

PCB Risk-Based Cleanup and Disposal Application

**Port of Albany
700 Smith Boulevard
Albany, New York**

NYSDEC Site No. 401080(P)

CHA Project Number: 28952.1201.31000

*Prepared for:
Port of Albany
106 Smith Boulevard
Albany, New York 12202*

Prepared by:



*III Winners Circle
Albany, New York 12205
Phone: (518) 453-4500*

May 15, 2020

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Site Description.....	2
1.2	Previous Environmental Investigations.....	2
1.2.1	Phase II Investigation – Plumley 2014	2
1.2.2	Supplemental Phase II Investigation Report – CHA – April 2015	4
1.2.3	Supplemental Groundwater Sampling – CHA – May 2015	7
1.2.4	Additional Site Characterization Sampling: Sterling, June-September 2015	8
1.2.5	Additional Site Characterization Sampling – CHA – October 2018	9
2.0	NATURE AND EXTENT OF CONTAMINATION.....	12
2.1	Contaminants of Concern and Impacted Media.....	12
2.2	Regulatory Cleanup Levels	12
2.3	Applicable NYSDEC Regulations.....	13
3.0	CLEANUP PLAN AND ALTERNATIVE ANALYSIS	14
3.1	REMEDIAL ACTIVITIES	15
3.1.1	Pre-Construction/Site Preparation.....	15
3.1.1.1	Layout of Excavation Areas	15
3.1.1.2	Waste Characterization Sampling	16
3.1.2	Characterization of On-Site Buildings.....	16
3.1.3	Excavation of PCB Impacted Soil.....	16
3.1.4	On-Site Catch Basin Removal.....	17
3.1.5	Direct Push Refusal Investigation	18
3.1.6	Soil Screening Methods and Stockpiling.....	19
3.1.7	Transportation.....	20
3.1.8	Disposal.....	21
3.1.9	Decontamination	21
3.2	Verification Sampling	23
3.2.1	Field Methodologies	23
3.2.2	Laboratory Methodologies.....	24
3.2.3	Quality Control Samples.....	24
3.3	Backfill/Capping/Site Restoration	24
3.4	Institutional Controls	26
3.4.1	Environmental Easement/Deed Restriction.....	26
3.4.2	Site Management Plan	26
3.5	Contingency Plans	26
3.5.1	Elevated PCB Concentrations or Increased Distribution.....	27
3.5.2	Control of Potential Oil or Hazardous Material Spills.....	27
3.5.3	Preventing Deleterious Impact – SWPPP Preparation.....	27

3.6 Site Monitoring28

 3.6.1 Air Monitoring Plan28

 3.6.2 Health and Safety Plan28

4.0 FINAL REPORT30

5.0 SCHEDULE30

6.0 OWNER CERTIFICATION31

LIST OF TABLES

Table 1	Summary of Soil PCB Analytical Results: 2015 – 2018
Table 2	Summary of Groundwater Analytical Results: 2014 - 2015

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Soil Boring/Sample Location Plan
Figure 3A	Soil Sample Location Plan, GP-26 Area
Figure 3B	Soil Delineation General Sampling Schematic, November 2018
Figure 4	Excavation Plan
Figure 4A	Excavation Plan, GP-26 Area
Figure 5	Catch Basin Locations
Figure 6	Protective Capping Detail

LIST OF APPENDICES

Appendix A	Pathway Analysis Report
Appendix B	Site Management Plan
Appendix C	Beneficial Use Determination (BUD) Petition, Sterling Environmental Engineering, P.C. (January 2020); with NYSDEC Beneficial Use Determination

LIST OF ACRONYMS & ABBREVIATIONS

APDC	Albany Port District Commission
ASP	Analytical Services Protocol
bgs	Below Ground Surface
BUD	Beneficial Use Determination
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHA	CHA Consulting, Inc.
cis-1,2-DCE	cis-1,2-Dichloroethene
COCs	Contaminants of Concern
DER-10	NYSDEC Technical Guidance for Site Investigation and Remediation
DOT	United States Department of Transportation
DUSR	Data Usability Summary Report
EC	Engineering Control
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
GPS	Global Positioning System
HASP	Health and Safety Plan
IC	Institutional Control
MDL	Method Detection Limit
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MTBE	Methyl Tert Butyl Ether
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OHM	Oil or Hazardous Materials
PAH	Polyaromatic Hydrocarbon
PAR	Pathway Analysis Report
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
PM	Particulate Matter
PPM	Parts Per Million
RAP	Reclaimed Asphalt Pavement
SCG	Standard, Criteria, and Guidance
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SVOC	Semi-Volatile Organic Compound
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target Analyte List
TOGs	Technical and Operational Guidance Series
TSCA	Toxic Substance Control Act
VOC	Volatile Organic Compound
µg/L	Microgram per Liter
µg/cm ²	Microgram per Square Centimeter
µg/m ³	Microgram per Cubic Meter

1.0 INTRODUCTION

CHA Consulting, Inc. (CHA) has prepared this revised poly chlorinated biphenyl (PCB) Risk-Based Cleanup and Disposal Application (Application) to request United States Environmental Protection Agency (EPA) approval for cleanup of PCBs on an approximate 12.14-acre portion of a 14.5-acre parcel located at 700 Smith Boulevard in the Port of Albany, City of Albany, New York (the Site). The Site Location Map is shown on Figure 1. The Site is owned by the Albany Port District Commission (APDC) and is a portion of the greater APDC property which makes up the Port of Albany. The Site is currently vacant and is zoned for industrial use.

This Application seeks to return the Site or a portion of the Site to its highest and best use as a high-occupancy industrial site. A cleanup of the Site is in the best interest to the state and local agencies and to the community as it will put the Site back into use, provide jobs and increase tax revenue. This Application details a cleanup approach for PCB contamination which utilizes the risk-based cleanup alternative as set forth in 40 CFR 761.61(c) through modifications to the self-implementing option described in 40 CFR 761.61(a). Specifically, a site-specific cleanup level is proposed to allow PCBs > 10.0 parts per million (ppm) and ≤ 25 ppm to be left in place and capped as set forth in this application.

This Application is a revised submission of a PCB Risk-Based Cleanup and Disposal Application for the Site, the first of which was submitted to the EPA on January 23, 2018. Based on EPA's comment response letters dated May 4th and June 15th of 2018, April 4th and June 7th of 2019 and April 14th of 2020, multiple modifications to the Application were made with four revised submissions to date. A summary of the major modifications to the Application in response to EPA comments include the following:

- Additional site characterization was completed in October 2018 and November 2018, and results are discussed in Section 1.2.5.
- A Pathway Analysis Report (PAR) has been completed to identify potential current and future site exposure pathways and human receptors based on the approach outlined in this cleanup application. The PAR is included as Appendix A.
- A Site Management Plan (SMP) has been added to the application and is included as Appendix B.

Earlier Application submittals proposed a two-step remedial process in which the Site, following removal of PCB-impacted soil with concentrations greater than 25 ppm, would first be covered with a 12-inch layer of clean fill (pre-development phase activities). Upon completion of redevelopment

plans for the Site, the areas designated in the plans for High-Occupancy use would then be finished with a cap consisting of a 6-inch layer of asphalt or concrete or 10" of soil meeting the requirements of 40 CFR 761.75(b)(1)(ii-v) (development phase activities).

Subsequent to the earlier revisions and re-submissions described above, APDC identified a neighboring source of Reclaimed Asphalt Pavement (RAP), or asphalt millings, that could be used as a substitute for the cover and cap material originally proposed. This final Application proposes the use of RAP as the final cap material and eliminates the original two-phase remedial approach.

1.1 SITE DESCRIPTION

The Site is located in the Port of Albany at 700 Smith Boulevard and consists of a vacant approximate 12.14-acre portion of an approximate 14.5-acre parcel zoned for industrial use, as shown on Figure 2. The surrounding land use is also industrial and owned by the APDC. The Site has been owned by the ADPC since approximately 1925, with no prior industrial usage. Sometime after 1937 the Site was used by Atlantic Steel Corporation and as a rail yard until 1951. Subsequently, the Site was used for metal recycling operations since at least 1964. Two existing one-story structures located on the east side of the Site were built in the early 1950s. The Site is served by natural gas, electricity, public water, and public sewers.

The Site is located approximately 800 feet from the Hudson River. The climatology of the area is described as a humid continental climate zone with prevailing winds from the west-northwest.

1.2 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

This section includes a discussion of previously completed environmental investigation activities for the Site pertinent to this Application, and as such, discussions are focused primarily on PCBs analytical results in soil and groundwater, although other site contaminants of concern (COCs) are briefly discussed, so as to provide a sufficient understanding of the nature and extent of known COCs at the Site. Please refer to prior reports submittals for more detailed discussions and analytical results for these other COCs.

1.2.1 Phase II Investigation – Plumley 2014

Plumley Engineering (Plumley) performed a Phase II Environmental Site Assessment (ESA) at the Site in August 2014. The Phase II ESA consisted of the collection of 12 total surface soil samples (denoted SS-1 through SS-12), 11 soil borings/well locations (denoted B-1/TW through B-11/TW),

one (1) test pit subsurface soil sample (S-1), as well as one sediment sample (DB-1) from the detention basin in northern area of the Site, as depicted on Figure 3. Surface soil samples were submitted for laboratory analysis of semi-volatile organic compounds (SVOCs), PCBs and metals, and subsurface soil samples were submitted for the same parameters, in addition to volatile organic compounds (VOCs). Groundwater samples were submitted for laboratory analysis of VOCs and SVOCs. The Phase II ESA field activities conducted by Plumley was never summarized in a report, therefore, CHA subsequently summarized the results in an April 2015 Supplemental Phase II Investigation Report.

Soil and Sediment Sample Analytical Results

The laboratory results for the soil and sediment samples were compared to Title 6 of the New York Codes, Rules and Regulations (NYCRR), Part 375 - Soil Cleanup Objectives (SCOs) – Restricted Industrial Use. Tabulated analytical results for total PCBs in surface soil, subsurface soil, and sediment samples as compared to the NYCRR Industrial SCOs as well as Toxic Substance Control Act (TSCA) Cleanup Levels for High-Occupancy (40 CFR 761.61(a)(4)(i)(A)) and Low-Occupancy (40 CFR 761.61(a)(4)(i)(B)), self-implementing scenarios are provided in Table 1.

Total PCBs were detected at a concentration of 126.7 parts per million (ppm) in sample SS-11, which exceeds both the NYCRR Industrial SCO and TSCA Low-Occupancy Cleanup Level of 25 ppm and is also greater than 50 ppm, and therefore is considered PCB remediation waste pursuant to 40 CFR 761.3.

VOCs did not exceed NYCRR Industrial SCOs in the samples analyzed, although concentrations below the SCO were noted for several VOC compounds. Polyaromatic Hydrocarbons (PAHs) as well as several metals (specifically arsenic, lead, and/or mercury) were detected at concentrations exceeding the NYCRR Industrial SCOs in six (6) of the 12 surface soil samples but did not exceed the NYCRR Industrial SCOs in subsurface samples, with the exception of sample S-1, and did not exceed the NYCRR Industrial SCOs in sediment sample DB-1. In general, the exceedances were only detected slightly above the NYCRR Industrial SCOs with the exception of mercury in sample SS-7 and can be generally considered de minimus. The highest concentrations of each PAH and/or metal in exceedance of the NYCRR Industrial SCOs during the Phase II ESA sampling activities were as follows (NYCRR Industrial SCOs are shown in parenthesis for comparison):

- Benzo(a)pyrene (1 ppm) 3.87 ppm (SS-3)
- Dibenzo(a,h)anthracene (1.1 ppm) 1.12 ppm (SS-3)

- Arsenic (16 ppm) 21 ppm (SS-12)
- Lead (3,900 ppm) 6,490 (SS-7)
- Mercury (5.7 ppm) 42 ppm (SS-7)

Groundwater Analytical Results

Groundwater samples were compared to the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (TOGS). SVOCs were not detected above the NYSDEC TOGS Standards in the groundwater samples. VOCs were detected in two groundwater samples at concentrations slightly exceeding the NYSDEC TOGs Standards. A summary of VOC compounds in exceedance of NYSDEC TOGs Standards during the Phase II ESA sampling activities were as follows (NYSDEC TOGs Standards in micrograms per liter (ug/L) are shown in parenthesis for comparison):

- Methyl Tert Butyl Ether (MTBE) (10 ug/L) 52.5 ug/L (B-1/TW)
- cis-1,2-Dichloroethene (cis-1,2-DCE) (5 ug/L) 15.3 ug/L (B-8/TW)
- Vinyl Chloride (2 ug/L) 2.2 ug/L (B-8/TW)

A detailed summary of groundwater analytical results are provided in Table 2.

1.2.2 Supplemental Phase II Investigation Report – CHA – April 2015

Due to the presence of contaminants identified in exceedance of both the NYCRR Industrial SCOs and TSCA criteria in soil as well as exceedances of NYSDEC TOGs Standards in groundwater, CHA, on behalf of the APDC, reported a spill to the NYSDEC on August 26, 2014, and Spill No. 1405730 was assigned.

CHA developed a Supplemental Phase II Investigation Work Plan in accordance with NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (DER-10) to further evaluate soil and groundwater quality at the Site on behalf of the APDC. In an email dated November 24, 2014, the NYSDEC indicated they did not have any comments on the Work Plan. The Supplemental Phase II Investigation was conducted in December 2014 and January 2015.

The Phase II Investigation activities completed by Plumley and CHA are detailed in the Supplemental Phase II Investigation Report (CHA, April 10, 2015). The supplementary sampling conducted by CHA consisted of the following:

- Sixty-one soil borings (denoted GP-1 through GP-61), as shown on Figure 3 including 49 soil borings which were installed on a 100-foot grid, and 12 soil borings which were installed in the vicinity of surface soil sample SS-11 which was collected during the previous investigation and exhibited elevated concentrations of PCBs. Soil borings were field-located via a portable field Global Position System (GPS) unit and were installed to depths ranging from five (5) feet to seven (7) feet below ground surface (bgs). In general, three soil samples were collected from each boring location at depth intervals of 0-1 feet, 2-3 feet bgs, and 4-5 feet bgs, and a fourth sample was collected from 5-7 feet bgs at deeper boring locations. At several boring locations, the soil recovery amount was such that some of the planned samples were unable to be collected. Soil samples were submitted for laboratory analysis for PCBs via EPA Method 8082A and metals via EPA Methods 6010C and 7471B.
- Two rounds of groundwater samples were collected from the existing monitoring wells installed by Plumley. The first sampling event was performed on August 29, 2014 and included samples from all wells with the exception of B-3/TW, which was observed to be dry. Groundwater samples were submitted for laboratory analysis of PCBs via EPA Method 8082A and total and dissolved metals via EPA Methods 6010C and 7470A. The second sampling event was completed on December 1, 2014 and consisted of re-sampling well B-1/TW for VOCs, well B-2/TW for PCBs and total/dissolved metals, and well B-8/TW for VOCs.

Soil Analytical Results

Soil analytical results for total PCBs from the supplementary sampling activities completed by CHA are included in Table 1. Total PCB concentrations detected in soil samples collected from GP-1 through GP-61 ranged from non-detect to 227 ppm. Five (5) of the 153 samples that were analyzed exhibited concentrations exceeding the TSCA Low-Occupancy Cleanup Level and the NYCRR Industrial SCO of 25 ppm, are as follows:

- GP-15 (2 – 3 feet): 33 ppm
- GP-26 (0 – 1 feet): 25.8 ppm
- GP-32 (2 – 3 feet): 97 ppm
- GP-45 (0 – 1 feet): 227 ppm
- GP-46 (0 – 1 feet): 30.3 ppm

Multiple soil sample locations exhibited concentrations of metals which exceeded NYCRR Industrial SCOs, including arsenic (21 of 153 total samples), lead (4 of 153 total samples), and mercury (6 of 153 total samples). The highest concentrations of metals detected were as follows (NYCRR Industrial SCOs are shown in parenthesis for comparison):

- Arsenic (16 ppm) 65.2 ppm ((GP-38 (2 – 3))
- Lead (3,900 ppm) 4,800 ppm (GP-38 (0 – 1))
- Mercury (5.7 ppm) 25.5 ppm (GP-37 (0 – 1))

VOCs were not analyzed in soil as part of CHA's Supplemental Phase II Investigation. It was noted that all Photoionization Detector (PID) readings collected during the supplemental investigation were 0.0 ppm. However, CHA field scientists noted slight odors in the following borings and depth ranges: GP-15 (2' - 2.7'), GP-17 (0' - 1.75'), GP-31 (1.1' - 2.4'), GP-32 (1' - 3.5'), GP-33 (1.5' - 2'), GP-34 (0.8' - 1.2'), GP-35 (1.1' - 4.75'), and GP-47 (2.9').

Groundwater Analytical Results

A summary of groundwater analytical results are provided in Table 2. Total PCBs in groundwater were detected at a concentration of 1.96 µg/L in the sample obtained from B-2/TW, which exceeds the NYSDEC TOGS standard of 0.09 µg/L. PCBs were not detected in groundwater samples collected from any of the other well samples, however, please note that the laboratory method detection limit (MDL) was greater than the NYSDEC TOGs Standard. B-2/TW was subsequently re-sampled on December 1, 2014, and total PCBs were detected at a concentration of 3.56 µg/L.

The same VOC compounds (MTBE, cis-1,2-DCE, and vinyl chloride) detected in samples collected from wells B-1/TW and/or B-8/TW in August 2014 by Plumley were also detected during the December 2014 sampling event at comparable concentration ranges, with the exception of vinyl chloride, which was detected at a concentration of 31 µg/L in well B-8/TW, and thus, higher in concentration compared to the initial sampling event. In addition, 1,1-Dicloroethene (1,1-DCE) was detected at a concentration of 15 µg/L in well B-8/TW, which exceeds the NYCRR TOGS Standard of 5 µg/L

Six (6) or more metals (total) were detected in each groundwater sample at concentrations exceeding the NYSDEC TOGs Standards. However, the results of the dissolved metals analysis indicated that only three (3) or less metals were detected above the NYSDEC TOGS Standards in each of the samples, including iron, magnesium, manganese, nickel and/or sodium.

The results of the Plumley and CHA investigations conducted in 2014 suggest that the upper five (5) feet of soil has been impacted with both metals and PCBs across the Site. In general, concentrations of metals and PCBs are higher in the near-surface soils and decrease with depth. A review of the data suggests that the PCBs, though widespread, are mostly located within the upper fill unit. Groundwater at the Site does not appear to be significantly impacted.

The conclusions from the Phase II ESA and Supplemental Phase II Investigation, as indicated in the April 2015 Supplemental Phase II Investigation Report, were as follows:

- The primary Site COC is PCBs.
- PCB concentrations greater impacts are present throughout the majority of the Site in the upper one (1) to five (5) feet of soil. Six (6) localized hot spot areas (SS-11, GP-15, GP-26, GP-32, GP-45, and GP-46) which exceed the TSCA Low-Occupancy Cleanup Level and NYCRR Industrial SCO of 25 ppm were noted from Plumley's and CHA's 2014 sampling activities.
- PAHs as well as the metals arsenic, lead, and mercury exceeded the NYCRR Industrial SCOs in multiple soil samples and are primarily confined to the upper one (1)-foot of soil with a few minor exceptions where concentrations were noted at depths of 2 – 3 feet and 4 – 5 feet.
- The apparent groundwater flow direction based on groundwater level measurements is to the southeast towards the Hudson River. Based upon the investigation and additional sampling requested by NYSDEC at the time, CHA concluded that groundwater has not been significantly impacted by Site conditions and does not represent an exposure risk.

1.2.3 Supplemental Groundwater Sampling – CHA – May 2015

Following review of the Supplemental Phase II Investigation Report, NYSDEC requested that the existing monitoring wells be re-sampled and analyzed for dissolved metals and PCBs to obtain additional data that can demonstrate the presence or absence of these parameters in filtered groundwater samples. It was anticipated that this data would be used to demonstrate that groundwater was not impacted by PCBs and metals, or alternatively, to evaluate potential remedial alternatives if it was determined that groundwater was impacted.

The Supplemental Groundwater Sampling was completed on April 23, 2015 and was submitted to NYSDEC in a Letter Report dated May 8, 2015. As shown in Table 2, analytical results of field-filtered metals were comparable to the August 2014 groundwater sampling event, and only iron, magnesium, manganese, and sodium were detected in exceedance of the NYSDEC TOGs Standards.

While there were no detections of dissolved PCBs noted in the wells during this sampling event, the laboratory MDLs exceeded the TOGs Standard. As such, NYSDEC recommended that the wells be re-sampled for PCBs utilizing appropriate detections. CHA had collected additional sample volume during the April 23 sampling event, which was extracted within the 7-day hold time, and therefore, the laboratory was able to re-run the extracted samples for PCB analysis using a low-level method which achieved the required detection limit. Dissolved PCBs were not detected in any of the samples which were re-analyzed. The results of the re-sampling were included in a Revised Letter Report submitted to NYSDEC on June 26, 2015.

The findings indicate that while concentrations of select dissolved metals (iron, magnesium, manganese, and sodium) were detected at concentrations exceeding the NYSDEC TOGS Standards, these elements are likely naturally occurring and not representative of a contamination issue. There were no detected concentrations of PCBs in the 11 on-site monitoring wells and therefore no indications of PCB impacts to the groundwater at the Site. CHA's conclusion was that no further action was necessary regarding groundwater at the Site.

1.2.4 Additional Site Characterization Sampling: Sterling, June-September 2015

Based on the results of the Supplemental Phase II ESA Investigation performed by CHA, Sterling Environmental Engineering (Sterling) conducted additional site characterization sampling at the Site between June and September of 2015. The additional site characterization was completed in accordance with the May 21, 2015 PCB Site Characterization Work Plan and the September 9, 2015 Supplemental Work Plan prepared by Sterling. Soil samples were collected at six locations (SS-11, GP-15, GP-26, GP-32, GP-45, and GP-46), previously sampled by Plumley and CHA where PCBs were detected at concentrations greater than 25 ppm. The goal was to further delineate the areas of PCB contaminated soil with concentrations above 25 ppm.

Samples were collected from test pits installed in a triangular pattern 10 feet away from SS-11, GP-32 and GP-45 where PCBs were detected at concentrations greater than 50 ppm. Samples were also collected in a triangular pattern five (5) feet away from GP-15, GP-26, and GP-46, where PCBs were previously detected at concentrations ranging from 26 to 49 ppm. The sampling depth in the test pits surrounding each soil boring corresponded to the depth at which PCBs were detected at a concentration greater than 25 ppm during the previous studies. Soil samples were collected from each test pit and submitted for laboratory analysis of PCBs via EPA Method 8082. Soil delineation samples collected by Sterling in the vicinity of SS-11, GP-15, GP-32, GP-46, and GP-45 are shown on Figure 3.

The results from the initial round of sampling completed on June 17, 2015 indicated that the concentration of PCBs was less than 25 ppm in each of the samples with the exception of two of the three samples around location GP-26. Additional samples were collected in the area of GP-26 on July 9, and 28, 2015, branching outward from the sampling locations where PCBs were detected greater than 25 ppm, in accordance with the PCB Site Characterization Work Plan. Two additional rounds of sampling were conducted on September 15 and 16, 2015 at successively greater distances from GP-26 until a ring of outermost samples indicated concentrations of PCBs less than 25 ppm. Delineation sample locations collected by Sterling in the vicinity of SS-11, GP-15, GP-32, GP-45, and GP-46 are shown on Figure 3, and samples in the vicinity of GP-26 are shown on Figure 3A.

Total PCB results for soil samples collected by Sterling to delineate the extent of soil with PCBs at concentrations greater than 25 ppm in the area of soil borings SS-11, GP-15, GP-26, GP-32, GP-45, and GP-46 are presented in Table 1.

1.2.5 Additional Site Characterization Sampling – CHA – October 2018

Based on verbal and written correspondence between EPA and CHA, EPA believed that the site required further characterization to identify if additional hotspots with PCBs at concentrations greater than 25 ppm are present in site soils. Therefore, CHA, on behalf of the APDC, developed an Additional Site Characterization Work Plan in accordance with TSCA PCB regulations and submitted to EPA on September 10, 2018. After receiving some minor comments from EPA on September 26, 2018 regarding the Work Plan, CHA submitted a revised Work Plan on September 27, 2018 which EPA had no further comments on. The additional site characterization sampling was conducted from October 16, 2018 through October 19, 2018.

