nitrogen	10.2	0.10		mg/L	1	11/21/19	KDB	SM4500NH3/E300.0-11	1
O&G, Non-polar Material	< 1.5	1.5		mg/L	1.1	11/19/19	MSF	E1664A	
Total Suspended Solids	35	5.0		mg/L	1	11/19/19	ARG/BJA	SM 2540D-11	
Total Solids	1300	50		mg/L	5	11/20/19	ARG	SM2540B-11	
Mercury Digestion	Completed					11/19/19	LS/LS	E245.1	
PCB Extraction	Completed					11/18/19	AT/AT	E608.3	
Semi-Volatile Extraction	Completed					11/18/19	P/AK	E625	
Total Metals Digestion	Completed					11/18/19	AG		

Polychlorinated Biphenyls

Parameter	Result	RL/ PQL	LOD/ MDL	Units	Dilution	Date/Time	By	Reference
PCB-1016	ND	0.054	0.054	ug/L	1	11/21/19	SC	E608.3
PCB-1221	ND	0.054	0.054	ug/L	1	11/21/19	SC	E608.3

Parameter	Result		RL/ PQL	LOD/ MDL	Units	Dilution	Date/Time	By	Reference	
PCB-1232	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	
PCB-1242	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	
PCB-1248	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	
PCB-1254	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	
PCB-1260	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	
PCB-1262	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	1
PCB-1268	ND		0.054	0.054	ug/L	1	11/21/19	SC	E608.3	1
QA/QC Surrogates										
% DCBP	40				%	1	11/21/19	SC	30 - 150 %	
% DCBP (Confirmation)	39				%	1	11/21/19	SC	30 - 150 %	
% TCMX	64				%	1	11/21/19	SC	30 - 150 %	
% TCMX (Confirmation)	67				%	1	11/21/19	SC	30 - 150 %	
Volatiles										
1,1,1-Trichloroethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,1,2,2-tetrachloroethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,1,2-Trichloroethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,1-Dichloroethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,1-Dichloroethene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,2-Dichlorobenzene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,2-Dichloroethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,2-Dichloropropane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,3-Dichlorobenzene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
1,4-Dichlorobenzene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Benzene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Bromodichloromethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Bromoform	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Bromomethane	ND		0.50	0.50	ug/L	1	11/18/19	MH	E624.1	
Carbon tetrachloride	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Chlorobenzene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Chloroethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Chloroform	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Chloromethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
cis-1,2-Dichloroethene	0.41	J	0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
cis-1,3-Dichloropropene	ND		0.40	0.25	ug/L	1	11/18/19	MH	E624.1	
Dibromochloromethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Ethylbenzene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
m&p-Xylene	ND		0.50	0.42	ug/L	1	11/18/19	MH	E624.1	
Methyl tert-butyl ether (MTBE)	ND		1.0	0.50	ug/L	1	11/18/19	MH	E624.1	
Methylene chloride	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
o-Xylene	ND		0.50	0.45	ug/L	1	11/18/19	MH	E624.1	
Tetrachloroethene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Toluene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
trans-1,2-Dichloroethene	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
trans-1,3-Dichloropropene	ND		0.40	0.25	ug/L	1	11/18/19	MH	E624.1	
Trichloroethene	2.6		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Trichlorofluoromethane	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
Vinyl chloride	ND		0.50	0.25	ug/L	1	11/18/19	MH	E624.1	
QA/QC Surrogates										
% 1,2-dichlorobenzene-d4	101				%	1	11/18/19	MH	70 - 130 %	

Project ID: 29-41 WYTHE AVENUE, BROOKLYN
Client ID: 18MW-1

Phoenix I.D.: CE62361

Parameter	Result	RL/ PQL	LOD/ MDL	Units	Dilution	Date/Time	By	Reference
% Bromofluorobenzene	98			%	1	11/18/19	MH	70 - 130 %
% Dibromofluoromethane	109			%	1	11/18/19	MH	70 - 130 %
% Toluene-d8	102			%	1	11/18/19	MH	70 - 130 %
Semivolatiles								
1,2,4-Trichlorobenzene	ND	5.3	1.6	ug/L	1	11/21/19	WB	E625.1
Naphthalene	ND	5.3	1.5	ug/L	1	11/21/19	WB	E625.1
Phenol	ND	5.3	1.7	ug/L	1	11/21/19	WB	E625.1
QA/QC Surrogates								
% 2-Fluorobiphenyl	79			%	1	11/21/19	WB	30 - 130 %
% 2-Fluorophenol	57			%	1	11/21/19	WB	10 - 130 %
% Nitrobenzene-d5	83			%	1	11/21/19	WB	15 - 130 %
% Phenol-d5	60			%	1	11/21/19	WB	10 - 130 %

1 = This parameter is not certified by the primary accrediting authority (NY NELAC) for this matrix. NY NELAC does not offer certification for all parameters at this time.

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low J=Estimated Below RL LOD=Limit of Detection MDL=Method Detection Limit1
QA/QC Surrogates: Surrogates are compounds (preceeded with a %) added by the lab to determine analysis efficiency. Surrogate results(%) listed in the report are not "detected" compounds.

Comments:

Ignitability is based solely on the results of the closed cup flashpoint analysis performed above. Passed is >140 degree F.

The regulatory hold time for pH is immediately. This pH was performed in the laboratory and may be considered outside of hold-time.

Per 1.4.6 of EPA method 8270D, 1,2-Diphenylhydrazine is unstable and readily converts to Azobenzene. Azobenzene is used for the calibration of 1,2-Diphenylhydrazine.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 26, 2019
Reviewed and Released by: Sarah Bell, Project Manager

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

QA/QC Report

November 26, 2019

QA/QC Data

SDG I.D.: GCE62361

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 506852 (mg/L), QC Sample No: CE62361 (CE62361)													
Mercury - Water	BRL	0.0002	<0.0002	<0.0002	NC	104			95.4			80 - 120	20
Comment:													
Additional Mercury criteria: LCS acceptance range for waters is 80-120% and for soils is 70-130%. MS acceptance range is 75-125%.													
QA/QC Batch 506776 (mg/L), QC Sample No: CE60708 (CE62361)													
ICP Metals - Aqueous													
Cadmium	BRL	0.0005	<0.001	<0.0005	NC	104	104	0.0	105			75 - 125	20
Copper	BRL	0.0025	0.031	0.0304	2.00	103	103	0.0	105			75 - 125	20
Lead	BRL	0.0010	0.001	<0.0010	NC	98.3	99.1	0.8	99.7			75 - 125	20
Nickel	BRL	0.0005	0.005	0.0054	7.70	104	105	1.0	105			75 - 125	20
Zinc	BRL	0.0020	0.139	0.138	0.70	102	102	0.0	103			75 - 125	20

PHOENIX
Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

QA/QC Report

November 26, 2019

QA/QC Data

SDG I.D.: GCE62361

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 506868 (mg/L), QC Sample No: CE61849 (CE62361)													
Total Suspended Solids	BRL	2.5	40	42	4.90	90.0						85 - 115	20
QA/QC Batch 506801 (mg/L), QC Sample No: CE62168 (CE62361)													
B.O.D./5 day	BRL	2.0	4.2	5.4	NC	92.8			107			70 - 130	20
B.O.D./5 day GGA CBOD						97.0						84 - 115	20
QA/QC Batch 507153 (Degree F), QC Sample No: CE62237 (CE62361)													
Flash Point			110	115	NC	103						75 - 125	30
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 506883 (pH), QC Sample No: CE62292 (CE62361)													
pH			6.15	6.20	0.80	97.5						85 - 115	20
QA/QC Batch 506848 (mg/L), QC Sample No: CE62361 (CE62361)													
O&G, Non-polar Material	BRL	1.4				94.0	92.0	2.2				85 - 115	20
Comment:													
Additional criteria matrix spike acceptance range is 75-125%.													
QA/QC Batch 507069 (mg/L), QC Sample No: CE63306 (CE62361)													
Total Solids	BRL	10	48	52	NC	96.0						85 - 115	20
QA/QC Batch 506824 (mg/L), QC Sample No: CE62635 (CE62361)													
Chromium, Hexavalent	BRL	0.01	<0.01	<0.01	NC	102			110			90 - 110	20
Comment:													
Additional Hexavalent Chromium criteria: LCS acceptance range for waters is 90-110% and MS acceptance range is 85-115%.													
QA/QC Batch 506839 (mg/L), QC Sample No: CE61406 (CE62361)													
Chloride	BRL	3.0	28.7	29.0	1.00	99.6			106			90 - 110	20
QA/QC Batch 506828 (mg/L), QC Sample No: CE62361 (CE62361)													
Nitrate-N	BRL	0.02	0.20	0.18	10.5	97.9			95.3			90 - 110	20
Nitrite-N	BRL	0.01	0.012	0.01	NC	96.4			100			90 - 110	20
QA/QC Batch 507076 (mg/L), QC Sample No: CE62361 (CE62361)													
Nitrogen Tot Kjeldahl	BRL	0.10	9.94	8.84	11.7	103			107			85 - 115	20
Comment:													
TKN is reported as Organic Nitrogen in the Blank, LCS, DUP and MS.													
Additional criteria: LCS acceptance range for waters is 85-115% and for soils is 75-125%. MS acceptance range is 75-125%.													

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

QA/QC Report

November 26, 2019

QA/QC Data

SDG I.D.: GCE62361

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 506791 (ug/L), QC Sample No: CE60321 (CE62361)											
Polychlorinated Biphenyls											
PCB-1016	ND	0.050	90	58	43.2				50 - 140	20	r
PCB-1221	ND	0.050							40 - 140	20	
PCB-1232	ND	0.050							40 - 140	20	
PCB-1242	ND	0.050							40 - 140	20	
PCB-1248	ND	0.050							40 - 140	20	
PCB-1254	ND	0.050							40 - 140	20	
PCB-1260	ND	0.050	105	72	37.3				30 - 140	20	r
PCB-1262	ND	0.050							40 - 140	20	
PCB-1268	ND	0.050							40 - 140	20	
% DCBP (Surrogate Rec)	103	%	90	62	36.8				30 - 150	20	r
% DCBP (Surrogate Rec) (Confirm	93	%	95	61	43.6				30 - 150	20	r
% TCMX (Surrogate Rec)	85	%	73	45	47.5				30 - 150	20	r
% TCMX (Surrogate Rec) (Confirm	81	%	80	50	46.2				30 - 150	20	r

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 506812 (ug/L), QC Sample No: CE62361 (CE62361)										
Semivolatiles										
1,2,4-Trichlorobenzene	ND	3.5	65	70	7.4				57 - 130	50
Naphthalene	ND	1.5	67	71	5.8				36 - 120	65
Phenol	ND	1.0	57	54	5.4				17 - 120	64
% 2-Fluorobiphenyl	77	%	71	71	0.0				30 - 130	20
% 2-Fluorophenol	52	%	48	48	0.0				10 - 130	20
% Nitrobenzene-d5	71	%	72	70	2.8				15 - 130	20
% Phenol-d5	57	%	54	48	11.8				10 - 130	20

Comment:

A LCS and LCS Duplicate were performed instead of a matrix spike and matrix spike duplicate.

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 506924 (ug/L), QC Sample No: CE62191 (CE62361)										
Volatiles										
1,1,1-Trichloroethane	ND	1.0	112	119	6.1	112	114	1.8	75 - 125	20
1,1,2,2-Tetrachloroethane	ND	0.50	106	112	5.5	100	100	0.0	60 - 140	20
1,1,2-Trichloroethane	ND	1.0	107	115	7.2	106	103	2.9	71 - 129	20
1,1-Dichloroethane	ND	1.0	113	121	6.8	114	113	0.9	72 - 128	20
1,1-Dichloroethene	ND	1.0	114	118	3.4	122	122	0.0	50 - 150	20
1,2-Dichlorobenzene	ND	1.0	105	111	5.6	99	96	3.1	63 - 137	20
1,2-Dichloroethane	ND	1.0	107	113	5.5	107	103	3.8	68 - 132	20
1,2-Dichloropropane	ND	1.0	108	114	5.4	103	102	1.0	40 - 160	20
1,3-Dichlorobenzene	ND	1.0	109	114	4.5	102	100	2.0	73 - 127	20
1,4-Dichlorobenzene	ND	1.0	105	110	4.7	98	97	1.0	63 - 137	20
Benzene	ND	0.70	111	116	4.4	107	105	1.9	64 - 136	20
Bromodichloromethane	ND	0.50	112	117	4.4	107	105	1.9	65 - 135	20

QA/QC Data

SDG I.D.: GCE62361

Parameter	Blank	Blk RL	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
Bromoform	ND	1.0	106	113	6.4	97	97	0.0	71 - 129	20
Bromomethane	ND	1.0	144	148	2.7	114	138	19.0	40 - 160	20
Carbon tetrachloride	ND	1.0	114	119	4.3	117	118	0.9	73 - 127	20
Chlorobenzene	ND	1.0	109	113	3.6	102	101	1.0	66 - 134	20
Chloroethane	ND	1.0	135	140	3.6	152	142	6.8	40 - 160	20
Chloroform	ND	1.0	111	118	6.1	114	113	0.9	67 - 133	20
Chloromethane	ND	1.0	120	128	6.5	118	119	0.8	40 - 160	20
cis-1,2-Dichloroethene	ND	1.0	113	120	6.0	113	112	0.9	69 - 131	20
cis-1,3-Dichloropropene	ND	0.40	111	115	3.5	106	103	2.9	40 - 160	20
Dibromochloromethane	ND	0.50	114	121	6.0	105	106	0.9	67 - 133	20
Ethylbenzene	ND	1.0	110	115	4.4	103	103	0.0	59 - 141	20
m&p-Xylene	ND	1.0	114	118	3.4	105	105	0.0	70 - 130	30
Methyl t-butyl ether (MTBE)	ND	1.0	111	116	4.4	109	111	1.8	70 - 130	30
Methylene chloride	ND	1.0	98	103	5.0	103	102	1.0	60 - 140	20
o-Xylene	ND	1.0	116	121	4.2	107	108	0.9	70 - 130	30
Tetrachloroethene	ND	1.0	107	112	4.6	103	102	1.0	73 - 127	20
Toluene	ND	1.0	107	113	5.5	104	103	1.0	74 - 126	20
trans-1,2-Dichloroethene	ND	1.0	113	118	4.3	115	115	0.0	69 - 131	20
trans-1,3-Dichloropropene	ND	0.40	110	116	5.3	103	104	1.0	50 - 150	20
Trichloroethene	ND	1.0	108	113	4.5	102	101	1.0	66 - 134	20
Trichlorofluoromethane	ND	1.0	118	121	2.5	133	131	1.5	48 - 152	20
Vinyl chloride	ND	1.0	110	114	3.6	107	111	3.7	40 - 160	20
% 1,2-dichlorobenzene-d4	100	%	102	101	1.0	102	101	1.0	70 - 130	30
% Bromofluorobenzene	95	%	103	102	1.0	102	103	1.0	70 - 130	30
% Dibromofluoromethane	105	%	98	100	2.0	104	106	1.9	70 - 130	30
% Toluene-d8	101	%	98	97	1.0	102	101	1.0	70 - 130	30

Comment:

A blank MS/MSD was analyzed with this batch.

r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria
Intf - Interference

Phyllis Shiller

Phyllis Shiller, Laboratory Director
November 26, 2019

Sample Criteria Exceedances Report

GCE62361 - AMC-ENG

Criteria: NY: DEP EFF

State: NY

SampNo	Acode	Phoenix Analyte	Criteria	Result	RL	Criteria	RL Criteria	Analysis Units

*** No Data to Display ***

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Comments

November 26, 2019 SDG I.D.: GCE62361

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY Temperature Narration

November 26, 2019

SDG I.D.: GCE62361

The samples in this delivery group were received at 2.8°C.
(Note acceptance criteria for relevant matrices is above freezing up to 6°C)

Temp 2.8 Pg 1 of 1 WG/P

PHOENIX
Environmental Laboratories, Inc.

NY/NJ CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823

Client Services (860) 645-8726

Data Delivery:
☐ Fax #: ____
☑ Email ARIEL@AMC-ENGINEERING.COM

Customer:	AMC ENGINEERING PLLC	Project:	29-41 Wythe Avenue, Bk
Address:	18-36 42nd Street	Report to:	ARIEL CZEMERINSKI
	Astoria NY 11105	Invoice to:	AMC ENGINEERING PLLC
Project P.O:		Phone #:	718 545-0474
		Fax #:	516 706-3214

Client Sample - Information - Identification

Sampler's Signature [illegible] Date: 11/18/2019

Matrix Code:
DW=drinking water WW=wastewater S=soil/solid O=oil
GW=groundwater SL=sludge A=air X=other

Analysis Request

Phoenix Sample #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	Full DEP Dewatering Protocol (See Attached)*	+	+	+	+	+	+	+	+	+	+	+	Soil VOA [ ] Methanol [X] S. Bisulfate [ ] H2O	GL Soil container (8) oz	GL Soil container (2) oz	40 ml VOA Vial [ ] As is [x] HCl	GL Amber 1000ml [x] As is [x] H2SO4	PL As is [ ] 250ml [x] 500ml [x] 1000ml	PL H2SO4 [x] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
023161	19MW-1	GW	11/18/2019	8:00 AM	X															3	5	2	1	1		

Relinquished by:	Accepted by:	Date:	Time:
Max Perez	[illegible]	11/18/2019	8:45 AM
[illegible]	[illegible]	11-18-19	1215
[illegible]	[illegible]	11/18/19	1529

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☐ Standard
■ Other 5 DAYS
* SURCHARGE APPLIES

NJ
☐ Res. Criteria
☐ Non-Res. Criteria
☐ Impact to GW Soil Cleanup Criteria
☐ GW Criteria

NY
☐ TAGM 4046 GW
☐ TAGM 4046 SOIL
☐ NY375 Unrestricted Soil
☐ NY375 Residential Soil
☐ NY375 Restricted
■ DEP Dewatering Protocol

Data Format
☐ Phoenix Std Report
■ Excel
■ PDF
☐ GIS/Key
☐ EQuIS
☐ NJ Hazsite EDD
☐ NY EZ EDD (ASP)
☐ Other

Data Package
☐ NJ Reduced Deliv. *
☐ NY Enhanced (ASP B) *
☐ Other

Comments, Special Requirements or Regulations:

pH = 7.34 Temp = 60.8 °F

State where samples were collected: NY

Note: For Chromium: If outside of holding time, please test for Total chromium instead of Cr(IV)

GCE62361

TABLE A: –

LIMITATIONS FOR EFFLUENT TO *SANITARY OR COMBINED* SEWERS

Parameter[1]	Daily Limit	Test	Units	Sample Type	Monthly Limit
Non-polar material[2]	50		mg/l	Instantaneous	---
pH	5-12		SU's	Instantaneous	---
Temperature	< 150		Degree F	Instantaneous	---
Flash Point	> 140		Degree F	Instantaneous	---
Cadmium	2 0.69		mg/l mg/l	Instantaneous Composite	--- ---
Chromium (VI)	5		mg/l	Instantaneous	---
Copper	5		mg/l	Instantaneous	---
Lead	2		mg/l	Instantaneous	---
Mercury	0.05		mg/l	Instantaneous	---
Nickel	3		mg/l	Instantaneous	---
Zinc	5		mg/l	Instantaneous	---
Benzene	134		ppb	Instantaneous	57
Carbontetrachloride	---		ppb	Composite	---
Chloroform	---		ppb	Composite	---
1,4 Dichlorobenzene	---		Ppb	Composite	---
Ethylbenzene	380		ppb	Instantaneous	142
MTBE (Methyl-Tert-Butyl-Ether)	50		ppb	Instantaneous	---
Naphthalene	47		ppb	Composite	19
Phenol	---		ppb	Composite	---
Tetrachloroethylene (Perc)	20		ppb	Instantaneous	---
Toluene	74		ppb	Instantaneous	28
1,2,4 Trichlorobenzene	---		ppb	Composite	---
1,1,1 Trichloroethane	---		ppb	Composite	---
Xylenes (Total)	74		ppb	Instantaneous	28
PCB's (Total)[3]	1		ppb	Composite	---
Total Suspended Solids (TSS)	350[4]		mg/l	Instantaneous	---
CBOD[5]	---		ppm	Composite	---
Chloride[5]	---		ppm	Instantaneous	---
Total Nitrogen[5]	---		Mg/L	Composite	---
Total Solids[5]	---		Mg/L	Instantaneous	---
Other					

1 All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection level less than the lowest applicable regulatory discharge limit. If a parameter does not have a limit, then the detection level is defined as the least of the Practical Quantitation Limits identified in NYSDEC's Analytical Detectability and Quantitation Guidelines for Selected Environmental Parameters, December 1988

2 Analysis for ***non-polar materials*** must be done by EPA method 1664 Rev. A. Non-Polar Material shall mean that portion of the oil and grease that is not eliminated from a solution containing N–Hexane, or any other extraction solvent the EPA shall prescribe, by silica gel absorption.

3 Analysis for PCB=s is required if ***both*** conditions listed below are met:
1) if proposed discharge ≥ 10,000 gpd;
2) if duration of a discharge > 10 days.
Analysis for PCB=s must be done by EPA method 608 with MDL=<65 ppt. PCB's (total) is the sum of PCB-1242 (Arochlor 1242), PCB-1254 (Arochlor 1254), PCB-1221 (Arochlor 1221), PCB-1232 (Arochlor 1232), PCB-1248 (Arochlor 1248) PCB-1260 (Arochlor 1260) and PCB-1016 (Arochlor 1016).

4 For discharge ≥ 10,000 gpd, the TSS limit is 350 mg/l. For discharge < 10,000gpd, the limit is determined on a case by case basis.

5 Analysis for Carbonaceous Biochemical Oxygen Demand (CBOD), Chloride, Total Solids and Total Nitrogen are required if proposed discharge ≥ 10,000 gpd.