CHA advanced a total of 53 borings (denoted GP-62 through GP-111), as shown on Figure 3. The borings were field located using a portable field GPS unit. Of these 53 locations, 51 of the borings were installed to a total depth of five (5) feet bgs at the center of the previously-completed 100 x 100-foot grid system, and soil samples were collected from the 0-1 feet bgs, 2-3 feet bgs, and 4-5 feet bgs intervals in each of the grid borings. At a few select boring locations, direct push refusal occurred associated with unidentifiable compact subsurface materials and multiple attempts were made to achieve the desired termination depth. However, the desired depths were not achievable; therefore, the sample depth intervals were adjusted such that a bottom sample was obtained from the bottom foot of soil above the refusal depth. In addition, CHA conducted additional sampling at previous sample locations SS-11 (Plumley, 2014) and 26W-2 (Sterling, 2015), where PCBs were previously detected in excess of 25 ppm. The goal of re-sampling these two locations was to obtain

vertical delineation samples at 2-3 feet bgs and 4-5 feet bgs in order to better estimate the vertical extent of PCBs at these locations.

The samples were submitted such that the top two intervals were analyzed by the analytical laboratory first. The bottom samples were held by the laboratory, pending the analytical results of the top interval samples. If PCBs were detected above the laboratory detection limit in either of the top two interval samples, then the bottom sample from that boring was also analyzed. For SS-11 and 26W-2, both samples (2-3 feet and 4-5 feet) were analyzed. Soil samples were submitted for laboratory analysis for PCBs via EPA Method 8082A.

Based on the results of the Additional Site Characterization activities completed in October 2018, five (5) sample locations from this event (specifically GP-79, GP-81, GP-90, GP-91, and GP-100) contained concentrations of PCBs exceeding the NYCRR Industrial SCO and TSCA High-Occupancy Cleanup Level. Therefore, an additional sampling event was conducted to complete delineation of these hot spot locations. To complete delineation sampling, CHA returned to the site between November 26 and 29, 2018 to complete the installation of 12 soil borings at each hotspot location (i.e., 60 borings total) which were spaced five (5) and 10 feet east, north, west, and south of each location. Field methods and samples were collected in a manner consistent with the October 2018 investigation, except that samples located five (5) feet horizontally from the hotspot location were analyzed first. Additional horizontal and/or vertical samples were successively analyzed to achieve further delineation, if needed. A depiction of the general sampling schematic at each location is provided on Figure 3B.

Sampling equipment was decontaminated between boring locations to prevent cross-contamination in a manner consistent with the self-implementation decontamination procedures identified in 40 CFR 761.79(c)(2). Pursuant to 40 CFR 761.79(f)(2), a written record (e.g., video recordings, photographs) documenting compliance with the decontamination procedures will be maintained for three (3) years after completion of the decontamination procedures.

Analytical Results

Soil analytical results for PCBs from the additional site characterization activities completed by CHA were included in a Letter Report submitted to EPA in February 2019. Soil analytical results for total PCBs are included in Table 1 and were generally consistent with the findings of previous investigation activities, as summarized below:

- PCB concentrations detected in soil samples collected from GP-62 through GP-111 ranged from non-detect to 103 ppm.
- Exceedances of the TSCA High-Occupancy Cleanup Level of 1.0 ppm, applicable in self-implementing remedial situations under 40 CFR 761.61(a), were encountered at the majority of boring locations, and generally extend to a depth of three (3) feet bgs or less and to a maximum depth of (5) feet, consistent with the findings of prior investigation activities.
- Five (5) locations exhibited PCB concentrations in exceedance of the TSCA Low-Occupancy Cleanup Level of 25 ppm: GP-79, GP-81, GP-90, GP-91, and GP-100. The locations were determined to be isolated hot spots and were successfully delineated horizontally and vertically in November 2018.
- Although some minor field evidence (i.e., staining, elevated PID readings) of isolated contamination was noted in select borings, analytical results from corresponding sample depths were generally consistent with average site PCB concentrations, which suggests that such observations are not likely to be related to PCBs.

2.0 NATURE AND EXTENT OF CONTAMINATION

2.1 CONTAMINANTS OF CONCERN AND IMPACTED MEDIA

The principal COC is PCBs in soil at concentrations of 1.0 ppm or greater to a depth of five (5) feet bgs or less, with eleven localized hot-spot areas containing PCBs greater than 25 ppm. The majority of PCBs detected in soil consist of a mixture of Aroclor 1248, 1254, and 1260, with occasional concentrations of Aroclor 1242, and rarely Aroclor 1016 and 1221. Secondary COCs include the metals arsenic, lead, and mercury, as well as PAHs which are primarily located in soil at a depth of 0-1 feet bgs, and thus will be removed and/or covered as part of the proposed PCB remediation. VOCs were not detected above NYCRR Industrial SCOs in soil.

Groundwater has not been significantly impacted by Site conditions. VOCs detected in groundwater include MTBE (highest concentration 52.5 ug/L) in well B-1/TW, cis-1,2-DCE in well B-8/TW (highest concentration 15.3 ug/L) and vinyl chloride (highest concentration 31 ug/L) in well B-8/TW. The concentrations are isolated and may be attributable to off-site sources, as such compounds have either not been detected in Site soils to-date or were detected at low-level concentrations well below the NYCRR Industrial SCOs. SVOCs have not been detected above NYSDEC TOGs Standards in Site wells. Although total metals were detected in exceedances in the wells, the results of the dissolved metals analysis indicated that only five (5) metals were detected above TOGS Standards: iron, magnesium, manganese, nickel and sodium. There were no detected concentrations of dissolved PCBs in the 11 on-site monitoring wells when last sampled in 2015. The conclusion, at that time with the concurrence of the NYSDEC Spills Project Manager, was and still is, that there are no PCB impacts to groundwater and that no further action is required regarding groundwater at the Site. Furthermore, the Site and properties in the vicinity currently utilize public water. There is no current or anticipated future use of groundwater at the site for potable or non-potable uses.

2.2 REGULATORY CLEANUP LEVELS

Regulatory cleanup levels of 1.0 ppm, 10 ppm and 25 ppm exist in State (NYCRR Part 375, NYSDEC CP-51/Soil Cleanup Guidance) and Federal regulations, depending on the cleanup program, Site use, occupancy level of the Site and the engineering and institutional controls employed. The results of PCB analysis of soil samples from Site investigations were reviewed to determine the distribution and concentration of PCBs in the soil, the intended future industrial use of the Site, and the industrial nature and use of the surrounding area.

The goal of this cleanup is to remove PCB impacted soil with concentrations greater than 25 ppm, which is equivalent to the TSCA Low-Occupancy Cleanup Level and the NYCRR Part 375 Industrial SCO, and dispose at an off-site, approved disposal facility. PCB-impacted soil with concentrations less than 25 ppm will remain on the Site. Those areas which will be slated for high-occupancy, will be protected by a cap, and any areas to remain low-occupancy, if applicable, will be restricted by fencing. A minimum of one sign will be affixed to the fencing surrounding low-occupancy areas informing individuals of the presence of PCBs. The protective cap will be constructed as detailed in Section 3.33.3 of this Application.

2.3 APPLICABLE NYSDEC REGULATIONS

The Site was formerly in the NYSDEC Spills Program as discussed above and is now being classified as a potential New York State Superfund Site (Site No. 401080P). An Order on Consent (Order) was executed between the APDC and NYSDEC on May 5, 2020 regarding 700 Smith Boulevard (CO 4-20200424-56). In accordance with the Order, the requirements of this risk-based Application are integrated into the work required by the Order by reference for the remedial actions to take place on the 12.14 acre Site. Additionally, pursuant to Commissioner Policy CP-51 - Soil Cleanup Guidance, under the Order, institutional controls for the remedy, including a Site Management Plan and Environmental Easement, are required and those items will apply to the entire 14.5 acre parcel. Upon completion of the remedial activities set forth in this Application, a Certificate of Completion (COC) will be issued by NYSDEC pursuant to the terms of the Order. On May 12, 2020, pursuant to New York State regulations, NYSDEC approved the site-specific BUD Petition to use RAP as a cap at the Site. The NYSDEC BUD approval letter is attached hereto as Appendix C.

NYSDEC Solid Waste Regulations relating to site-specific Beneficial Use Determinations, 6 NYCRR 360.12(d), are also applicable as set forth in more fully in Appendix C.

3.0 CLEANUP PLAN AND ALTERNATIVE ANALYSIS

The work described in this Application is limited to remediation of PCB impacted soil at the Site. The proposed remedial actions are described in detail in the following sections. Per the Risk-based disposal approval regulations found in 40 CFR 761.61(c), “any person wishing to sample, cleanup, or dispose of PCB remediation waste in a manner other than prescribed in [40 CFR 761.61(a) or 40 CFR 761.61(b)], or store PCB remediation waste in a manner other than prescribed in 40 CFR 761.65, must apply in writing to the Regional Administrator in the Region where the sampling, cleanup, disposal, or storage site is located”. Each application must include information described in the notification required by paragraph 40 CFR 761.61 (a)(3). EPA may request other information that it believes necessary to evaluate the application. No person may conduct cleanup activities under this paragraph prior to obtaining written approval by EPA. EPA will issue a written decision on each application for a risk-based method for PCB remediation wastes. EPA will approve such an application if it finds that the method will not pose an unreasonable risk of injury to health or the environment.

The only other alternative considered was a cleanup plan that meets the requirements of 40 CFR 761.61(a), Self-implementing On-site Cleanup and Disposal of PCB Remediation Waste. The self-implementing cleanup alternative would require remediating the site to eliminate soil with PCB concentrations exceeding 10 ppm cleanup levels. This alternative requires the excavation and removal of at least the upper one (1) foot of soil over the entire Site. This alternative was considered to be of little environmental benefit considering the industrial nature of the Site and surrounding area, the intended future industrial use of the Site, and deed restrictions for such industrial use to be put in place. Additionally, this self-implementing alternative was considered to be cost prohibitive.

The remedial objective of the risk-based alternative proposed is to excavate and remove soil impacted with PCBs at concentrations greater than 25 ppm, and to apply a cap over the Site or portions of the Site which will be utilized for high-occupancy, and implement comprehensive institutional controls to prevent and eliminate exposure, and complete an environmental easement and deed restriction to limit the Site to industrial use and document the cap system in place. This alternative is considered appropriate for the planned, future industrial use of the Site. Additionally, the risk-based approach provides significant cost savings that make completion of this remedy feasible from a cost perspective. On this basis, a cleanup level of 25 ppm was selected as being appropriate for this Site.

At the request of EPA, a PAR was prepared by HDR, Inc., to identify potential current and future site exposure pathways and human receptors based on the approach outlined in this cleanup application and to support the proposed cleanup plan's deviation from the regulatory requirements of 40 CFR 761.61(a). The PAR is included in Appendix A and finds that the remedial and Site management measures (including institutional controls) outlined in this application are appropriate for the PCB-impacted soils and Site conditions and will provide long-term protectiveness during remediation, construction, and future Site activities.

3.1 REMEDIAL ACTIVITIES

The proposed remedial approach includes the excavation and off-Site disposal of PCB impacted soils with concentrations greater than 25 ppm and the placement of a cap of 12 inches of RAP on the entire site with the exception of the areas currently improved with buildings or currently paved.

Eleven areas of impacted soil (i.e., total PCBs \geq 25ppm) have been identified for remediation. The remedial objective is to eliminate all potential exposure pathways. Based upon the extensive soil and groundwater sampling conducted at this Site, it was determined that groundwater has not been impacted by PCBs and therefore is not an exposure pathway.

Prior to the initiation of cleanup activities, public outreach will be completed to inform local residents, tenants, and businesses of the presence of PCB contaminated Site soils and the proposed remedial activities for the Site. Public outreach will consist of publishing a brief fact sheet in a local newspaper.

3.1.1 Pre-Construction/Site Preparation

To proceed with the proposed remedial activities, several tasks must be completed. The tasks include excavation identification and permitting, waste characterization sampling, and the contractor must visibly inspect the perimeter of the Site daily to confirm that the Site is secure from trespassers.

3.1.1.1 Layout of Excavation Areas

Prior to any work being conducted on the Site, excavation areas will be properly identified. Excavations areas may be located by means of GPS, field measurements or similar. Hot spots and excavation extents and will be marked with flags, poles or stakes. Excavations depths must be identified on the selected marker.

Prior to excavation, underground utilities should be identified and a Digsafe ticket must be obtained; utilities not covered by Digsafe must be contacted. Digsafe markings will be maintained throughout the project. In the event that a work stoppage exceeds 30 days, a new Digsafe ticket must be obtained.

3.1.1.2 Waste Characterization Sampling

Analytical results obtained during previous investigations will be used for waste characterization, whenever possible. Otherwise, additional representative soil samples will be collected by the remedial contractor from in-situ or unexcavated soil in accordance with the disposal facility permit requirements and federal regulations 40 CFR 761.283, 761.286, and 761.292.

3.1.2 Characterization of On-Site Buildings

As discussed in Section 1.1, there are two existing one-story structures located on the east side of the Site. On April 30, 2020 EPA approved a supplemental work plan pertaining to additional characterization of the on-Site buildings, including collection and analysis of concrete floor chip samples from within the locker room of the office building and within the garage. Pursuant to EPA’s directions, APDC is developing a work plan which will outline proposed building characterization activities to meet EPA requirements. Similar to our evaluation of off-Site catch basins described below in Section 3.1.4, characterization of the buildings pursuant to the supplemental work plan are being performed as a separate and subsequent phase of work outside the scope of this submittal and EPA’s approval of this Application, and the building slab characterization study is scheduled to commence on May 21, 2020 under NYSDEC oversight.

3.1.3 Excavation of PCB Impacted Soil

Proposed areas of excavation were developed based on the concentrations of PCBs observed during site characterization activities. Proposed excavations are classified as hot spot areas. Hot spot areas are defined as areas with concentrations of PCBs greater than 25 ppm and extend, a minimum, of halfway to the samples where PCBs were identified at concentrations less than or equal to 25 ppm. Eleven hot spots were identified during site characterization activities. These hot spots include SS-11, GP-15, GP-26, GP-32, GP-45, GP-46, GP-79, GP-81, GP-90, GP-91, and GP-100. Anticipated excavation dimensions and volumes are summarized as follows:

Hot Spot	Dimensions (ft)	Area (SF)	Perimeter (ft)	Depth (ft)	Total Volume (CY) PCBs > 25 ppm & < 50 ppm	Total Volume (CY) PCBs > 50 ppm
----------	-----------------	-----------	----------------	------------	--	---------------------------------

Hot Spot	Dimensions (ft)	Area (SF)	Perimeter (ft)	Depth (ft)	Total Volume (CY) PCBs > 25 ppm & < 50 ppm	Total Volume (CY) PCBs > 50 ppm
SS-11	15 x 15	225	60	2	0	20
GP-15	7.5 x 7.5	60	30	4	10	0
GP-26	See Figure 4a	1,020	128	2	40	30
GP-32	15 x 15	225	60	4	0	35
GP-45	15 x 15	225	60	2	0	20
GP-46	7.5 x 7.5	60	30	2	5	0
GP-79	10 x 15	150	50	2	0	15
GP-81	10 x 10	100	40	2	10	0
GP-90	10 x 15	150	50	4	25	0
GP-91	10 x 10	100	40	4	15	0
GP-100	10 x 15	150	50	2	15	0
TOTAL:					120	120

ft = feet
 SF = square feet
 CY = cubic yards

Lateral excavation dimensions for SS-11, GP-15, GP-32 GP-45, GP-46, GP-79, GP-81, GP-90, GP-91, and GP-100 are depicted on Figure 4. Lateral excavation dimensions for GP-26 are depicted on Figure 4a.

3.1.4 On-Site Catch Basin Removal

The on-site portions of the catch basin system include structures CB01 through CB05 and associated piping as shown on Figure 5. CB01, CB02 and CB05 are inactive structures while CB03 and CB04 are active catch basin structures. The following activities will be conducted associated with these structures:

- CB01 and CB02: Structures and associated piping will be excavated and removed. If piping extends off-site, the piping will be cut and capped at the property line and all on-site piping will be excavated and removed.
- CB03 and CB04: Piping associated with these catch basin structures will be temporarily plugged prior to pressure washing each structure. Water and sediment generated during the pressure washing activities will be vacuumed out of each structure prior to unplugging the piping and returning the structures to service.

- CB05: Structure consists of an underground vault with no piping. This structure will be excavated and removed.

Structures and piping generated during catch basin removal activities will be transported for off-site disposal in accordance with local, State, and Federal regulations. Soil displaced during excavation of the catch basin systems will be backfilled in accordance with Section 3.3.

Pursuant to requests made by EPA, APDC is preparing a work plan for submission to EPA/NYSDEC for the investigation of the potential for offsite impacts related to the onsite catch basins. The work plan will describe investigation procedures and proposed decontamination or closure of piping and off-Site catch basins as warranted based on the investigation findings. As recommended by EPA via email on April 14, 2020, the work plan and actions related to the investigation of off-Site impacts related to catch basins are being performed as a separate and subsequent phase of work outside the scope of this submittal and EPA’s approval of this Application.

3.1.5 Direct Push Refusal Investigation

During on-site remedial activities, the areas where direct push refusal occurred during the October 2018 investigation will be investigated. These areas and associated refusal depths are summarized in the table below:

<i>Soil Boring</i>	<i>Refusal Depth (feet)</i>
<i>GP-68</i>	<i>4</i>
<i>GP-74</i>	<i>4</i>
<i>GP-97</i>	<i>3</i>
<i>GP-100_W10</i>	<i>2</i>
<i>GP-105</i>	<i>2</i>
<i>GP-108</i>	<i>2</i>

An excavator will be used in the vicinity of soil borings to excavate to the depth of refusal to confirm subsurface materials at each location. Subsurface conditions will be documented and if new conditions indicative of a buried waste or vault or similar item of concern is noted, EPA and NYSDEC will be notified of the condition. If the condition noted is similar fill conditions to the remainder of the site and refusal was likely large gravel or a cobble, no notification will be made.

3.1.6 Soil Screening Methods and Stockpiling

Soils will be segregated based on previous environmental data and visual, olfactory and instrument-based soil screening results into material that requires off-Site disposal, material that requires further testing, and material that can be returned to the subsurface. Should free product (e.g., oil) be encountered it will be containerized immediately. Material encountered that exhibits staining or odors will be sampled in-situ and analyzed for PCBs. Work in this area will not continue until the PCB concentrations are determined. Though not anticipated, if material containing PCBs at concentrations exceeding 25 ppm is encountered it will be disposed of off-Site in accordance with local, State and Federal regulations and the underlying/surrounding soil will also be sampled for PCBs per Section 3.2.

During times when contaminated soil cannot be actively loaded into trucks for off-site disposal, stockpiling of excavation soils will be conducted in accordance with 40 CFR 761.65(c)(9) using the following provisions:

- Stockpiles will be located within the areas designated for excavation and away from current vehicular traffic and decontamination areas.
- The subgrade will be prepared to be of stable material where all visible sharps have been removed. The temporary soil containment areas will be sufficiently large to contain all stockpiled material and accessible to excavation equipment and trucks for eventual loading.
- A low point or sump will be constructed on the temporary soil containment pad to collect any water generated from dewatering of the materials placed on the pad and the pad will be graded towards the low point.
- Liquid that accumulates on the temporary soil containment pad will be containerized and characterized for off-site disposal. Pre-treatment may be used in lieu of off-site disposal if the Contractor obtains appropriate permits from the local sewer authority and is accepted by the Owner. The concentrations of PCB in the liquid to be disposed of at the local sewer authority will be no more than 3 parts per billion in accordance with CFR 761.79(b)(1)(ii)
- A minimum of 20-mil polyethylene sheeting, with at least 2-foot of overlap at all seams will be placed on the subgrade. The top sheet will be lapped over the bottom sheet in a shingle type pattern.
- A minimum of a 1-foot high berm will be placed around the perimeter of the containment area so that no saturated soils and/or water migrate off of the containment pad. Secure the edges of the sheets to keep the polyethylene sheeting in place.
- Erosion and sediment controls will be erected around the perimeter of stockpiles, including

silt fence at a minimum. Stormwater runoff shall be directed around the stockpiles and excavation.

- Stockpiles will not exceed a height 15-feet and with side slopes no steeper than 2H:1V.
- Until removed, stockpiles will be kept covered with appropriately anchored 10-mil polyethylene sheeting. Stockpiles will be routinely inspected and ripped or damaged stockpile covers will be promptly replaced.
- Stockpiles and embankments will be maintained until the material is removed and they will be inspected daily to check that material is not released into the surrounding environment.
- Material will be stockpiled for no more than 180 days.

3.1.7 Transportation

Trucks transporting impacted soil from the Site for off-site disposal need to comply with Department of Transportation (DOT) Hazardous Materials Regulations 49 CFR Parts 171 through 177 and 6 NYCRR 364. Trucks carrying hazardous soil or other remediation-derived waste for off-Site disposal will be labeled and manifested prior to leaving the Site for off-site disposal.

The transport manifests will be consistent with 40 CFR Part 262 “Standards Applicable to Generators of Hazardous Waste,” 40 CFR Part 263 “Standards Applicable to Transporters of Hazardous Waste,” and 6 NYCRR Part 372 “New York Hazardous Waste Manifest System Regulations” as applicable.

Only transporters licensed and permitted by the EPA, DOT, and the State of New York will be used for the transport of PCB-impacted soil or other wastes. Transporters will be required to be licensed in the appropriate states or provinces as well as comply with other applicable federal laws, including DOT requirements, if hazardous soil and materials are disposed outside of New York State.

Transport vehicles (or roll-off boxes) will be equipped with a weatherproof tarp that will be secured over each shipment prior to leaving the Site or upon placement of waste within the container. The only exception will be made for enclosed transport units.

Following tarping, each transport vehicle will be visually inspected and directed to the truck wash for decontamination, if necessary, to check that no loose, impacted soils are tracked off-site. Particular attention will be paid to removing materials from tires, undercarriages, and portions of vehicles which may have been in contact with impacted soil during loading operations. For additional details on decontamination procedures see Section 3.1.9.

Truck transport routes are as follows: All trucks shall utilize Smith Boulevard to enter and exit the Site. Upon exiting the Site, trucks shall proceed to Church Street and enter Green Street for access to Interstate 787. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas; (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 the neighborhood outside 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.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

3.1.8 Disposal

Impacted soils with concentrations greater than 25 ppm but less than 50 ppm will be removed and transported off-site to a licensed disposal facility in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(ii). Impacted soils classified as hazardous waste (greater than 50 ppm), will be disposed of at a hazardous waste landfill in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(iii). Disposal facilities will be identified prior to the implementation of the remedial work. Organic matter, including, but not limited to, vegetation, wood, roots, stumps, will be disposed of off-Site in accordance with local, State and Federal regulation based upon the concentrations of PCBs in the area where the organic matter originated.

3.1.9 Decontamination

Efforts will be made to avoid tracking contaminated media from areas containing PCBs greater than 50 ppm into areas containing PCBs less than 50 ppm or off-Site. To minimize the potential cross-contamination on-site and reduce the extent of decontamination required, the following work practices will be implemented:

1. Effort will be made to advance the excavation face toward the excavator such that the tracks/tires on the machine do not come into contact with the impacted media.
2. Effort will be made to minimize the amount of equipment and machinery that comes into contact with the contaminated soils.

3. The operator will fill only $\frac{3}{4}$ of the bucket and/or shake the bucket prior to turning the machine to minimize spillage and material falling off as the machine is turned/swung.
4. 10-mil polyethylene sheeting will be placed between the excavation and trucks or stockpiles such that spillage does not come into contact with areas outside of the excavation area.
5. Excavation of areas containing PCBs at concentrations exceeding 50 ppm (SS-11, GP-26, GP-45 and GP-79) will be conducted first. Between each excavation area, equipment that comes into contact with impacted soil will be decontaminated according to the procedures outlined below. Standard wipe sampling will be conducted at the completion of all four areas. Once wipe sampling demonstrates sufficient decontamination, areas containing PCBs less than 50 ppm will be excavated.