3. Technical information of proposed treatment system

Toll free: 800-421-7471

Specifications for:

8,400 Gallon Mini Frac Tanks

Mechanical features:

- 3" top fill tube
- 4 Standard 22" side hinged accessways
- Multiple 4" valved fill/drain ports including floor level valves for low point drain out
- 4" Vent
- Sloped bottom for 100% drain out and easier cleaning after use
- Smooth wall construction - no internal cross bracing
- Front mounted ladderwell for top access
- Fixed rear axle
- Nose rail cut - out for easy access when installing hose and fittings on the front /bottom of tank
- Smaller capacity and footprint for space saving on tight sites
- Roll-off truck compatible

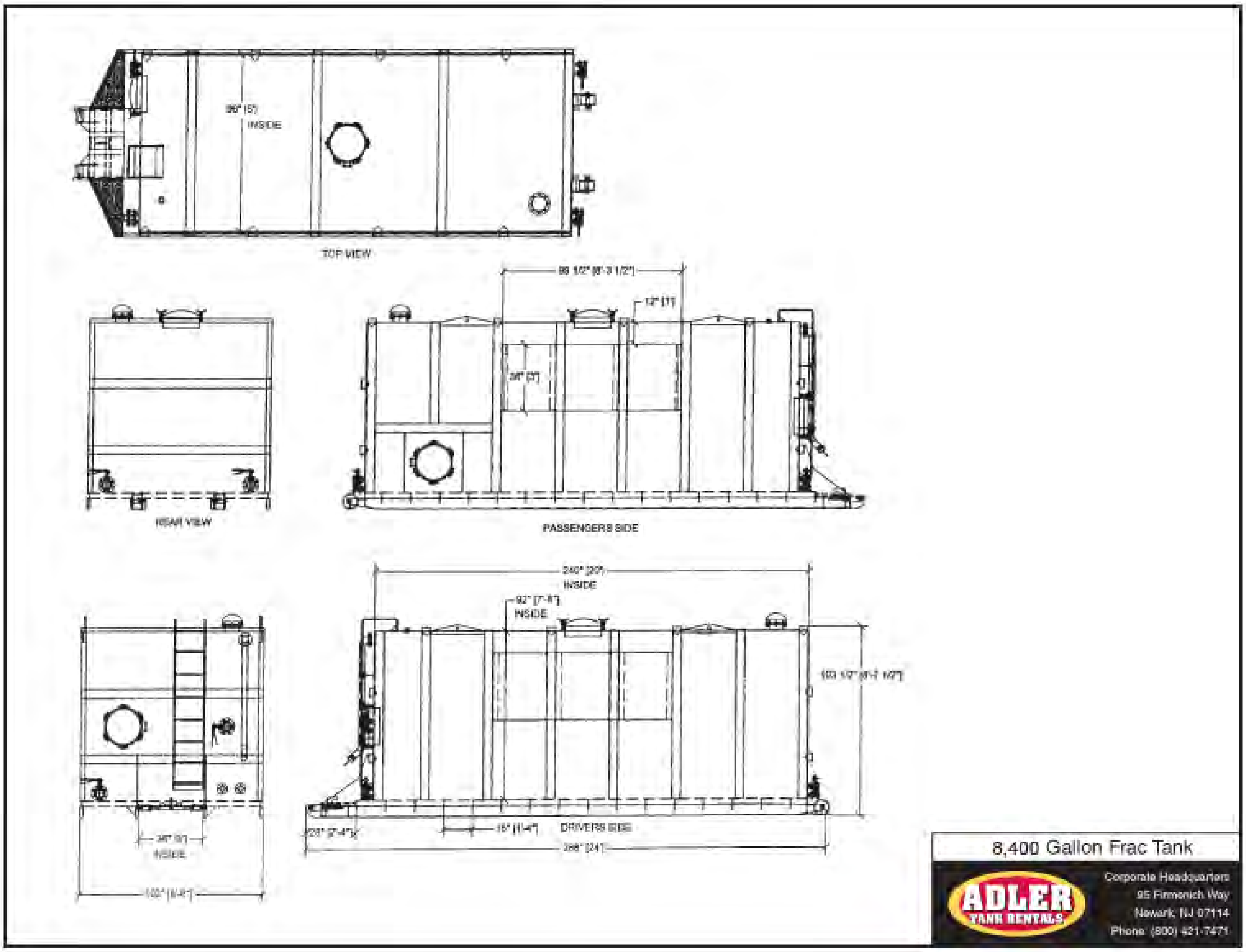
Safety features:

- All tanks are equipped with non-slip step material on ladderwells and catwalks
- All tanks are equipped with folding safety handrails
- All rails and catwalks are painted "safety yellow" for high visibility
- Safe operation reminder decals are applied on risk areas such as steps, valves and hatches
- Tanks are equipped with fill level charts and may be fitted with audible alarms, strobes and level gauges(digital and mechanical)

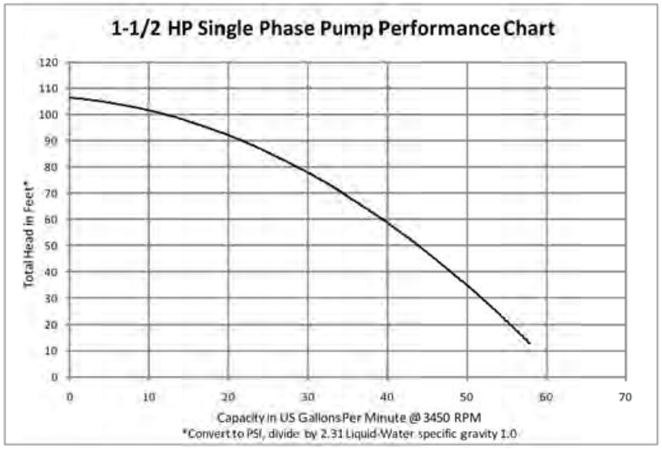
Toll free: 800-421-7471

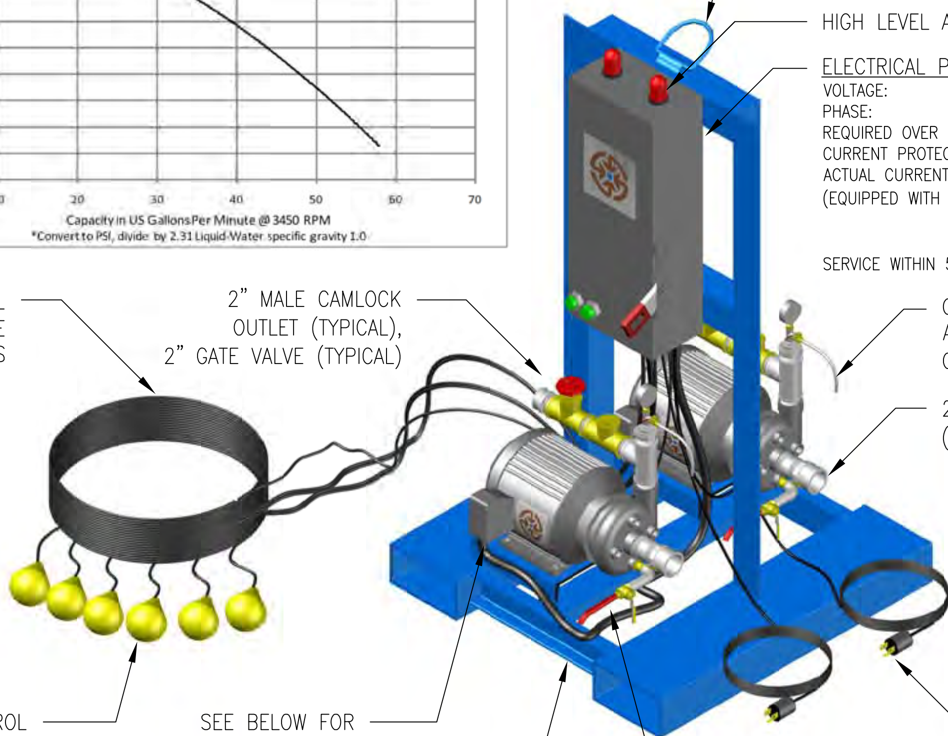
Drawing for:

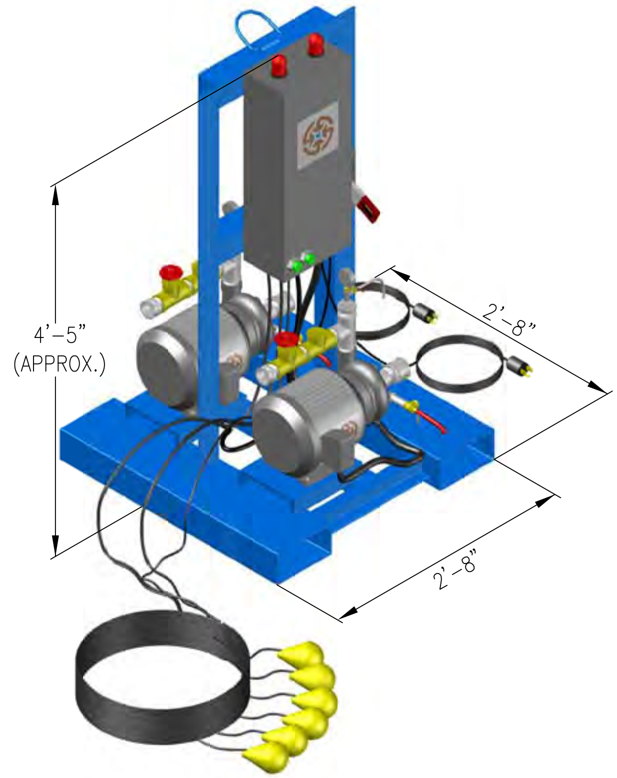
8,400 Gallon Mini Frac Tanks



NOTE: THIS DRAWING DEPICTS A "TYPICAL" SKID. ACTUAL DETAILS AND DIMENSIONS MAY VARY.

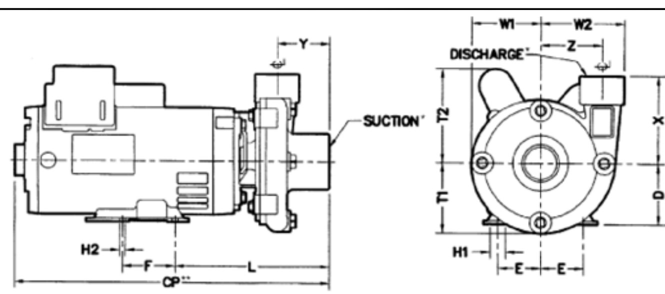






1½ HP PUMP MECHANICAL/ELECTRICAL SPECIFICATIONS

- TYPICAL CAPACITY AND HEAD: 30 GPM @ 80' TDH
- CONSTRUCTION: CAST IRON W/ STAINLESS STL. IMPELLER AND BUNA-N SEALS
- MAXIMUM TEMPERATURE: 180°F
- MAXIMUM HEAD: 108 ft.
- MAXIMUM FLOW: 58 GPM
- ENCLOSURE: TEFC
- SUCTION: 1-¼" NPT
- DISCHARGE: 1" NPT
- PUMP WEIGHT: 60 Lbs.
- DISCHARGE PORT ROTATES IN 90° INCREMENTS
- PUMP VOLTAGE @ 60 Hz: 115/230
- FULL LOAD AMPS PER PUMP: 18/9



CP: 16.1	F: 3.00	L: 7.3	T2: 4.7	X: 4.7
D: 3.5	H1: 0.88	OP: 8.2	W1: 3.5	Y: 2.1
E: 2.44	H2: 0.3	T1: 3.7	W2: 4.4	Z: 3.35

NO.	REVISIONS	BY	DATE
B	UPDATED TO NEW CAD STANDARDS	RJS	09/30/15
A	TYPICAL	RJS	01/15/10

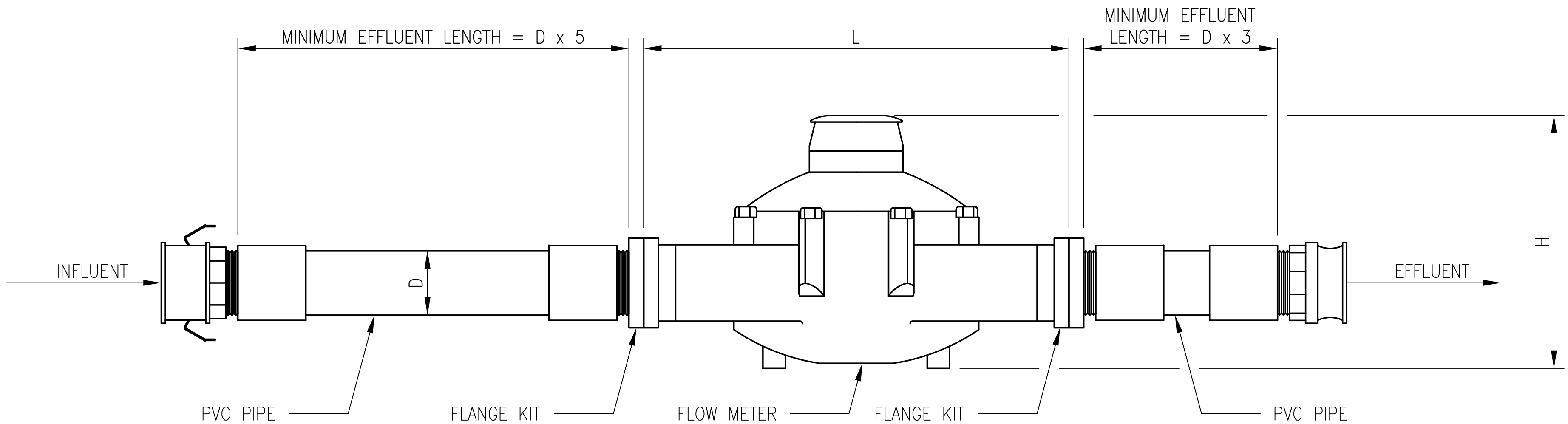
TITLE: EQUIPMENT SPECIFICATION STANDARD DUPLEX 1.5 HP 120V 1ϕ PUMP SKID

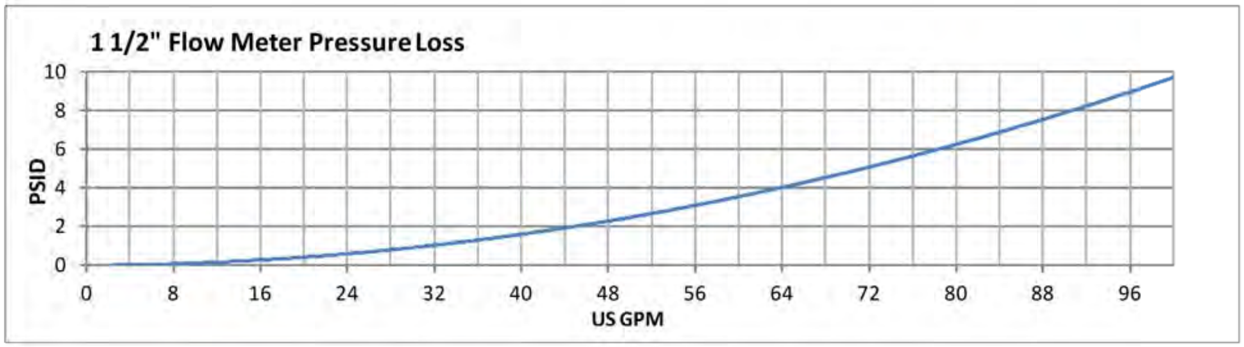
SCALE: NTS | APPROVED BY: RJS | DRAWN BY: RJS

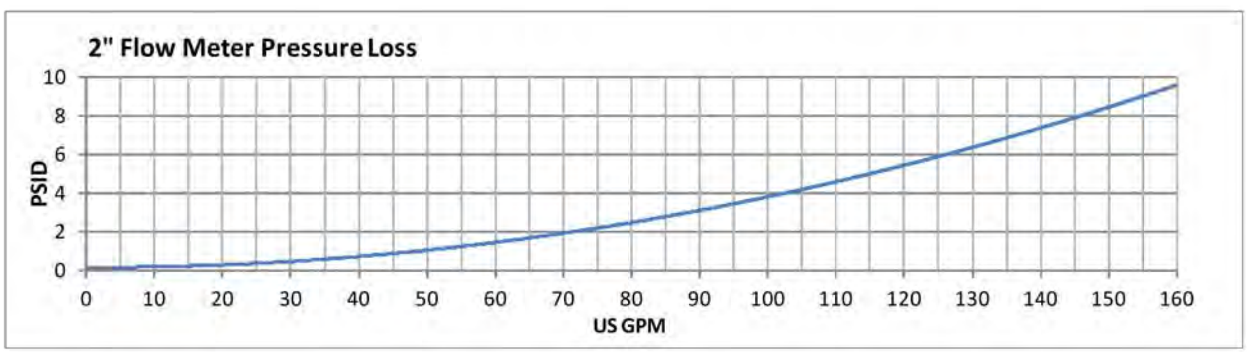
DATE: 01/15/10

GWTT Ground/Water Treatment & Technology, LLC
627 MOUNT HOPE ROAD · WHARTON, NJ 07885
PHONE: 973-983-0901 · FAX: 973-983-0903
www.gwttllc.com

DWG SIZE: A | SHEET: 1 OF 1 | DRAWING NO.: ST-000129-SPC01 | B







T-10 FLOW METER SPECIFICATIONS		
METER SIZE, D (INCHES):	1-1/2	2
MAXIMUM FLOW U.S GPM:	100	160
MINIMUM FLOW U.S GPM:	2	2-½
HEAD LOSS IN INCHES AT MAX FLOW:	23.12	23.12
H (INCHES):	8.13	9.31
L (INCHES):	13	17
MIN. INFLUENT LENGTH (INCHES):	10	12
MIN. EFFLUENT LENGTH (INCHES):	6	8
MAXIMUM TEMPERATURE:	80°F CONSTANT	
PRESSURE RATING:	150 PSI	

NO.	REVISIONS	BY	DATE
B	UPDATED TO NEW CAD STANDARDS	RJS	09/08/15
A	TYPICAL	RJS	03/21/12

TITLE:

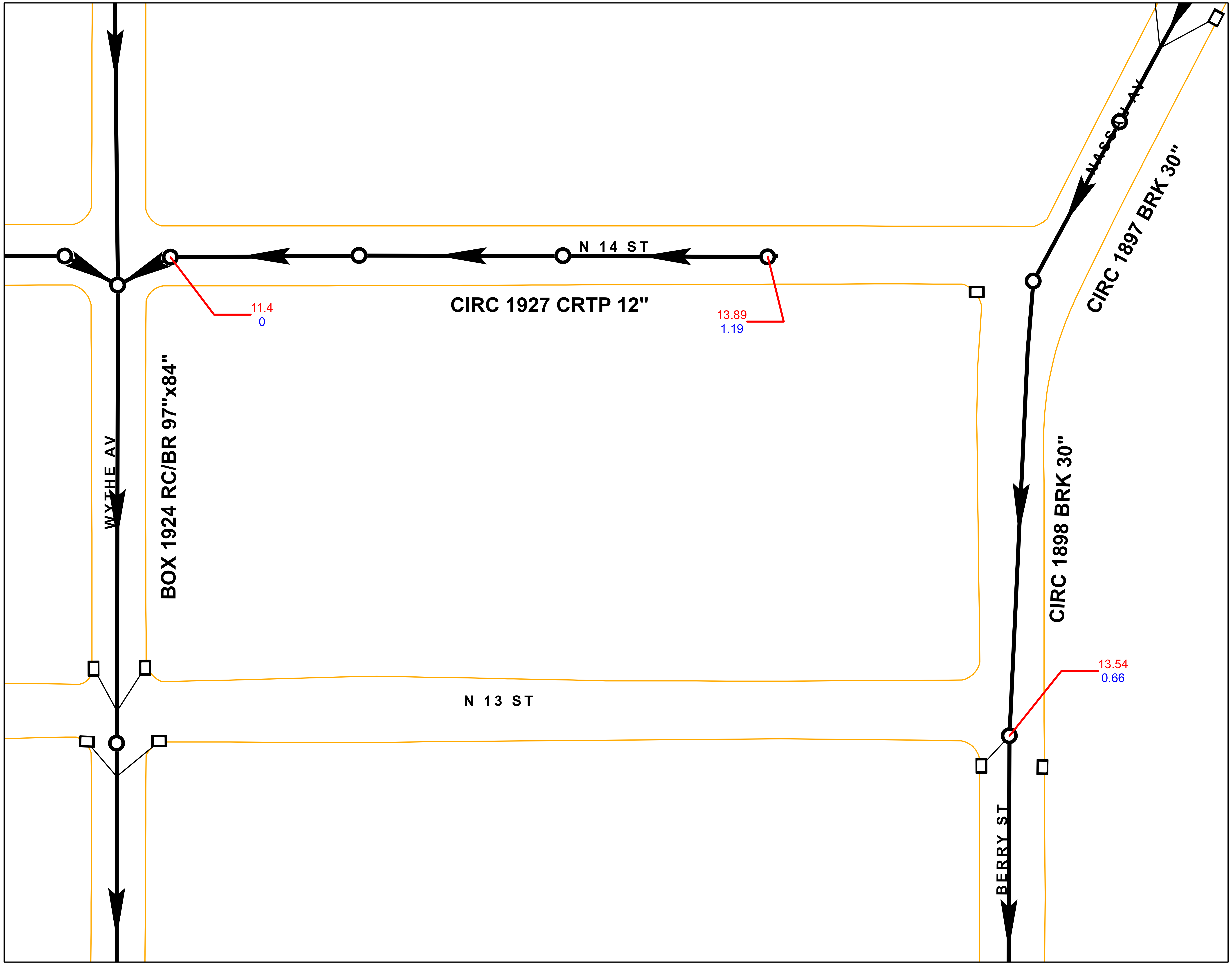
STANDARD
EQUIPMENT SPECIFICATION
T-10 FLOW METER ASSEMBLY

SCALE: NTS	APPROVED BY: RJS	DRAWN BY: RJS
DATE: 03/21/12		

GWTT Ground/Water Treatment & Technology, LLC
627 MOUNT HOPE ROAD · WHARTON, NJ 07885
PHONE: 973-983-0901 · FAX: 973-983-0903
www.gwttllc.com

DWG SIZE: A	SHEET: 1 OF 1	DRAWING NO.: ST-000351-SPC01	B

4. DEP Sewer Map



LEGEND:

NYC DEP

- Sanitary Sewer
- Storm Sewer
- Combined Sewer
- Combined Sewer Overflow
- Relief Storm Sewer
- Relief Combined Sewer
- Highway Drain
- Intercepting Sewer
- Intercepting Collector
- Branch Intercepting
- Intercepting Force Main
- Force Main
- Emergency Construction Sewer
- Catch Basin Connector
- Unknown Sewer
- Manhole
- Catch Basin
- Chamber
- Weir Chamber
- Regulator
- Tide Gate
- Outfall
- Headwall
- Culvert
- Bulkhead
- Pumping Station

NYS DOT

- Sewer
- Trough
- Catch Basin\Scupper Connector
- Temporary Connection and Plumber's Drain
- Flow Direction
- Manhole
- Catch Basin
- Chamber
- Outfall
- Headwall
- Culvert
- Bulkhead
- Pumping Station

Sewer Shape	Abbreviation
Double Circular	DCIR
Egg	EGG
Elliptical	ELP
Vertical Elliptical	VELP
Horizontal Elliptical	HELP
Box	BOX
Double Barrel	DB
Triple Barrel	TB
Quadruple Barrel	QB
Circular Barrel	CIRB
Oval	OVL
Flat Top	FT
Double Flat Top	DFT
Tunnel	TUN
Double Tunnel	DTUN
Circular Pipe	CIRC
Arch	ARCH
Irregular	IRRG
Unknown	UNK

Sewer Ownership	Abbreviation
Private	Pvt
Temporary Connection	TC
Plumber's Drain	PID
Triborough Bridge & Tunnel Authority	TBTA
Work Progress Administration	WPA

PIPE ANNOTATION
Pipe shown as shape, year of installation, material and pipe diameter.
Example; CIRC 1945 VCP 24"
Pipes with a second or height dimension will be displayed
with the height dimension, in inches, directly after the diameter
Example BOX 1955 CIP 48" x 32"

RESPECTIVE BOROUGH HIGHWAY AND SEWER DATUMS
(ABOVE MEAN SEA LEVEL AT SANDY HOOK, NEW JERSEY)

BOROUGH	SEWER DATUM	HIGHWAY DATUM
BRONX	2.608 FEET	2.608 FEET
BROOKLYN	1.720 FEET	2.560 FEET
MANHATTAN	2.750 FEET	2.750 FEET
QUEENS	2.725 FEET	2.725 FEET
STATEN ISLAND	3.192 FEET	3.192 FEET

MANHOLE RIM AND INVERT ELEVATIONS,
WHERE AVAILABLE, ARE DISPLAYED BY COLOR

25.67 = Manhole Rim elevation
25.67 = Manhole Invert elevation

Sewer Mapping

NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
59-17 Junction Boulevard, 3rd Floor
Corona, NY 11373-5108

N E S W

Map Print Date: 10/16/2018

50 25 0 50 100 150 200 250 300
Feet

Sewer Material	Abbreviation
Brick	BRK
Reinforced Concrete Brick	RC/BR
Cement Pipe	CMTP
Asbestos Cement Pipe	ASBCMTP
Concrete	CRT
Concrete Pipe	CRTP
Reinforced Concrete	RC
Reinforced Concrete Pipe	RCP
Precast Reinforced Concrete	PRC
Precast Reinforced Concrete Pipe	PRCP
Reinforced Concrete Culvert Pipe	RCCP
Corrugated Metal Pipe	CMP
High Density Polyethylene Pipe	HDPEP
Corrugated High Density Polyethylene Pipe	CHDPEP
Polyvinyl Chloride Pipe	PVCP
Wood	WD
Wood Pipe	WDP
Clay Pipe	CP
Vitrified Clay Pipe	VCP
Extra Strength Vitrified Clay Pipe	ESVP
Steel	STL
Steel Pipe	STLP
Cast Iron	CI
Cast Iron Pipe	CIP
Ductile Iron Pipe	DIP
Liner Plate	LRPL
Reinforced Concrete Liner Plate	RC LRPL
Steel Liner Plate	STL LRPL
Cast Iron Liner Plate	CI LRPL
Ductile Liner Plate	DI LRPL
Block	BLK
Tile	TILE
Stone	STON
Fiberglass	FBGL
Unknown	UNK

5. Site Plan and Proposed Process Flow Diagram

ATTACHMENT H
Support of Excavation Plan

ANOTHER ACCEPTABLE LICENSED
ARCHITECT. MINIMUM REQUIRED
DLLARS AND A MINIMUM PROVEN

L BE PERFORMED BY A TESTING
R FOR THE FOLLOWING CHECKED

BC 1704.3.1
BC 1704.3.2
BC 1704.3.3
BC 1704.3.4
BC 1704.3.4
BC 1704.3.5
BC 1704.7.1
BC 1704.7.2, BC 1704.7.3
BC 1704.8
BC 1704.8.5
BC 1704.20.1
BC 1704.20.2
BC 1704.20.3, BC 1814
BC 1704.20.4
BC 1704.32
BC 1905.3, BC 1913.5
BC 1905.6, BC 1913.10
BC 110.3.1
BC 110.3.3
28-116.2.4.2,
14 OF 1975, AND 1 RCNY § 101-10

HE NEW YORK CITY BUILDINGS

OP DRAWINGS, FOR ALL ITEMS OF
HE SHALL ALSO PREPARE PLANS
BRACES AND CLEARLY INDICATE

CONSTRUCTION. WORK SHALL BE

FILED WITH THE DEPARMENT OF
INSPECTION REPORTS PREPARED

D WHETHER HE OR SHE SHOULD
A MINIMUM, THE SITE MUST BE
CONSTRUCTION OPERATIONS.

E FOLLOWING INFORMATION:

CCURING OFF-SITE AND RELATING

N HIS OR HER OFFICE AND SHALL

AFE CONDITIONS, WHEN AND IF
CTED PARTIES OR AGENCIES. IT IS
PONSIBLE IN ANY WAY FOR SITE

AVAILABLE FOR REVIEW BY THE

FETY DURING EXECUTION OF THE
G CODE: SAFEGUARDS DURING

, AS REQUIRED BY THE NYC BLDG.

/OR PROVIDING OTHER WRITTEN

WORKERS. THIS SHALL INCLUDE

REQUIRED TO ENSURE ONGOING
ERTAKEN BY AN AGENT OF THE
SHALL PREPARE WRITTEN SAFETY
SDICTION.

GENERAL

1. THE DESIGNS ON THESE DRAWINGS ARE INTENDED FOR TEMPORARY SUPPORT OF EXCAVATION ONLY.
2. THESE DRAWINGS ARE INTENDED TO BE USED BY ONLY AN EXPERIENCED CONTRACTOR AFTER CONSULTATION WITH THIS OFFICE. THIS OFFICE WILL NOT BE RESPONSIBLE FOR JOB SITE PROBLEMS DUE TO FAILURE TO INTERPRET THE DOCUMENTS CORRECTLY. REPRESENTATIVES OF S.E.T., P.C. ARE AVAILABLE TO ANSWER QUESTIONS AND TO ASSIST THE CONTRACTOR BY EXPLAINING THE DESIGN INTENT. FAILURE BY THE CONTRACTOR TO UNDERSTAND THE COMPLEXITIES OF THE PROJECT AND THE SEQUENCE OF CONSTRUCTION CAN RESULT IN INJURY OR DEATH TO WORKERS. PROCEEDING WITH CONSTRUCTION WITHOUT FULL UNDERSTANDING OF THE PROJECT AND WITHOUT A COMPLETE SET OF DESIGN DOCUMENTS WILL PUT BOTH THE PROJECT AND INDIVIDUALS IN PERIL. THE CONTRACTOR ASSUMES TOTAL RESPONSIBILITY FOR ANY CONSEQUENCE OF THAT ACTION.
3. ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR ADHERING TO THE REQUIREMENTS AS SPELLED OUT IN THESE NOTES. ALL PARTIES MUST CAREFULLY STUDY ALL NOTES FOR ITEMS WHICH MAY PERTAIN TO THEIR TRADES. FAILURE TO READ THESE NOTES DOES NOT PERMIT THE CONTRACTOR TO DEVIATE FROM THEIR REQUIREMENTS.
4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT BUILDING CODE OF ALL GOVERNING AUTHORITIES.
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS, AND DRAWINGS.
6. THE DESIGN PLANS AND NOTES, TO THE BEST OF ENGINEER'S KNOWLEDGE, COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE.
7. WORK NOT INDICATED ON A PART OF THE DRAWINGS BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE REPEATED.
8. GENERAL CONTRACTOR SHALL VERIFY ALL CONDITIONS AND CHECK ALL MEASUREMENTS ON JOB AND SHALL BE RESPONSIBLE FOR SAME.
9. ALL DIMENSIONS INDICATED ON THE DRAWINGS ARE APPROXIMATE AND SHOULD NOT BE USED FOR ORDERING AND/OR FABRICATING MATERIAL. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO ORDERING AND/OR FABRICATING MATERIALS.
10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS BY MEASUREMENTS AT THE JOB SITE AND SHALL TAKE ANY AND ALL OTHER MEASUREMENTS NECESSARY TO VERIFY THE DRAWINGS AND TO PERFORM WORK PROPERLY.
11. DIFFERENT FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF S.E.T., P.C. IMMEDIATELY FOR EVALUATION. IF THE CONDITIONS OBSERVED AS THE EXCAVATION ADVANCES ARE DIFFERENT THAN THE CONDITIONS SHOWN ON THE DESIGN DRAWINGS, THE CONTRACTOR SHALL STOP WORK AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER. MODIFICATIONS TO THESE DRAWINGS MAY BE NECESSARY.
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITIES AND BELOW GROUND STRUCTURES IN THE AREA OF WORK PRIOR TO COMMENCEMENT OF WORK.
13. NOTIFY DOB 24 TO 48 HOURS PRIOR TO START OF EXCAVATION (RULE 52).
14. SIDEWLAK CLOSING FROM NYDOT IS REQUIRED TO OVERCUT THE SIDEWALK OR TO PLACE SUPPORT OF EXCAVATION ELEMENTS IN THE SIDEWALK OR STREET.
15. ALL CONTRACTORS AND SUBCONTRACTORS ON THIS PROJECT SHALL BE RESPONSIBLE FOR THE PROPER PERFORMANCE OF THEIR WORK, COORDINATION WITH OTHER TRADES, METHODS, SAFETY AND SECURITY ON THE JOB SITE. S.E.T., P.C. AND ITS AGENTS AND EMPLOYEES ARE NOT RESPONSIBLE OR LIABLE FOR THE ABOVE AND SHALL BE HELD HARMLESS AND INDEMNIFIED BY ALL CONTRACTORS AND SUBCONTRACTORS FROM ANY AND ALL CLAIMS, LOSSES, SUITS AND LEGAL ACTION WHATSOEVER ARISING FROM THE PERFORMANCE OF WORK ON THIS PROJECT.
16. ALL WORK PERFORMED WHICH AFFECTS THE ADJACENT BUILDING OPERATIONS SHALL CAUSE MINIMUM DISTURBANCE TO THE NORMAL OPERATION OF AFFECTED PARTS OF THE BUILDING.
17. PINS, WIRE MESH, AND PARGING MAY BE REQUIRED TO STABILIZE THE FOUNDATION WALL, OR FOOTINGS. LOOSE AREAS OF FOUNDATION WALL OR FOOTINGS THAT ARE DAMAGED OR LOOSE SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR EVALUATION AND REMEDIAL MEASURES.
18. CONSENT FROM OWNERS OF ADJACENT PROPERTIES SHALL BE OBTAINED IF REQUIRED WORK EXTENDS BEYOND PROPERTY LINE.
19. ALL CONTRACTORS MUST VISIT SITE AND NOTE ALL EXISTING CONDITIONS AS WELL AS ALL CONDITIONS TO BE MET BEFORE SUBMITTING BID. LACK OF THOROUGH UNDERSTANDING OF THE PROJECT REQUIREMENTS SHALL NOT CONSTITUTE AN EXCUSE FOR ERRORS OR OMISSIONS, NOR JUSTIFY A REQUEST FOR EXTRA COMPENSATION.
20. CONTRACTOR SHALL MAKE NO DEVIATION FROM THESE DRAWINGS WITHOUT WRITTEN APPROVAL OF THE ENGINEER OF RECORD.
21. ACCEPTANCE OF DEVIATIONS FROM ANY OF THE REQUIREMENTS OF THESE NOTES SHALL BE AT THE SOLE DISCRETION OF THE ENGINEER. ACCEPTANCE OF A DEVIATION FROM ANY REQUIREMENT SHALL NOT BE CONSTRUED AS PERMITTING ANY OTHER DEVIATION.
22. A PERMIT SHALL BE OBTAINED FROM DOT FOR SIDEWALK CLOSURE TO INSTALL SOLDIER PILES OR ANY INTRUSION PAST PROPERTY LINE.
23. CONSTRUCTION OF NEW CONCRETE WALLS AGAINST EXISTING STRUCTURES SHALL COMPLY WITH NYCDOB BUILDINGS BULLETIN #2009-11.

BIDDERS WARRANTY:

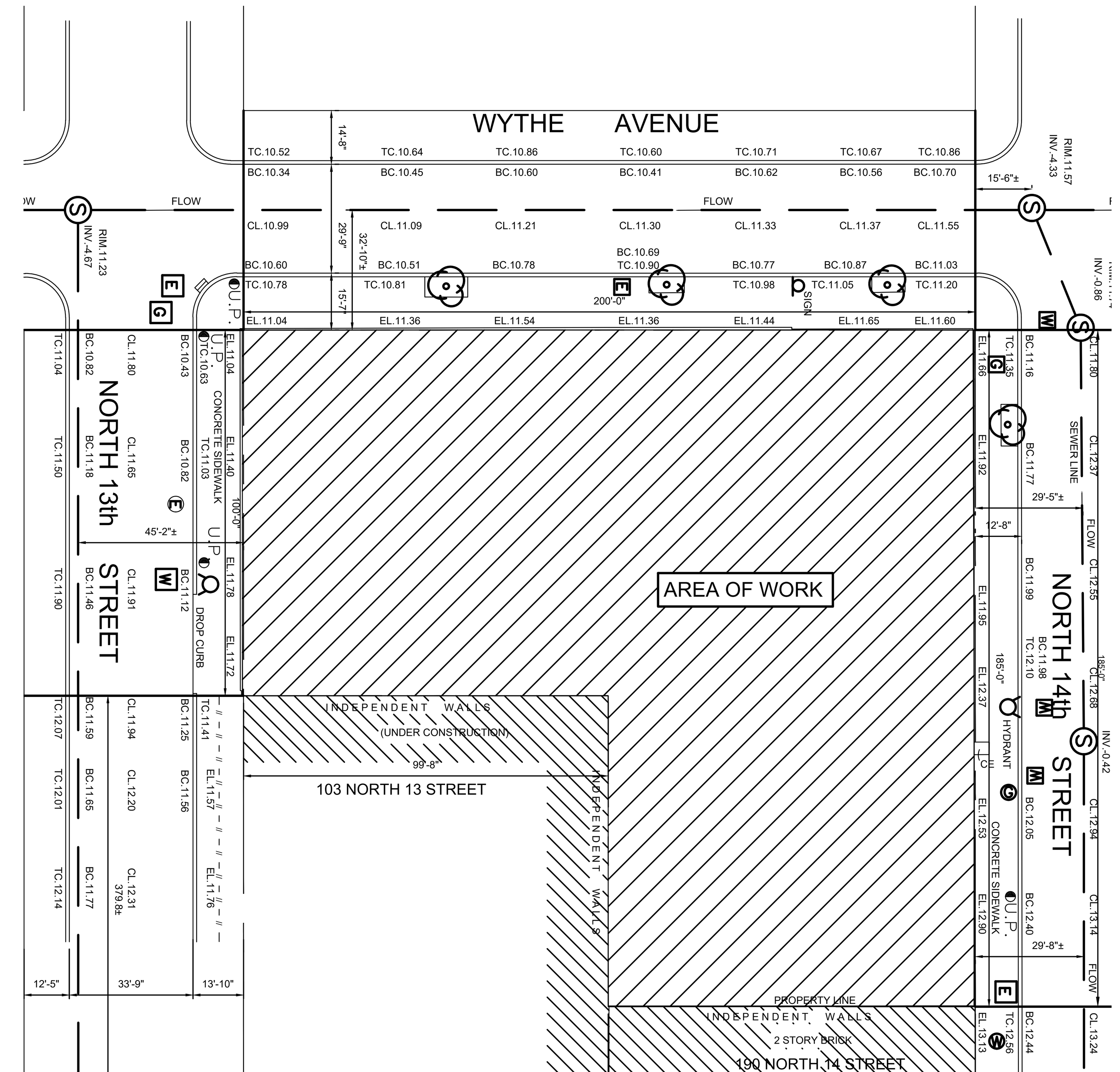
BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT:

1. THE BIDDER AND ALL SUBCONTRACTORS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND OTHER CONSTRUCTION CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE CONTRACTOR TO BID, FABRICATE, AND INSTALL THE WORK ON TIME, FURTHER THAT,
2. THE BIDDER AND ALL WORKMEN, EMPLOYEES AND SUBCONTRACTORS HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE CONSTRUCTION CONTRACT DOCUMENTS BID UPON; FURTHER THAT,
3. NEITHER THE BIDDER NOR ANY OF HIS EMPLOYEES, AGENTS INTENDED SUPPLIERS OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS, ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER, HIS EMPLOYEES OR AGENTS INCLUDING ARCHITECTS, ENGINEERS OR CONSULTANTS, IN ASSEMBLING THE BID FIGURE; AND FURTHER THAT,THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON ANY OTHER WRITTEN REPRESENTATION.
4. THE BIDDER ALSO WARRANTS THAT HE HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THE CHARACTER, QUALITY, QUANTITIES OF MATERIALS AND DIFFICULTIES TO BE ENCOUNTERED, THE KIND AND EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY, IN ANY WAY, AFFECT THE WORK OR ITS PERFORMANCE.

DISCLAIMER:
THE DRAWINGS HEREIN ARE RELATED TO A NEW BUILDING STRUCTURE. THE STRUCTURAL DESIGN WAS BASED UPON AS MUCH OBSERVATION, MEASUREMENT, TESTING, ETC. AS CIRCUMSTANCES PERMITTED, HOWEVER, THERE WERE ASSUMPTIONS MADE ABOUT UNKNOWN CONDITIONS. SHOULD THE OWNER DECIDE NOT TO UTILIZE S.E.T. , P.C. TO VERIFY AND INSPECT THESE CONDITIONS IN THE FIELD, S.E.T. , P.C. WILL NOT BE RESPONSIBLE FOR ANY FAILURE, DAMAGE, INJURY, DELAY, LOSS OF INCOME, EXTRA COST, OR ANY OTHER LOSS DUE TO EXISTING CONDITIONS.

SHOP DRAWING REVIEW:
THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS WITH RESPECT TO CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND THE SPECIFICATIONS. SHOP DRAWINGS SHALL BE SUBMITTED IN DUPLICATE. EXCESS DRAWINGS WILL BE DISCARDED. IF REQUIRED BY SPECIFICATIONS, SHOP DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A LICENSED ENGINEER WHO IS LICENSED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED. BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL: REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, INCLUDING REFLECTION OF EXISTING FIELD CONDITIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR; APPROVE EACH SUCH SUBMISSION BEFORE SUBMITTING IT; AND SO STAMP EACH SUCH SUBMISSION BEFORE SUBMITTING IT. THE ENGINEER WILL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION FROM THE CONTRACT UNLESS CONTRACTOR ADVISES THE ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY THE ENGINEER IN WRITING. IN THE EVENT THAT THE ENGINEER WILL REQUIRE MORE THAN TEN (10) WORKING DAYS TO PERFORM REVIEW, THE ENGINEER WILL SO NOTIFY THE CONTRACTOR. THE ENGINEER WILL RETURN WITHOUT REVIEW MATERIAL WHICH HAS NOT BEEN APPROVED BY GENERAL CONTRACTOR OR CONSTRUCTION MANAGER

FIDUCIARY LIABILITY DECLINED:
S.E.T., P.C. MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED AS TO S.E.T.. P.C. FINDINGS, RECOMMENDATIONS, PLANS, SPECIFICATIONS, OR PROFESSIONAL ADVICE. S.E.T., P.C. HAS ENDEAVORED AND WILL ENDEAVOR TO PERFORM ITS SERVICES IN ACCORDANCE WITH GENERALLY ACCEPTED STANDARDS OR PRACTICE IN EFFECT AT THE TIME OF PERFORMANCE. BY UTILIZING THESE DOCUMENTS (OR HAVING OTHERS UTILIZE THEM) FOR ANY PURPOSE WHATSOEVER THE OWNER OR DEVELOPER RECOGNIZES THAT NEITHER S.E.T., P.C. OR ANY OF S.E.T., P.C. SUBCONSULTANTS OR SUBCONTRACTORS OWES ANY FIDUCIARY RESPONSIBILITY TO THE OWNER OR DEVELOPER.



PLOT PLAN:
SCALE: $\frac{1}{32}$" =1'-0"
BLOCK: 2279
LOT: 1, 9

TIE-BACK NOTES:

1. CEMENT GROUT SHALL BE UTILIZED TO FLUSH THE DRILL CUTTINGS FROM THE BOREHOLE AND STABILIZE THE BOREHOLE DURING INSTALLATION.
2. GROUT PRESSURE SHALL BE HIGH ENOUGH TO OBTAIN CIRCULATION AT ALL TIME WITH A SMALL AMOUNT OF GROUT AND SOIL CUTTING RETURN.
3. DRILLING WITH AIR AS A MEANS OF ADVANCING OR REMOVING CUTTINGS FROM THE BOREHOLE IS NOT ALLOWED.
4. ALL TIE-BACKS SHALL BE PROOF OR PERFORMANCE TESTED IN ACCORDANCE WITH PTI RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS.
5. THE FIRST THREE TIE-BACK ANCHORS SHALL BE PERFORMANCE TESTED. A MINIMUM OF 2% OF THE REMAINING TIE-BACKS SHALL BE PERFORMANCE TESTED. ALL OTHER TIE-BACKS SHALL BE PROOF TESTED.
6. CONTRACTOR MUST PROVIDE JACK CALIBRATION SHEET TO SPECIAL INSPECTOR FOR APPROVAL PRIOR TO COMMENCEMENT OF PERFORMANCE OR PROOF TEST.
7. PERFORMANCE AND PROOF TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH PTI GUIDELINES, AS SUMMARIZED BELOW:
   7.1. PERFORMANCE TEST:
   AL, 0.25P
   AL, 0.25P, 0.50P
   AL, 0.25P, 0.50P, 0.75P, 1.00P
   AL, 0.25P, 0.50P, 0.75P, 1.00P, 1.20P
   AL, 0.25P, 0.50P, 0.75P, 1.00P, 1.20P, 1.33P (CREEP TEST)
   AL, LOCK-OFF LOAD
   7.2. PROOF TEST:
   AL, 0.25P, 0.50P, 0.75P, 1.00P, 1.20P, 1.33P (CREEP TEST), LOCK-OFF LOAD.
   7.3. FOR BOTH PERFORMANCE AND PROOF TESTS, HOLD 1.33P FOR CREEP TEST AND RECORD READINGS AT 0, 1, 2, 3, 5, 6, AND 10 MINUTES.
   7.4. IF THE TOTAL CREEP MOVEMENT BETWEEN 1 AND 10 MINUTES EXCEEDS 0.039-IN, THE TEST LOAD SHALL BE MAINTAINED FOR AN ADDITIONAL 50 MINUTES. TOTAL MOVEMENTS SHALL THEN BE RECORDED AT 20, 30, 40, 50, AND 60 MINUTES.
   7.5. RECORD MOVEMENT USING A DIAL INDICATOR CAPABLE OF READING INCREMENTS OF 0.001-IN.
8. TIE-BACK IS ACCEPTED WHEN THE ELASTIC MOVEMENT RECORDED DURING TESTING FALLS BETWEEN LINE A (80% FREE LENGTH), AND LINE B (FREE LENGTH + 50% BOND LENGTH), AS SHOWN ON FIGURES 8.1B AND 8.3B ON PTI RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS.

DRAWING INDEX

SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
1	SOE-001.00	PLOT PLAN AND NOTES
2	SOE-002.00	NOTES
3	SOE-101.00	SUPPORT OF EXCAVATION PLAN
4	SOE-201.00	SUPPORT OF EXCAVATION SECTIONS
5	SOE-202.00	SUPPORT OF EXCAVATION SECTIONS
6	SOE-203.00	SUPPORT OF EXCAVATION SECTIONS
7	SOE-204.00	SUPPORT OF EXCAVATION SECTIONS
8	SOE-205.00	SUPPORT OF EXCAVATION SECTIONS
9	SOE-206.00	SUPPORT OF EXCAVATION SECTIONS
10	SOE-301.00	SUPPORT OF EXCAVATION DETAILS
11	SOE-302.00	TYPICAL TIEBACK DETAILS
12	SOE-303.00	TYPICAL TIEBACK DETAILS
13	SOE-304.00	TYPICAL UNDERPINNING DETAILS

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

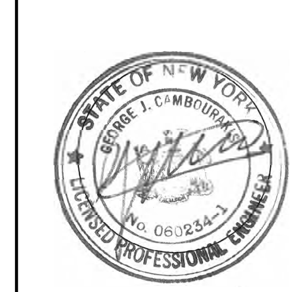
29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

PLOT PLAN AND NOTES

SEAL & SIGNATURE



DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-001.00
SHEET NO:	1 OF 13

BSCAN STICKER

DOB APPROVAL STAMP

POLICY AND PROCEDURE NOTICE

IED PRIOR TO CONSTRUCTION IN
E HIMSELF WITH THE RESULTS OF
DE AND OUT) PRIOR TO STARTING

LATERAL MOVEMENT. NOTE THAT
Y.

ORED DURING EXCAVATION AND

SHALL BE NOTIFIED IMMEDIATELY

ION. HORIZONTAL AND VERTICAL

WEEK DURING EXCAVATION AND
VEMENT OCCURS, INCREASE THE

ERFORMED AS NEGOTIATED WITH
TART OF EXCAVATION.

NSTRUCTION MANAGER, OWNER,

NSTRUCTION MANAGER, OWNER,
CTION MANAGER AND APPROVED

AND ENGINEER.
1mm. IMMEDIATELY INFORM THE
ON UNIT, OBSERVE NEIGHBORING
D SUPPORT OF EXCAVATION AS
NTED BY THE CONTRACTOR AND

NSTRUCTION MANAGER, OWNER,

NSTRUCTION MANAGER, OWNER,
CTION MANAGER AND APPROVED

AND ENGINEER.
2mm. IMMEDIATELY INFORM THE
ON UNIT, OBSERVE NEIGHBORING
D SUPPORT OF EXCAVATION AS
NTED BY THE CONTRACTOR AND

E NYCT AND ADJUST MEANS AND

IAL ACTION WITH THE NYCT.

SPECIAL INSPECTOR AT THE END

ERPIN THEIR WALL, INSTALL SOIL

NGTH OF 4000-PSI AT 28 DAYS.

ANY.

UNDERPINNING.

EING PLACED FOR SOLDIER PILES

TH IS ACHIEVED AT 14 DAYS, NO
BE SAVED FOR 56 DAYS TESTING

MED BY THE CONTRACTOR AT NO

R SHALL BE ADEQUATE TO ALLOW

ENDING STRESS OF 1200-PSI.

ITABLE METHODS. DISPOSAL OF
THE ELEVATION OF THE WATER
TRESS AND/OR SETTLEMENT TO
ES DURING DEWATERING.