A decontamination pad of sufficient size to accommodate the placement of equipment requiring decontamination will be constructed on-site near the exit/entrance to the Site. The pad will be constructed of a minimum of 20 mil (or two layers of ten mil) polyethylene sheeting draped over a soil berm or hay bales to capture decontamination liquids. The pad will be sloped to one corner to allow collection of and facilitate removal and containerization of liquids. Water used for decontamination will be containerized in fifty-five-gallon drums or temporary storage containers for proper off-site disposal.

Equipment decontamination will be conducted using a double wash/rinse procedure, modified from 40 CFR 761.79, Subpart S, Double Wash/Rinse Method for Decontaminating Non-Porous Surfaces. The modified wash/rinse procedure will use Alconox® (or equivalent) detergent for decontamination, rather than the organic solvent wash/rinse because oily substances are not anticipated. Only those portions of equipment that come in contact with contaminated media will be decontaminated. Decontamination will be performed before the equipment is removed at the completion of the project. The modified decontamination procedure is as follows:

1. Remove loose soil and debris with a brush or power washer within exclusion zone and outside of the decon pad.
2. Move equipment onto the decon pad.
3. Wash with a solution of Alconox® (or equivalent) and potable water.
4. Complete high-pressure steam-clean rinse with potable water.
5. Repeat steps 3 and 4 twice.

Persons conducting decontamination activities will wear suitable personal protective equipment (PPE) to protect against skin contact and inhalation of PCBs. Decontamination wastes, which contain no free liquids, will be minimal in volume and will be managed accordingly.

Decontamination waste generated from cleanup activities will be sampled and disposed of off-site in accordance with Federal, State and local regulations. As such, decontamination wastes generated from cleanup areas with PCBs at or exceeding 50 ppm will be disposed as wastes containing PCBs at or exceeding 50 ppm. Written records of the decontamination procedures will be retained for a minimum of three years, as required.

Because the proposed decontamination method deviates from the double wash/rinse procedure as presented in 40 CFR 761.79, Subpart S, standard wipe sampling will be completed to confirm decontamination completeness in accordance with the procedures outlined in 40 CFR Part 761, Subpart O. Wipe samples will be collected at a rate of three (3) wipe samples for each type of equipment that comes in contact with contaminated media. Field blanks and replicate samples will also be collected, as appropriate. Samples will be extracted using either EPA Method 3500B/3540C or EPA Method 3500B/3550C and analyzed for PCBs via EPA Method 8082A. Sample results will be compared to a decontamination standard of 10 microgram per square centimeter ($\mu\text{g}/100\text{ cm}^2$). If wipe sampling indicates that decontamination was insufficient at removing contamination, as evidenced by exceedances of this standard, the decontamination procedure will be modified and additional wipe sampling will be completed until sampling demonstrates results below standard.

3.2 VERIFICATION SAMPLING

Verification samples will be collected following excavation activities in each of the hot spot excavation areas shown on Figures 4 and 4A. Verification sampling will be performed prior to Site restoration, to confirm complete removal of soil with PCB concentrations greater than 25 ppm. Verification sampling involves the following steps: identifying sample locations, sample collection, laboratory analysis, data review and if required, additional sampling.

3.2.1 Field Methodologies

Verification samples will be collected as follows:

- One sample will be collected from the bottom of each sidewall for every 30 linear feet of sidewall;
- One sample from the excavation bottom for every 25 square feet of bottom area, with the exception of the GP-26 excavation.
- For GP-26, one sample from the excavation bottom for every 100 square feet of bottom area.

Samples will be collected directly by hand or directly from the excavation bucket, depending on excavation depth and safety considerations. Excavation sidewall samples will be collected from the same depth as the original exceedance. The number and location of samples may vary depending on the final dimensions of each excavated area, as determined during remedial activities or further delineation sampling; however, the objective will remain to collect a representative number of samples at representative locations and areas. Excavation and additional verification sampling will be continued until laboratory results demonstrate that the total PCB concentrations in the excavation limits are less than or equal to 25 ppm.

3.2.2 Laboratory Methodologies

Samples will be transported to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) accredited laboratory using proper chain-of-custody procedures. Samples will be extracted using either EPA Method 3500B/3540C or EPA Method 3500B/3550C and analyzed for PCBs via EPA Method 8082A.

NYSDEC Analytical Services Protocol (ASP) Category B laboratory data deliverables will be provided by the laboratory. A Data Usability Summary Report (DUSR) will be prepared by a senior chemist who is experienced and qualified to perform data validation. Laboratory analytical reports and DUSRs will be included in a Remediation Report.

3.2.3 Quality Control Samples

Duplicate and matrix spike/matrix duplicate (MS/MSD) samples will be collected at a frequency of one per twenty samples for quality control purposes.

3.3 BACKFILL/CAPPING/SITE RESTORATION

After the hot spot soils have been excavated and transported off-site and associated remediation wastes (e.g. decon materials, etc.) and equipment have been removed from the Site, the areas of the Site that underwent excavation will be restored to the pre-remediation grade. This section describes the plan for backfilling and capping and the source and analytical testing requirements for backfill or “clean fill”.

A cap consisting of 12 inches of RAP will be placed over the soil that remains following the excavation and grading work. Prior to placing the RAP a demarcation layer consisting of a nonwoven geotextile fabric, or similar, will be placed between the existing ground surface and the

RAP. The installed cap will cover all unpaved areas and unimproved areas (areas without buildings) of the 12.14 acre Site. The cap will be consistent with the detail found on Figure 6.

In shallow excavation areas, prior to cap installation, the area will be backfilled and/or graded to the surrounding elevation, if necessary. Excavations that are sufficiently deep to represent a safety concern or impede use and access to the Site, (those greater than 1.0 - 2.0 feet) may be backfilled with fill from an approved off-site source prior to placement of the cap, if on-Site re-grading of existing soil is not sufficient to fill those locations. At the fence line, property boundaries, and at the edges of existing pavement and building structures, impacted soil will be cut and graded back into the site to allow for the cap to match the elevation of the surrounding grade.

Backfill and cap material will consist of clean fill, determined as follows, or RAP. Documentation will be obtained confirming the clean fill material is not clean gravel, rock or stone, or is recycled concrete or brick consistent with 6 NYCRR Part 360. Only the volume of RAP necessary to establish the cover as described herein will be imported to the Site. Backfill imported to the Site will be subject to chemical testing in accordance with the table below or will be subject to the allowable exemptions for specified beneficial use materials per 6 NYCRR Part 360 – 1.15(b), if such materials are approved by the Owner. The RAP to be used for the cap will be compliant with the BUD approved by NYSDEC and will be analyzed for PCBs only, according to the recommended frequencies shown in the table below. Any other soils imported will be subject to the full chemical testing requirements shown in the table. Please note that at the request of EPA, this table has been modified from NYSDEC regulations to require that PCBs be analyzed from discrete intervals rather than from composite samples.

Recommended Number of Soil Samples for Soil Imported to or Exported from a Site			
	VOCs & PCBs	SVOCs, Inorganics & Pesticides	
Soil Quantity (cubic yards)	Discrete Samples	Composite	Discrete Samples/Composite
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1,000	7	2	
1,000	Add an additional 2 VOC/PCB discrete samples and 1 composite sample for each additional 1,000 Cubic yards		

The analytical results for imported similar soil must meet the “industrial use” values provided in Appendix 5 of DER-10, Allowable Constituent Levels for Imported Fill or Soil. As such, imported material will not contain PCB concentrations exceeding 1 ppm.

An elevation survey will be conducted at the completion of Site restoration activities. The survey will confirm that the cap depth of 12 inches of RAP has been achieved during the remedial activities and will be included in the final report.

3.4 INSTITUTIONAL CONTROLS

Institutional Controls (ICs) will be employed to: implement, maintain and monitor EC systems; prevent future exposure to remaining impacted soil; and, limit the use and development of the Site to industrial uses only. ICs to be employed at the Site include an Environmental Easement/Deed Restriction and a Site Management Plan (SMP).

3.4.1 Environmental Easement/Deed Restriction

An Environmental Easement (EE) which meets state requirements under the NYSDEC Order will be filed by August 5, 2020. The contents will serve the federal requirements of a Deed Restriction. The EE will refer to the Site requirements and the need to maintain the protective cap and other engineering controls (refer to the SMP, Section 3.2). Certification of the submittal of the EE will be signed by the owner APDC, filed against the deed to the property, and submitted to the EPA Regional Administrator.

The owner of the Site may remove the cap or ECs after conducting additional cleanup activities and achieving cleanup levels of ≤ 1.0 ppm PCBs which do not require the protective cap. The owner may remove the notice on the deed no earlier than 30 days after achieving such cleanup levels.

3.4.2 Site Management Plan

Per EPA’s request, a SMP has been completed for the Site and is included in Appendix B.

3.5 CONTINGENCY PLANS

Contingency plans have been developed to deal with unanticipated deviations from the Application and to guide the remedial work should higher PCB concentrations and/or wider distribution of PCBs be identified during cleanup and following verification sampling.

3.5.1 Elevated PCB Concentrations or Increased Distribution

In the event that PCB impacted soils with concentrations greater than 25 ppm or in a wider area than anticipated are discovered following initial verification sampling, the excavation will be advanced until verification sampling results demonstrate that cleanup activities have been successful and remaining PCB concentrations are at or below 25 ppm. The requirements for additional rounds of verification sampling are outlined in Section 3.2 and is consistent with the procedure for the initial round sample methodology. Any over-excavation soil greater than 25 ppm will be excavated and disposed of in accordance with the Section 3.1.5.

3.5.2 Control of Potential Oil or Hazardous Material Spills

Potential sources of Oil or Hazardous Materials (OHM) spills, and accidental discharge or system malfunction associated with the remedial activities include the following:

- Accidental discharge from stockpiled soil.
- Accidental fuel or oil releases from equipment.

The following design and control features will be implemented to prevent accidental discharge from stockpiled soil:

- Hay bales will be deployed around the perimeter of the soil stockpile to control runoff to the adjacent properties and/or storm drains system.
- Excavated impacted fill material is intended to be live loaded onto trucks for transport to the berm area. Any impacted stockpiled soil that has not yet been relocated will be placed on a layer of poly sheeting and will be covered with at least one layer of polyethylene sheeting at the end of each day.
- A spill control kit with absorbent booms, pads, and granular absorbents will be on Site during construction.

3.5.3 Preventing Deleterious Impact – SWPPP Preparation

To prevent deleterious offsite impact, a stormwater pollution prevention plan (SWPPP) must be prepared in addition to the air monitoring plan described in Section 3.6.1 and the decontamination procedure outlined in Section 3.1.9.

3.6 SITE MONITORING

3.6.1 Air Monitoring Plan

Soil excavation activities have the potential to generate fugitive dust. The primary dust control technique will be the application of a fine water spray. Particulate air monitoring will be performed during excavation activities to evaluate fugitive dust generated by excavating. An air monitoring program will be prepared to provide for real-time air monitoring of particulates at the downwind perimeter of each designated work area during the remedial excavation. The particulate monitoring will use visual assessment as well as real-time monitoring equipment capable of measuring particulate matter less than ten (10) micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. Sampling stations will be situated upwind and downwind of the largest dust producing activity occurring at the Site at the boundary of the work zone. The sampling locations will be periodically adjusted to account for observed changes in wind direction. Instruments will be calibrated in accordance with the Health and Safety Plan (HASP) and the instrument manufacturer's recommendations.

Each set of equipment will be equipped with audible alarms to indicate exceedance(s) of action levels indicated in the NYSDOH Generic Community Air Monitoring Plan (CAMP). The downwind action level is 100 micrograms per cubic meter (ug/m³) greater than background (as measured from the upwind station) and measured over a 15-minute average. If particulate levels are detected in excess of this value or if fugitive dust is observed leaving the Site, dust suppression techniques will then be implemented to reduce the generation of fugitive dust and corrective action taken to protect Site personnel and reduce the potential for contaminant migration. Work may resume under the condition that dust suppression and other measures are undertaken and particulate levels do not exceed 150 ug/m³ (15-minute average) above the upwind level and provided no visible dust is observed leaving the Site.

Air monitoring of particulate concentrations will be documented using an air monitoring field form. This form will be completed on a daily basis and records of this form will be available for regulatory agency review upon request. Response actions to observed exceedances of action levels will be documented using a field form that will be available for regulatory agency review upon request.

3.6.2 Health and Safety Plan

A HASP will be required by the remedial contractor and any other support contractors or onsite personnel. The HASPs will be developed prior to the start of the remedial activities. The HASPs

should comply with all applicable federal, state and local regulations and a signed copy should be maintained on-site at all times.

4.0 FINAL REPORT

Following completion of remedial activities, a final report will be produced. The report will include a description of the work completed, quantities of excavated and fill materials (including RAP quantities beneficially used), a summary of all verification sampling and analytical results, and a summary of engineering and institutional controls.

5.0 SCHEDULE

The following provides an anticipated schedule for the cleanup work specified in this application:

Major Milestone	Duration
USEPA Approval of Risk-Based Application	15 days
Issuance/Acceptance of USEPA Approval Letter	15 days
30-Day Public Comment Period	30 days
Design/Bid Period	60 days
Contractor Mobilization	15 days
Remedial Activities	60 days
Remedial Closeout Report	45 days

The overall progress of cleanup activities will be dependent upon a number of factors including, but not limited to: Agency review periods, weather conditions at the time of construction, etc.

The Agencies will be notified at least 7 days prior to the initiation of field activities to be conducted in support of cleanup efforts.

6.0 OWNER CERTIFICATION

The cleanup Site is located at 700 Smith Boulevard, City of Albany, Albany County, New York and is owned by the Albany Port District Commission. This PCB Remediation Application outlining a risk-based cleanup and disposal approach will be implemented under the supervision of CHA Consulting, Inc. The sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup Site are outlined in this Application and will be available for EPA inspection at the Albany Port Authority office at 106 Smith Blvd, Albany, New York per 40 CFR 761.61(a)(3)(i)(E).

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (18U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Signed by:


Albany Port District Commission

TABLES

Table 1
 Summary of Soil PCB Analytical Results: 2015-2018
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
SS-1	Plumley	8/12/2014	No	15.46 a	--	--	--	--	--	--	
SS-2	Plumley	8/12/2014	No	15.16	--	--	--	--	--	--	
SS-3	Plumley	8/12/2014	No	11.01	--	--	--	--	--	--	
SS-4	Plumley	8/12/2014	No	11.43 a	--	--	--	--	--	--	
SS-5	Plumley	8/12/2014	No	9.7 a	--	--	--	--	--	--	
SS-6	Plumley	8/12/2014	No	6.84	--	--	--	--	--	--	
SS-7	Plumley	8/12/2014	No	11.78	--	--	--	--	--	--	
SS-8	Plumley	8/12/2014	No	2.914 a	--	--	--	--	--	--	
SS-9	Plumley	8/12/2014	No	10.77 a	--	--	--	--	--	--	
SS-10	Plumley	8/12/2014	No	1.15 a	--	--	--	--	--	--	
SS-11	Plumley	8/12/2014	No	126.7	--	--	--	--	--	--	
SS-11	CHA	10/16/2018	Yes	--	--	3.49 J	--	0.0357 U	--	--	
11N	Sterling	6/17/2015	No	4.48	--	--	--	--	--	--	
11E	Sterling	6/17/2015	No	4.55	--	--	--	--	--	--	
11EDup	Sterling	6/17/2015	No	4.5	--	--	--	--	--	--	
11W	Sterling	6/17/2015	No	4.58	--	--	--	--	--	--	
SS-12	Plumley	8/12/2014	No	7.76 a	--	--	--	--	--	--	
B-1	Plumley	8/12/2014	No	--	8.14	--	--	--	0.039 U	--	
B-2	Plumley	8/12/2014	No	--	--	5.11	--	--	--	--	
B-3	Plumley	8/12/2014	No	--	--	1.078	--	--	--	--	
B-4	Plumley	8/12/2014	No	--	--	0.942 a	--	--	--	--	
B-5	Plumley	8/12/2014	No	--	--	0.040 U	--	--	0.041 U	--	
B-6	Plumley	8/12/2014	No	--	--	5.64	--	--	--	--	
B-7	Plumley	8/12/2014	No	--	--	--	--	--	0.042 U	--	
B-8	Plumley	8/12/2014	No	--	2.301 a	--	--	--	--	--	
B-9	Plumley	8/12/2014	No	--	--	1.11 a	--	--	--	--	
B-10	Plumley	8/12/2014	No	--	--	1.917	--	--	0.041 U	--	
B-11	Plumley	8/12/2014	No	--	--	--	--	--	0.037 U	--	
S-1	Plumley	8/12/2014	No	--	--	--	17.61* a	--	--	--	*Sample obtained from 3.5'
DB-1	Plumley	8/12/2014	No	0.469 a	--	--	--	--	--	--	
GP-1	CHA	12/2/2014	Yes	7.9	--	0.27 U	--	--	--	--	
GP-2	CHA	12/2/2014	Yes	18.2 J	--	0.21 U	--	--	--	--	
GP-3	CHA	12/2/2014	Yes	20.2	--	0.21 U	--	--	--	--	
GP-4	CHA	12/2/2014	Yes	3.08	--	--	0.27* U	--	--	--	*Sample obtained from 2'8"-3'7"
GP-5	CHA	12/2/2014	Yes	6.23 J	--	0.22 U	--	--	--	--	
GP-6	CHA	12/2/2014	Yes	13.5 J	--	0.25 U	--	--	--	--	
GP-7	CHA	12/2/2014	Yes	14.5	--	0.24 U	--	--	--	--	
GP-8	CHA	12/2/2014	Yes	17 J	--	0.21 U	--	--	--	--	
GP-9	CHA	12/2/2014	Yes	21.2	--	0.24 U	--	--	--	--	
GP-10	CHA	12/2/2014	Yes	18.3 J	--	0.28 U	--	--	--	--	
GP-11	CHA	12/2/2014	Yes	17.6 J	--	0.36 J	--	2.9 J	--	--	
GP-12	CHA	12/2/2014	Yes	14	--	3.71 J	--	0.28 U	--	--	
GP-13	CHA	12/2/2014	Yes	18.3 J	--	0.24 U	--	--	--	--	
GP-14	CHA	12/2/2014	Yes	7.23 J	--	0.23 U	--	--	--	--	
GP-15	CHA	12/3/2014	Yes	9.4 J	--	33 J	--	9.8	0.26 U	--	
15W	Sterling	6/17/2015	No	--	--	3.48	--	--	--	--	
15N	Sterling	6/17/2015	No	--	--	10.4	--	--	--	--	
15E	Sterling	6/17/2015	No	--	--	13.6	--	--	--	--	
GP-16	CHA	12/3/2014	Yes	8.7	--	0.7 J	--	0.25 U	--	--	
GP-17	CHA	12/3/2014	Yes	9.4 J	--	--	--	4.8 R	--	--	

Table 1
 Summary of Soil PCB Analytical Results: 2015-2018
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-18	CHA	12/3/2014	Yes	7.8 J	--	5.9 J	--	0.23 U	--	--	
GP-19	CHA	12/3/2014	Yes	22.5 J	--	--	--	3.6	0.23 U	--	
GP-20	CHA	12/3/2014	Yes	8.4	--	1.15 J	--	2.52	--	--	
GP-21	CHA	12/3/2014	Yes	11.2 J	--	0.24 U	--	--	--	--	
GP-22	CHA	12/3/2014	Yes	10.4 J	--	0.19 U	--	--	--	--	
GP-23	CHA	12/3/2014	Yes	21.5 J	--	0.22 U	--	--	--	--	
GP-24	CHA	12/3/2014	Yes	17.4	--	10.8 J	--	0.23 U	--	--	
GP-25	CHA	12/3/2014	Yes	5.7	--	11.8 J	--	0.069 J	--	--	
GP-26	CHA	12/3/2014	Yes	25.8	--	0.23 U	--	--	--	--	
26W	Sterling	6/17/2015	No	41.6	--	--	--	--	--	--	
26E	Sterling	6/17/2015	No	44.2	--	--	--	--	--	--	
26N	Sterling	6/17/2015	No	14.4	--	--	--	--	--	--	
26E-1	Sterling	7/9/2015	No	40	--	--	--	--	--	--	
26E-2	Sterling	7/9/2015	No	10.6	--	--	--	--	--	--	
26W-1	Sterling	7/9/2015	No	108	--	--	--	--	--	--	
26W-1Dup	Sterling	7/9/2015	No	88.5	--	--	--	--	--	--	
26W-2	Sterling	7/9/2015	No	2,170	--	--	--	--	--	--	
26W-2	CHA	10/17/2018	Yes	--	--	0.0136 J	--	0.00725 J	--	--	
26E1-A	Sterling	7/28/2015	No	28 J	--	--	--	--	--	--	
26E1-B	Sterling	7/28/2015	No	46.5 J	--	--	--	--	--	--	
26W1-A	Sterling	7/28/2015	No	843 J	--	--	--	--	--	--	
26W1-B	Sterling	7/28/2015	No	39.3	--	--	--	--	--	--	
26W1-B Dup	Sterling	7/28/2015	No	39.3 J	--	--	--	--	--	--	
26W2-A	Sterling	7/28/2015	No	79.7	--	--	--	--	--	--	
26W2-B	Sterling	7/28/2015	No	329	--	--	--	--	--	--	
SS-100	Sterling	9/15/2015	No	9.22	--	--	--	--	--	--	
SS-100 Dup	Sterling	9/15/2015	No	6.7	--	--	--	--	--	--	
SS-101	Sterling	9/15/2015	No	4.28	--	--	--	--	--	--	
SS-102	Sterling	9/15/2015	No	3.83	--	--	--	--	--	--	
SS-103	Sterling	9/15/2015	No	6.56	--	--	--	--	--	--	
SS-104	Sterling	9/15/2015	No	4.19	--	--	--	--	--	--	
SS-105	Sterling	9/15/2015	No	4.8	--	--	--	--	--	--	
SS-106	Sterling	9/15/2015	No	6.04	--	--	--	--	--	--	
SS-107	Sterling	9/15/2015	No	4.75	--	--	--	--	--	--	
SS-108	Sterling	9/15/2015	No	4.33	--	--	--	--	--	--	
SS-109	Sterling	9/16/2015	No	12.7	--	--	--	--	--	--	
SS-110	Sterling	9/16/2015	No	9.23	--	--	--	--	--	--	
SS-111	Sterling	9/16/2015	No	50.1 J	--	--	--	--	--	--	
SS-112	Sterling	9/16/2015	No	36.7	--	--	--	--	--	--	
SS-124	Sterling	9/16/2015	No	21.6	--	--	--	--	--	--	
SS-123	Sterling	9/16/2015	No	8.2	--	--	--	--	--	--	
SS-122	Sterling	9/16/2015	No	11.8	--	--	--	--	--	--	
GP-27	CHA	12/3/2014	Yes	8 J	--	6.9 J	--	0.4 J	--	--	
GP-28	CHA	12/3/2014	Yes	18 J	--	--	--	0.72 J	0.26 U	--	
GP-29	CHA	12/3/2014	Yes	15.7 J	--	10.6 J	--	0.27 U	--	--	
GP-30	CHA	12/3/2014	Yes	16 J	--	0.23 U	--	--	--	--	
GP-31	CHA	12/3/2014	Yes	3.2 J	--	24 J	--	19	--	--	

Table 1
Summary of Soil PCB Analytical Results: 2015-2018
700 Smith Boulevard
Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-32	CHA	12/4/2014	Yes	17 J	--	97 J	--	13.5	0.29 U	--	
32W	Sterling	6/17/2015	No	--	--	4.9	--	--	--	--	
32E	Sterling	6/17/2015	No	--	--	0.835	--	--	--	--	
32N	Sterling	6/17/2015	No	--	--	4.56	--	--	--	--	
GP-33	CHA	12/4/2014	Yes	10.2 J	--	15.3 J	--	20.5 J	--	--	
GP-34	CHA	12/4/2014	Yes	11 J	--	0.3 U	--	--	--	--	
GP-35	CHA	12/4/2014	Yes	9.59	--	--	--	8.1	--	--	
GP-36	CHA	12/4/2014	Yes	3.4	--	0.21 U	--	--	--	--	
GP-37	CHA	12/4/2014	Yes	9.6 J	--	0.2 U	--	--	--	--	
GP-38	CHA	12/4/2014	Yes	24 J	--	0.27 J	--	0.74	--	--	
GP-39	CHA	12/4/2014	Yes	25*	--	0.21 U	--	--	--	--	*Collected from 7" - 18"
GP-40	CHA	12/4/2014	Yes	6.4 J	--	--	--	0.25 U	0.2 U	--	
GP-41	CHA	12/4/2014	Yes	12.6 J	--	0.2 U	--	--	--	--	
GP-42	CHA	12/4/2014	Yes	6.1 J	--	1.12 J	--	0.16 JN	0.25 U	--	
GP-43	CHA	12/4/2014	Yes	12.2 J	--	2.5 J	--	3.51	--	--	
GP-44	CHA	12/4/2014	Yes	23 J	--	0.26 U	--	--	--	--	
GP-45	CHA	12/4/2014	Yes	227	--	0.56 J	--	3.58	--	--	
45S	Sterling	6/17/2015	No	23.3	--	--	--	--	--	--	
45N	Sterling	6/17/2015	No	4.7	--	--	--	--	--	--	
45W	Sterling	6/17/2015	No	7.76	--	--	--	--	--	--	
GP-46	CHA	12/5/2014	Yes	30.3	--	0.23 U	--	--	--	--	
46W	Sterling	6/17/2015	No	14.8	--	--	--	--	--	--	
46S	Sterling	6/17/2015	No	5.24	--	--	--	--	--	--	
46E	Sterling	6/17/2015	No	3.38	--	--	--	--	--	--	
GP-47	CHA	12/5/2014	Yes	13.9 J	--	4.6	--	0.26 U	--	--	
GP-48	CHA	12/5/2014	Yes	6.4 J	--	0.22 U	--	--	--	--	
GP-49	CHA	12/5/2014	Yes	2.21	--	0.23 U	--	--	--	--	
GP-50	CHA	12/5/2014	Yes	15.8	--	4.9	--	0.27 U	--	--	
GP-51	CHA	12/5/2014	Yes	3.92	--	1.41	--	0.28 U	--	--	
GP-52	CHA	12/5/2014	Yes	20.7	--	1.44	--	0.22 U	--	--	
GP-53	CHA	12/5/2014	Yes	10.1 J	--	23.7	--	0.24 U	--	--	
GP-54	CHA	12/5/2014	Yes	12	--	0.25 U	--	--	--	--	
GP-55	CHA	12/5/2014	Yes	7.5	--	0.22 U	--	--	--	--	
GP-56	CHA	12/5/2014	Yes	3.5	--	0.23 U	--	--	--	--	
GP-57	CHA	12/5/2014	Yes	13.6	--	2.23	--	0.25 U	--	--	
GP-58	CHA	12/5/2014	Yes	3.85	--	0.21 U	--	--	--	--	
GP-59	CHA	12/5/2014	Yes	12.5	--	0.175 J	--	0.25 U	--	--	
GP-60	CHA	12/5/2014	Yes	5.6	--	0.24 U	--	--	--	--	
GP-61	CHA	12/5/2014	Yes	7.0	--	5.6	--	0.19 U	--	--	
GP-61	CHA	10/19/2018	Yes	7	--	6.2 J	--	0.0408 U	--	--	
DUP-04	CHA	10/19/2018	Yes	8.5	--	--	--	--	--	--	Parent sample GP-61_0-1
DUP-05	CHA	10/19/2018	Yes	--	--	9.6 J	--	--	--	--	Parent sample GP-61_2-3
GP-62	CHA	10/19/2018	Yes	3.9	--	0.0207 J	--	0.0107 J	--	--	
GP-63	CHA	10/16/2018	Yes	0.0538	--	0.0428 U	--	0.0382 U	--	--	
GP-64	CHA	10/16/2018	Yes	0.0334 U	--	0.0418 U	--	NA	--	--	
GP-65	CHA	10/16/2018	Yes	4.57	--	0.119 J	--	0.0408 U	--	--	
GP-66	CHA	10/16/2018	Yes	10.1	--	7.11	--	0.00444 JR	--	--	

Table 1
Summary of Soil PCB Analytical Results: 2015-2018
700 Smith Boulevard
Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-67	CHA	10/19/2018	Yes	4.74	--	10.5	--	6.33	--	--	
GP-68	CHA	10/19/2018	Yes	5.8	--	0.447	0.04 U	--	--	--	Refusal @ 4 ft, no sample 4-5 ft
GP-69	CHA	10/18/2018	Yes	5.26	--	0.619	--	0.0404 U	--	--	
GP-70	CHA	10/18/2018	Yes	4.43	--	0.0344 U	--	0.0405 U	--	--	
GP-71	CHA	10/18/2018	Yes	0.168	--	0.0389 U	--	0.0384 U	--	--	
GP-72	CHA	10/18/2018	Yes	0.0347 U	--	0.0338 U	--	NA	--	--	
GP-73	CHA	10/18/2018	Yes	13.1	--	0.0114 J	--	0.039 U	--	--	
GP-74	CHA	10/18/2018	Yes	3.58	--	7.14	0.0384 U	--	--	--	Refusal @ 4 ft, no sample 4-5 ft
GP-75	CHA	10/19/2018	Yes	3.08 J	--	4.18	--	0.0362 U	--	--	
DUP-03	CHA	10/19/2018	Yes	6.47 J	--	--	--	--	--	--	Parent sample GP-75_0-1
GP-76	CHA	10/19/2018	Yes	4.3 J	--	9.72	--	0.0351 U	--	--	
GP-77	CHA	10/19/2018	Yes	7.1	--	4.53 J	--	0.263	--	--	
DUP-06	CHA	10/19/2018	Yes	7.17	--	--	--	--	--	--	Parent sample GP-77_0-1
DUP-07	CHA	10/19/2018	Yes	--	--	7.29 J	--	--	--	--	Parent sample GP-77_2-3
GP-78	CHA	10/16/2018	Yes	4.17	--	0.0242 J	--	0.0362 U	--	--	
GP-79	CHA	10/16/2018	Yes	103	--	0.159	--	0.0145 J	--	--	
GP-79 E5	CHA	11/26/2018	Yes	14.8	--	NA	--	NA	--	--	
GP-79 N5	CHA	11/26/2018	Yes	0.0177 J	--	5.15	--	NA	--	--	
GP-79 N5 (RE)	CHA	11/26/2018	Yes	0.0154 J	--	--	--	--	--	--	Re-analysis of GP-79_N5_0-1
DUP-09	CHA	11/26/2018	Yes	26.4 J	--	NA	--	NA	--	--	
DUP-09 (RE)	CHA	11/26/2018	Yes	5.92 J	--	--	--	--	--	--	
GP-79 N10	CHA	11/26/2018	Yes	0.116 J	--	NA	--	NA	--	--	
GP-79 W5	CHA	11/26/2018	Yes	14.3	--	NA	--	NA	--	--	
DUP-10	CHA	11/26/2018	Yes	22.3 J	--	NA	--	NA	--	--	Parent sample GP-79_W5_0-1
GP-79 S5	CHA	11/26/2018	Yes	50.4	--	0.0184 J	--	NA	--	--	
GP-79 S10	CHA	11/26/2018	Yes	7.91	--	0.0207 J	--	NA	--	--	
GP-80	CHA	10/16/2018	Yes	1.55	--	0.0203 J	--	0.005 J	--	--	
GP-81	CHA	10/16/2018	Yes	30.1 J	--	0.00421 J	--	0.0339 U	--	--	
GP-81 E5	CHA	11/27/2018	Yes	2.19	--	NA	--	NA	--	--	
GP-81 N5	CHA	11/27/2018	Yes	0.627 J	--	NA	--	NA	--	--	
DUP-11	CHA	11/27/2018	Yes	1 J	--	NA	--	NA	--	--	Parent sample GP-81_N5_0-1
GP-81 W5	CHA	11/27/2018	Yes	4.83	--	NA	--	NA	--	--	
GP-81 S5	CHA	11/27/2018	Yes	2.06	--	NA	--	NA	--	--	
GP-82	CHA	10/17/2018	Yes	3.79	--	5.64	--	0.0338 U	--	--	
GP-83	CHA	10/17/2018	Yes	3.99 J	--	0.0644 J	--	0.0372 U	--	--	
GP-84	CHA	10/17/2018	Yes	3.88 J	--	0.00681 J	--	0.0344 U	--	--	
GP-85	CHA	10/18/2018	Yes	1.47	--	5.04	--	0.0337 U	--	--	
GP-86	CHA	10/18/2018	Yes	11.5	--	20.5	--	0.0388 U	--	--	
GP-87	CHA	10/18/2018	Yes	11	--	0.121	--	0.0398 U	--	--	
GP-88	CHA	10/18/2018	Yes	21.7	--	0.128	--	0.0386 U	--	--	
GP-89	CHA	10/18/2018	Yes	8.9	--	13.7	--	10.1	--	--	
GP-90	CHA	10/18/2018	Yes	11.9	--	29.3	--	0.133 J	--	--	
GP-90 E5	CHA	11/28/2018	Yes	43.5	--	8.28	--	NA	--	--	
GP-90 E10	CHA	11/28/2018	Yes	6.52	--	NA	--	NA	--	--	
GP-90 N5	CHA	11/28/2018	Yes	4.41	--	1.07	--	NA	--	--	
GP-90 W5	CHA	11/28/2018	Yes	7.05	--	3.56	--	NA	--	--	
GP-90 S5	CHA	11/28/2018	Yes	8.4	--	4.6	--	NA	--	--	

Table 1
 Summary of Soil PCB Analytical Results: 2015-2018
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-91	CHA	10/17/2018	Yes	9.87	--	25.1	--	0.0308 J	--	--	
GP-91 E5	CHA	11/28/2018	Yes	2.53	--	0.0138 J	--	NA	--	--	
GP-91 N5	CHA	11/27/2018	Yes	7.7	--	1.45 J	0.775	NA	--	--	
GP-91 W5	CHA	11/27/2018	Yes	8.15	--	5.06	--	NA	--	--	
GP-91 S5	CHA	11/28/2018	Yes	5.3	--	1.7	--	NA	--	--	
GP-92	CHA	10/17/2018	Yes	2.08 J	--	0.0346 U	--	0.0363 U	--	--	
GP-93	CHA	10/17/2018	Yes	11.4 J	--	0.0451	--	0.037 U	--	--	
GP-94	CHA	10/16/2018	Yes	18.9 J	--	0.0205 J	--	0.0163 J	--	--	
GP-95	CHA	10/16/2018	Yes	13.7	--	19.7	--	0.0375 U	--	--	
GP-96	CHA	10/16/2018	Yes	3.54	--	1.13	--	0.0385 U	--	--	
GP-97	CHA	10/19/2018	Yes	0.0884	--	0.0345 U	--	--	--	--	Hand auger. Refusal @ 3 ft, no sample 4-5 ft
DUP-01	CHA	10/19/2018	Yes	0.0884	--	--	--	--	--	--	Parent sample GP-97_0-1
DUP-02	CHA	10/19/2018	Yes	--	--	0.0332 U	--	--	--	--	Parent sample GP-97_2-3
GP-98	CHA	10/19/2018	Yes	0.109	--	0.0346 U	--	0.0333 U	--	--	
GP-99	CHA	10/19/2018	Yes	2.96	--	1.88	--	0.394	--	--	
DUP-08	CHA	10/19/2018	Yes	4.15	--	--	--	--	--	--	Parent sample GP-99_0-1
GP-100	CHA	10/19/2018	Yes	35.6	--	0.607	--	0.0346 U	--	--	
GP-100 E5	CHA	11/29/2018	Yes	13.1	--	NA	--	NA	--	--	
GP-100 N5	CHA	11/29/2018	Yes	8.71	--	NA	--	NA	--	--	
GP-100 W5	CHA	11/29/2018	Yes	28	--	7.47	--	NA	--	--	Insufficient recovery to collect 4-5 ft sample
GP-100 W10	CHA	11/29/2018	Yes	2.04 J	--	NA	--	NA	--	--	Refusal @ 2 ft. No 2 - 3' or 4 - 5' sample
GP-100 S5	CHA	11/29/2018	Yes	10.2	NA	--	--	--	--	--	Terminated at 2 ft due to utilities
GP-101	CHA	10/16/2018	Yes	1.43	--	8.26	--	0.0325 U	--	--	
GP-102	CHA	10/16/2018	Yes	1.13	--	3.96 J	--	0.293	--	--	
GP-103	CHA	10/18/2018	Yes	5.3	--	9.09	--	0.0384 U	--	--	
GP-104	CHA	10/17/2018	Yes	2.15	--	0.2	--	0.00635 J	--	--	
GP-105	CHA	10/17/2018	Yes	18.9	23.3	--	--	--	--	--	Refusal @ 2 ft, no samples 2-3 ft and 4-5 ft
GP-106	CHA	10/17/2018	Yes	1.49	--	13.5	--	0.0538 J	--	--	
GP-107	CHA	10/17/2018	Yes	6.66	--	0.0393 U	--	0.0403 U	--	--	
GP-108	CHA	10/17/2018	Yes	2.7	5.43	--	--	--	--	--	Refusal @ 2 ft, no samples 2-3 ft and 4-5 ft
GP-109	CHA	10/17/2018	Yes	3.99	--	0.0297 J	--	0.0394 U	--	--	
GP-110	CHA	10/18/2018	Yes	3.96	--	6.74	--	0.0065 J	--	--	
GP-111	CHA	10/17/2018	Yes	0.0137 J	--	0.0336 U	--	0.00525 J	--	--	

Notes:

All results are in parts per million (ppm = mg/kg).

"--" Denotes no sample taken at the indicated depth interval.

NA: Sample collected, but not analyzed

U: Sample analyzed for but not detected at the specified concentration.

a: Estimated value due to the presence of other Aroclor pattern.

J: Estimated value. Refer to the corresponding Category B Report and/or DUSR for further details.

N: Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence of absence during future sampling events.

R: Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

5.6	Gray highlighted values exceed the TSCA High-Occupancy Cleanup Level of 1.0 ppm Total PCBs.
30.3	Yellow highlighted and bold values exceed the TSCA Low-Occupancy Cleanup Level of 25 ppm Total PCBs (equivalent in value to the 6 NYCRR Part 375 Restricted Industrial Soil Cleanup Objectives).

Table 2
 Summary of Groundwater Analytical Results: 2014 - 2015
 700 Smith Boulevard
 Port of Albany, New York

Sample Location			B-3/TW	B-4/TW		B-5/TW		
Sample Date			4/23/2015	8/29/2014	4/23/2015	8/29/2014	8/29/2014	4/23/2015
Metals	Units	TOGS 1.1.1 Guidance Value	Dissolved (field-filtered)	Total (unfiltered)	Dissolved (field-filtered)	Total (unfiltered)	Dissolved (filtered)	Dissolved (field-filtered)
Aluminum	mg/L	NA	0.06 U	52.9	0.22	101	0.06 U	0.06 U
Antimony	mg/L	0.003	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U
Arsenic	mg/L	0.025	0.0056 U	0.023	0.0056 U	0.051	0.0056 U	0.0056 U
Barium	mg/L	1	0.041	0.46	0.032	0.9	0.065	0.057
Beryllium	mg/L	0.003	0.0003 U	0.003	0.0003 U	0.0064	0.0003 U	0.0003 U
Cadmium	mg/L	0.005	0.001 J	0.0016 J	0.00053 J	0.0018 J	0.0005 U	0.0005 U
Calcium	mg/L	NA	278	237	437	197	99	115
Chromium	mg/L	0.05	0.001 U	0.08	0.001 U	0.16	0.0026 J B	0.001 U
Cobalt	mg/L	NA	0.00063 U	0.046	0.00067 J	0.12	0.0011 J	0.00063 U
Copper	mg/L	0.2	0.0086 J	0.11	0.019	0.19	0.0016 U	0.0016 U
Iron	mg/L	0.3	0.019 U	105	0.41	182	0.019 U	0.019 U
Lead	mg/L	0.025	0.003 U	0.21	0.003 U	0.17	0.003 U	0.003 U
Magnesium	mg/L	35	123	73.8	87.6	60.3	12.7	18.1
Manganese	mg/L	0.3	0.061	6.9	1.6	5.7	0.92 B	0.018
Mercury	mg/L	0.0007	0.00012 U	0.00038	0.00012 U	0.00034	0.00012 U	0.00012 U
Nickel	mg/L	0.1	0.051	0.1	0.042	0.22	0.0014 J	0.0013 U
Potassium	mg/L	NA	61.1	10	64.2	22.2	5.4	6.1
Selenium	mg/L	0.01	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U
Silver	mg/L	0.05	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Sodium	mg/L	20	216	31.5	289	13.9	11.9	7.7
Thallium	mg/L	0.0005	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	mg/L	NA	0.0015 U	0.12	0.0015 U	0.21	0.0015 U	0.0015 U
Zinc	mg/L	2	0.78 B	0.63	0.44 B	0.68	0.0098 J B	0.036 B
			Dissolved (Lab-Filtered)	Total (unfiltered)	Dissolved (Lab-Filtered)	Total (unfiltered)		Dissolved (Lab-Filtered)
PCBs								
PCB-1016	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1221	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1232	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1242	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1248	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1254	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1260	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1262	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
PCB-1268	ug/L	0.09	0.078 U	0.19 U	0.078 U	0.18 U	NS	0.078 U
VOCs								
cis-1,2-Dichloroethene	ug/L	5	NS	NS	NS	NS	NS	NS
1,2-Dichloroethene (total)	ug/L	NA	NS	NS	NS	NS	NS	NS
Methyl Tert Butyl Ether	ug/L	10	NS	NS	NS	NS	NS	NS
Vinyl chloride	ug/L	2	NS	NS	NS	NS	NS	NS

Table 2
 Summary of Groundwater Analytical Results: 2014 - 2015
 700 Smith Boulevard
 Port of Albany, New York

Sample Location			B-6/TW			B-7/TW		
Sample Date			8/29/2014	8/29/2014	4/23/2015	8/29/2014	8/29/2014	4/23/2015
Metals	Units	TOGS 1.1.1 Guidance Value	Total (unfiltered)	Dissolved (filtered)	Dissolved (field-filtered)	Total (unfiltered)	Dissolved (filtered)	Dissolved (field-filtered)
Aluminum	mg/L	NA	95	0.06 U	0.06 U	52.2	0.06 U	0.34
Antimony	mg/L	0.003	0.015 J	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U
Arsenic	mg/L	0.025	0.056	0.0056 U	0.0056 U	0.028	0.0056 U	0.0056 U
Barium	mg/L	1	1.1	0.059	0.031	0.55	0.061	0.054
Beryllium	mg/L	0.003	0.0045	0.0003 U	0.0003 U	0.0035	0.0003 U	0.0003 U
Cadmium	mg/L	0.005	0.022	0.00078 J	0.0005 U	0.0032	0.00069 J	0.0005 U
Calcium	mg/L	NA	563	189	158	153	138	74.3
Chromium	mg/L	0.05	0.25	0.0041 B	0.001 U	0.23	0.0034 J B	0.0015 J
Cobalt	mg/L	NA	0.1	0.0013 J	0.00063 U	0.058	0.0028 J	0.00063 U
Copper	mg/L	0.2	0.84	0.0048 J	0.0029 J	0.27	0.0036 J	0.0053 J
Iron	mg/L	0.3	211	0.034 J	0.019 U	110	0.019 J	0.66
Lead	mg/L	0.025	1.5	0.003 U	0.003 U	0.25	0.003 U	0.003 U
Magnesium	mg/L	35	84.7	26.4	23.9	35.5	21.5	14
Manganese	mg/L	0.3	9.1	2.8 B	1.1	5.5	3.5 B	0.016
Mercury	mg/L	0.0007	0.0044	0.00012 U	0.00012 U	0.0019	0.00012 U	0.00012 U
Nickel	mg/L	0.1	0.31	0.006 J	0.0031 J	2.9	0.76	0.043
Potassium	mg/L	NA	36.5	19.7	14.8	13.6	5.8	13.7
Selenium	mg/L	0.01	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U
Silver	mg/L	0.05	0.0054 J	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Sodium	mg/L	20	115	127	67.3	103	124	33
Thallium	mg/L	0.0005	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	mg/L	NA	0.2	0.0015 U	0.0015 U	0.11	0.0015 U	0.0015 U
Zinc	mg/L	2	4.1	0.042 B	0.057 B	0.84	0.025 B	0.043 B
			Total (unfiltered)		Dissolved (Lab-Filtered)	Total (unfiltered)		Dissolved (Lab-Filtered)
PCBs								
PCB-1016	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1221	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1232	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1242	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1248	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1254	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1260	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1262	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
PCB-1268	ug/L	0.09	0.18 U	NS	0.080 U	0.18 U	NS	0.085 U
VOCs								
cis-1,2-Dichloroethene	ug/L	5	NS	NS	NS	NS	NS	NS
1,2-Dichloroethene (total)	ug/L	NA	NS	NS	NS	NS	NS	NS
Methyl Tert Butyl Ether	ug/L	10	NS	NS	NS	NS	NS	NS
Vinyl chloride	ug/L	2	NS	NS	NS	NS	NS	NS

Table 2
 Summary of Groundwater Analytical Results: 2014 - 2015
 700 Smith Boulevard
 Port of Albany, New York

Sample Location			B-10/TW			B-11/TW		
Sample Date			8/29/2014	8/29/2014	4/23/2015	8/29/2014	8/29/2014	4/23/2015
Metals	Units	TOGS 1.1.1 Guidance Value	Total (unfiltered)	Dissolved (filtered)	Dissolved (field-filtered)	Total (unfiltered)	Dissolved (filtered)	Dissolved (field-filtered)
Aluminum	mg/L	NA	47.8	0.44	0.06 U	62.5	0.06 U	0.06 U
Antimony	mg/L	0.003	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U
Arsenic	mg/L	0.025	0.021	0.0056 U	0.0056 U	0.068	0.0056 U	0.0056 U
Barium	mg/L	1	0.45	0.09	0.065	0.51	0.046	0.015
Beryllium	mg/L	0.003	0.0028	0.0003 U	0.0003 U	0.0036	0.0003 U	0.0003 U
Cadmium	mg/L	0.005	0.0051	0.00071 J	0.0005 U	0.0028	0.0005 U	0.0005 U
Calcium	mg/L	NA	148	145	141	92.9	33.1	13
Chromium	mg/L	0.05	0.12	0.0032 J B	0.001 U	0.13	0.0025 J B	0.001 U
Cobalt	mg/L	NA	0.047	0.0029 J	0.00063 U	0.093	0.0068	0.0014 J
Copper	mg/L	0.2	0.22	0.0024 J	0.0016 U	0.19	0.0016 U	0.0041 J
Iron	mg/L	0.3	89.9	0.5	2.6	177	0.12	0.37
Lead	mg/L	0.025	0.35	0.0038 J	0.003 U	0.34	0.003 U	0.003 U
Magnesium	mg/L	35	43	28.4	28.5	42.2	6.7	2.1
Manganese	mg/L	0.3	2.4	1.2 B	0.74	7.4	2.8 B	0.17
Mercury	mg/L	0.0007	0.001	0.00012 U	0.00012 U	0.0012	0.00012 U	0.00012 U
Nickel	mg/L	0.1	0.11	0.0056 J	0.0024 J	0.21	0.0081 J	0.0052 J
Potassium	mg/L	NA	10.2	0.71	0.25 J	22.3	6.3	3.8
Selenium	mg/L	0.01	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U	0.0087 U
Silver	mg/L	0.05	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U	0.0017 U
Sodium	mg/L	20	38	40.3	36.9	62.2	39.6	52.4
Thallium	mg/L	0.0005	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Vanadium	mg/L	NA	0.099	0.0015 U	0.0015 U	0.13	0.0015 U	0.0015 U
Zinc	mg/L	2	0.91	0.048 B	0.027 B	0.83	0.033 B	0.014 B
			Total (unfiltered)		Dissolved (Lab-Filtered)	Total (unfiltered)		Dissolved (Lab-Filtered)
PCBs								
PCB-1016	ug/L	0.09	17 U	NS	0.080 U	17 U	NS	0.080 U
PCB-1221	ug/L	0.09	17 U	NS	0.080 U	17 U	NS	0.080 U
PCB-1232	ug/L	0.09	17 U	NS	0.080 U	17 U	NS	0.080 U
PCB-1242	ug/L	0.09	17 U	NS	0.080 U	17 U	NS	0.080 U
PCB-1248	ug/L	0.09	17 U	NS	0.080 U	17 U	NS	0.080 U
PCB-1254	ug/L	0.09	24 U	NS	0.080 U	25 U	NS	0.080 U
PCB-1260	ug/L	0.09	24 U	NS	0.080 U	25 U	NS	0.080 U
PCB-1262	ug/L	0.09	24 U	NS	0.080 U	25 U	NS	0.080 U
PCB-1268	ug/L	0.09	24 U	NS	0.080 U	25 U	NS	0.080 U
VOCs								
cis-1,2-Dichloroethene	ug/L	5	NS	NS	NS	NS	NS	NS
1,2-Dichloroethene (total)	ug/L	NA	NS	NS	NS	NS	NS	NS
Methyl Tert Butyl Ether	ug/L	10	NS	NS	NS	NS	NS	NS
Vinyl chloride	ug/L	2	NS	NS	NS	NS	NS	NS