STRUCTURAL STABILITY NOTES:

1. CONTROLLED INSPECTION OF THE STABILITY AND INTEGRITY OF EXISTING STRUCTURES DURING CONSTRUCTION OPERATIONS IS REQUIRED BY THE NEW YORK CITY BUILDING CODE CHAPTER 17.
2. CONTRACTOR SHALL PREPARE A STRUCTURAL STABILITY PLAN, TO BE SUBMITTED TO THE STRUCTURAL ENGINEER (SIGNED AND SEALED BY THE PROFESSIONAL ENGINEERS RESPONSIBLE FOR ITS DESIGN) FOR REVIEW, AND APPROVAL PRIOR TO ANY DEMOLITION WORK OR MODIFICATIONS TO THE EXISTING STRUCTURE. THIS STRUCTURAL STABILITY PLAN SHALL INCLUDE:
   A. LAYOUT AND DETAILS OF SHORING, BRACING, UNDERPINNING AND OTHER WORK REQUIRED TO MAINTAIN THE STABILITY AND INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION OPERATIONS.
   B. PHASING, STAGING, AND SEQUENCING OF SUCH OPERATIONS.
   C. DESIGN LOADS FOR WHICH THE STABILITY SYSTEM HAS BEEN DESIGNED.
3. OWNER SHALL RETAIN A LICENSED PROFESSIONAL ENGINEER TO PERFORM THE STRUCTURAL STABILITY INSPECTION. THE CONTROLLED INSPECTION ENGINEER SHALL MAINTAIN RECORDS AS REQUIRED BY THE NEW YORK CITY BUILDING CODE. THE CONTROLLED INSPECTION ENGINEER SHALL USE THE STRUCTURAL STABILITY PLAN PREPARED BY THE CONTRACTOR AND APPROVED BY THE STRUCTURAL ENGINEER AS THE BASIS FOR THE CONTROLLED INSPECTIONS.

SAFETY DURING EXECUTION OF WORK:

1. THESE DRAWINGS DO NOT ADDRESS SAFETY ISSUES RELATED TO THE EXCAVATION AND SHORING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING AND FILING A SITE SAFETY PLAN AND/OR PROVIDING OTHER WRITTEN ASSURANCES OF SAFE OPERATIONS AS MAY BE REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL PROVIDE BARRIERS AND FENCING AROUND THE SITE AND/OR SIDEWALK PROTECTION AND PROTECTION OF ADJOINING PROPERTIES, AS REQUIRED BY THE NYC BUILDING CODE AND ALL APPLICABLE LAWS.
3. THE EXCAVATION / UNDERPINNING / SHEETING CONTRACTOR SHALL EXERCISE CAUTION IN THE PROCESS OF THE WORK. THE CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR THE SAFETY OF ALL ADJACENT STRUCTURES. IF DAMAGE OCCURS TO THE ADJACENT BUILDING ELEMENTS OR CONTENTS, DUE TO THE NEGLIGENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL BE HELD RESPONSIBLE TO RECTIFY ALL DAMAGE AND/OR REIMBURSE PROPERTY OWNERS FOR ANY AND ALL DAMAGES, TO THE SATISFACTION OF ALL CONCERNED PARTIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONDITIONS OF PUBLIC AND WORKER SAFETY DURING EXECUTION OF THE WORK. THIS SHALL INCLUDE COMPLIANCE WITH CHAPTER 33 OF THE NEW YORK CITY BUILDING CODE: SAFEGUARDS DURING CONSTRUCTION, OSHA, AND OTHER STATE AND LOCAL LABOR LAWS WHICH MAY GOVERN THIS TYPE OF WORK.
5. THE CONTRACTOR SHALL PROVIDE REGULAR PERIODIC INSPECTION OF CONSTRUCTION OPERATIONS AS REQUIRED TO ENSURE ONGOING MAINTENANCE OF ALL SAFETY OPERATIONS AND EQUIPMENT. SUCH INSPECTIONS SHALL BE UNDERTAKEN BY AN AGENT OF THE CONTRACTOR WHO IS QUALIFIED TO EVALUATE SUCH OPERATIONS AND EQUIPMENT. THIS INSPECTOR SHALL PREPARE WRITTEN SAFETY REPORTS WHICH SHALL BE MAINTAINED AT THE JOB SITE FOR REVIEW BY THE AUTHORITIES HAVING JURISDICTION.

REFERENCES:

1. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. SOE PLANS AND SECTIONS ARE BASED ON:
   2.1. ARCHITECTURAL SURVEY NOT RECEIVED;
   2.2. ARCHITECTURAL DRAWINGS NOT RECEIVED;
   2.3. STRUCTURAL DRAWINGS NOT RECEIVED.
3. SUB-SURFACE INFORMATION OBTAINED FROM:
   3.1 BORING LOGS NOT RECEIVED;
   3.2 TEST PIT LOGS NOT RECEIVED;
   3.3 GEOTECHNICAL REPORT NOT RECEIVED.
4. LOCATIONS AND ELEVATIONS OF ALL PROPOSED STRUCTURAL BUILDING ELEMENTS SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND SHALL BE SUPERSEDED BY FINAL STRUCTURAL AND ARCHITECTURAL DRAWINGS.

EXCAVATION NOTES:

1. CONTRACTOR SHALL CALL 811 BEFORE ANY EXCAVATION BEGINS, FOR UTILITY COMPANIES TO MARK OUT ALL EXISTING UTILITY LINES.
2. PRIOR TO COMMENCEMENT OF MASS EXCAVATION, THE ADJOINING PROPERTIES AND STREETS SHALL BE VISUALLY SURVEYED BY THE CONTRACTOR, SUITABLY MARKED WITH PERMANENT MONITORING POINTS TO BE MEASURED DURING CONSTRUCTION FOR THE PURPOSES OF DETERMINING CONSTRUCTION-RELATED EFFECTS. REPORT WITH PHOTOGRAPHS SHALL BE PROVIDED TO ARCHITECT AND ENGINEER IN TRIPLICATE COPIES. A PRE-CONSTRUCTION DAMAGE CONDITION SURVEY OF THE ADJOINING PROPERTIES SHALL BE MADE IN WRITTEN AND PICTORIAL FORM, AND TWO COPIES SHALL BE FURNISHED TO THE OWNER'S REPRESENTATIVE.
3. A COMPETENT REPRESENTATIVE OF THE CONTRACTOR SHALL INSPECT THE SUBGRADE OF THE EXCAVATION, ANY AND ALL BRACING AND BLOCKING, AT THE COMMENCEMENT OF EACH SHIFT, TO ASSURE INTEGRITY, PRIOR TO PERMITTING WORKMEN TO WORK WITHIN ANY EXCAVATED AREA. ALL SIDES OR SLOPES OF EXCAVATIONS SHALL BE INSPECTED FOR STABILITY AFTER RAINSTORMS.
4. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SUBGRADE CONDITIONS PRIOR TO START OF WORK. THESE DRAWINGS DISCOUNT UNDERGROUND WATER CONDITIONS.
5. THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY EXCAVATION RESTRAINT REQUIRED FOR THE CONSTRUCTION OF THE PROJECT. IF A SHEETING OR BRACING SYSTEM IS TO BE UTILIZED, THE DETAILS ARE TO BE SHOWN ON SHOP DRAWINGS TO BE SUBMITTED FOR REVIEW AND APPROVAL BY THE ARCHITECT AND ENGINEER OF RECORD BEFORE COMMENCEMENT OF WORK.
6. ALL EXCAVATION GREATER THAN 5-FT IN DEPTH SHALL BE SHEETED, OR LAGGED AND BRACED.
7. IF BRACING IS USED TO SUPPORT THE EXCAVATION, PROVIDE THE REACTION TO THE BRACING BY PRE-LOADING OR BY THE USE OF SUITABLE WEDGES PROPERLY DRIVEN INTO THE JOINTS UNTIL THE NECESSARY REACTION IS PRODUCED AGAINST THE BANKS.
8. IF MATERIAL BEHIND LAGGING IS LOST OR DISTURBED, LEAVE A 1- TO 1.5-IN SPACE BETWEEN LAGGING BOARDS AND IMMEDIATELY BACKFILL OR GROUT.
9. NO MATERIAL STORAGE SHALL BE PLACED WITHIN 10-FT OF EXCAVATION PERIMETER.
10. BOTTOM OF EXCAVATION ELEVATION AS SHOWN ON THESE DRAWINGS SHALL BE VERIFIED AND COORDINATED IN FIELD WITH CONTRACT DOCUMENTS.
11. EXCAVATION ELEVATIONS SHOWN ON THESE DRAWINGS ARE BASED ON ELEVATIONS SHOWN ON DESIGN STRUCTURAL / ARCHITECTURAL DRAWINGS. ADDITIONAL EXCAVATION MAY BE REQUIRED AS PER STRUCTURAL DESIGN AND CONSTRUCTION REQUIREMENTS.
12. USE HAND TOOLS TO EXCAVATE WITHIN 5-FT OF UNDERGROUND UTILITIES.
13. PROVIDE BLOCK OUTS USING HIGH DENSITY FOAM IN CONCRETE STRUCTURE WHERE SHORING STRUCTURE ELEMENTS PENETRATE NEW FOUNDATION WALL.
14. THOUGH USUALLY SMALL, SETTLEMENT NEARLY ALWAYS ACCOMPANIES EXCAVATION / UNDERPINNING / SHEETING WORK. THE AMOUNT OF SETTLEMENT, IF ANY, WILL VARY BASED ON THE TYPE OF BUILDING, THE CLASS OF SOILS UPON WHICH IT RESTS, THE PRESENCE OR ABSENCE OF GROUNDWATER, THE RESERVE FOUNDATION LOAD CAPACITY OF THE ORIGINAL FOUNDATION AND THE EXCELLENCE AND CARE OF THE WORKMANSHIP OF THE CONTRACTOR INSTALLING THE EXCAVATION / UNDERPINNING / SHEETING. BY USING THESE DRAWINGS TO COMPLETE THE EXCAVATION / UNDERPINNING / SHEETING WORK, THE CONTRACTOR AND THE OWNER UNDERSTAND THE INHERENT RISK AND ASSUME ALL RESPONSIBILITY FOR THE EFFECTS OF ANY SETTLEMENT THAT MIGHT OCCUR. ALL EXCAVATION / UNDERPINNING / SHEETING WORK SHALL BE STOPPED IMMEDIATELY AND THE ENGINEER OF RECORD SHALL BE NOTIFIED IF SETTLEMENTS SHOULD EXCEED 1/4-IN.
15. HAY OR FILTER FABRIC SHALL BE USED TO MINIMIZE MIGRATION OF FINES INTO THE EXCAVATION AREA.

SHEET PILE NOTES:

1. LOCATE ALL EXISTING UTILITIES BY UTILITY COMPANY MARK OUT. THEN, FOR UTILITIES WITHIN 5-FT OF SHEET PILE INSTALLATION, CONFIRM CLEARANCE BY LOCAL PRE-EXCAVATION.
2. PRIOR TO INSTALLATION OF SHEET PILING, PERFORM TEST PITS AS REQUIRED TO LOCATE EXISTING REMNANT FOUNDATIONS AND FOUNDATION WALLS ALONG SHEETING ALIGNMENT.
3. SHEET PILES SHALL BE OF THE MINIMUM SIZES DEPICTED ON THE DRAWINGS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

UNDERPINNING NOTES:

1. A PRE-CONSTRUCTION SURVEY SHALL BE PERFORMED ON THE BUILDING TO BE UNDERPINNED BY AN INDEPENDENT PROFESSIONAL IN ORDER TO DOCUMENT EXISTING CONDITIONS OF THE BUILDING. PAY PARTICULAR ATTENTION TO AND DOCUMENT SIGNS OF EXISTING STRESS INCLUDING CRACKS, SAGGING, TIGHT DOORS, ETC. THE SURVEY SHALL INCLUDE EACH FLOOR, BOTH INSIDE AND OUT, AND SHALL INCLUDE PICTURES, MEASUREMENTS, ETC.
2. THE CONTRACTOR SHALL OBTAIN AN AGREEMENT WITH NEIGHBOR TO UNDERPIN THEIR BUILDING. NO UNDERPINNING IS TO BE PERFORMED UNTIL SUCH AGREEMENT IS EXECUTED.
3. THE CONTRACTOR SHALL VERIFY THE BOTTOM OF EXISTING FOOTING ELEVATIONS AND LOCATE ALL ADJACENT UTILITIES IN THE FIELD.
4. ALL UNDERPINNING OPERATIONS SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER PROVIDING SPECIAL INSPECTION SERVICES.
5. INSPECTOR FOR SPECIAL INSPECTION SHALL BE NOTIFIED A MINIMUM OF 72 HOURS IN ADVANCE OF ANY UNDERPINNING WORK.
6. ALL EXCAVATION FOR UNDERPINNING SHALL BE COMPLETED BY HAND, WITHIN SHEETED PITS, AS SHOWN ON THE DETAILS AND SECTIONS.
7. EXCAVATION FOR UNDERPINNING PIERS MUST BE PERFORMED IN THE DRY. DEWATERING MAY BE NECESSARY PRIOR TO EXCAVATION TO MAINTAIN GROUNDWATER LEVEL A MINIMUM OF 1-FT BELOW THE PROPOSED UNDERPINNING PIER SUBGRADE LEVEL. HAY OR FILTER FABRIC SHALL BE USED TO MINIMIZE MIGRATION OF FINES INTO THE EXCAVATION AREA.
8. DEPTH OF EXCAVATION BELOW FOOTING AND PREVIOUSLY INSTALLED LAGGING BOARDS SHALL NOT EXCEED 18-IN. MAINTAIN TIGHT CONTACT BETWEEN SOIL AND LAGGING BOARDS. IF MATERIAL IS CAVING INTO THE EXCAVATION AREA, DECREASE THE UNBRACED EXCAVATION DEPTH AND/OR GROUT THE MATERIAL TO MINIMIZE LOSS.
9. IF MATERIAL BEHIND LAGGING IS LOST OR DISTURBED, LEAVE A 1- TO 1.5-IN SPACE BETWEEN LAGGING BOARDS TO IMMEDIATELY BACKFILL OR GROUT.
10. IF THE SOILS TO BE SHEETED AND EXCAVATED FOR UNDERPINNING PIERS ARE FOUND TO BE LOOSE, LACKING COHERENCE, AND HAVING A TENDENCY TO "RUN", MAKING THE INSTALLATION OF THE HORIZONTAL TIMBER SHEETING DIFFICULT OR IMPOSSIBLE, THE CONTRACTOR SHALL EMPLOY THE SERVICES OF A GROUTING SUBCONTRACTOR TO STABILIZE THE SOIL PRIOR TO EXCAVATING. CONTRACTOR TO IMMEDIATELY INFORM ENGINEER OF RECORD IF THIS CONDITION OCCURS, AND MAY ALSO PROPOSE ANOTHER REMEDIAL METHOD FOR SOIL STABILIZATION TO S.E.T., P.C. FOR REVIEW.
11. GROUTING TO STABILIZE SOIL AT UNDERPINNING PITS SHALL BE PERFORMED USING SODIUM SILICATE OR MICRO-FINE CEMENT. GROUT MIX DESIGN, EQUIPMENT, DRILLING PROCEDURES, AND SEQUENCE SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO S.E.T., P.C. FOR REVIEW.
12. UNDERPINNING PIER SUBGRADE BEARING MATERIAL SHALL BE OF EQUAL OR BETTER CLASS THAN THE ORIGINAL BEARING MATERIAL.
13. MAXIMUM UNDERPINNING PIT WIDTH IS 4-FT FOR CONCRETE FOOTINGS OR 3-FT FOR RUBBLE FOOTINGS UNLESS OTHERWISE NOTED ON THESE DRAWINGS. UNDERPINNING WIDTH MAY BE REDUCED BASED ON S.E.T., P.C. FIELD OBSERVATIONS.
14. NO TWO UNDERPINNING PITS CLOSER THAN 12-FT CENTER TO CENTER, NOR TWO ADJACENT COLUMN FOOTINGS MAY BE UNDERPINNED CONCURRENTLY.
15. EXISTING STONE RUBBLE WALLS TO BE UNDERPINNED SHALL BE TREATED BY PRESSURE INJECTED GROUT OR CEMENT PARGING AT THE DIRECTION OF S.E.T., P.C.
16. ANY LOSS OF STONES FROM EXISTING STONE FOOTINGS OR SIGNS OF INSTABILITY IN THE STONE FOOTING SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. STEEL PLATES WITH TIMBER POSTS SHALL BE REQUIRED TO SUPPORT ANY LOOSE STONES OR UNSTABLE AREAS DURING EXCAVATION AND CONCRETING.
17. APPROACH PITS FOR UNDERPINNING SHOULD CAUSE MINIMAL DISTURBANCE TO SOIL SUBGRADE BELOW THE FOOTING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN THE APPROACH PITS AND EXCAVATE PITS FOLLOWING OSHA AND LOCAL LAWS.
18. EXCAVATE PITS SUCH THAT A MINIMUM OF 12-FT OF UNDISTURBED SOIL OR CURED UNDERPINNING PIER IS MAINTAINED BETWEEN OPEN PITS UNTIL ALL UNDERPINNING IS COMPLETE UNLESS APPROVED BY S.E.T., P.C.
19. DO NOT LEAVE PITS OPEN OVERNIGHT OR DURING WEEKENDS OR HOLIDAYS UNLESS OTHERWISE PERMITTED BY S.E.T., P.C.
20. UNDERPINNING SHALL BE INSTALLED IN A MANNER SUCH THAT THE EXPOSED FACE OF THE CONCRETE IS VERTICAL (OR AS OTHERWISE SPECIFIED), CLEAN, AND NEAT.
21. UNDERPINNING SHALL BE CONSTRUCTED IN ONE VERTICAL LIFT. THE LIFT SHALL BE WITHOUT INTERMEDIATE HORIZONTAL CONSTRUCTION JOINTS (COLD JOINTS).
22. DEEPER UNDERPINNING PIERS SHALL BE CONSTRUCTED PRIOR TO INSTALLING IMMEDIATELY ADJACENT SHALLOWER PIERS.
23. UNDERPINNING PIERS SHALL BE CARRIED DOWN TO THE ELEVATIONS SHOWN OR TO DRY COMPETENT SOIL, WHICHEVER IS DEEPER. COMPETENT SOIL SHALL BE VERIFIED BY THE ENGINEER. IF COMPETENT SOIL IS NOT FOUND AT THE ELEVATIONS SHOWN ON THE DRAWINGS, THE SPECIAL INSPECTOR SHALL REVIEW THE FIELD CONDITIONS AND MAKE NECESSARY RECOMMENDATIONS TO S.E.T., P.C.
24. LINE DRILL BEDROCK ADJACENT TO ALL FOUNDATION WALLS PRIOR TO ROCK REMOVAL.
25. BOTTOM OF UNDERPINNING CAN BEAR ON CLASS 1B BEDROCK OR BETTER ABOVE UNDERPINNING SUBGRADE LEVEL SHOWN ON THESE DRAWINGS AS DETERMINED BY THE ENGINEER.
26. UNDERPINNING PIERS CAN BE ELIMINATED IF THE EXISTING FOOTING IS BEARING ON CLASS 1B BEDROCK OR BETTER AS DETERMINED BY THE ENGINEER.

SHEET PILE NOTES: (CONT.)

4. INSTALLATION NOTES:
   4.1. THE VERTICALITY IN EACH PLANE OF THE SHEET PILES SHALL NOT DEVIATE FROM PLUMB BY MORE THAN ONE PERCENT. PLAN LOCATION SHALL BE WITHIN 3-IN OF THEORETICAL LOCATION.
   4.2. ALL STEEL SHEET PILING SHALL BE DRIVEN CONTINUOUSLY INTERLOCKED TO EACH OTHER AND FOR THE FULL LENGTH OF THE SHEETS. THIS IS REQUIRED FOR GROUNDWATER CUT-OFF.
   4.3. DURING SHEET PILE SETTING AND DRIVING, SURVEY LOCATION AND MEASURE VERTICALITY TO CONFIRM TOLERANCES ARE MET.
   4.4. IF A SHEET PILE IS OUT OF LOCATION BEYOND 3-IN BUT LESS THAN 6-IN, SUBSEQUENT SHEET LOCATIONS SHALL BE ADJUSTED TO BRING THE ALIGNMENT BACK INTO TOLERANCE.
   4.5. IF A SHEET PILE IS OUT OF LOCATION BY MORE THAN 6-IN, IT SHALL BE EXTRACTED, RELOCATED, AND REINSTALLED.
   4.6. HANDLE STEEL SHEET PILING USING HANDLING HOLES OR LIFTING DEVICES. HANDLE STEEL SHEET PILES WITH CARE TO PREVENT DAMAGE. SUPPORT ON LEVEL BLOCKS OR RACKS SPACED NOT MORE THAN 10-FT APART AND NOT MORE THAN 2-FT FROM THE ENDS. SUPPORTS BETWEEN MULTIPLE LIFTS SHALL BE IN A VERTICAL PLANE.
   4.7. PILE HAMMER: USE A PILE IMPACT HAMMER HAVING A CAPACITY SUITABLE FOR THE TOTAL WEIGHT OF THE PILE AND THE CHARACTER OF SUBSURFACE MATERIAL TO BE ENCOUNTERED. OPERATE HAMMER AT THE RATE(S) RECOMMENDED BY THE MANUFACTURER THROUGHOUT THE ENTIRE DRIVING PERIOD. REPAIR DAMAGE TO PILING CAUSED BY USE OF A PILE HAMMER. ALTERNATIVELY, IF THE USE OF A VARIABLE MOMENT VIBRATORY HAMMER IS PROPOSED, THE ALTERNATIVE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. OPERATIONAL PROCEDURES MUST BE DEFINED TO MINIMIZE VIBRATIONS.
   4.8. DRIVING FRAME: IT IS SUGGESTED THE CONTRACTOR PROVIDE A DRIVING FRAME SUITABLE FOR ALIGNING, SUPPORTING, AND MAINTAINING SHEET PILING PLUMB IN THE CORRECT POSITION DURING SETTING AND DRIVING. USE A SYSTEM OF STRUCTURAL FRAMING SUFFICIENTLY RIGID TO RESIST LATERAL AND DRIVING FORCES AND TO ADEQUATELY SUPPORT THE SHEET PILING UNTIL DESIGN TIP ELEVATION IS ACHIEVED.
      4.8.1. DRIVING FRAMES SHALL NOT MOVE WHEN SUPPORTING SHEET PILING. FIT FRAMES WITH WOOD BLOCKING TO BEAR AGAINST SHEET PILES AND HOLD THE SHEET PILE AT THE DESIGN LOCATION ALIGNMENT. PROVIDE OUTER TEMPLATE STRAPS OR OTHER RESTRAINTS AS NECESSARY TO PREVENT THE SHEETS FROM WARPING, WANDERING, OR RACKING ALONG THE ALIGNMENT.
      4.8.2. SHEET PILES COMLETED AND DRIVEN TO FINAL TIP ELEVATION MAY BE WELDED TO ADJACENT COMPLETED SHEETS IF REQUIRED TO RESTRAIN MOVEMENT OF COMPLETED SHEETS.
5. INSTALL SHEET PILES TO THE MINIMUM TIP ELEVATION SHOWN ON THE SECTIONS FRO GROUNDWATER CONTROL AND SUPPORT OF EXCAVATION.
6. DO NOT DRIVE SHEET PILING UNTIL DEBRIS AND OTHER MATERIALS HAVE BEEN REMOVED THAT MAY INTERFERE WITH STEEL SHEET PILE DRIVING. IF NECESSARY, PERFORM PRE-TRENCHING ALONG ALIGNMENT TO REMOVE OBSTRUCTIONS. OBSTRUCTIONS OR UTILITIES THAT CANNOT BE REMOVED MAY NECESSITATE RELOCATION OF SHEET PILES AS DETERMINED BY THE ENGINEER.
7. CUTTING AND SPLICING: PILES DRIVEN BELOW THE REQUIRED TIP ELEVATION AND PILES DAMAGED BY DRIVING AND CUT OFF TO PERMIT FURTHER DRIVING SHALL BE EXTENDED AS REQUIRED TO REACH THE TOP ELEVATION BY SPLICING AS APPROVED BY THE ENGINEER.
   7.1. ENDS OF PILES TO BE SPLICED SHALL BE SQUARED BEFORE SPLICING, ELIMINATE DIPS OR CAMBER. SPLICE PILES WITH CONCENTRIC ALIGNMENT OF THE INTERLOCKS SO THAT THERE ARE NO DISCONTINUITIES, DIPS, OR CAMBER AT THE ABUTTING INTERLOCKS.
   7.2. SPLICED PIILES SHALL BE FREE SLIDING AND ABLE TO OBTAIN THE MAXIMUM SWING WITH CONTIGUOUS PILES.
   7.3. SPLICES SHALL DEVELOP THE FULL STRUCTURAL STRENGTH OF THE MEMBER.
8. REMOVE AND REPLACE STEEL SHEET PILES FOUND TO BE OUT OF INTERLOCK, OUT OF TOLERANCE, DAMAGED, OR OTHERWISE DEFICIENT AT NO ADDITIONAL COST TO THE OWNER.
9. MAINTAIN A PILE INSTALLATION RECORD FOR EACH SHEET PILE. INDICATE ON THE INSTALLATION RECORD INSTALLATION DATES AND TIMES, TYPE AND SIZE OF HAMMER, RATE OF OPERATION, TOTAL DRIVING TIME, DIMENSIONS OF DRIVING HELMET AND CAP USED, BLOWS REQUIRED PER FOOT FOR EACH FOOT OF PENETRATION, PILE LOCATIONS, PILE PLUMBNESS, TIP ELEVATIONS, GROUND ELEVATIONS, CUT-OFF ELEVATIONS, AND ANY REHEADING OR CUTTING OF SHEET PILES. RECORD ANY UNUSUAL SHEET PILE INSTALLATION PROBLEMS.