Table 2
Summary of Groundwater Analytical Results: 2014 - 2015
700 Smith Boulevard
Port of Albany, New York

NOTES:

1. New York State Department of Environmental Conservation, Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1, October 1993 "Ambient Water Quality Standards and Guidance Values")

NA = Guidance/standard value not available

NS = Not Sampled

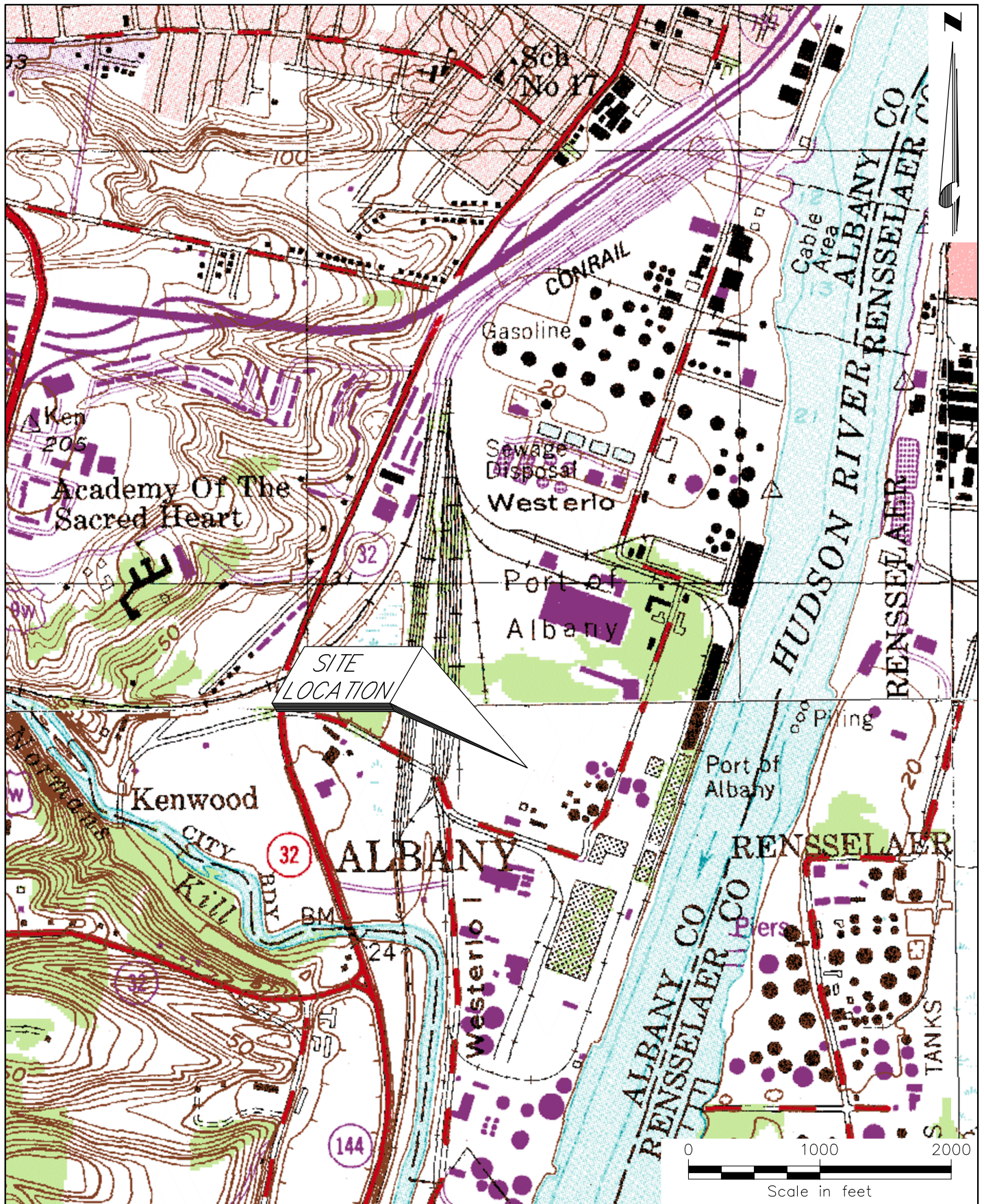
U = The compound was not detected at the indicated concentration.

J = Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than MDL. The concentration given is an approximate value.

B = Analyte was detected in the associated method blank.

Highlighted values are those that exceed TOGS 1.1.1 Standard or Guidance Value for Class GA Groundwater.

FIGURES



Drawing Copyright © 2016



111 Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 • www.chacompanies.com

SITE LOCATION MAP

700 SMITH BLVD, ALBANY NY

PROJECT NO.
28952

DATE: 01/2018

FIGURE 1



Drawing Copyright © 2018
CIA
111 Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 • www.chacompanies.com

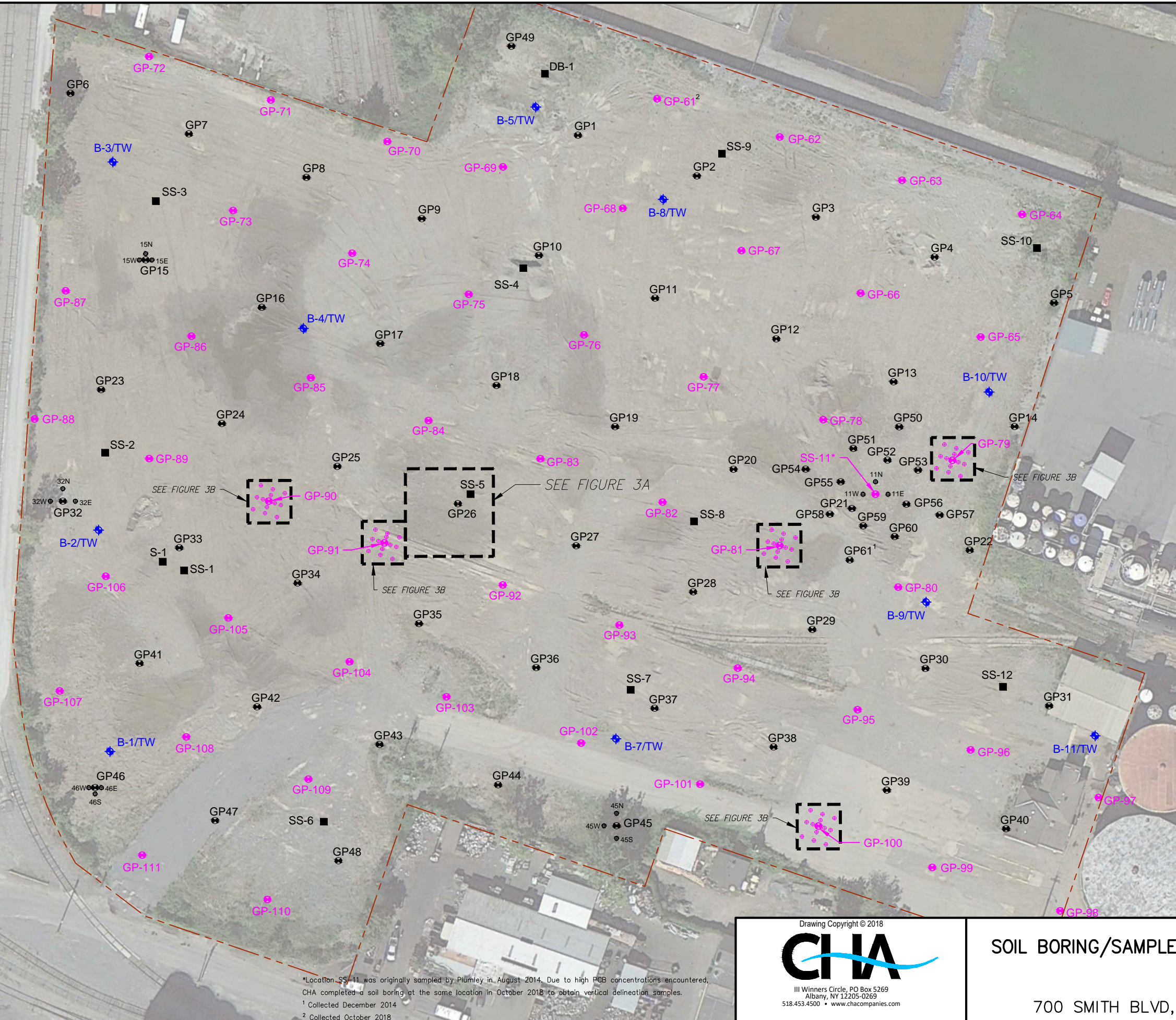
SITE PLAN

700 SMITH BLVD, ALBANY NY

PROJECT NO.
28952

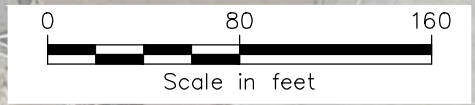
DATE: 01/11/19

FIGURE 2



LEGEND

- APPROXIMATE SITE BOUNDARY
- + SOIL BORING/MONITORING WELL, 2014 (PLUMLEY)
- SOIL SAMPLE, 2014 (PLUMLEY)
- ⊗ SOIL BORING, 2014 (CHA)
- ⊕ DELINEATION SOIL SAMPLE, 2015 (STERLING)
- ⊗ SOIL BORING, 2018 (CHA)
- ⊕ DELINEATION SOIL BORING, 2018 (CHA)



*Location SS-11 was originally sampled by Plumley in August 2014. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.
 1 Collected December 2014
 2 Collected October 2018

Drawing Copyright © 2018

III Winners Circle, PO Box 5269
 Albany, NY 12205-0269
 518.453.4500 • www.chacompanies.com

SOIL BORING/SAMPLE LOCATION PLAN

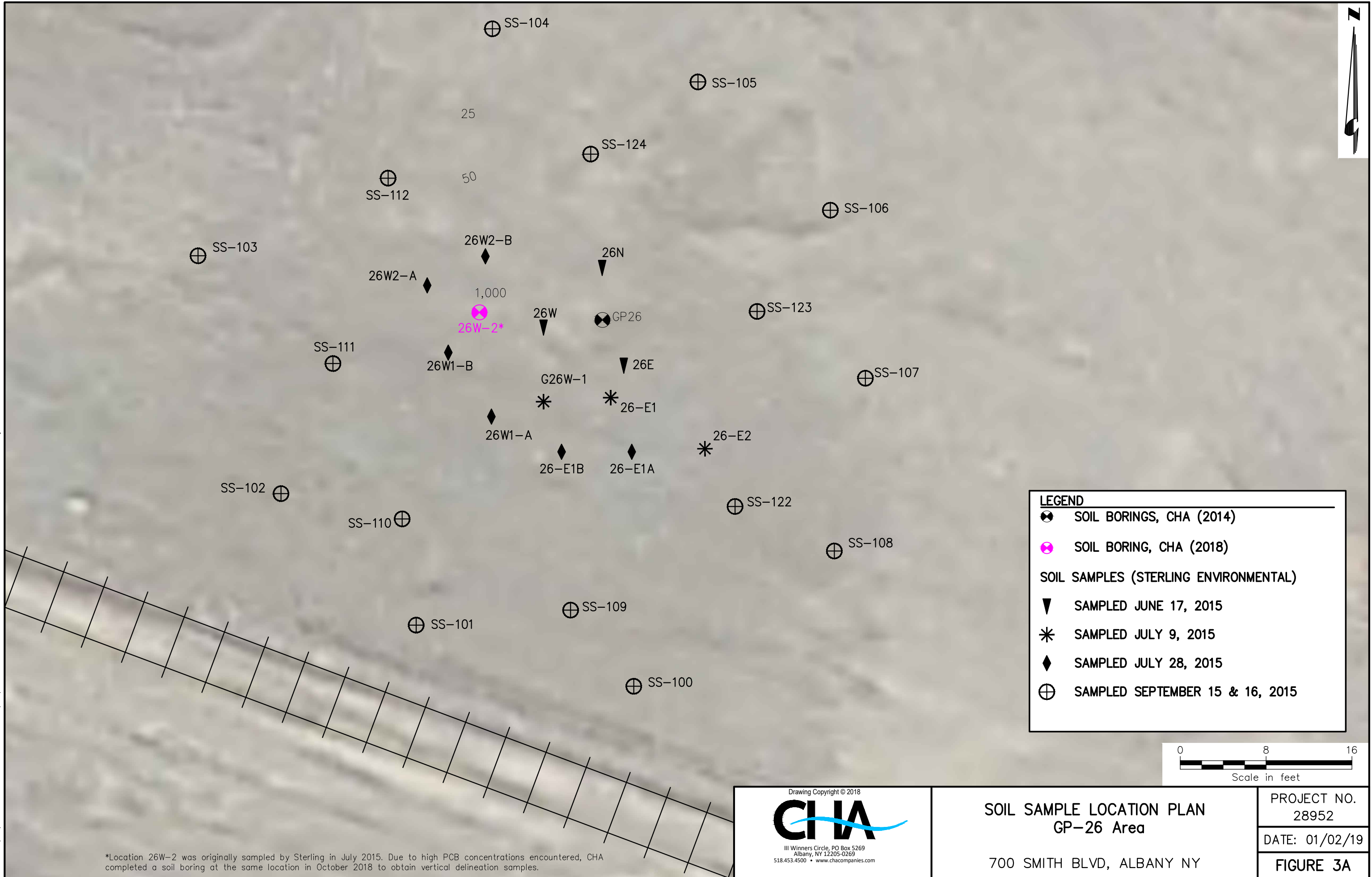
700 SMITH BLVD, ALBANY NY

PROJECT NO.
28952

DATE: 01/10/19

FIGURE 3

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2019-01 UPDATES\FIG-3-3A_28952_SOIL BORINGS.DWG
 Saved: 1/11/2019 4:02:18 PM Plotted: 4/17/2019 2:08:57 PM Current User: Miller, Samantha LastSavedBy: 5939



*Location 26W-2 was originally sampled by Sterling in July 2015. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.



SOIL SAMPLE LOCATION PLAN
 GP-26 Area

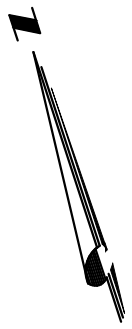
700 SMITH BLVD, ALBANY NY

PROJECT NO.
 28952

DATE: 01/02/19

FIGURE 3A

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2019-01 UPDATES\FIG-3-3A_28952_SOIL BORINGS.DWG
Saved: 1/2/2019 12:10:52 PM Plotted: 1/2/2019 12:11:16 PM Current User: Mikochik, James LastSavedBy: 5939



NW10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

N10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

NE10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

N5
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

W10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

W5
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

GP-XX
⊗

E5
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

E10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

S5
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

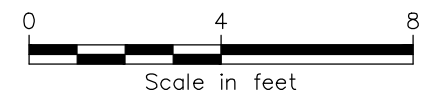
SW10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

S10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

SE10
⊕ 0-1'
⊕ 2-3'
⊕ 4-5'

LEGEND

- ⊗ CHA OCT 2018 SOIL BORING (PCBS > 25 PPM)
- ⊕ CHA NOV 2018 DELINEATION BORING LOCATION

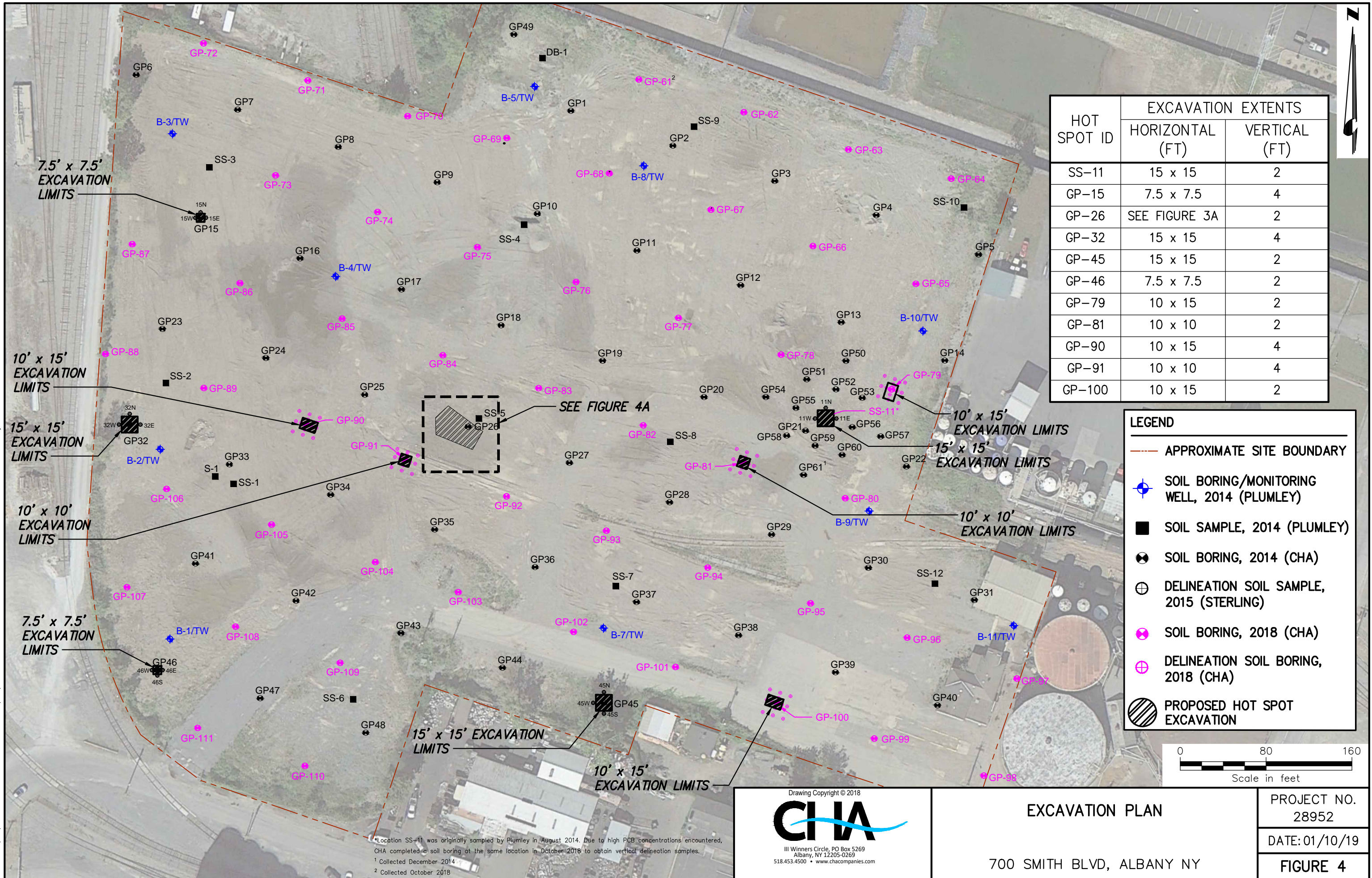


Drawing Copyright © 2018

III Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 • www.chacompanies.com

SOIL DELINEATION
GENERAL SAMPLING SCHEMATIC
NOVEMBER 2018
700 SMITH BLVD, ALBANY NY

PROJECT NO.
28952
DATE: 01/02/19
FIGURE 3B



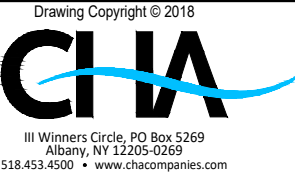
HOT SPOT ID	EXCAVATION EXTENTS	
	HORIZONTAL (FT)	VERTICAL (FT)
SS-11	15 x 15	2
GP-15	7.5 x 7.5	4
GP-26	SEE FIGURE 3A	2
GP-32	15 x 15	4
GP-45	15 x 15	2
GP-46	7.5 x 7.5	2
GP-79	10 x 15	2
GP-81	10 x 10	2
GP-90	10 x 15	4
GP-91	10 x 10	4
GP-100	10 x 15	2

LEGEND

- APPROXIMATE SITE BOUNDARY
- SOIL BORING/MONITORING WELL, 2014 (PLUMLEY)
- SOIL SAMPLE, 2014 (PLUMLEY)
- SOIL BORING, 2014 (CHA)
- DELINEATION SOIL SAMPLE, 2015 (STERLING)
- SOIL BORING, 2018 (CHA)
- DELINEATION SOIL BORING, 2018 (CHA)
- PROPOSED HOT SPOT EXCAVATION



*Location SS-11 was originally sampled by Plumley in August 2014. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.
 1 Collected December 2014
 2 Collected October 2018

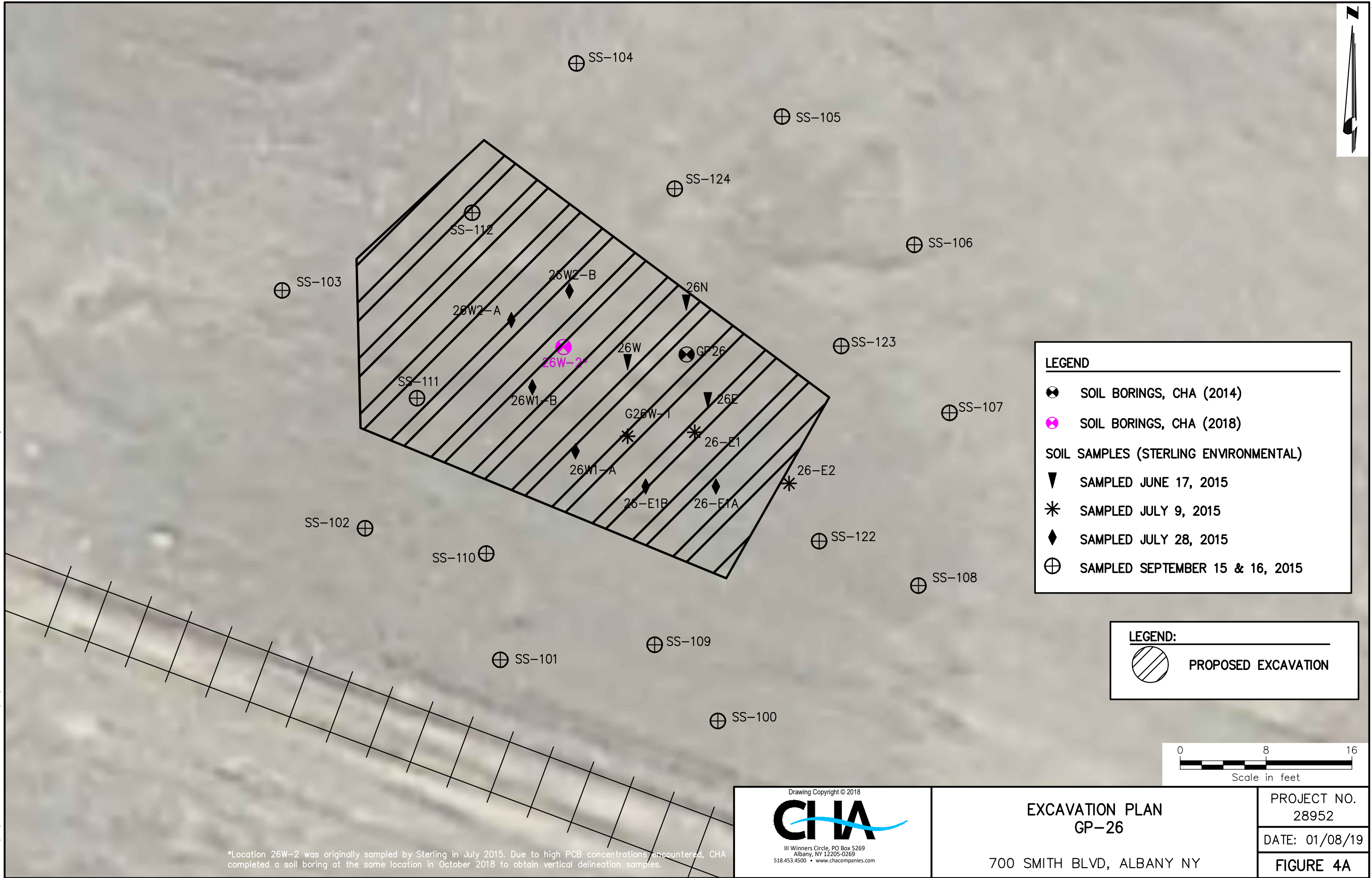


EXCAVATION PLAN

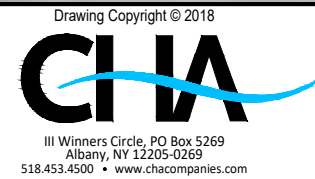
700 SMITH BLVD, ALBANY NY

PROJECT NO. 28952
DATE: 01/10/19
FIGURE 4

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2019-01_UPDATES\FIG-4-4A_28952_EXCAVATION_PLAN.DWG
 Saved: 4/17/2019 2:31:21 PM Plotted: 4/18/2019 7:33:58 AM Current User: Miller, Samantha LastSavedBy: 4187



*Location 26W-2 was originally sampled by Sterling in July 2015. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.



**EXCAVATION PLAN
 GP-26**

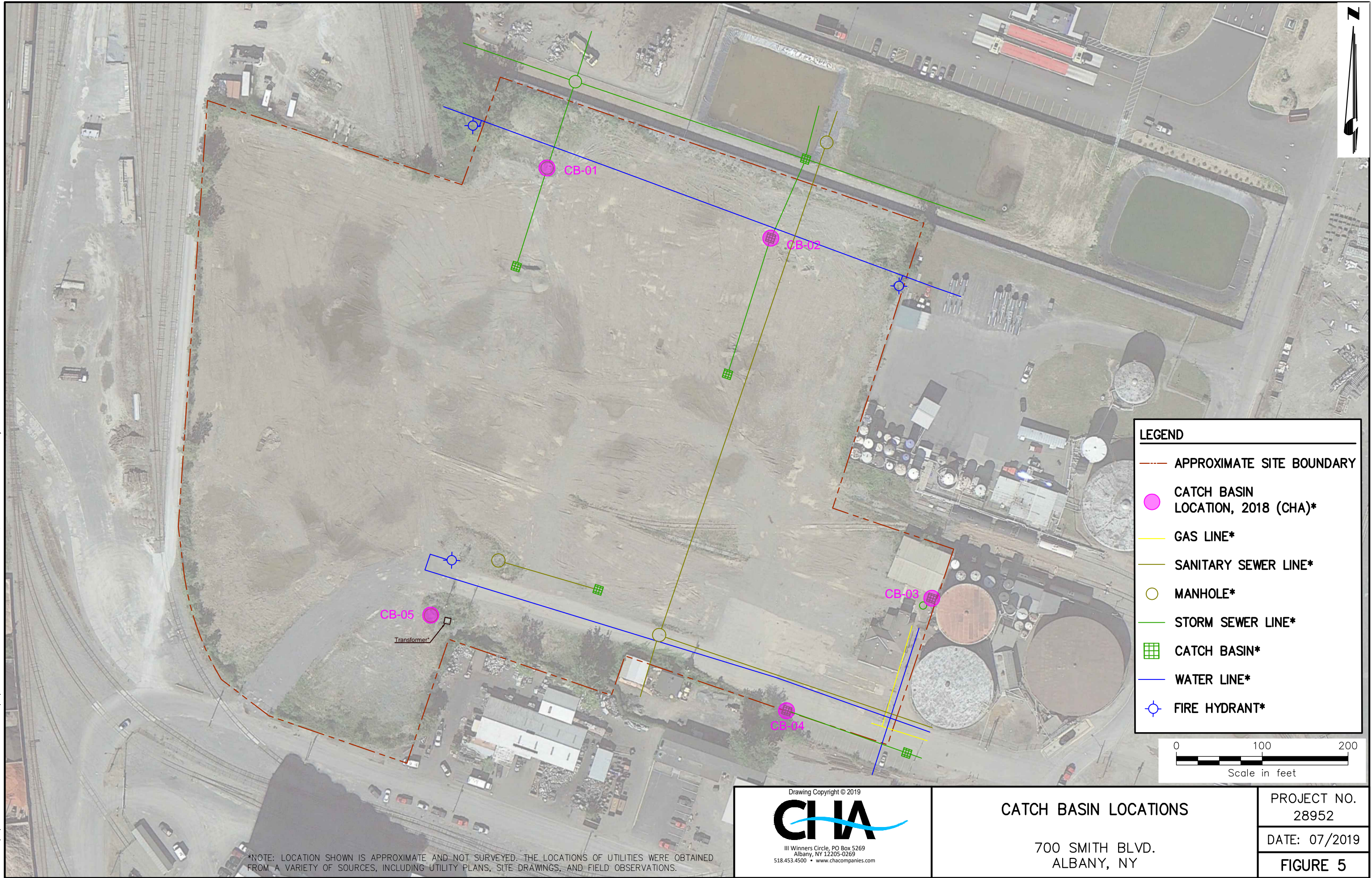
700 SMITH BLVD, ALBANY NY

PROJECT NO.
 28952

DATE: 01/08/19

FIGURE 4A

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2019-07 UPDATES\FIG-1_28952_CATCH BASIN SAMPLE LOCATIONS.DWG
 Saved: 7/3/2019 12:19:47 PM Plotted: 7/3/2019 12:20:11 PM Current User: Miller, Samantha LastSavedBy: 4187



*NOTE: LOCATION SHOWN IS APPROXIMATE AND NOT SURVEYED. THE LOCATIONS OF UTILITIES WERE OBTAINED FROM A VARIETY OF SOURCES, INCLUDING UTILITY PLANS, SITE DRAWINGS, AND FIELD OBSERVATIONS.

Drawing Copyright © 2019
CHA
 111 Winners Circle, PO Box 5269
 Albany, NY 12205-0269
 518.453.4500 • www.chacompanies.com

CATCH BASIN LOCATIONS

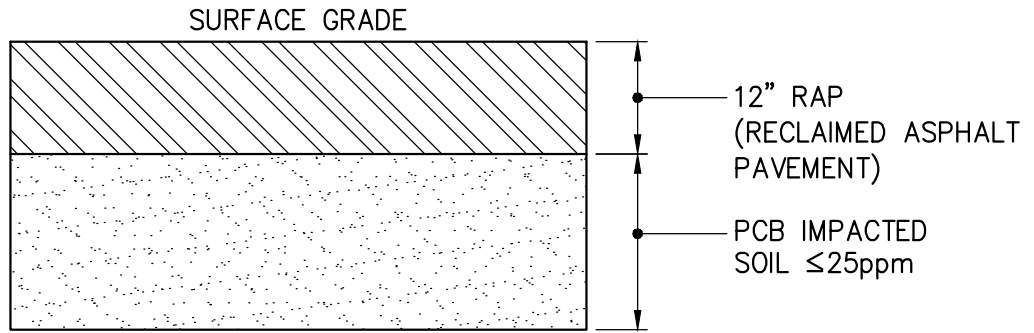
700 SMITH BLVD.
 ALBANY, NY

PROJECT NO.
 28952

DATE: 07/2019

FIGURE 5

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2020-03 UPDATES\FIGURES_28952-REVISED 3-3-2020.DWG
Saved: 3/3/2020 4:45:16 PM Plotted: 3/3/2020 4:45:31 PM Current User: Gray, Timmelyn LastSavedBy: 3511



1 RAP CAP
NOT TO SCALE

Drawing Copyright © 2020



III Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 • www.chacompanies.com

PROTECTIVE CAPPING DETAIL

700 SMITH BOULEVARD
ALBANY, NEW YORK

PROJECT NO.
28952

DATE: 03/2020

FIGURE 6

APPENDIX A

Pathway Analysis Report



Pathway Analysis Report

700 Smith Boulevard, Albany, NY 12202
TSCA PCB Risk-Based Cleanup Application

NYSDEC Spill Number 1405730

February 7, 2019

Prepared for:
Port of Albany
106 Smith Boulevard
Albany, New York 12202

On Behalf of:
CHA Consulting
III Winners Circle
Albany, New York 12205





This page is intentionally left blank.

Contents

1	Introduction.....	1
1.1	Purpose	1
1.2	Report Organization	2
2	Site Description	2
2.1	Geology, Hydrology and Hydrogeology	3
3	Sample Collection, Data Refinements and Identification of COPCS	3
3.1	Sample Collection	3
3.2	Data Refinement	4
3.2.1	General Refinements	4
3.3	Identification of COPCS	5
4	Exposure Assessment.....	6
4.1	Conceptual Site Model	6
4.2	Receptors	7
4.2.1	Future On-Site Construction Worker.....	7
4.2.2	Future On-Site Commercial/Industrial Worker	7
4.2.3	Current On-Site Trespasser	7
4.2.4	Current Off-Site Resident.....	8
4.3	Exposure Point Concentrations.....	8
4.3.1	Approach for EPC Calculations.....	8
4.4	Chemical Exposure Intake	9
4.4.1	Exposure Factors	9
4.4.2	Age-Based Adjustments.....	11
4.4.3	Mutagen Adjustments for Early Life Exposure.....	12
5	Toxicity Assessment.....	12
5.1	Sources of Toxicity Values	12
6	Hazard Identification and Risk Characterization	13
6.1	Non-Carcinogenic Hazard Identification.....	13
6.2	Carcinogenic Risk Characterization	14
6.3	PAR Results	14
7	Uncertainty Analysis.....	16
8	Sensitivity Analysis for Off-Site Residents	16
9	References	19



Figures

Figure 1-1 Site Plan
Figure 3-1 Soil Sampling Locations
Figure 3-2 Soil Sampling Locations near GP-26
Figure 4-1 Human Health Conceptual Site Model
Figure 8-1 Potential Environmental Justice Areas in the City of Albany (South Detail)

Tables

Table 3-1 Constituents of Potential Concern

Attachments

Attachment A RAGS Part D Planning Tables 0 to 6.2
Attachment B ProUCL Software Inputs and Outputs
Attachment C USEPA RSL Calculator Inputs and Outputs for PEFs and VFs

ABBREVIATIONS AND ACRONYMS

APDC	Albany Port District Commission
AT	Averaging time
BW	Body weight
cm ²	Square centimeter
COPC	Constituent of potential concern
CSM	Conceptual Site Model
ED	Exposure duration
EDD	Electronic data deliverable
EF	Exposure frequency
EJ	Environmental Justice
ELCR	Excess lifetime cancer risk
EPC	Exposure point concentration
EWP	Excavation work plan
GIABS	Gastrointestinal absorption factor
HDR	Henningson, Durham and Richardson Architecture and Engineering, P.C., in association with HDR Engineering, Inc.
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IR	Intake rate
IRIS	USEPA Integrated Risk Information System
IUR	Inhalation unit risk
LOAEL	Lowest observable adverse effect level
mg/kg-day	Milligrams per kilogram per day
mg/kg	Milligrams per kilogram
mg/m ³	Milligrams per cubic meter
MMOA	Mutagenic mode of action
NY	New York
NYSDEC	New York State Department of Environmental Conservation
NOAEL	No observable adverse effect level
OLEM	USEPA Office of Land and Emergency Management
OSWER	USEPA Office of Solid Waste and Emergency Response



PAR	Pathway Analysis Report
PCB	Polychlorinated biphenyl
PEF	Particulate emission factor
PPRTV	USEPA Provisional Peer Reviewed Toxicity Values
QL	Quantitation limit
RAGS	USEPA Risk Assessment Guidance for Superfund
RBA	Relative bioavailability factor
REC	Recognized environmental condition
RfD	Oral reference dose
RfC	Inhalation reference concentration
ROS	Regression on order statistics
RSL	USEPA Regional Screening Level
SCO	NYSDEC Soil Cleanup Objective
SF	Slope factor
SMP	Site Management Plan
SVOC	Semi-volatile organic compound
TOGS	Technical and Operational Guidance Series
TSCA	Toxic Substances Control Act
UCL	Upper confidence limit
USEPA	United States Environmental Protection Agency
VF	Volatilization factor
VOC	Volatile organic compound

1 Introduction

This Pathway Analysis Report (PAR) was prepared on behalf of the Albany Port District Commission (APDC) by Henningson, Durham & Richardson Architecture & Engineering, P.C. (HDR) under subcontract to CHA Consulting, Inc. (CHA). The PAR provides an evaluation of current and future scenarios for human receptors potentially exposed to polychlorinated biphenyls (PCBs) in soil at the Former Scrapyard, located at 700 Smith Boulevard, Albany, New York (NY) 12202 (the “Site”, see **Figure 1-1**).

Previous investigations indicated the presence of elevated concentrations of semi-volatile organic compounds (SVOCs), PCBs and metals in the soil, as well as VOCs, PCBs, and metals in groundwater at the Site. At the request of APDC, CHA reported the contamination to the New York State Department of Environmental Conservation (NYSDEC) on August 26, 2014 (Spill Number 1405730). CHA also contacted the USEPA Region 2 PCB Coordinator who indicated that since the soil contained greater than 50 milligrams per kilogram (mg/kg) of PCBs, it is considered remediation waste under Title 40 of the Code of Federal Regulations (CFR) Part 761. CHA performed additional Site characterization and prepared a Toxic Substances Control Act (TSCA) PCB Risk-Based Cleanup and Disposal Application for USEPA review. This PAR was developed to further support the revised PCB Risk-Based Cleanup and Disposal Application, and the Site Management Plan (SMP) prepared for the Site. Comments on the proposed remediation and Site management are presented in **Section 6.3**. There is no current evidence of off-Site contaminant migration; controls will be incorporated as part of the remedial action providing further protection for off-Site residents and other receptors.

1.1 Purpose

The purpose of the PAR is to serve as a preliminary planning document to allow regulators to review and comment on the approach to the identification of Constituents of Potential Concern (COPC), exposure assessment, and toxicity assessment for PCBs in on-Site soils. The PAR was prepared to support the PCB Risk-Based Cleanup and Disposal Application (CHA 2018c) for PCB contamination in surface and subsurface soil. Please note that this PAR was prepared to only evaluate PCBs and not other contaminants present at the Site in soil or groundwater.

This PAR characterizes the exposure setting and human receptor characteristics for the Site. It identifies the current and future land use exposure pathways by which populations may be exposed to soil contaminants. Exposure pathways are identified based on consideration of the sources and locations of contaminants, the likely environmental fate of the contaminants, and the location and activities of the potentially exposed populations.

The PAR also describes the risk characterization process and how a HHRA would be prepared, to confirm that the proper guidance and methodologies are followed. This report contains the information necessary to understand how potential risks at the Site will be addressed, including the statistical treatment of the data, the methods to select

the COPCs, the exposure pathways, receptors, exposure parameters, and the current toxicological values (e.g., reference dose). The PAR does not include risk estimates.

This PAR has been completed in accordance with USEPA Risk Assessment Guidance for Superfund (RAGS, USEPA 1989), other relevant USEPA risk assessment guidance, and the PAR outline (HDR 2018) that was reviewed and approved by USEPA on October 24, 2018.

1.2 Report Organization

This PAR is organized into the sections described below.

Section 1 Introduction: Identifies the purpose of the PAR and what is to be addressed.

Section 2 Site Background: Describes the Site location, history of use and contamination.

Section 3 Sample Collection, Data Evaluation and Identification of COPCs: Describes the collection and preparation of data sets and the process by which the COPCs were identified.

Section 4 Exposure Assessment: Presents a conceptual site model (CSM) that identifies the exposure pathways and potentially exposed receptors; it also describes how exposure intakes are calculated.

Section 5 Toxicity Assessment: Provides a discussion of the toxicity values and the hierarchy by which they are chosen.

Section 6 Risk Characterization: Provides a description of the carcinogenic classes and the methods by which cancer risks and noncancer hazard quotients are calculated, should further quantitative risk characterization be required.

Section 7 References: Provides information on the guidance and literature cited in the PAR.

2 Site Description

The Site consists of approximately 12.14 acres of vacant industrial land and is located at 700 Smith Boulevard within the Port of Albany, NY. Prior to 1951, the Site was utilized by Atlantic Steel Corporation as a railroad yard. The Site had two one-story structures which were built in the early 1950s. Since at least 1964, the Site was used for metal recycling operations. In or about 2013, metal operations ceased. The Site was vacated by the previous tenant, Sims Group and the Site has remained vacant since then. At this time, surficial soils were screened to remove metal, plastic, wood and other debris. Many of the Site structures were removed although the maintenance/storage building, scale house and remnants of an emergency generator remain. The Site is partially fenced and largely vegetated. The APDC maintains and controls access to the Site.

After the lease with Sims expired, Plumley Engineering, P.C. performed a Phase II Environmental Site Assessment on behalf of a potential new tenant, Upstate Shredding, which included surface and subsurface soil sampling and the collection of shallow groundwater samples. Analytical results were compared to NYSDEC Industrial

Restricted Use Soil Cleanup Objectives (SCOs, NYSDEC 2006, 2010) and NYSDEC Division of Water Part 703.5 and 6 as well as the Technical and Operational Guidance Series (TOGS 1.1.1) for Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (NYSDEC 2018b, 1998). Review of the data from that sampling event identified concentrations of SVOCs, PCBs and metals in soil above NYSDEC Industrial SCOs, as well as volatile organic compounds (VOCs), detected in groundwater above NYSDEC Standards. From 2014 to 2015, CHA completed additional soil and groundwater sampling activities. The groundwater results of the sampling indicated that concentrations of total PCBs and total metals also exceeded NYSDEC Standards; however, it was later demonstrated that dissolved concentrations of PCBs were not present, and likewise, most of the metals exceedances were not noted in the dissolved-phase samples. The results of CHA's 2014 to 2015 sampling activities are summarized in the Supplemental Phase II Investigation Report (CHA 2015) and follow-up letter correspondence to NYSDEC. Later in 2015, Sterling Environmental Engineering, P.C. completed delineation of several areas where PCBs were detected at concentrations above the NYSDEC Industrial SCOs. In 2018, CHA performed additional Site characterization sampling and delineation for PCBs at the request of USEPA; the results are summarized in CHA's Additional Site Characterization Report for PCBs, and the PCB Risk-Based Cleanup and Disposal Application (CHA 2018a and c).

The current focus of this PAR is to support the PCB Risk-Based Cleanup and Disposal Application (CHA 2018c) for PCB contamination in surface and subsurface soil.

2.1 Geology, Hydrology and Hydrogeology

The geology, hydrology and hydrogeology of the Site are described in the CHA's Supplemental Phase II Investigation Report (CHA 2015).

3 Sample Collection, Data Refinements and Identification of COPCS

Data from samples collected by CHA in December 2014 and October 2018 were used to quantitatively evaluate potential human exposures to PCBs. The un-validated data from samples collected by Plumley and Sterling from sampling conducted in 2014 to 2015 were not included in the PAR due to data quality concerns; however, the data were reviewed and included in the Cleanup Application (CHA 2018c). Data from December 2014 and October 2018 were refined for use in the PAR in accordance with USEPA guidance. PCB soil hot-spot delineation sampling occurring after October 2018 is not included in this PAR, as verified by USEPA, and is included in the Cleanup Application.

3.1 Sample Collection

In December 2014, CHA completed borings located in 100 by 100-foot grids throughout the Site. CHA collected and managed data as outlined in the 2014 Supplemental Phase II Investigation Work Plan (CHA 2014). Soil samples were generally collected 0-1 ft, 2-3 ft and 4-5 ft in most borings, with additional deeper samples collected from select borings from 5-7 ft. CHA collected a total of 153 field samples during this event, which were

analyzed for PCBs using USEPA method SW8082A and metals using USEPA methods 6010C and 7471B.

In October 2018, CHA conducted additional Site characterization at the request of EPA by drilling an additional soil boring in the center of each previous 100 by 100-foot grid section, in effect creating a 50 foot grid pattern across the Site. CHA collected and managed data as outlined in the 2018 Additional Site Characterization Work Plan (CHA 2018b). Soil samples were generally collected from the following intervals: 0-1 ft, 2-3 ft and 4-5 ft. CHA also completed vertical delineation sampling at previous soil sample locations SS-11 (sampled by Plumley in 2014) and 26W-2 (completed by Sterling in 2015) through the collection of samples at 2-3 ft and 4-5 ft. CHA collected a total of 152 field samples and eight field duplicate samples during this event, which were analyzed for PCBs using USEPA method SW8082A.

The soil sampling locations are provided in **Figure 3-1** and a close-up of samples around location GP-26 is provided in **Figure 3-2**.

3.2 Data Refinement

Soil samples from the December 2014 and October 2018 sampling events were analyzed by Test America in Buffalo, NY and Alpha Analytical in Westborough, MA, respectively. The data are presented in the format of electronic data deliverables (EDDs). Alpha Geoscience in Clinton Park, NY validated the PCB results for appropriate data quality objectives, as indicated in the Work Plans corresponding to each event (CHA 2014, and CHA 2018b). Laboratory analytical results for each event are provided in the Supplemental Phase II Investigation Report (CHA 2015) and the Additional Site Characterization Report for PCBs (CHA 2018a). A comprehensive summary table of PCB results to date from the 2014 to 2018 sampling events by Plumley, Sterling and CHA is provided in the PCB Risk-Based Cleanup and Disposal Application (CHA 2018c).

3.2.1 General Refinements

In accordance with *USEPA Guidance for Data Useability in Risk Assessment (Part A)* (USEPA 1992) data are refined for use in the PAR as follows:

- Chemical concentrations qualified as not detected (i.e., U-qualified data) are evaluated as non-detects. Concentrations qualified as estimated (i.e., J-qualified data) are included for quantitative assessment. Rejected (R-qualified) data are not used.
- The PAR applies the sample quantitation limit (QL) to represent non-detect results. Note that ProUCL applies the Regression on Order Statistics (ROS) methods for lognormal and gamma distributed data sets to provide a better estimate of the non-detected sample's true value based on actual detected concentrations. For normal distributions, ProUCL utilizes Kaplan-Meier estimates in lieu of the ROS methods because the ROS methods tend to yield biased and negative non-detect values for these distributions (USEPA 2015a and b).
- The PAR applies the maximum result of the normal and field duplicate sample pairs if constituents are detected in both samples. The detected value is used when one was detected and the other non-detect.

- The PAR evaluates the concentrations of PCB Aroclors individually instead of summing the results to calculate a result for the total.

3.3 Identification of COPCs

The COPC screening tables for PCBs are presented in the format of RAGS Part D Planning Tables (USEPA 2001) in **Attachment A, RAGS Part D Planning Table 2.1** for surface soil (0-2 ft) and subsurface soil (0-7 ft).

In accordance with the criteria included in Chapter 5 of EPA RAGS Part A (USEPA 1989), the COPCs were determined by comparing the maximum detected concentrations of the target constituents detected in soil to screening levels to assess the potential for adverse impact to human health. Exceedances of screening levels do not in and of themselves indicate that an unacceptable exposure exists. Rather, the exceedance of a screening level indicates the need for further evaluation.