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT
NO.	**DATE:**	**DESCRIPTION**

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

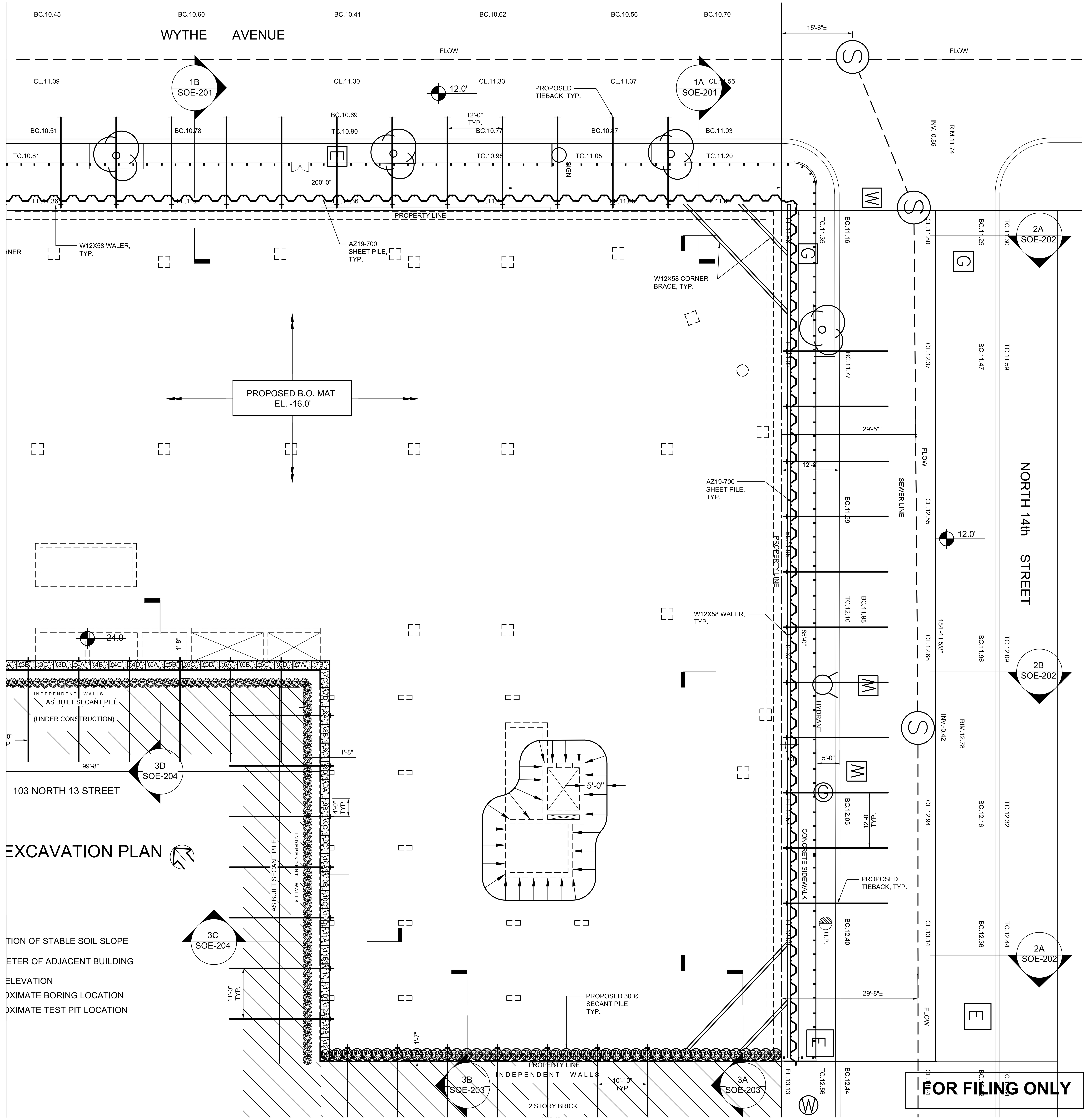
NOTES

SEAL & SIGNATURE

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-002.00
SHEET NO:	2 OF 13

BSCAN STICKER

DOB APPROVAL STAMP



STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

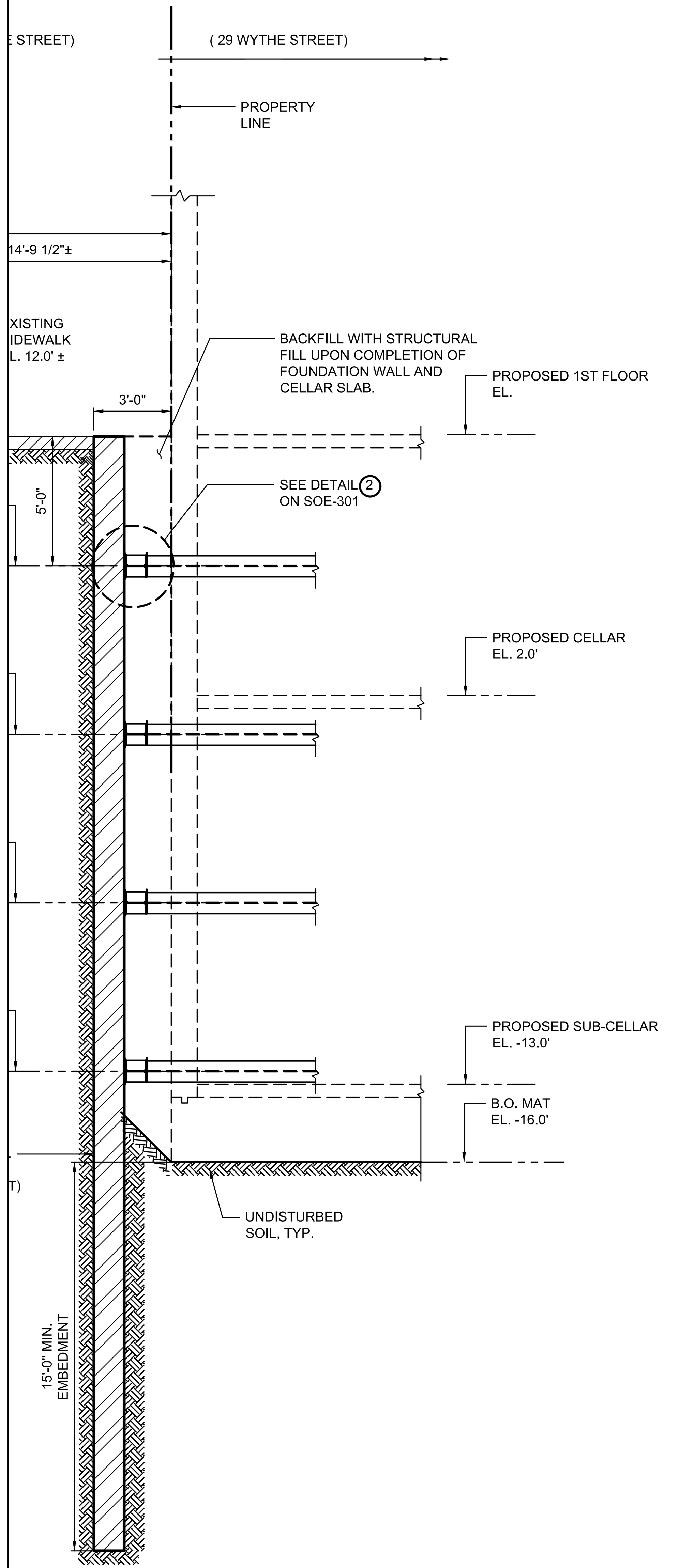
SUPPORT OF EXCAVATION PLAN

SEAL & SIGNATURE

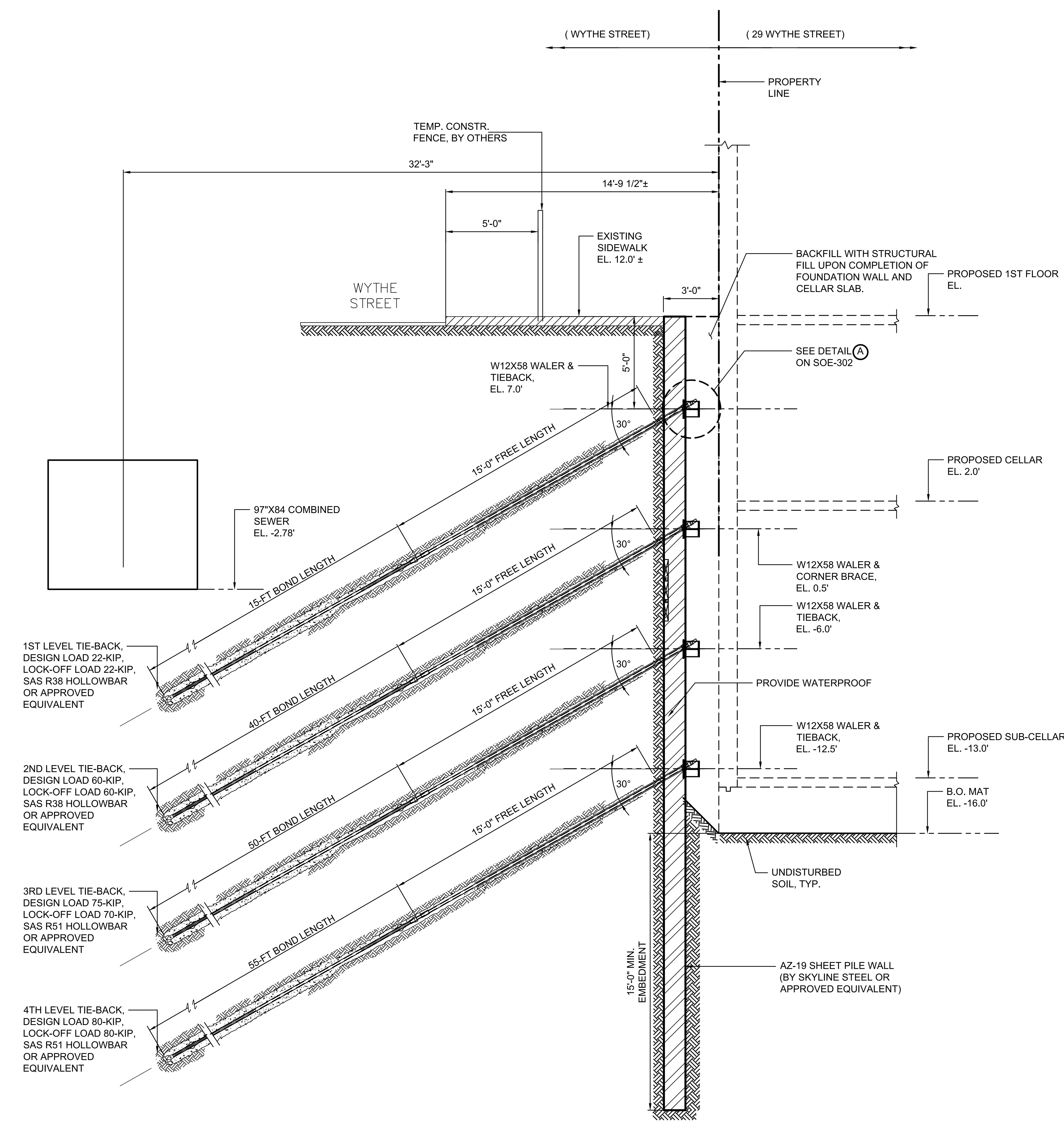
DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-101.00
SHEET NO:	3 OF 13

BSCAN STICKER

DOB APPROVAL STAMP



1A SECTION
1/4"=1-0"



1B SECTION
1/4"=1-0"

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

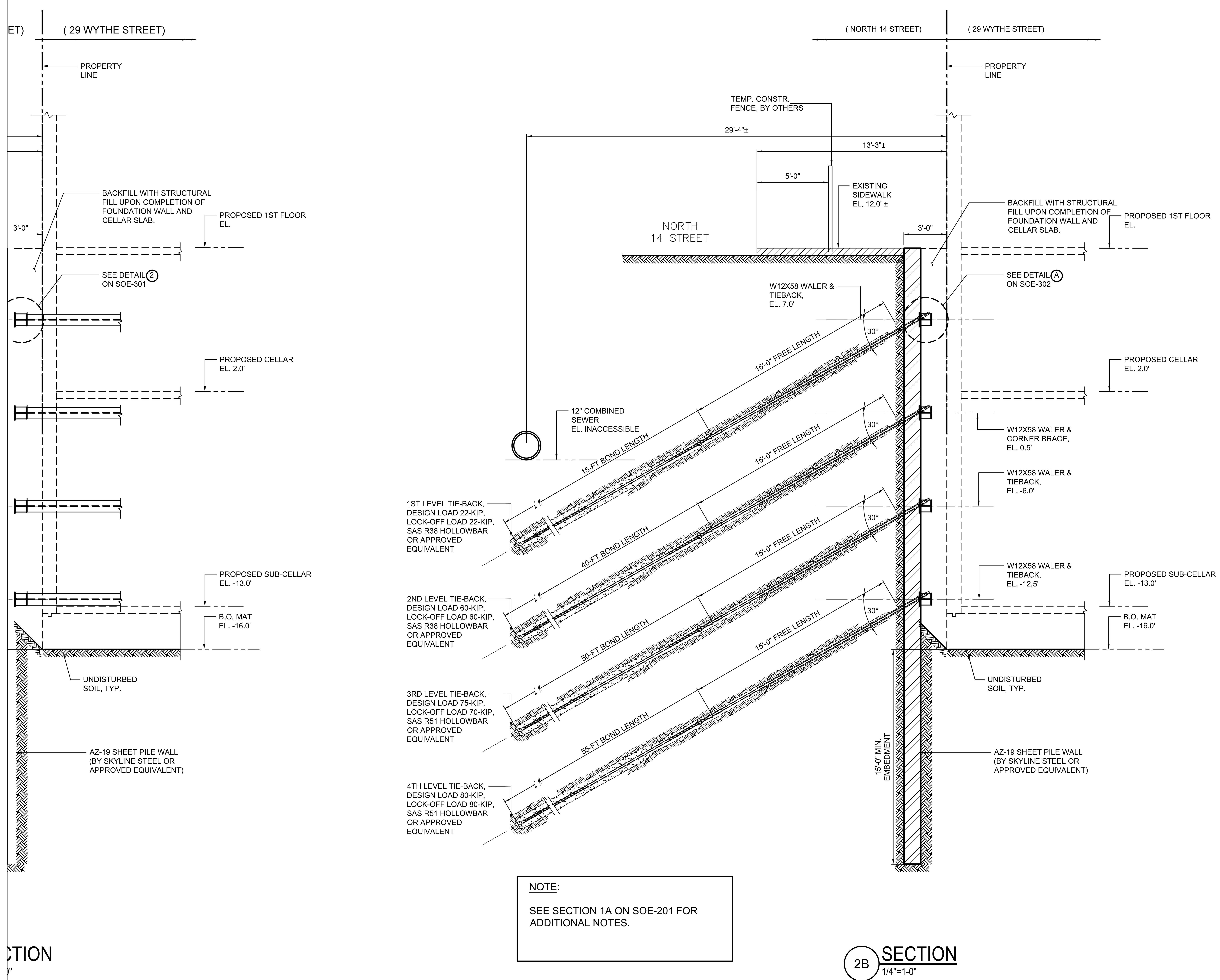
SUPPORT OF EXCAVATION SECTIONS

SEAL & SIGNATURE

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-201.00
SHEET NO:	4 OF 13

BSCAN STICKER

DOB APPROVAL STAMP



NOTE:

SEE SECTION 1A ON SOE-201 FOR ADDITIONAL NOTES.

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

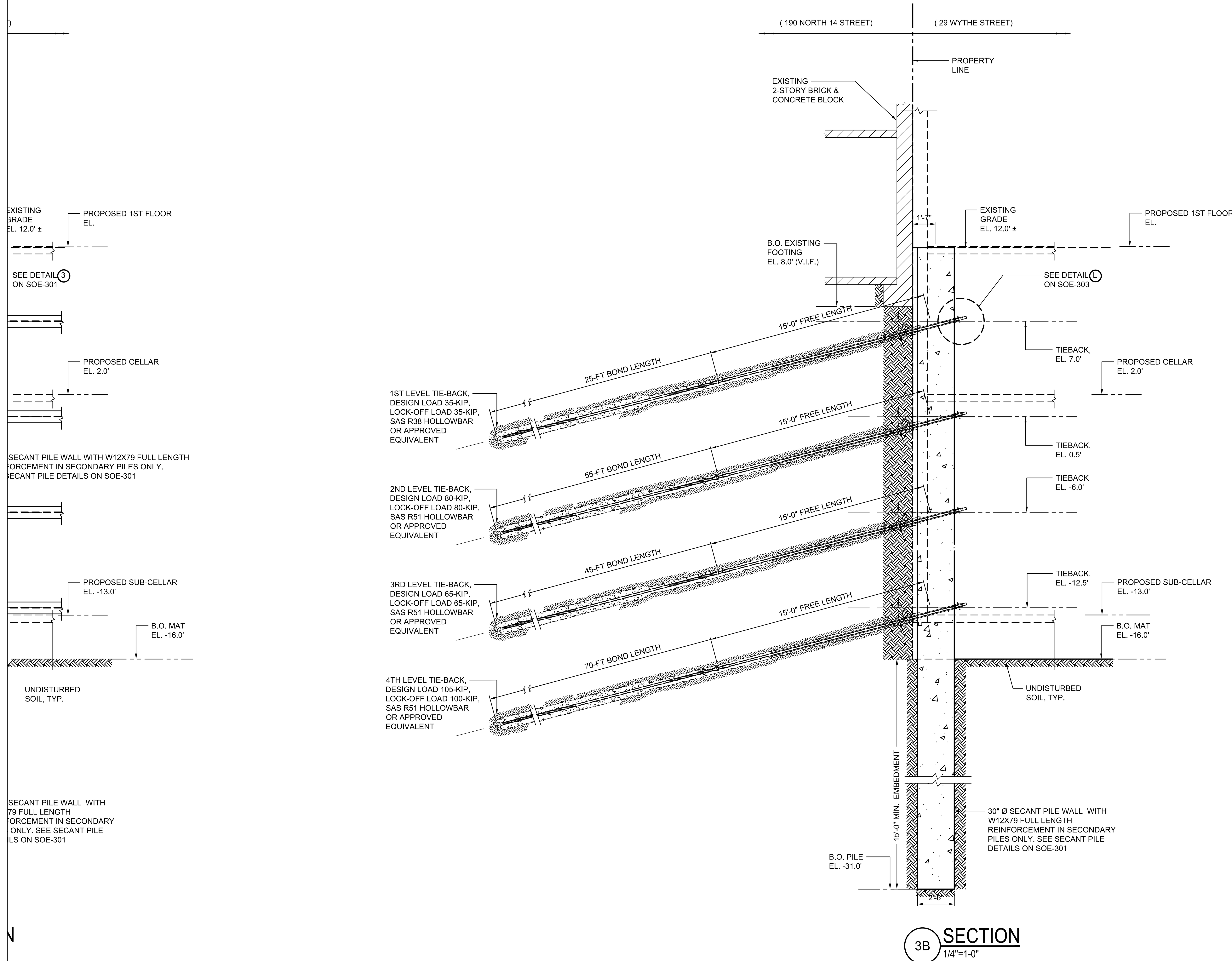
DRAWING TITLE:

SUPPORT OF EXCAVATION SECTIONS

SEAL & SIGNATURE	
DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-202.00
SHEET NO:	5 OF 13

BSCAN STICKER

DOB APPROVAL STAMP



FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS
40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

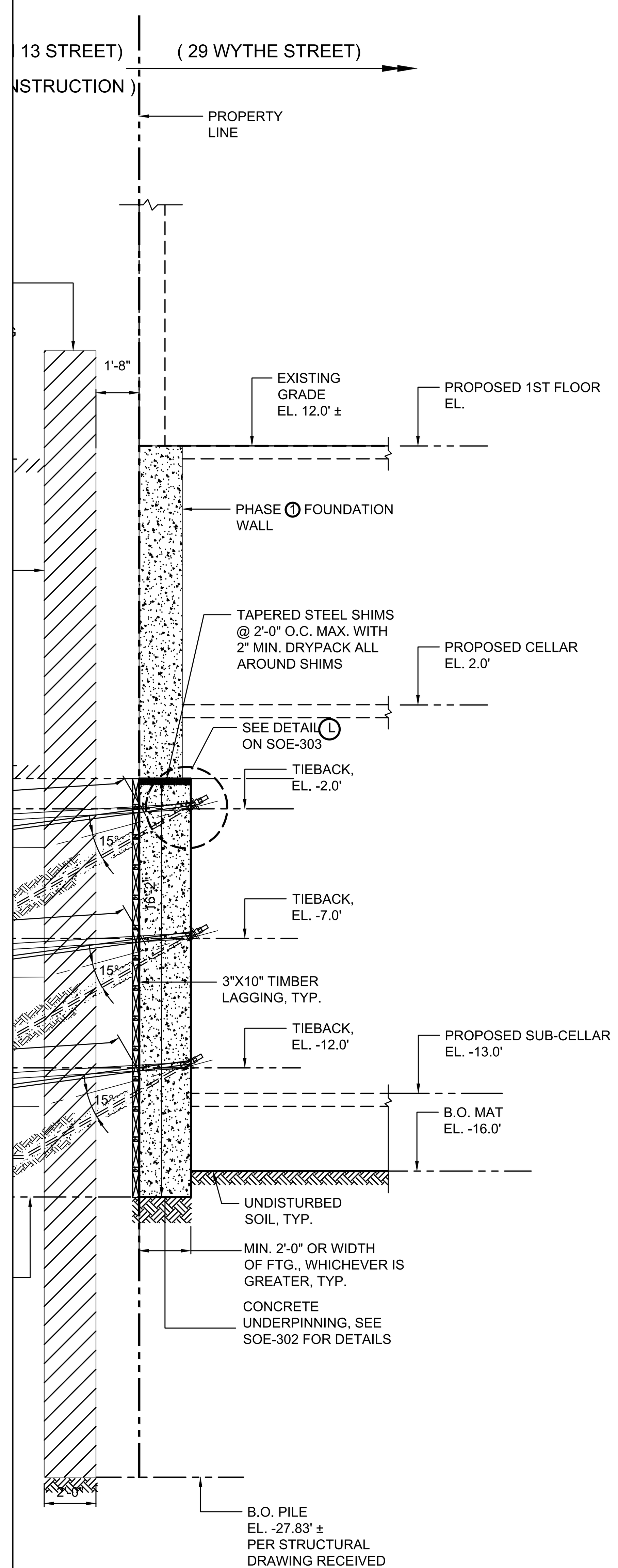
SUPPORT OF EXCAVATION SECTIONS

SEAL & SIGNATURE

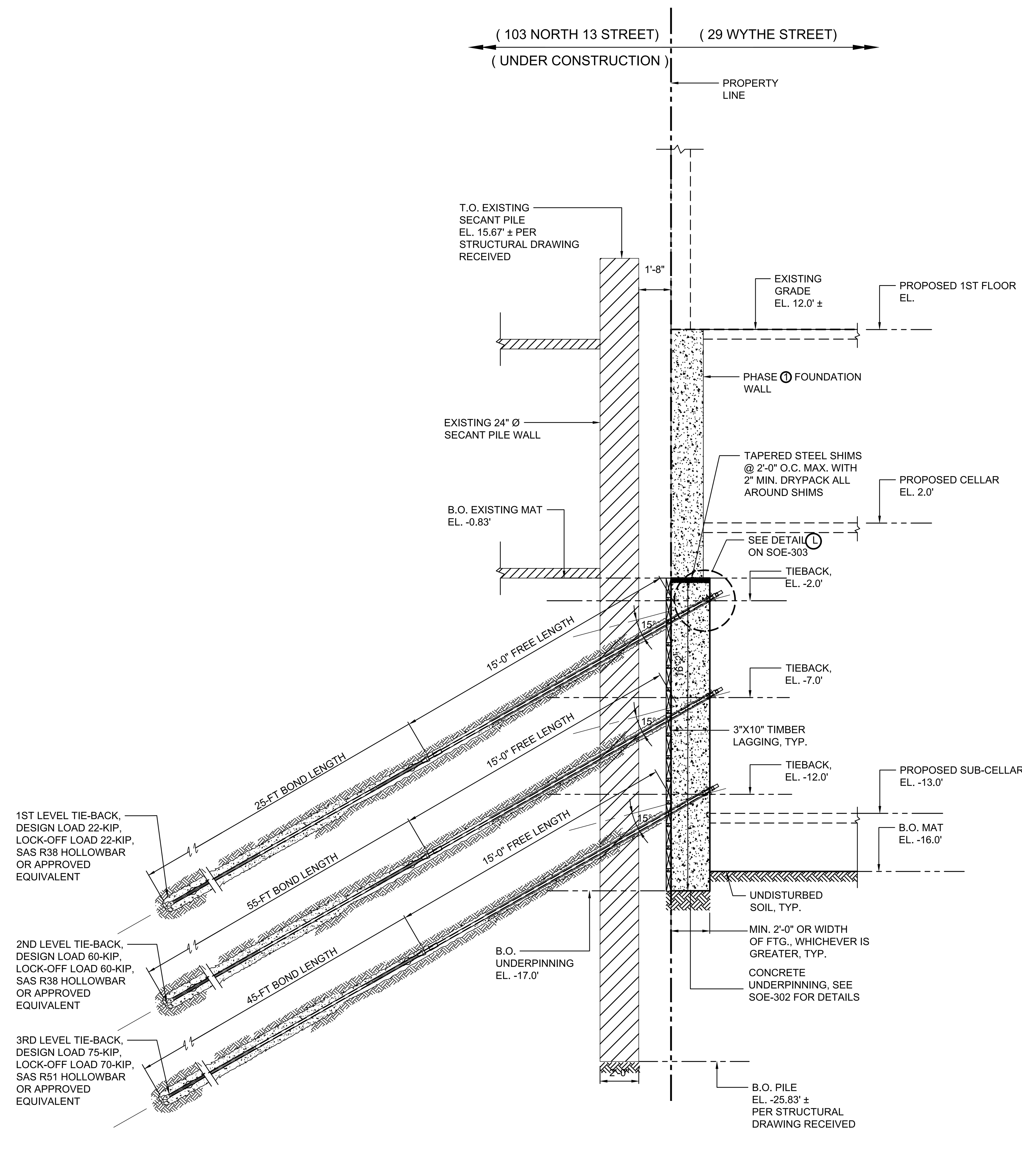
DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-203.00
SHEET NO:	6 OF 13