Soil concentrations were compared to the NYSDEC Industrial SCO of 25 mg/kg for total PCBs (NYSDEC 2006 and 2010) and the USEPA Resident and Industrial Regional Screening Levels (RSLs, at a target risk of 1E-06 and target hazard quotient of 0.1) for individual Aroclors (USEPA 2018c). The USEPA RSLs for PCB-1016 are applied for PCB-1221, 1232 and 1242 if no RSLs are available; similarly, PCB-1254's RSLs are applied for PCB-1248, 1260, 1262 and 1268 if no RSLs are available (USEPA 2017).

If the maximum detected concentration of a target constituent was less than the screening level, it was eliminated as a COPC; the assumption being it will not contribute significantly to potential unacceptable risk (USEPA 1989).

The COPC list is further refined based on detection frequency. If a constituent is detected in fewer than five percent of the samples, it is eliminated as a COPC if a sufficient number of samples are collected for analysis. According to RAGS, Part A (USEPA 1989); at least 20 samples are needed in the data set if a frequency of detection limit of five percent is used. For this COPC screening, there are three instances where contaminants were detected less than five percent – see **Attachment A, Table 2.1**.

The COPC screening identified four COPCs in soil. The same COPCs were identified in surface soil (0-2 ft) and soil (0-7 ft). The COPCs are presented in **Table 3-1** below as well as in **Attachment A, RAGS Part D Planning Table 2. Supp.1**.

Table 3-1. Constituents of Potential Concern

Constituent	CASRN	Surface Soil (0-2 ft)	Soil (0-7 ft)
PCB Aroclor 1016	12674-11-2	No	No
PCB Aroclor 1221	11104-28-2	No	No
PCB Aroclor 1232	11141-16-5	No	No
PCB Aroclor 1242	53469-21-9	Yes	Yes
PCB Aroclor 1248	12672-29-6	Yes	Yes
PCB Aroclor 1254	11097-69-1	Yes	Yes
PCB Aroclor 1260	11096-82-5	Yes	Yes
PCB Aroclor 1262	37324-23-5	No	No
PCB Aroclor 1268	11100-14-4	No	No

4 Exposure Assessment

The objective of the exposure assessment is to estimate the magnitude, frequency, duration and routes of current and reasonably anticipated future human exposure to COPCs associated with the Site. The exposure assessment is based on the receptor scenarios for Site-related COPCs via Site-specific routes of exposure.

The standard default exposure factors recommended by USEPA for estimating reasonable maximum exposure are used where available. Where standard default exposure factors are not available for an exposure pathway, the evaluation is conducted using similarly conservative exposure factors that are based on Site-specific considerations and professional judgment.

This section presents a CSM that identifies the exposure pathways and the potentially exposed receptors. It also describes the receptors and exposure pathways and if they will be evaluated quantitatively and qualitatively and the rationale for each chosen pathway.

4.1 Conceptual Site Model

The CSM is a dynamic tool for understanding Site conditions and potential exposure scenarios for human receptors that may be exposed to Site-related contamination. An exposure pathway consists of:

- A source (e.g., soil containing PCBs) and mechanism of constituent release from source;
- A retention or transport medium (e.g., soil) for the constituent;
- A point of contact (e.g., soil surface) between the human receptor and the medium; and
- A route of exposure (e.g., incidental ingestion) for the potential human receptor at the contact point.

An exposure pathway is considered complete only if the four components are present. A schematic presentation of the CSM is included as **Figure 4-1** and in a tabular format in

Attachment A, RAGS Part D Planning Table 1. Note that the CSM reflects baseline conditions, i.e., those present prior to the remedial action, without the engineering and institutional controls that are to be implemented, in accordance with USEPA guidance.

4.2 Receptors

Potential receptors are defined as human populations that are potentially subject to contaminant exposure. Both current and future land conditions are considered when determining exposure scenarios.

The Site is owned by the APDC; the Site is currently vacant. It is located within the Port of Albany, surrounded by other properties having industrial use. Future land use is expected to be industrial use only, with the Site being within the Port, surrounded by other industrial uses, and having infrastructure to support such use in place. The Site remediation includes appropriate engineering and institutional controls (ECs and ICs; as described and included in the Risk-Based Cleanup Application and SMP).

Receptor scenarios considered feasible for the Site include a future on-Site construction worker, future on-Site commercial/industrial worker, current/future on-Site trespasser and current/future off-Site resident.

A CSM presents these receptors in diagram format on **Figure 4-1** and in tabular format in **Attachment A, RAGS Part D Planning Table 1**.

4.2.1 Future On-Site Construction Worker

Redevelopment of the Site is likely to occur, including activities such as tilling and grading of the soil, or Site development with intrusive work. However, such activities will employ engineering controls to provide dust suppression, appropriate health and safety measures, and other requirements. The PAR includes a future on-Site construction worker's (adult) exposure to soil (0-10 ft) in a trench via the ingestion, dermal and inhalation pathways.

4.2.2 Future On-Site Commercial/Industrial Worker

The future on-Site (adult) worker includes employees that may perform activities both indoors and outdoors. They are assumed to participate in future non-intrusive indoor and outdoor activities, such as landscape maintenance and Site operations. Although the potential for exposure to COPCs from surface soil (0-1 ft) is expected to be low in the future due to the proposed Site remediation, the PAR conservatively included a future on-Site worker's exposure to soil (0-2 ft) via the ingestion, dermal contact and inhalation pathways, reflecting the anticipated future industrial use.

4.2.3 Current On-Site Trespasser

A trespasser, who has the potential to be present on-Site as there are areas along the perimeter where the fence either is not present or is compromised. Other Port sites present a more likely place for potential trespassing (e.g., shipyard) as they present an attractive nuisance. The Site in question is vacant, with no features or operations that would attract trespassers, except potentially as a crossing point to other areas.

Therefore, it is expected that exposure would be minimal and there would be low risk for

this receptor group. Furthermore, security of the Site during remediation and after completion of remediation is anticipated to be tighter on the Site, which further limits potential future opportunities for exposure.

4.2.4 Current Off-Site Resident

Potential exposure to off-Site residents (it is approximately 0.3 miles to the closest residences on Old South Pearl St) was also considered, but is unlikely due to the distance to the residences, intervening land use and conditions. There is no current evidence of off-Site contaminant migration either by air or groundwater impacts. The Site conditions and controls currently in place and those that will be implemented during the proposed remedial action will further reduce potential exposure. **Section 8** includes further discussion of these potential exposure pathways in terms of off-Site residents.

4.3 Exposure Point Concentrations

Estimates of COPC concentrations at points of potential exposure are necessary for evaluating chemical intakes by potentially exposed individuals. The concentrations of chemicals in the exposure medium at the exposure point are termed "exposure point concentrations" (EPC). EPCs are determined for each medium, as detailed below.

4.3.1 Approach for EPC Calculations

The EPC is defined as the 95 percent upper confidence limit (UCL) of the arithmetic mean or maximum observed concentration of an individual COPC, whichever is lower, per media. Calculation of the 95% UCL for the four COPCs is conducted in accordance with USEPA guidance (USEPA 2002, 2015a and b). The ProUCL software package, version 5.1.00 (USEPA 2016) is used to determine the underlying statistical distributions and the EPCs.

EPCs for each COPC (PCB Aroclor 1242, 1248, 1254 and 1260) were calculated for each medium as follows:

- Surface soil (0-2 ft) for a future worker's exposure;
- Soil (0-7 ft¹) for a future construction worker's exposure;

The EPCs for each medium in the exposure assessment are presented in **Attachment A, RAGS Part D Planning Tables 3.1 and 3.2**. **Table 3.1** presents the EPCs for surface soil (0-2 ft) and **Table 3.2** for soil (0-7 ft). The supporting ProUCL data input and outputs are provided in **Attachment B**.

Review of these EPCs in comparison to the NYSDEC Industrial Restricted Use SCO of 25 mg/kg for total PCBs (NYSDEC 2006, 2010) and the USEPA Industrial Soil RSL (USEPA 2018c) indicates that the EPCs are greater than their respective RSLs in surface soil (0-2 ft) and soil (0-7 ft). In comparison, the sum of the EPCs for the individual Aroclor COPCs is below the applicable NYSDEC Industrial Use SCO.

¹ Subsurface data used in the PAR extends to a maximum depth of 7 ft bgs.



4.4 Chemical Exposure Intake

The EPCs were used in combination with exposure factors from USEPA guidance and standard default parameters (USEPA 2011a) to estimate chemical intake via each exposure pathway for each receptor. Some default exposure factors have been updated in the 2014 USEPA Office of Solid Waste and Emergency Response (OSWER, now Office of Land and Emergency Management, OLEM) Directive 9200.1-120 (USEPA 2014a); these values were incorporated.

Chemical intake is expressed in terms of milligrams of chemical per kilogram of body weight per day (mg/kg-day), using the following general equation, which is adjusted based on the exposure pathway:

$$Intake = \frac{EPC \times IR \times EF \times ED}{BW \times AT}$$

Where:

Intake	=	daily intake or exposure dose [milligrams per kilogram per day [(mg/kg-day)]
EPC	=	exposure point concentration of COPC [milligrams per a kilogram (mg/kg)]
IR	=	ingestion rate; the amount of contaminated medium ingested over the exposure period [milligrams per a day (mg/day)]
EF	=	exposure frequency; describes how often exposure occurs (days/year)
ED	=	exposure duration; describes how long exposure occurs (years)
BW	=	body weight; the average body weight over the exposure period [kilogram(kg)]
AT	=	averaging time; period over which exposure is averaged (days)

Each of the intake variables in the above equation consists of a range of values taken from *RAGS, Part A through F* (USEPA 1989, 2009) and other applicable risk guidance, e.g., the *Exposure Factors Handbook* (USEPA 2011). The exposure factors and intakes for receptor population groups for each exposure pathway are presented in **Attachment A, RAGS Part D Planning Table 4.1** for soil exposure scenarios. Supplemental values for the soil to air concentration conversions for the soil particulate and volatilization inhalation pathways are presented in **Attachment A, Table 4.Supp.1**.

4.4.1 Exposure Factors

The averaging time for cancer risk and body weight are the same for all exposure pathways, as follows:

- The averaging time for evaluating cancer risk is equal to a lifetime of 70 years or 25,550 days (USEPA 2014a). The averaging time for evaluating noncancer hazard quotients is equal to the exposure duration, which varies by receptor (USEPA 2014b).

- The body weight of 80 kg is the standard USEPA-recommended body weight for assessing exposure to adults (USEPA 2014a).

Ingestion Pathway of Exposure

- *Ingestion Rate*

The on-Site commercial/industrial worker is assumed to have a soil ingestion rate of 100 mg/day and the construction worker, 330 mg/day (USEPA 2014a, 2018c).

- *Exposure Duration and Frequency*

The on-Site commercial/industrial worker is assumed to be exposed to contaminants in soil for 250 days/year for 25 years (USEPA 2014a, 2018c).

The exposure duration for a construction worker incidentally ingesting soil or groundwater is one year of activity for 250 days/year (USEPA 2018c).

- *Relative Bioavailability Factor*

The relative bioavailability factor (RBA) is incorporated in the ingestion pathway and accounts for the differences in the bioavailability of a constituent between the medium of exposure (e.g., soil) and the media associated with the derivation of the toxicity value (e.g., drinking water). A RBA of 1 was assumed for the PCB Aroclors.

Dermal Contact Pathway of Exposure

- *Skin Surface Area*

The skin surface area available for contact with soil for a commercial/industrial worker and construction worker is 3,527 square centimeters (cm²), which is the weighted average of mean values for head, hands and forearms for male and females of ages over 21 years (USEPA 2014a).

- *Soil Adherence Factor*

The soil adherence factor to skin for a commercial/industrial worker is 0.12 milligrams per square centimeters (mg/cm²), which is the arithmetic mean of weighted average of the adherence factors for hands, forearms and face for adult commercial/industrial activities from Table 7-20 of the *Exposure Factors Handbook* (USEPA 2011, 2014a). The adherence factor for a construction worker is 0.3 mg/cm² (USEPA 2018c).

- *Soil Dermal Absorption Fraction*

The dermal absorption of constituents into the body is constituent-specific and taken from the USEPA RSL tables (USEPA 2018c), which is a compilation of values from various sources including *RAGS Part E* (USEPA 2004a). The dermal absorption fraction values are derived from Exhibit 3-4 of *RAGS Part E* and presented in **Attachment A, RAGS Part D Planning Table 4.Supp.5**. Dermal exposures were not calculated for COPCs that did not have a dermal absorption fraction value.

- *Exposure Duration and Frequency*

The exposure duration and frequency for each scenario is the same as those identified for the ingestion pathway above.

- *Event Frequency*

The event frequency is one event/day for each scenario (USEPA 2004a).

Inhalation Pathway of Exposure

- *Concentration in Air*

To evaluate a receptor's exposure to soil particulates and vapors, a particulate emission factor (PEF) and volatilization factor (VF) is calculated using the USEPA RSL Calculator and incorporating Site-specific characteristics (USEPA 2018c). The PEFs and VFs are used to convert the soil concentrations to air concentrations in the chemical intake equation for each COPC. The supporting information for these calculations is presented in **Attachment C**.

In the calculation of the PEF for the commercial/industrial worker, the climate zone for Hartford, CT (Region 8, as being the closest available location to the Site) and a Site area of 12.14 acres are applied. For the PEF for a construction worker, the "Construction Worker - Other Construction Activities" scenario in the RSL calculator is applied, based on professional judgment. A Site area of 12.14 acres was applied. It was assumed that excavation will occur for 50% of the Site (6.07 acres) to a depth of eight feet. Also, it was assumed that the Site will be bulldozed and graded once by the construction worker using a Caterpillar dozer blade of 92 inches (2.337 meters; CAT 2018) and a grader blade of 60 inches (1.524 meters; CAT 2018). This is consistent with values used for risk assessments at Superfund sites in EPA Region 2. Default values are used for the remaining inputs.

The calculated PEFs for each receptor are presented in **Attachment A, RAGS Part D Planning Table 4.1**.

The calculated VFs are both receptor-specific and constituent-specific. Default values were used in the "Unlimited Reservoir (at Center of Source)" scenario, except using the Site area of 12.14 acres and average shallow groundwater temperature of 47 degrees Fahrenheit (USEPA 2004b). The VF values are presented in **Attachment A, RAGS Part D Planning Table 4.Supp.1**.

- *Exposure Time*

The exposure time for inhalation of soil particulates and soil vapor for a commercial/industrial worker and construction worker is an eight-hour work day (USEPA 2011).

- *Exposure Duration and Frequency*

The exposure durations and frequencies for each scenario is the same as those identified for the ingestion pathway above.

4.4.2 Age-Based Adjustments

No age-based adjustments for calculating cancer risk over the lifetime are necessary, as the receptors of interest are adult workers.

4.4.3 Mutagen Adjustments for Early Life Exposure

USEPA has identified several carcinogens that act via a mutagenic mode of action (MMOA, USEPA 2005a and b). None of the PCB Aroclors have been identified as having a MMOA at this time; therefore no adjustments are necessary.

5 Toxicity Assessment

The toxicity assessment provides a framework for characterizing the relationship between the magnitude of exposure to a COPC and the nature and likelihood of adverse health effects that may result from such exposure. For the exposure pathways, there are two approaches for deriving toxicity values. One involves the derivation of a noncancer reference value, i.e., an oral or dermal reference dose (RfD) and inhalation reference concentration (RfC), while the other involves derivation of a predictive cancer risk estimate, i.e., an oral or dermal cancer slope factor (SF) and inhalation unit risk (IUR). An overview of the hierarchy to apply toxicity values is described in **Section 5.1**. The methodology that is used to develop a toxicity assessment is provided in **Sections 5.2** and **5.3**.

5.1 Sources of Toxicity Values

Pertinent toxicological information on COPCs was taken from the following sources, in descending order of hierarchy, in accordance with USEPA's OSWER Directive 9285.7-53, *Human Health Toxicity Values in Superfund Risk Assessments* (USEPA 2003).

- Tier 1 – USEPA's Integrated Risk Information System (IRIS) (USEPA 2018a).
- Tier 2 – USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) – The Superfund Health Risk Technical Support Center develops PPRTVs on a chemical specific basis when requested by USEPA's Superfund program (USEPA 2014b).
- Tier 3 – Other Toxicity Values – Tier 3 includes additional USEPA and non-USEPA sources of toxicity information (ATSDR 2018, Cal EPA 2018 and USEPA 2011b). Priority is given to sources of information that are the most current, transparent, publicly available and those which have been peer reviewed.

The USEPA RSL tables provide toxicity values following the above hierarchy; therefore, the November 2018 RSL summary table is used as the source of chronic toxicity values (USEPA 2018c).

The noncancer oral RfD of 0.0007 mg/kg-day for PCB Aroclor 1016 was applied for the COPC PCB Aroclor 1242; similarly, PCB Aroclor 1254's RfD of 0.00002 mg/kg-day was applied for PCB Aroclor 1248 and 1260 (USEPA 2017). For the inhalation pathway, there are no noncancer RfC values currently available for PCBs.

For the cancer oral and inhalation toxicity values, USEPA IRIS provides three toxicity values based on the risk and persistence of PCBs that are called "high risk", "low risk" and "lowest risk". For the COPCs, the USEPA RSL tables apply the "high risk" toxicity values of $2 \text{ (mg/kg-day)}^{-1}$ and $0.00057 \text{ (ug/m}^3\text{)}^{-1}$. PCBs have been identified as Group B2 Probable Human Carcinogens, which indicates there is sufficient evidence of

carcinogenicity in animals with inadequate or lack of evidence in humans (USEPA 1986, 2005a).

For exposure scenarios that are short-term, subchronic toxicity values are used in place of chronic values, where available. Since the construction worker scenario evaluates an exposure duration of one year, the subchronic noncancer oral RfD of 0.00003 mg/kg-day for PCB Aroclor 1254 will be used and also applied for PCB Aroclor 1248, 1260, 1262 and 1268 (ATSDR 2018, USEPA 2017); no other subchronic toxicity values were identified.

The cancer and noncancer toxicity values for the COPCs that are used in the risk assessment are presented in **Attachment A, RAGS Part D Planning Tables 5.1 through 6.2**.

6 Hazard Identification and Risk Characterization

The information obtained from the exposure assessment (**Section 4**) and toxicity assessment (**Section 5**) may be used to identify the potential non-carcinogenic hazard and characterize excess lifetime cancer risk (ELCR) posed by COPCs. Descriptions of calculations to estimate hazards and risks associated with exposure to individual COPCs, and those associated with exposures to multiple COPCs, follows.

6.1 Non-Carcinogenic Hazard Identification

Estimation of potential hazards for non-carcinogenic effects is the calculation of a hazard quotient (HQ) for each COPC, using the following general equation, which can vary by exposure pathway.

$$HQ = \frac{Intake}{Toxicity}$$

Where:

HQ	=	Hazard quotient (unitless)
Intake	=	Chronic daily intake of chemicals or exposure dose (mg/kg-day or mg/m ³)
Toxicity	=	Oral reference dose (mg/kg-day), dermal reference dose (mg/kg-day) or inhalation reference concentration (mg/m ³)

The cumulative noncancer hazard index (HI) from exposure to the combination of COPCs in an environmental medium and across potential media for a receptor is estimated using the following equation (USEPA 1989):

$$Hazard\ Index = \sum_i HQ_i$$

When the HI for a COPC exceeds unity (one), there may be concern for potential noncancer effects from that COPC. The HI is an indicator that potential hazard for a

specific receptor exposed to a COPC in the environment cannot be ruled out, if it is greater than one, not that the hazard actually exists. In interpreting HI values, it is important to understand that the values are estimates, based on predictive models, and are subject to the uncertainties inherent in both the estimates of exposure and toxicity benchmarks.

6.2 Carcinogenic Risk Characterization

Estimation of potential risks for carcinogenic effects is the calculation of an ELCR resulting from exposure to Site-related carcinogens. Calculation of an ELCR for an exposure pathway involves multiplying the chronic daily intake for each chemical by its upper-bound cancer slope factor, as described by the following general equation (EPA 1989), which can vary by exposure pathway and COPC:

$$Risk = Intake \times Toxicity$$

where:

Risk	=	Cancer risk (unitless)
Intake	=	Chronic daily intake of chemicals (expressed in mg/kg-day)
Toxicity	=	Oral slope factor [(mg/kg-day) ⁻¹], dermal slope factor [(mg/kg-day) ⁻¹] or inhalation unit risk [(ug/m ³) ⁻¹]

Estimation of the cumulative cancer risk from exposure to the combination of constituents in an environmental medium and across potential media for a receptor follows EPA guidance (EPA 1989) and the general equation:

$$Cumulative Risk = \sum_i Risk_i$$

For known or suspected carcinogens, EPA considers acceptable exposure levels to generally be concentration levels that represent an ELCR to an individual of between one in ten thousand (1E-04) and one in a million (1E-06).

6.3 PAR Results

This PAR has been prepared as part of the Risk-Based Cleanup and Disposal Application, as provided under 40 CFR § 761.61(c), to allow PCB concentrations above the prescriptive PCB standards at § 761.61(a) to be left in-place over portions of the Site. The PAR provides information on current and future land uses and exposure scenarios at and in the vicinity of the Site, as well as justification of how the remedial action and controls proposed address potential exposure to PCBs and are protective of human health and the environment.

The PAR compares Aroclor EPCs in soil (reflecting the 95% UCL only for those Aroclors retained as COPCs), to the NYSDEC Industrial Restricted Use SCO of 25 mg/kg for total PCBs (NYSDEC 2006, 2010) and the USEPA Industrial Soil RSL (USEPA 2018c).

- This comparison indicates that four (4) individual Aroclor EPCs are greater than their respective RSLs in surface soil (0-2 ft) and subsurface soil (0-7 ft), but are less than the NYSDEC SCO.
- The USEPA RSLs are not cleanup standards. The RSLs are chemical-specific concentrations that indicate there may be contamination warranting further investigation or Site cleanup (USEPA 2018c), as is proposed for the Site in the Risk-Based Clean-up Application.
- The NYSDEC SCOs are promulgated standards that provide for the protection of public health for different land uses.
- The comparison of SCOs to the on-Site soil EPCs developed for the PAR – under a baseline condition *prior to* remedial excavation - indicates that the EPCs are below the Industrial Use SCO for PCBs (25 ppm) at the Site. The *sum* of the surface soil EPCs for the individual Aroclors (23 mg/kg), reflecting total PCBs for the COPCs retained in the PAR, is also less than the NYSDEC SCO of 25 mg/kg. For subsurface soil, the *sum* of the EPCs (11 mg/kg) is also below the NYSDEC SCO.

The proposed remedial excavation will further reduce PCB levels in soils at the Site.

It is understood that known PCB-impacted soil in excess of 25 ppm will be removed from the Site and an interim 1-ft thick soil cover will be installed over the unpaved portions of the Site, as described in the risk-based clean-up application. This excavation action on its own allows for TSCA Low-Occupancy use, meets the NYS Industrial SCO and the soil cover will provide additional protection in the interim until future development.

Additionally, to address future industrial use scenarios including High-Occupancy use conditions on portions of, or on the Site in entirety, engineering and institutional controls in accordance with § 761.61 (a)(4)(i) and other sections of TSCA (and as described in the Risk-Based Cleanup and Disposal Application and the SMP) will be implemented upon High-Occupancy development of the Site.

Specifically, this includes the design, construction and annual monitoring/maintenance of a capping system meeting the closure and post-closure requirements of §264.310(a), an excavation work plan (EWP), which includes provisions for future intrusive activities such as excavation or other below grade Site work and includes requirements such as CAMP monitoring, dust suppression, erosion control/stormwater pollution prevention, and capping system restoration as well as other actions detailed in the Risk-Based Clean-up Application and Site Management Plan submitted along with this PAR.

Those areas which will not be slated for high-occupancy will be restricted to access by fencing. Appropriate Health and Safety measures, including remedial worker training, use of personal protective equipment and air monitoring will be employed during implementation of the remedy and future construction to manage Site conditions and address possible exposures during these phases of Site work. The remedial and Site management measures (including institutional controls) are considered appropriate for the PCB-impacted soils and Site conditions and provide long-term protectiveness during remediation, construction, and future Site activities to the receptors identified in the PAR.