BSCAN STICKER

DOB APPROVAL STAMP



3C SECTION
1/4"=1-0"



3D SECTION
1/4"=1-0"

UNDERPINNING SEQUENCE:

1. EXCAVATE SITE GRADE TO 1-FT ABOVE B.O. EXISTING FOOTING ELEVATION.
2. CONSTRUCT "A" PIERS AND WAIT AT LEAST 24-HOUR TO CURE.
3. WEDGE "A" PIERS AND BACKFILL TO 1-FT BELOW T.O. UNDERPINNING ELEVATION.
4. CONSTRUCT "B" PIERS AND WAIT AT LEAST 24-HOUR TO CURE.
5. WEDGE AND DRYPACK "B" PIERS, AND BACKFILL TO 1-FT BELOW T.O. UNDERPINNING ELEVATION.
6. CONSTRUCT "C" PIERS AND WAIT AT LEAST 24-HOUR TO CURE.
7. WEDGE AND DRYPACK "C" PIERS, AND BACKFILL TO 1-FT BELOW T.O. UNDERPINNING ELEVATION.
8. CONSTRUCT "D" PIERS AND WAIT AT LEAST 24-HOUR TO CURE.
9. WEDGE AND DRYPACK "D" PIERS, AND BACKFILL TO 1-FT BELOW T.O. UNDERPINNING ELEVATION.
10. RE-DRIVE WEDGES AND DRYPACK "A" PIERS.
11. EXCAVATE TO SUBGRADE.

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

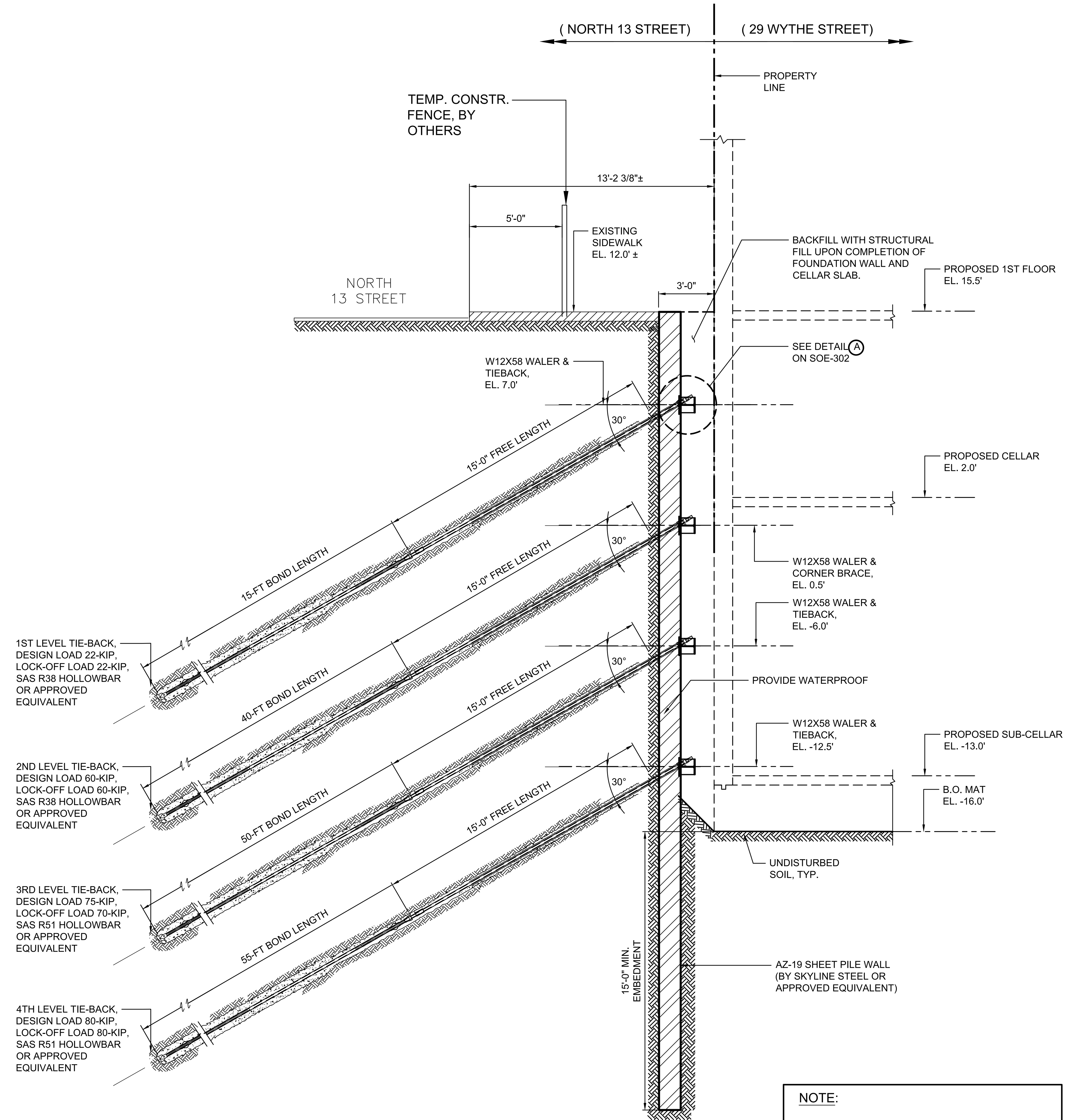
DRAWING TITLE:

SUPPORT OF EXCAVATION SECTIONS

SEAL & SIGNATURE		
	DATE:	09-10-18
	PROJECT NO:	
	SCALE:	AS NOTED
	DRAWING BY:	A.CORNELIO
	CHECKED BY:	G.J.C.
	DWG NO:	SOE-204.00
	SHEET NO:	7 OF 13

BSCAN STICKER

DOB APPROVAL STAMP



NOTE:

SEE SECTION 1B ON SOE-201 FOR ADDITIONAL NOTES.

4A SECTION
1/4"=1-0"

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

SUPPORT OF EXCAVATION SECTIONS

SEAL & SIGNATURE

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-205.00
SHEET NO:	8 OF 13

BSCAN STICKER

DOB APPROVAL STAMP

YTHE STREET)

PERTY

ACKFILL WITH STRUCTURAL
LL UPON COMPLETION OF
OUNDATION WALL AND
ELLAR SLAB.

PROPOSED
1ST FLOOR
EL. 15.5'

SEE DETAIL 2
ON SOE-301

PROPOSED
CELLAR
EL. 2.0'

PROPOSED
SUB-CELLAR
EL. -13.0'

B.O. MAT
EL. -16.0'

NDISTURBED
IL, TYP.

Z-19 SHEET PILE WALL
BY SKYLINE STEEL OR
APPROVED EQUIVALENT)

FOR FILING ONLY

STRUCTURAL ENGINEERING
TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND
FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

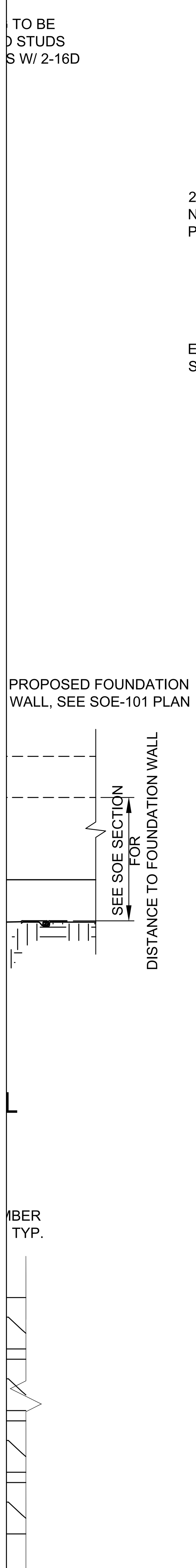
SUPPORT OF
EXCAVATION
SECTIONS

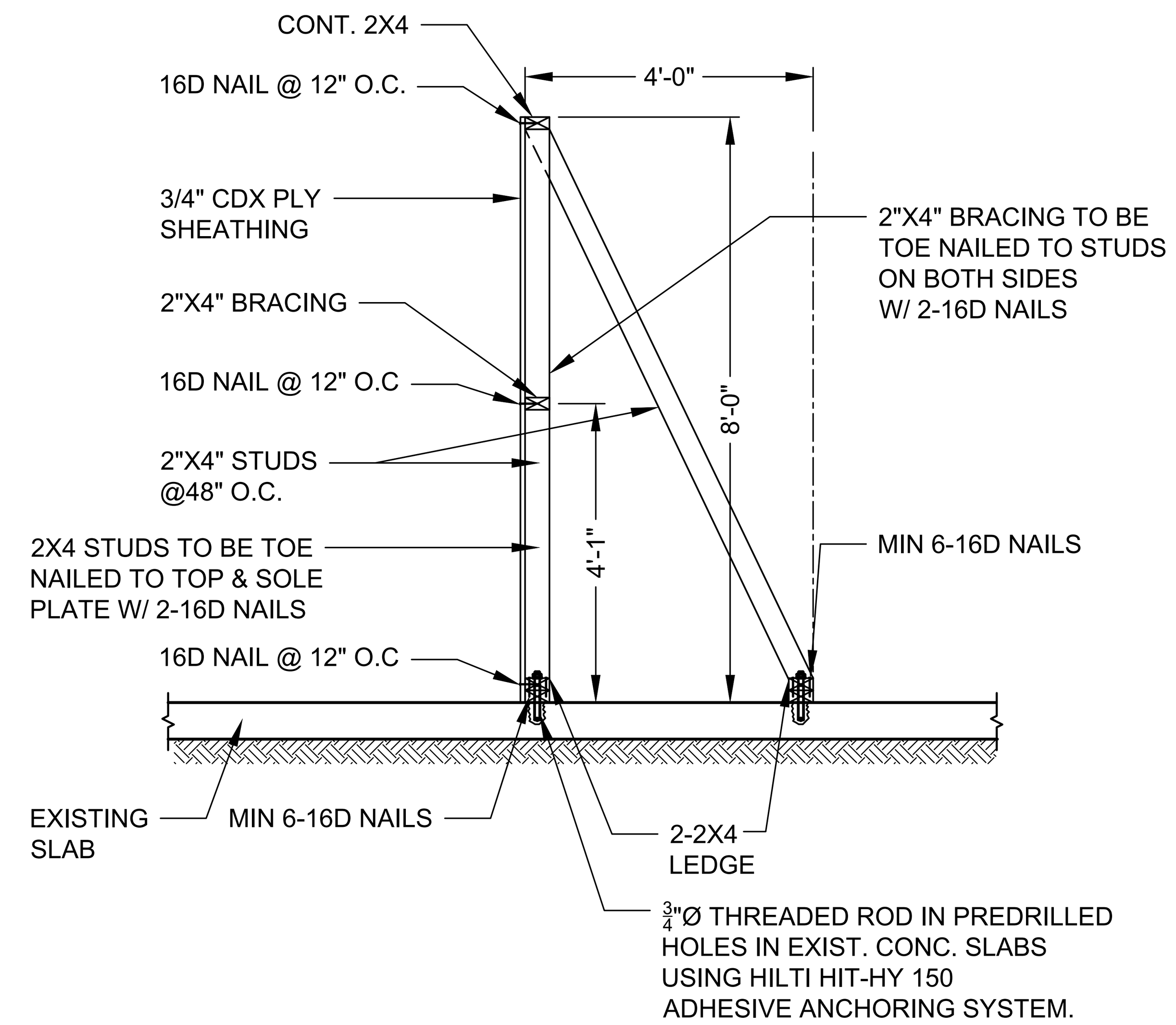
SEAL & SIGNATURE

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-206.00
SHEET NO:	9 OF 13

BSCAN STICKER

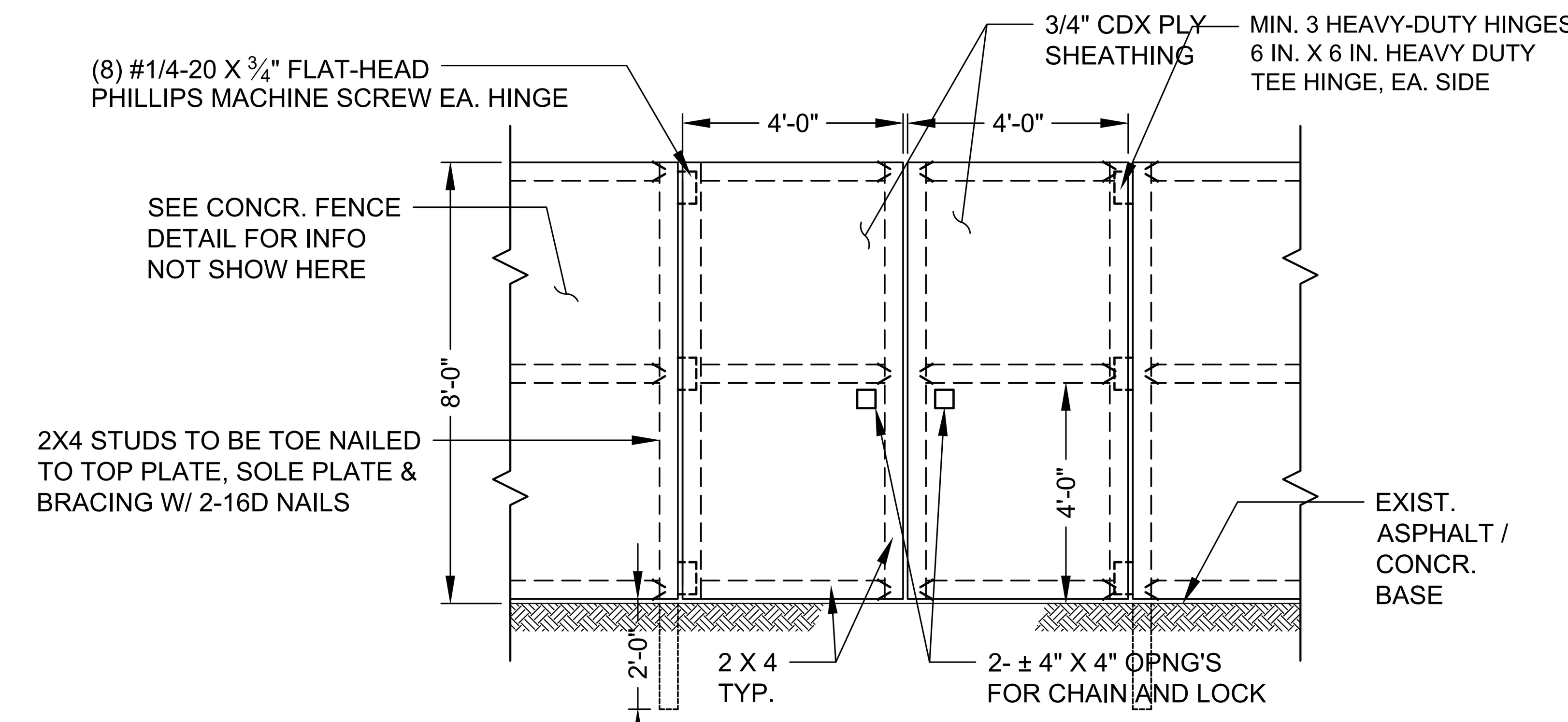
DOB APPROVAL STAMP





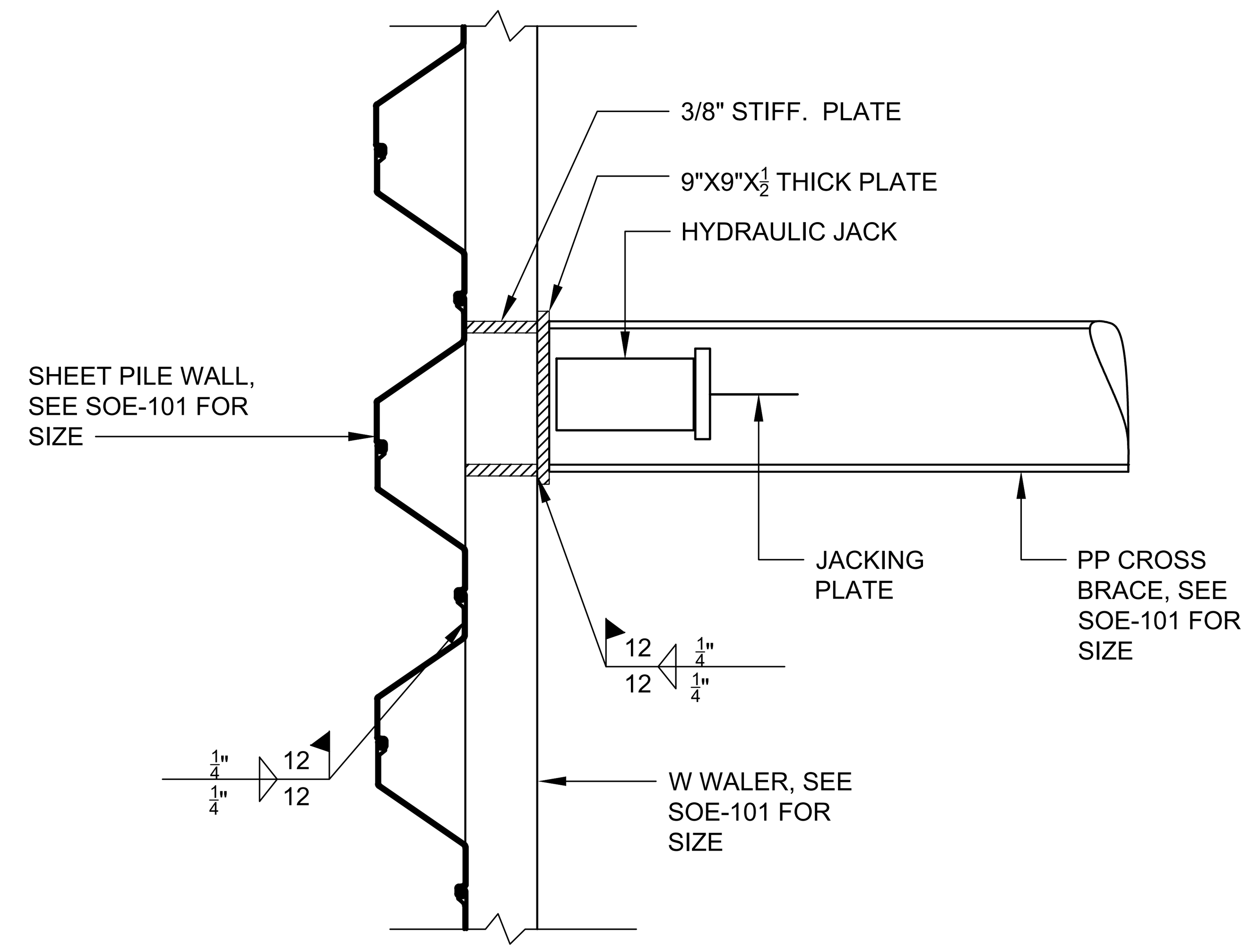
TEMPORARY CONSTRUCTION FENCE DETAIL-OPTION 2

1/2"=1'-0"



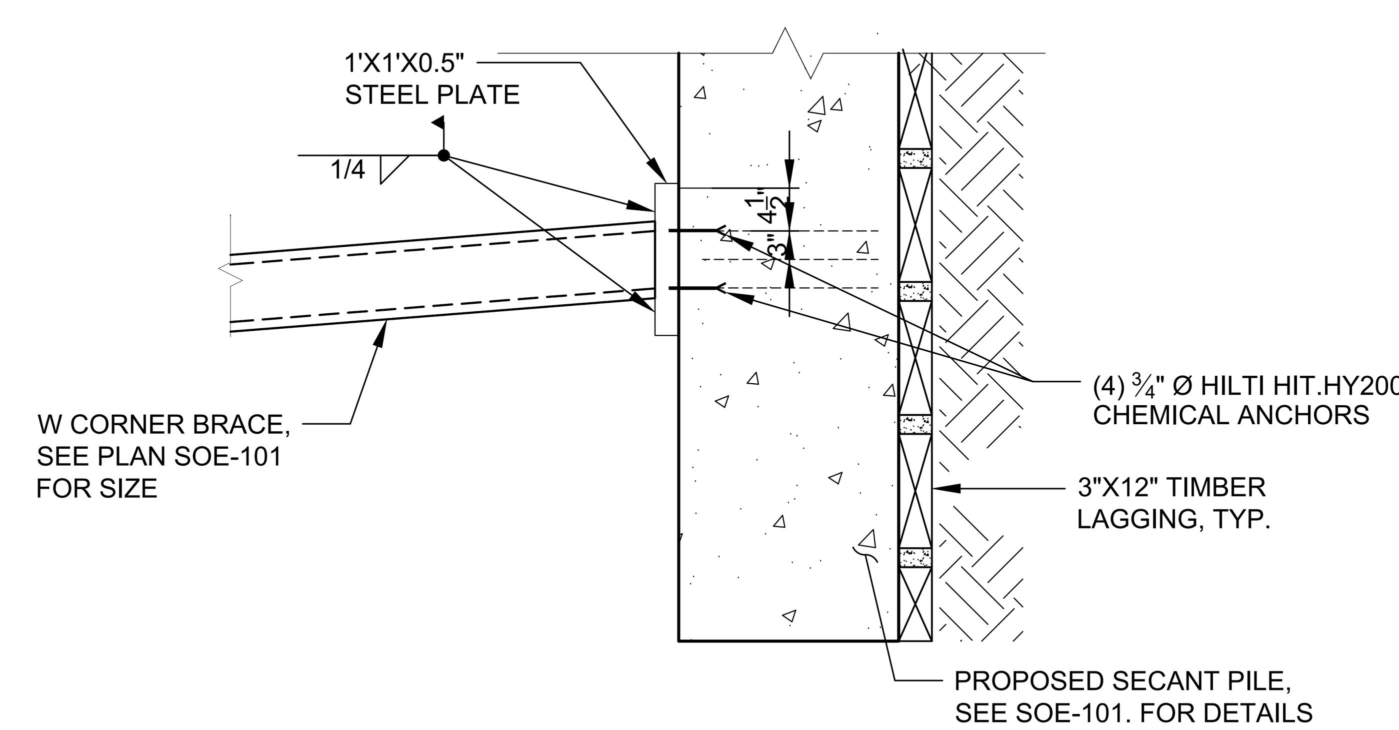
TYPICAL GATE ELEVATION DETAIL AT CONSTRUCTION FENCE

3/8"=1'-0"



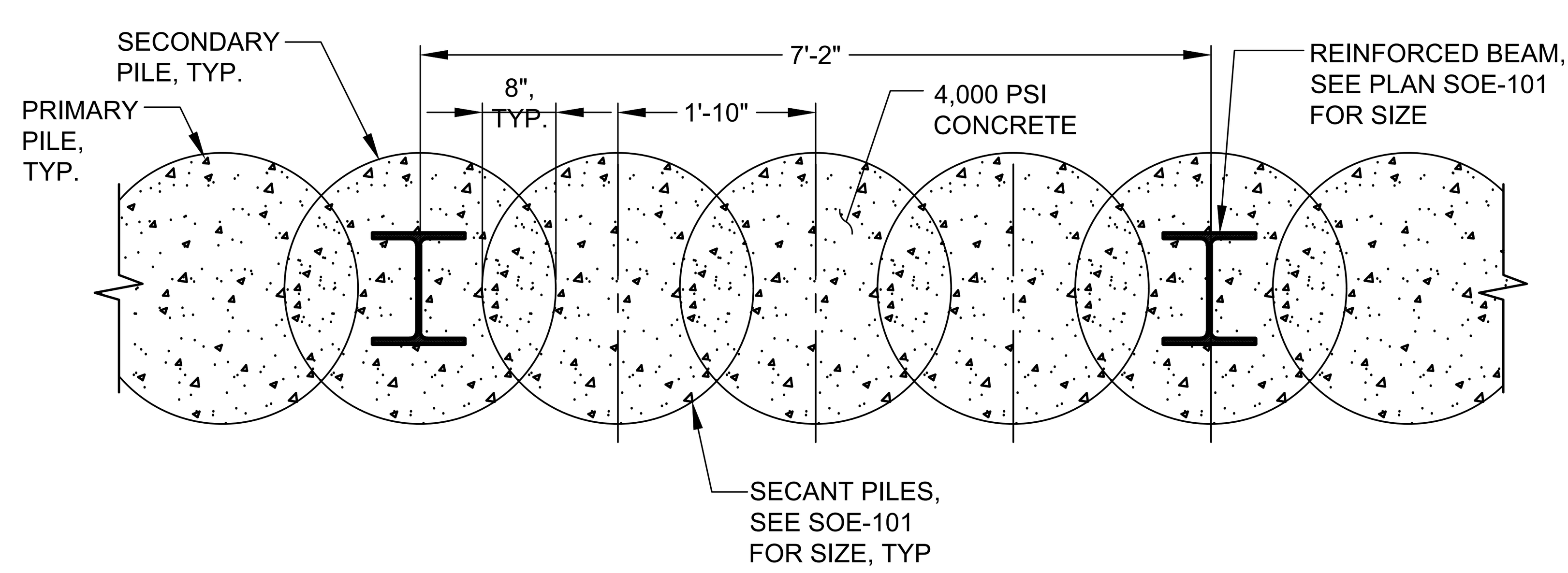
2 DETAIL

1/2"=1-0"



3 CORNER BRACE TO SECANT PILE CONNECTION

3/4"=1-0"



4 SECANT PILE DETAIL

3/4"=1-0"

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

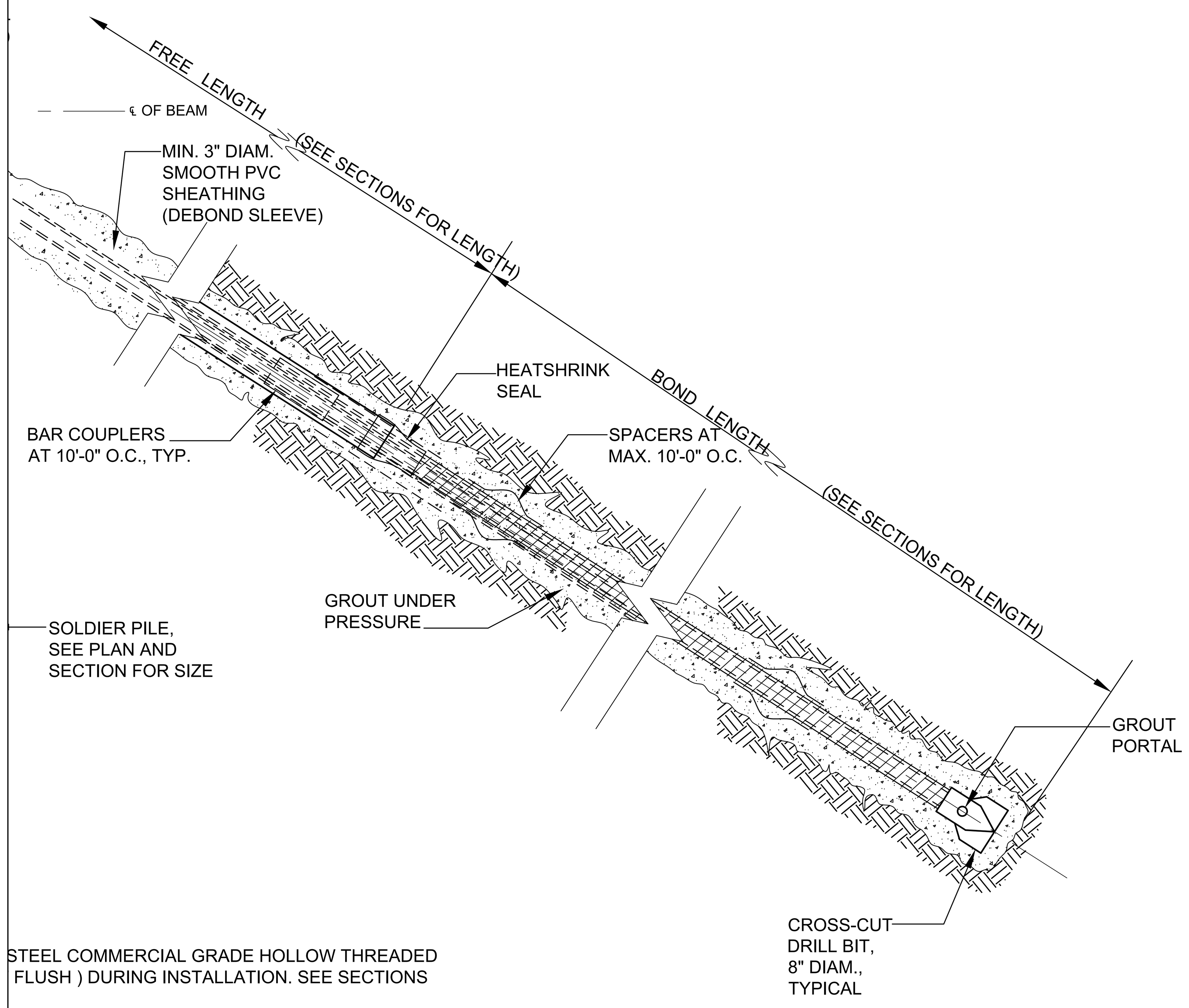
SUPPORT OF EXCAVATION DETAILS

SEAL & SIGNATURE

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-301.00
SHEET NO:	10 OF 13

BSCAN STICKER

DOB APPROVAL STAMP

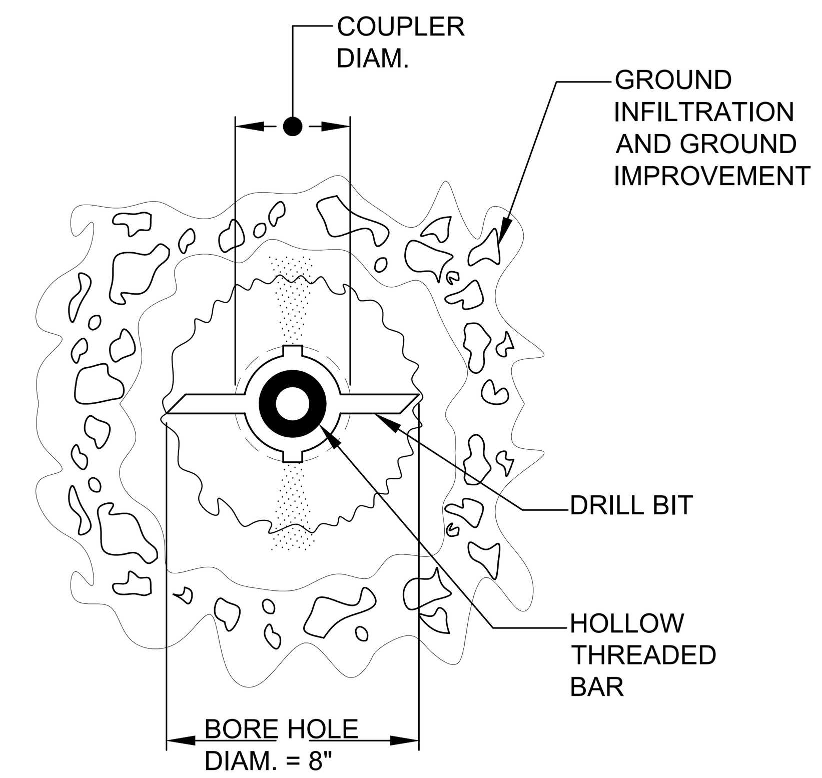


STEEL COMMERCIAL GRADE HOLLOW THREADED
FLUSH) DURING INSTALLATION. SEE SECTIONS

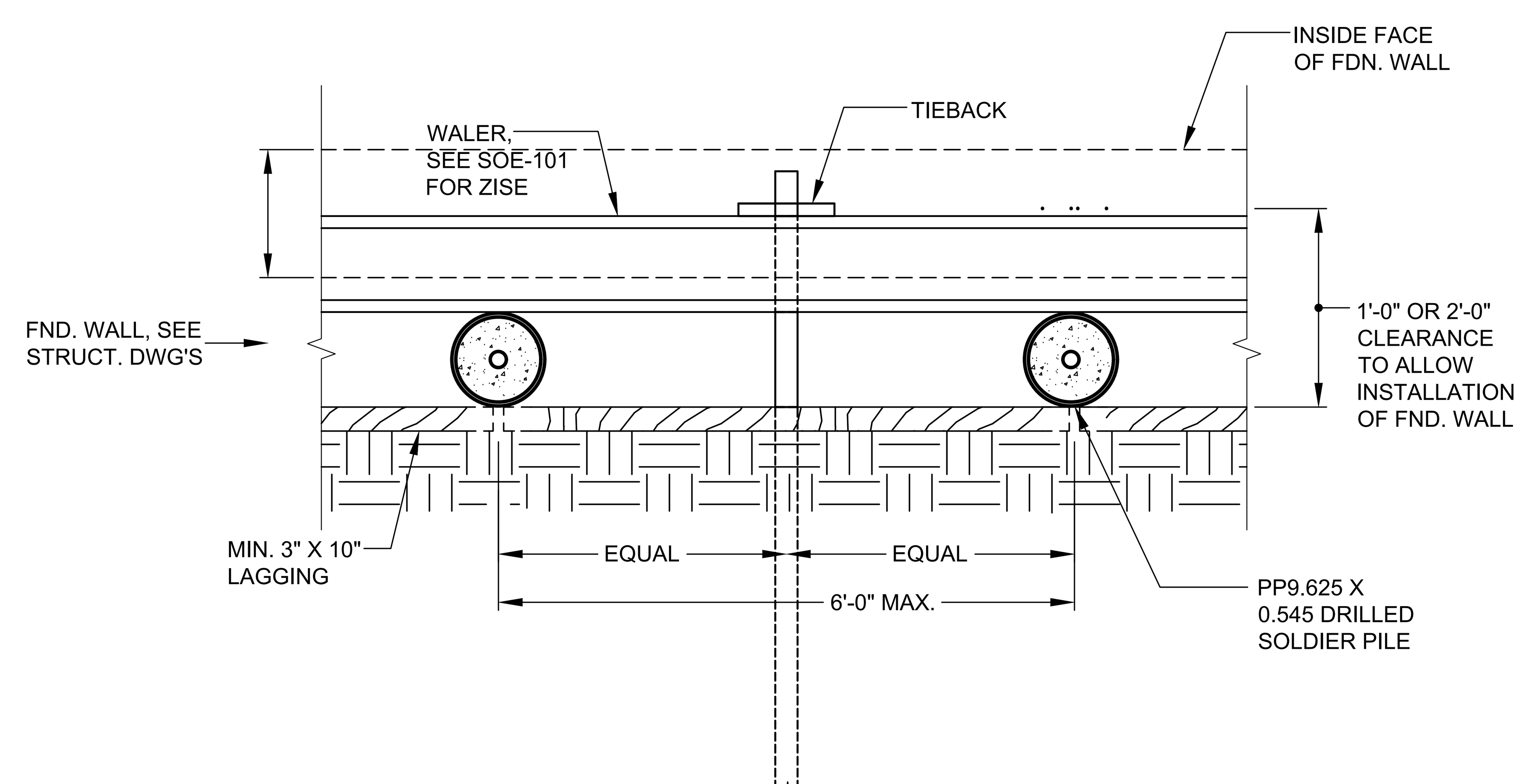
PRESSIVE STRENGTH, WITH GROUT FLUSHING
ND FINAL GROUT W / C RATIO APPROX. 0.4,
DJUSTED DURING INSTALLATION IF REQ'D

TIONS AND SCHEDULE.

TO CLEAR OBSTRUCTIONS SHALL BE PROHIBITED.



L DETAIL
1 1/2"=1-0"



L DETAIL
3/4"=1-0"

FOR FILING ONLY

STRUCTURAL ENGINEERING
TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND
FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

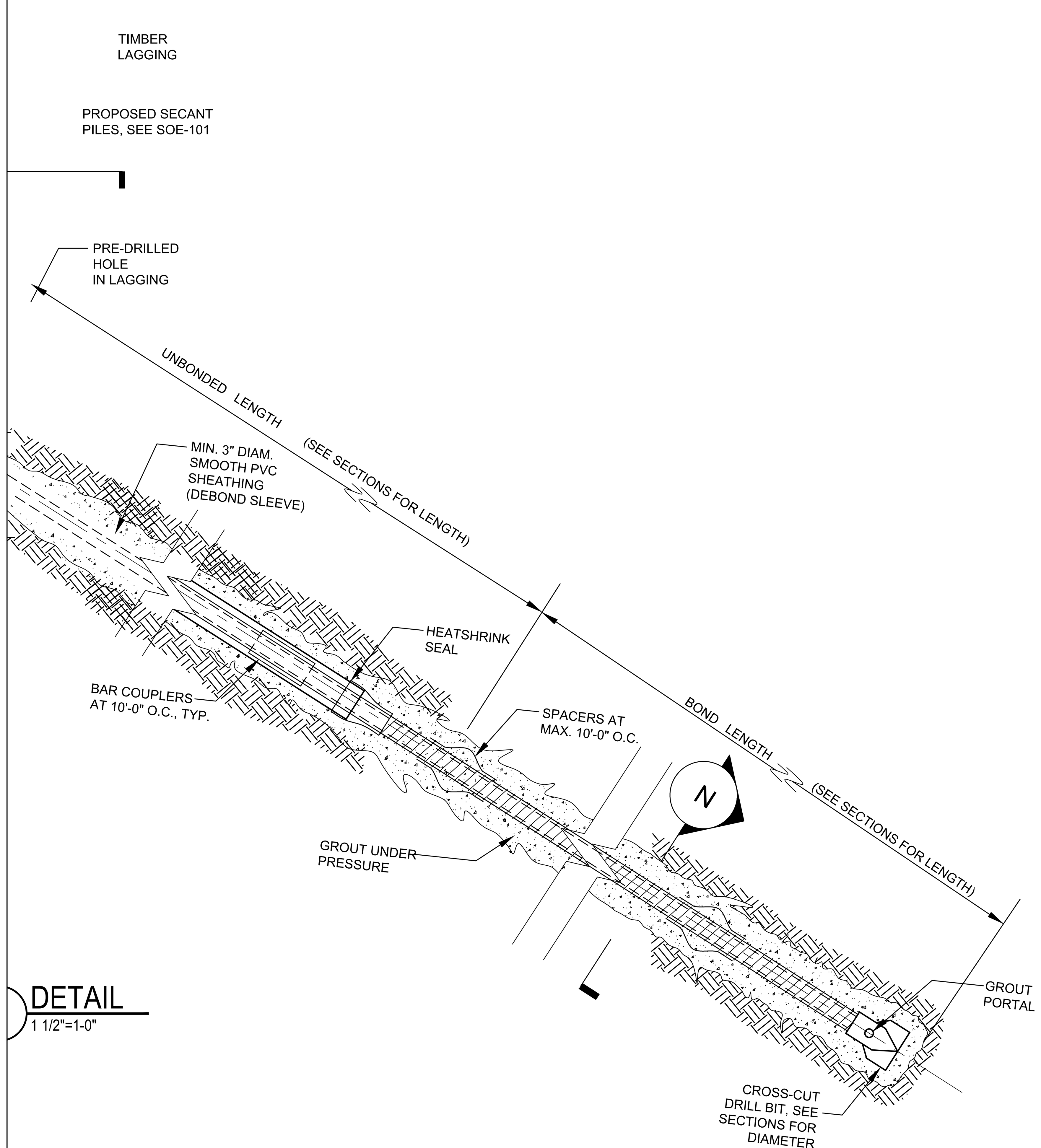
TYPICAL TIEBACK DETAILS

SEAL & SIGNATURE

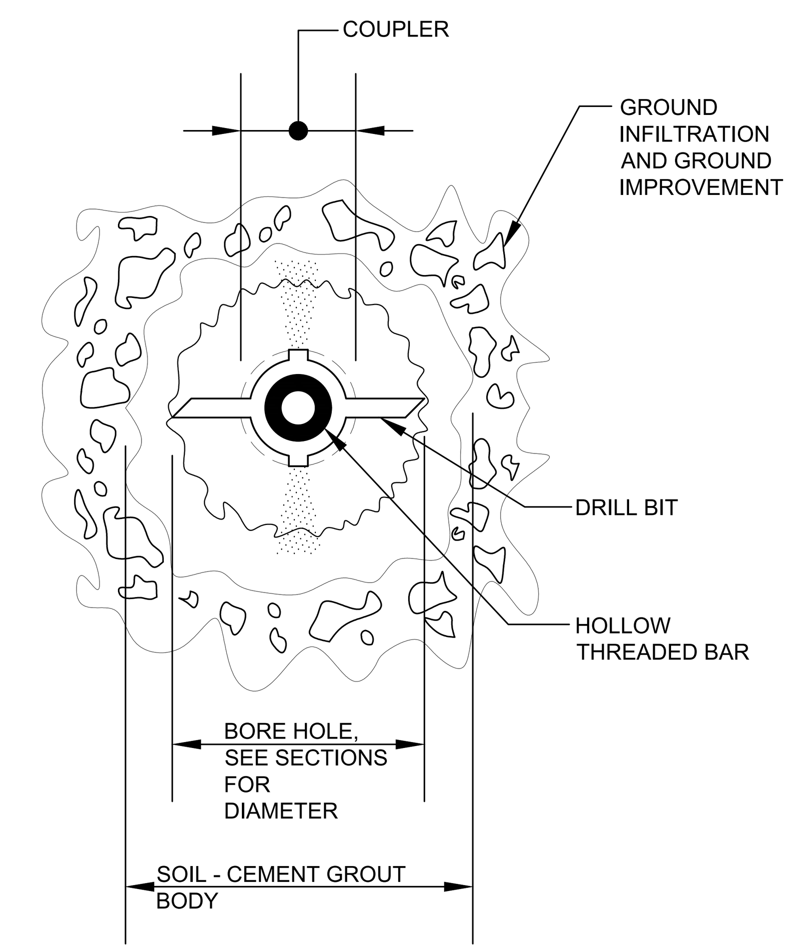
DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-302.00
SHEET NO:	11 OF 13

BSCAN STICKER

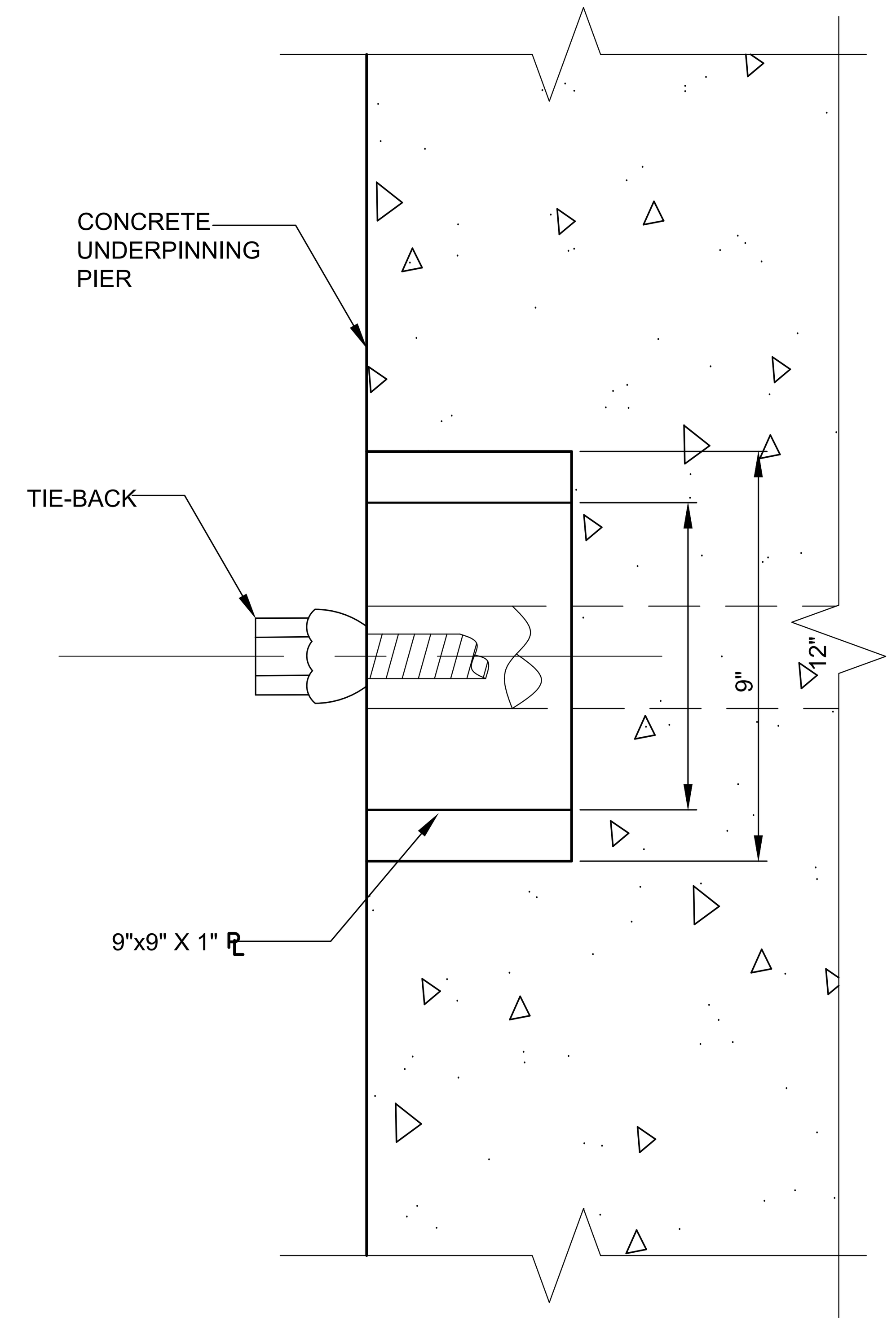
DOB APPROVAL STAMP



DETAIL
1 1/2"=1-0"



N DETAIL
1 1/2"=1-0"



E DETAIL
3"=1-0"

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

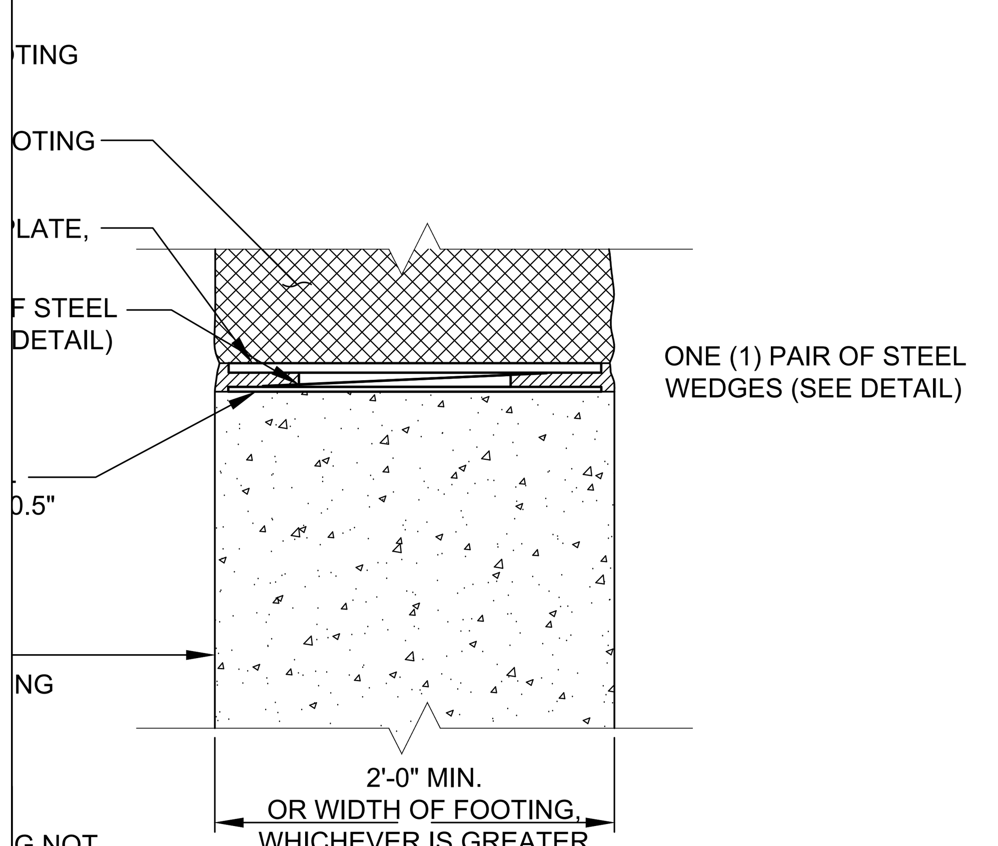
TYPICAL TIEBACK DETAILS

SEAL & SIGNATURE

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-303.00
SHEET NO:	12 OF 13

BSCAN STICKER

DOB APPROVAL STAMP

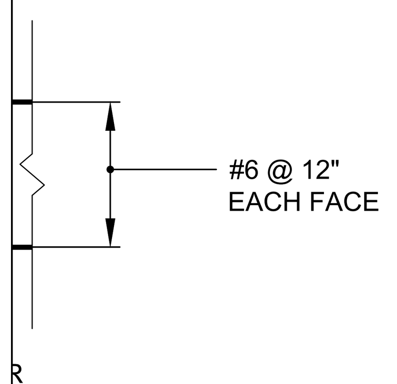


SECTION A-A

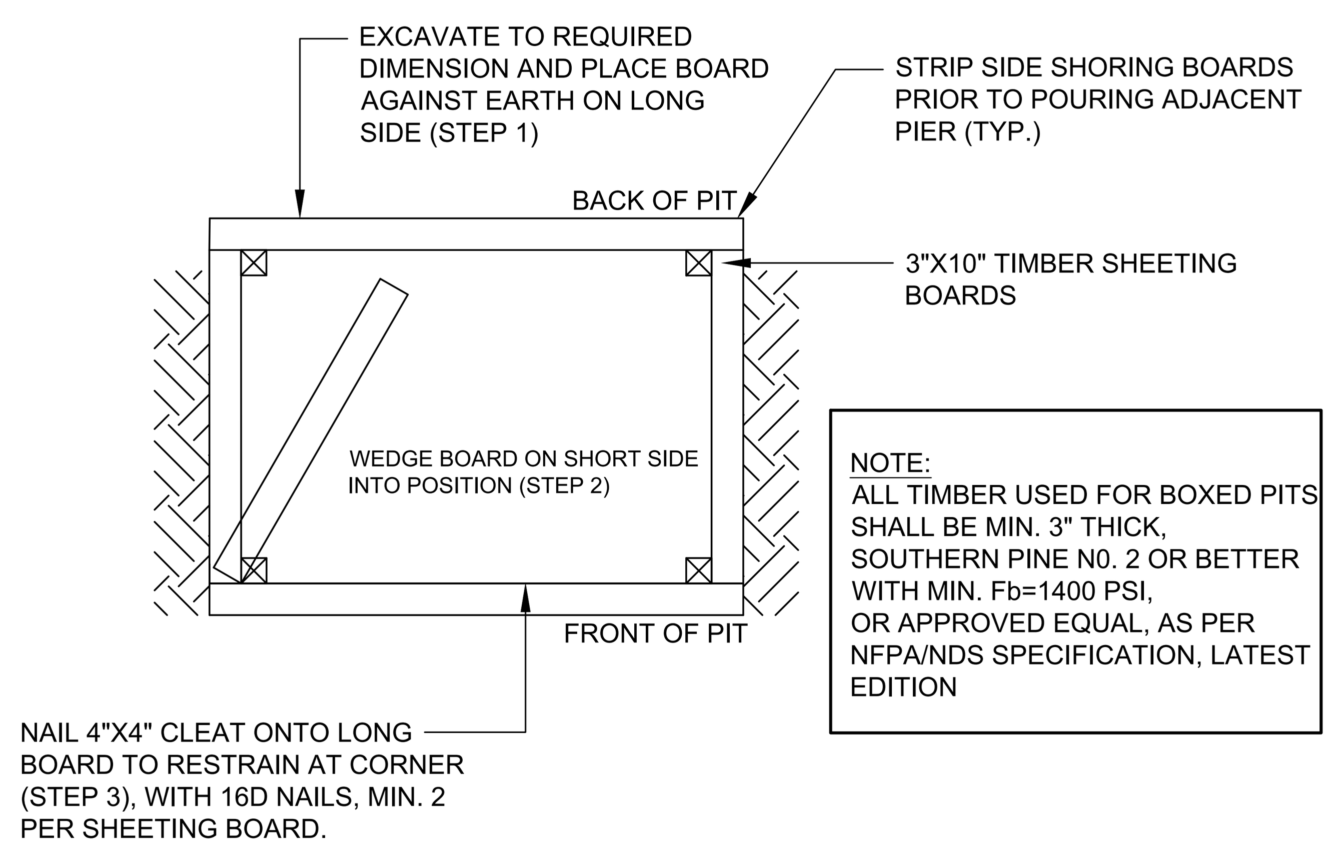
UNDERPINNING CONSTRUCTION PROCEDURE

1. EXCAVATE PIT AND SIMULTANEOUSLY PLACE REQUIRED SHEETING AND BRACING, ALL PITS TO BE SHEETED ON ALL FOUR SIDES. PACK VOIDS BEHIND SHEETING WITH SOIL CEMENT OR GROUT. LEAVE A MINIMUM OF 12'-0" BETWEEN OPEN PITS.
2. CLEAN BOTTOM OF EXISTING FOOTING.
3. RECOMPACT DISTURBED SOIL AT BOTTOM OF PIT TO 95% OF THE MAXIMUM DENSITY OF THE SOIL.
4. AFTER UNDERPINNING SUBGRADE IS INSPECTED AND APPROVED BY SPECIAL INSPECTOR, INSTALL REINFORCING STEEL AS SHOWN ON THE UNDERPINNING DETAILS IF APPLICABLE.
5. POUR NEW CONCRETE UNDERPINNING PIER. TOP OF UNDERPINNING PIER SHALL BE SMOOTH AND LEVEL.
6. NO SOONER THAN 24 HOURS AFTER THIS CONCRETE IS CAST, PLACE STEEL PLATE (0.5"X32"X24") ON TOP OF UNDERPINNING PIER. ADD STEEL PLATES AS NECESSARY TO MAKE UP HEIGHT. THEN PLACE TAPERED STEEL WEDGES AT 2'-0" ON CENTER BETWEEN STEEL PLATE AND BOTTOM OF THE FOOTING. CENTER THE WEDGES UNDER THE BOTTOM OF THE FOOTING AND DRIVE THE WEDGES.
7. PACK SOLID WITH DRYPACK INTO SPACE BETWEEN TOP OF THE UNDERPINNING AND BOTTOM OF EXISTING FOOTING. ENSURE THE BACK OF VOID IS FORMED SO THAT THE DRYPACK IS NOT LOST WHEN RAMMED INTO GAPS.
8. REPEAT UNDERPINNING CONSTRUCTION FOR ADJACENT SEGMENTS.

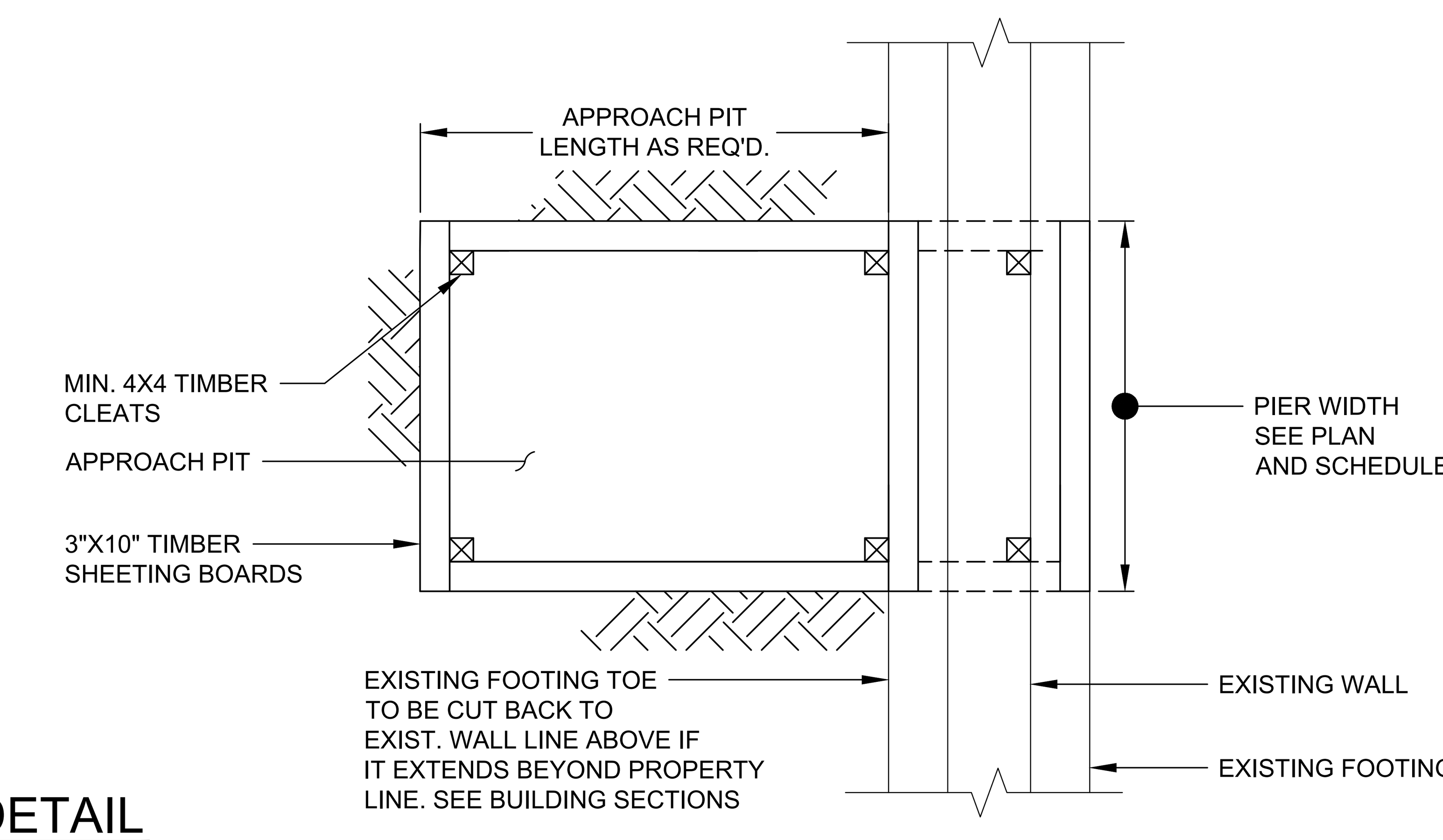
NDERPINNING PIERS



RPINNING DETAIL

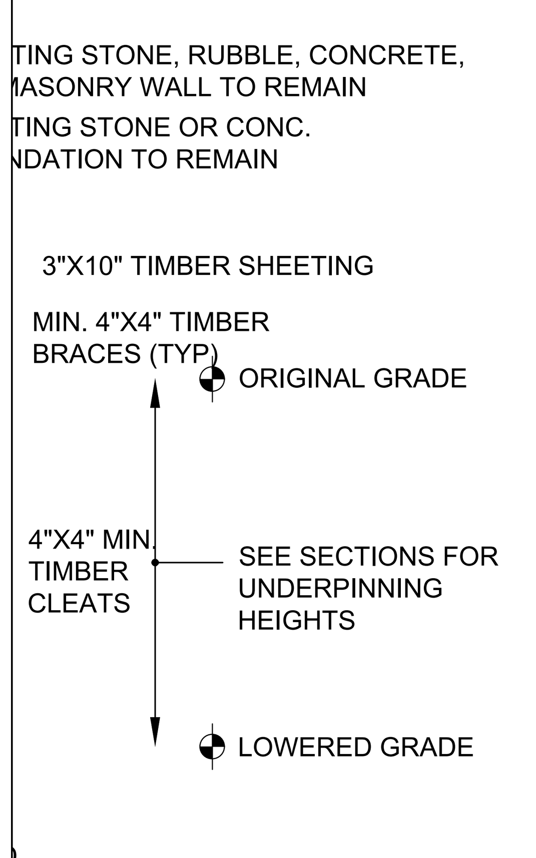


NOTE:
ALL TIMBER USED FOR BOXED PITS SHALL BE MIN. 3" THICK, SOUTHERN PINE N0. 2 OR BETTER WITH MIN. Fb=1400 PSI, OR APPROVED EQUAL, AS PER NFPA/NDS SPECIFICATION, LATEST EDITION

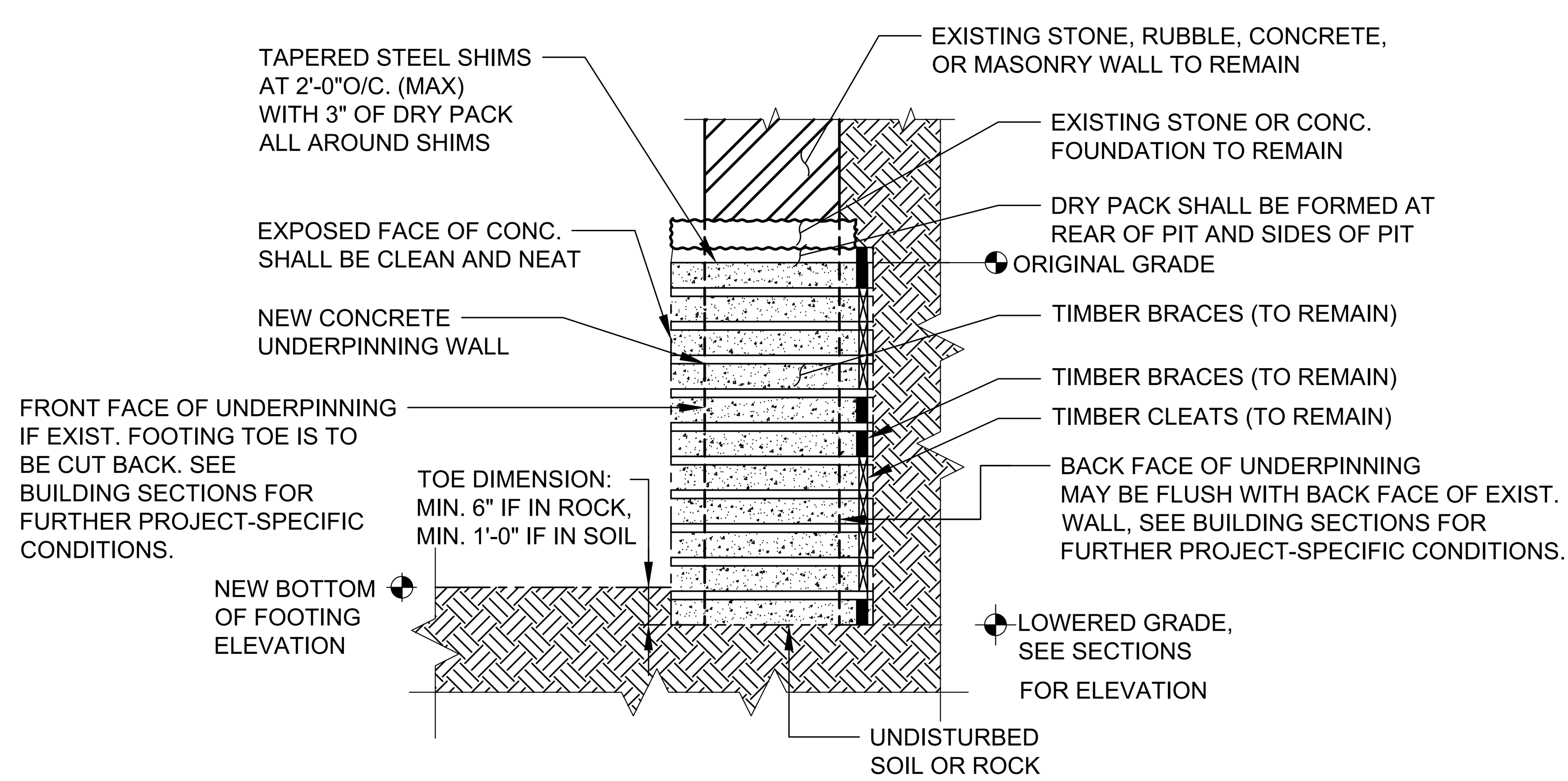


APPROACH PIT SHORING DETAIL

SCALE: 1/2"=1'-0"

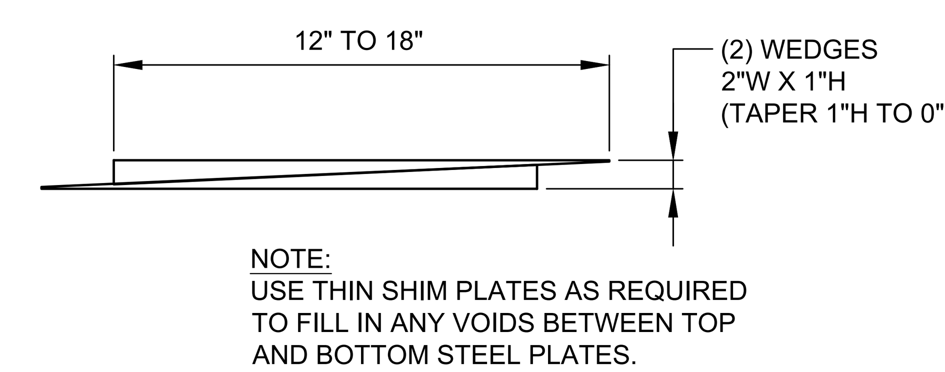


ACING



TYPICAL SECTION OF CONCRETE UNDERPINNING

SCALE: 1/4"=1'-0"



NOTE:
USE THIN SHIM PLATES AS REQUIRED TO FILL IN ANY VOIDS BETWEEN TOP AND BOTTOM STEEL PLATES.

STEEL WEDGE DETAIL

SCALE: 1 1/2"=1'-0"

FOR FILING ONLY

STRUCTURAL ENGINEERING TECHNOLOGIES, P.C.

CONSULTING STRUCTURAL AND FOUNDATION ENGINEERS

40-12 28TH STREET
LONG ISLAND CITY, NY 11101
T(718)706-7196 F(718)472-4464

OWNER:

THE DESIGN PROFESSIONAL SHALL BE RELEASED FROM ANY AND ALL LIABILITY IN THE COMMENCEMENT OF ANY WORK PERFORMED WITHIN THESE DOCUMENTS PRIOR TO OBTAINING ALL REQUIRED PERMITS FROM THE RESPECTIVE JURISDICTIONAL AGENCIES

NOTE:
STRUCTURAL ENGINEERING TECHNOLOGIES, P.C. HAS NOT BEEN RETAINED TO PERFORM CONTROLLED INSPECTIONS OF ANY KIND FOR THIS PROJECT.

NO.	DATE:	DESCRIPTION
	01-24-20	UPDATED
	12-13-19	UPDATED
	11-01-19	FOR FILING
	10-03-19	FOR FILING
	10-11-18	FOR FILING
	10-02-18	DESIGN CONCEPT

REVISONS:

FILINGS:

PROJECT

29 WYTHE AVENUE,
BROOKLYN, NY 11249

SUPPORT OF EXCAVATION

DRAWING TITLE:

TYPICAL UNDERPINNING DETAILS

DATE:	09-10-18
PROJECT NO:	
SCALE:	AS NOTED
DRAWING BY:	A.CORNELIO
CHECKED BY:	G.J.C.
DWG NO:	SOE-304.00
SHEET NO:	13 OF 13

SEAL & SIGNATURE

BSCAN STICKER

DOB APPROVAL STAMP

ATTACHMENT I
Estimated Remedial Costs

Former Dutch Masters Paint and Varnish Co.
29-41 Wythe Avenue and 180 N. 14th Street
Brooklyn, NY

Summary of Project Costs

NYS Brownfields Cleanup Program

Costs by Task

TASK - ENVIRONMENTAL REMEDIATION	**Track 1**	**Track 2**	**Track 3**
Excavation and Loading	$ 825,000.00	$ 637,500.00	$ 37,500.00
Shoring and SOE	$ 1,000,000.00	$ 1,000,000.00	-
Transportation and Disposal	$ 1,470,636.00	$ 1,297,644.00	$ 51,000.00
UST Removal and Closure	$ 25,000.00	$ 25,000.00	$ 25,000.00
Waste Charaterization	$ 76,100.00	$ 76,100.00	$ 6,850.00
Endpoint analyis, DUSR, EDDs	$ 34,825.00	$ 34,825.00	$ 34,825.00
Air Monitoring and Field Oversight	$ 176,000.00	$ 136,000.00	$ 40,000.00
Project Management	$ 73,675.00	$ 73,675.00	$ 31,850.00
Dewatering Permits and Treatment System	$ 319,250.00	$ 319,250.00	-
Site Cover System	-	-	$ 350,000.00
Status Reports	$ 4,200.00	$ 4,200.00	$ 4,200.00
Environmental Easement Package	-		$ 12,500.00
Site Management Plan	-		$ 11,500.00
Final Engineering Report	$ 25,450.00	$ 25,450.00	$ 25,450.00
Subtotal	$ 4,030,136.00	$ 3,629,644.00	$ 630,675.00
15% Contigency	$ 604,520.40	$ 544,446.60	$ 94,601.25
Total	**$ 4,634,656.40**	**$ 4,174,090.60**	**$ 725,276.25**