7 Uncertainty Analysis

There is uncertainty inherent in the methods, inputs, and conclusions of a PAR. This level of uncertainty results from the fact that most steps in the risk assessment process involves assumptions and unknowns, contributing to the overall uncertainty in the conclusions. These include, but are not limited to the following:

- Environmental parameters, chemistry and sample analysis;
- Assumptions in the derivation of screening benchmarks that are used to identify Site-related COPCs;
- The exposure factors used for quantifying exposure are conservative and reflect upper-bound assumptions; and
- Maximum concentrations applied as measures to screen COPCs and of exposure for each medium and receptor, which is a conservative assumption intentionally used to focus the risk assessment on those pathways and receptors potentially at risk.
- Assumption of bioavailability of 100% of the chemical substance for uptake by humans. This assumption is known to be invalid for most chemical substances under varying environmental conditions.

8 Sensitivity Analysis for Off-Site Residents

There are nearby residences, including the Ezra Prentice Homes public housing complex located 0.3 miles west of the Site along Old South Pearl St and NYS Route 32 (South Pearl Street). Additional evaluation of these areas and how they relate spatially to the Site was performed to determine whether there exist potential exposure pathways to these residents.

Review of the fate and transport of PCBs indicates that when released into the environment, PCBs do not break down readily and can be persistent (USEPA 2018b, HSDB 2011). PCBs adsorb to soil particulates, with adsorption increasing with PCBs having a higher degree of chlorination (HSDB 2011). PCBs have low to no mobility in soil, and are generally immobile when leached with water (HSDB 2011). However, in the presence of solvents (e.g., trichloroethylene) PCBs can be mobilized to a greater degree. PCBs can volatilize beneath the soil surface and migrate through the soil, with volatilization decreasing for PCBs with a higher degree of chlorination, such as with Aroclor 1260 (HSDB 2011). Based on the general fate and transport characteristics of PCBs, it is unlikely the PCBs in soil have or may migrate to residences, with the possible exception of wind-blown soil. There is also a buffer area consisting of railways, trees and other buildings to the west of the Site that reduces potential exposure to wind-blown soil.

Based on review of historic aerial photos, most of the Site was covered in scrap metal piles with unpaved roadways during the operations by Sims Group. The Site is currently vacant with two vacant one-story buildings. A majority of the Site is now covered in vegetation, which helps to prevent erosion of the soil. Use of engineering controls for dust suppression and community air monitoring, as noted in the SMP, will be used during

remedial activities for the contaminated soil. Therefore, exposure to PCB-contaminated soil by residents has been determined to be incomplete (this exposure pathway has been evaluated qualitatively in the PAR).

Several industrial sites are located adjacent to or near the Site, including other scrapyards (e.g., Weitsman Scrap Metal, Sims Metal Management), waste and recycling facilities (e.g., Waste Management, Kruger Recycling, Hudson River Recycling), Scarano Boat Builders, Hudson River Construction Company, Global Companies (crude oil), Ardent Mills (grain) and Durham School Services bus depot.

A 2013 Phase I Environment Site Assessment (CHA 2013) identified several recognized environmental conditions (RECs) associated with the Site; however, they were not believed to be PCB-related and therefore are not further described here.

NYSDEC developed potential Environmental Justice (EJ) area maps based on its CP-29 Policy (NYSDEC 2003) using the 2000 U.S. Census block groups of 250 to 500 households that had populations that met or exceeded at least one of three statistical thresholds (NYSDEC n.d.):

1. At least 51.5% of the population in an urban area reported themselves to be members of minority groups,
2. At least 33.8% of the population in a rural area reported themselves to be members of minority groups, or
3. At least 23.59% of the population in an urban or rural area had household incomes below the federal poverty level.

The EJ map for Albany County indicates that the residents living along Old South Pearl Street and South Pearl Street are in a Potential EJ area (see **Figure 8-1**). In 2016, NYSDEC invested \$500,000 from the State's Environmental Protection Fund for a comprehensive air monitoring program in Albany's South End Community, including in the nearby Ezra Prentice Homes housing complex. The air monitoring was completed in August 2018 (NYSDEC 2018a). NYSDEC has also approved a \$50,000 grant by the nonprofit organization A Village for the Albany South End Environmental Justice Project (NYSDEC 2017, A Village 2017).

Based on this understanding of the nearby residential area as a potential EJ area, the TSCA PCB Risk-Based Cleanup Application incorporates measures to provide public notification of the PCB contamination and remedial activities (e.g., notification in local newspapers).

There is no current evidence of off-Site contaminant migration either by air or groundwater impacts. The Site conditions and controls currently in place and those that will be implemented during remedial action further reduce potential exposures beyond the property boundary. Engineering and institutional controls will be implemented both during excavation and construction at the Site and measures are incorporated in the proposed remedial action (specifically a capping system compliant with TSCA) to provide long-term protectiveness for nearby residents and off-Site receptors. The SMP includes an EWP which includes provisions for future intrusive activities, such as excavation or other below grade Site work, and includes requirements such as CAMP monitoring, dust suppression, erosion control/stormwater pollution prevention, and capping system restoration as well as other actions detailed in the Risk-Based Clean-up Application and

Site Management Plan submitted along with this PAR, which all work to address potential exposures to off-Site receptors.

9 References

- A Village. 2017. Ezra Prentice Initiative. July 3. Available online: <http://www.avillageworks.org/ezra-prentice-initiative.html>
- Agency for Toxic Substances and Disease Registry (ATSDR). 2018. Minimal Risk Levels (MRLs). August. Available online: <http://www.atsdr.cdc.gov/mrls/index.asp>
- California Environmental Protection Agency (Cal EPA). 2018. Toxicity Criteria Database. Office of Environmental Health Hazard Assessment (OEHHA). Website Last Updated 2018. Available online: <http://oehha.ca.gov/chemicals>
- Caterpillar (CAT). Website Last Updated 2018. Available online: https://www.cat.com/en_US.html
- CHA Consulting (CHA). 2013. Phase I Environmental Site Assessment, Sims Metal Management, 700 Smith Boulevard Albany, New York. May 22.
- CHA. 2014. Supplemental Phase II Investigation Work Plan, 700 Smith Boulevard at the Port of Albany, New York. November 17.
- CHA. 2015. Supplemental Phase II Investigation Report, 700 Smith Boulevard at the Port of Albany, New York. April 10.
- CHA. 2018a. Additional Site Characterization Report for PCBs. Draft
- CHA. 2018b. Additional Site Characterization Work Plan. September 26.
- CHA. 2018c. Revised PCB Risk-Based Cleanup and Disposal Application, Draft.
- Hazardous Substances Data Bank. 2011. Polychlorinated Biphenyls. TOXNET, U.S. National Library of Medicine, U.S. National Institutes of Health. June 16. Available online: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- HDR. 2018. Pathway Analysis Report Outline. Memorandum. October 11.
- New York State Department of Environmental Conservation (NYSDEC). (n.d.). Potential Environmental Justice Areas in Albany County, New York. Available online: <https://www.dec.ny.gov/public/911.html>
- NYSDEC. 1998. Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998. Last Updated with Addendum Dated June 2004. Available online: <https://www.dec.ny.gov/regulations/2652.html>
- NYSDEC. 2003. CP-29 DEC Environmental Justice Policy. March 19. Available online: <https://www.dec.ny.gov/public/36929.html>
- NYSDEC. 2006. 6 NYCRR Part 375. Environmental Remediation Programs. December 14. Available online: <https://www.dec.ny.gov/chemical/34189.html>
- NYSDEC. 2010. CP-51 Soil Cleanup Guidance. DEC Policy. October 21. Available online: https://www.dec.ny.gov/docs/remediation_hudson_pdf/cpsoil.pdf
- NYSDEC. 2017. Recent Grant Awards, 2016-17 Environmental Justice Community Impact Grant Awardees. Available online: <http://www.dec.ny.gov/public/31403.html>

NYSDEC. 2018a. A Year in Review: Project Updates. Environmental Justice Newsletter. March 21. Available online:

<https://content.govdelivery.com/accounts/NYSDEC/bulletins/1e20f60>

NYSDEC. 2018b. 6 NYCRR Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations. Website Last Updated August 31, 2018. Available online: <https://www.dec.ny.gov/chemical/23853.html>

United States Environmental Protection Agency (USEPA). 1986. Guidelines for Carcinogen Risk Assessment. EPA/630/R-00/004. September.

USEPA. 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual, Part A. Interim Final. EPA/540/1-89/002. Dec. Available online: <https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part>

USEPA. 1992. Guidance for Data Useability in Risk Assessment (Part A). Final. 9285.7-09A. Available online: <http://rais.ornl.gov/documents/USERISKA.pdf>

USEPA. 2001. Risk Assessment Guidance for Superfund Volume I – Human Health Evaluation Manual. Part D, Standardized Planning, Reporting and Review of Superfund Risk Assessments. Final. December. Available online at: <https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-d>

USEPA. 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10. December. Available online: <https://www.epa.gov/risk/superfund-risk-assessment-human-health-topics>

USEPA 2003. Human Health Toxicity Values in Superfund Risk Assessments. Memorandum. OSWER Directive 9285.7-53. December 5. Available online: <https://www.epa.gov/risk/superfund-risk-assessment-human-health-topics>

USEPA. 2004a. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: <https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-e>

USEPA. 2004b. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Figure 8. February 22. Available online: <https://www.epa.gov/risk/users-guide-evaluating-subsurface-vapor-intrusion-buildings>

USEPA. 2005a. Guidelines for Carcinogen Risk Assessment. EPA/630/P-03/001F. March. Available online: <https://www.epa.gov/risk/guidelines-carcinogen-risk-assessment>

USEPA. 2005b. Supplemental Guidance for Assessing Susceptibility from Early Life Exposure to Carcinogens. EPA/630/R-03/003F. March. Available online: https://www3.epa.gov/airtoxics/childrens_supplement_final.pdf

USEPA. 2009. Risk Assessment Guidance for Superfund Volume I; Human Health Evaluation Manual. Part F Supplemental Guidance for Inhalation Risk Assessment. EPA-540-R-070-002. January. Available online: <https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-f>

USEPA. 2011a. Exposure Factors Handbook: 2011 Edition. USEPA/600/R-090/052F. September. Available online: <http://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252>

- USEPA. 2011b. Health Effects Assessment Summary Tables (HEAST). December. Available online: <http://epa-heast.ornl.gov/>
- USEPA. 2014a. Memorandum – Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. OSWER Directive 9200.1-120. February. Available online: <https://www.epa.gov/risk/update-standard-default-exposure-factors>
- USEPA. 2014b. Provisional Peer Reviewed Toxicity Values for Superfund (PPRTV). September. Available online: <http://hhpprtv.ornl.gov/index.html>
- USEPA. 2015a. ProUCL Version 5.1 Technical Guide. EPA/600/R-07/041. October. Available online: <https://www.epa.gov/land-research/proucl-software>
- USEPA. 2015b. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: <https://www.epa.gov/land-research/proucl-software>
- USEPA. 2016. ProUCL Version 5.1 Software. June 20. Available online: <https://www.epa.gov/land-research/proucl-software>
- USEPA. 2017. Baseline Human Health Risk Assessment Report for the Matlack Incorporated Site. June 20, 2017. Available online: <https://semspub.epa.gov/work/02/473420.pdf>
- USEPA. 2018a. Integrated Risk Information System (IRIS). Last Updated August 30. Available online: <http://www.epa.gov/iris/>
- USEPA. 2018b. Polychlorinated Biphenyls (PCBs). Last Updated April 13. Available online: <https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs>
- USEPA. 2018c. Regional Screening Levels: Generic Tables, Equations, User's Guide. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>

FIGURES

FIGURES TABLE OF CONTENTS:

Figure 1-1 Site Plan

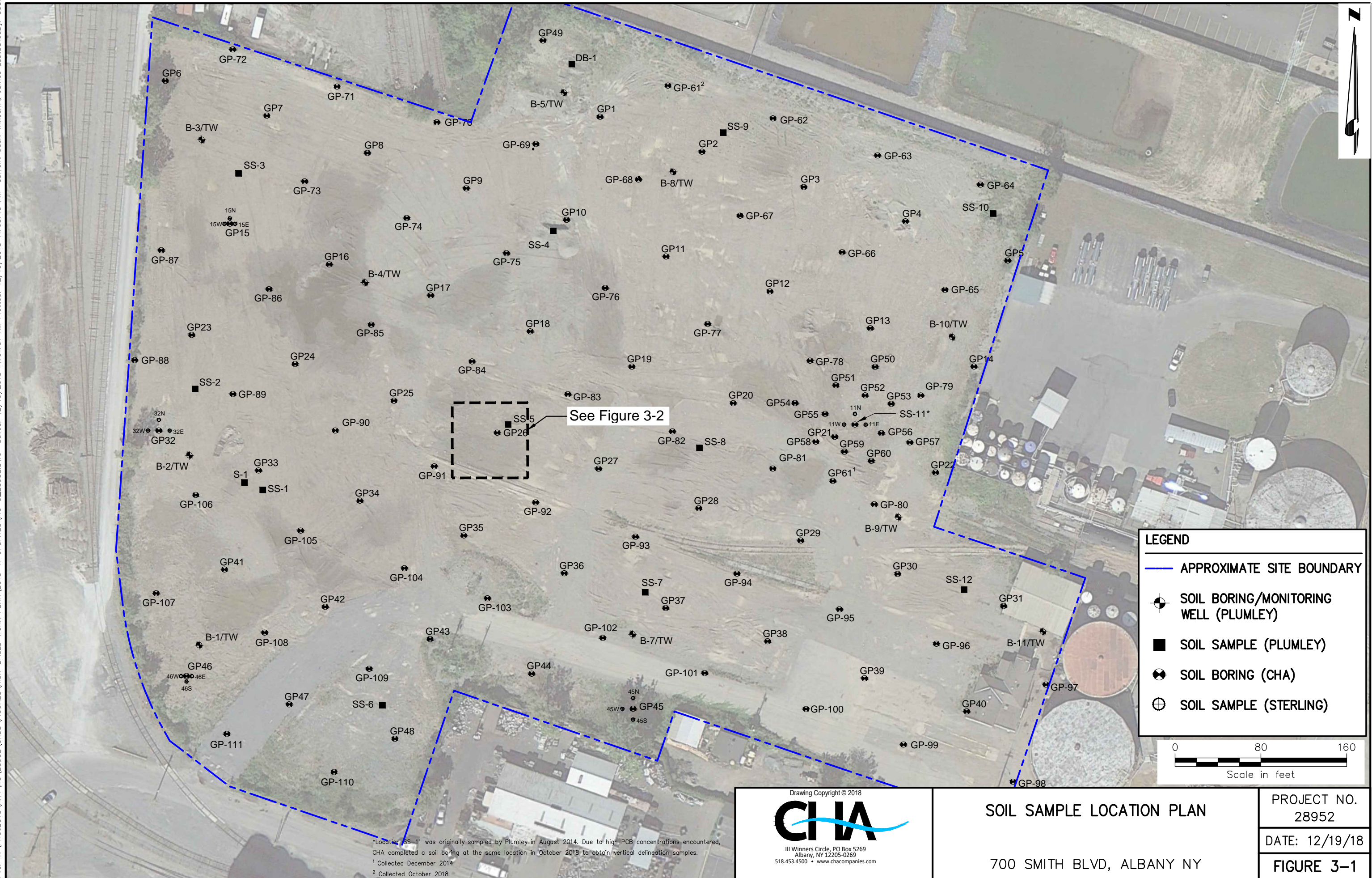
Figure 3-1 Soil Sampling Locations

Figure 3-2 Soil Sampling Locations near GP-26

Figure 4-1 Human Health Conceptual Site Model

Figure 8-1 Potential Environmental Justice Areas in the City of Albany (South Detail)





*Location SS-11 was originally sampled by Plumley in August 2014. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.
 1 Collected December 2014
 2 Collected October 2018

Drawing Copyright © 2018
CHA
 III Winners Circle, PO Box 5269
 Albany, NY 12205-0269
 518.453.4500 • www.chacompanies.com

SOIL SAMPLE LOCATION PLAN
 700 SMITH BLVD, ALBANY NY

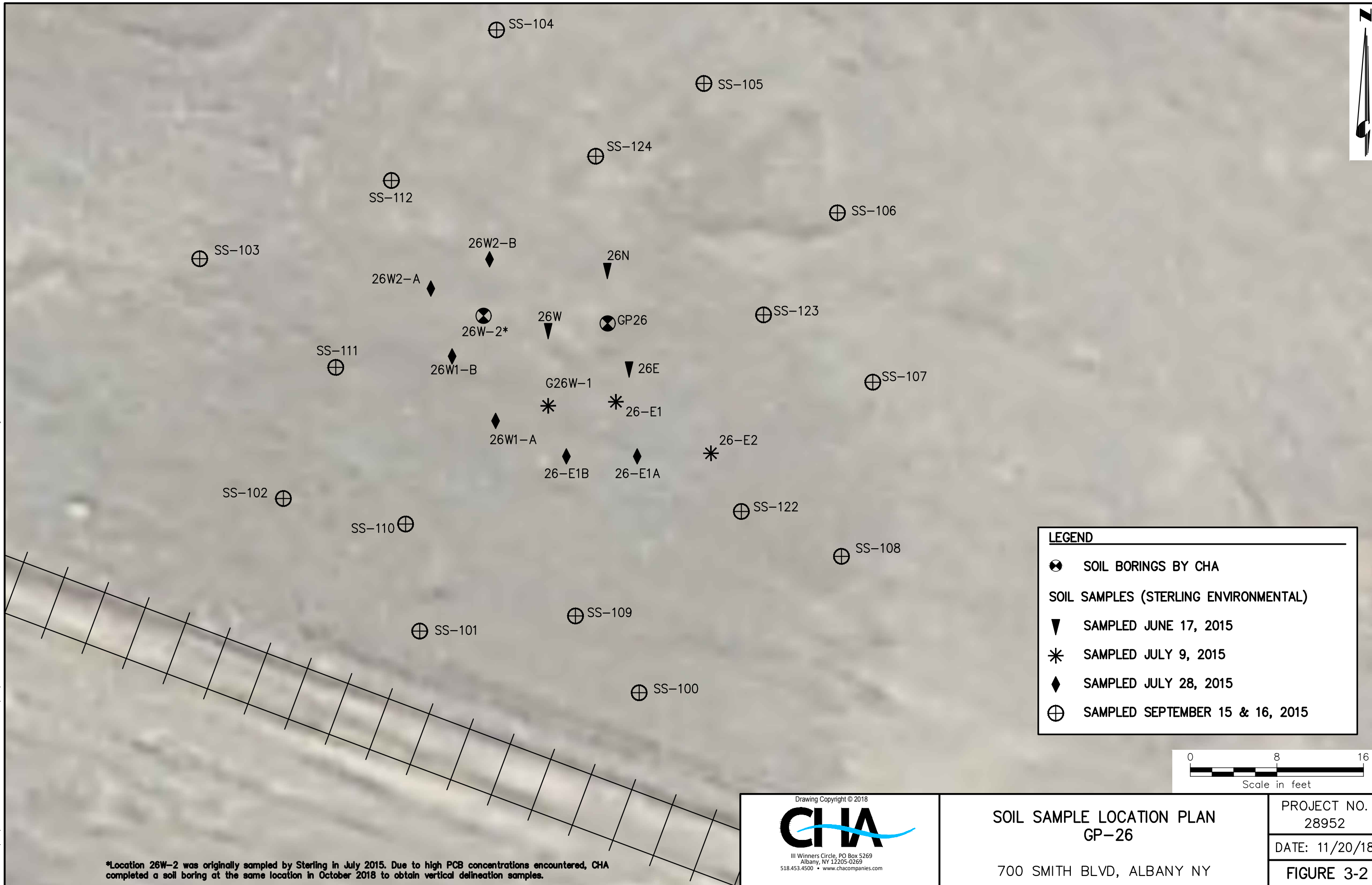
PROJECT NO.
28952
 DATE: 12/19/18
FIGURE 3-1

LEGEND

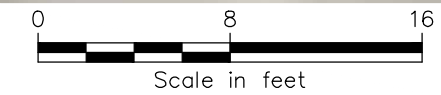
- APPROXIMATE SITE BOUNDARY
- SOIL BORING/MONITORING WELL (PLUMLEY)
- SOIL SAMPLE (PLUMLEY)
- SOIL BORING (CHA)
- SOIL SAMPLE (STERLING)

0 80 160
 Scale in feet

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2018-11 UPDATES\FIG-3_28952.DWG
 Saved: 11/21/2018 11:46:58 AM Plotted: 11/21/2018 11:58:50 AM Current User: Miller, Samantha LastSavedBy: 5939



LEGEND	
	SOIL BORINGS BY CHA
SOIL SAMPLES (STERLING ENVIRONMENTAL)	
	SAMPLED JUNE 17, 2015
	SAMPLED JULY 9, 2015
	SAMPLED JULY 28, 2015
	SAMPLED SEPTEMBER 15 & 16, 2015



*Location 26W-2 was originally sampled by Sterling in July 2015. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.

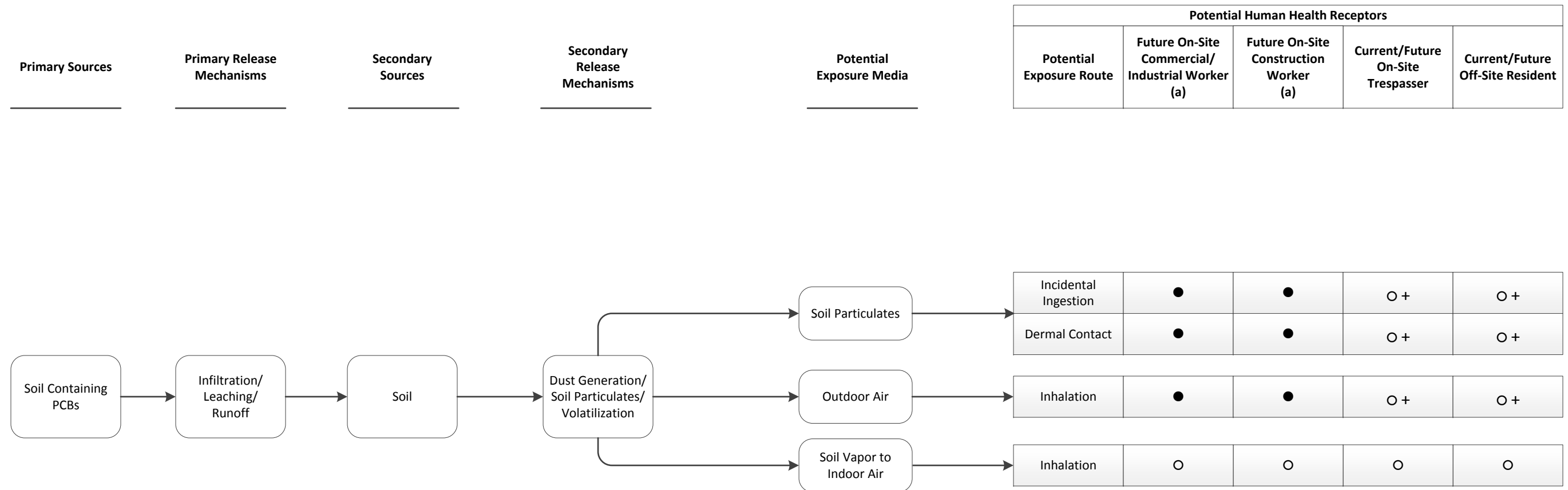
Drawing Copyright © 2018

III Winners Circle, PO Box 5269
 Albany, NY 12205-0269
 518.453.4500 • www.chacompanies.com

SOIL SAMPLE LOCATION PLAN
 GP-26

700 SMITH BLVD, ALBANY NY

PROJECT NO. 28952
DATE: 11/20/18
FIGURE 3-2



NOTES

● Pathway assumed to be complete for baseline receptor identification only; proposed remedial action not considered.

○ Pathway assumed to be incomplete or insignificant.

+ Pathway evaluated qualitatively.

(a) An on-site commercial/industrial worker assumes exposure to 0-2 ft surface soil while a construction worker assumes 0-7 ft soil.

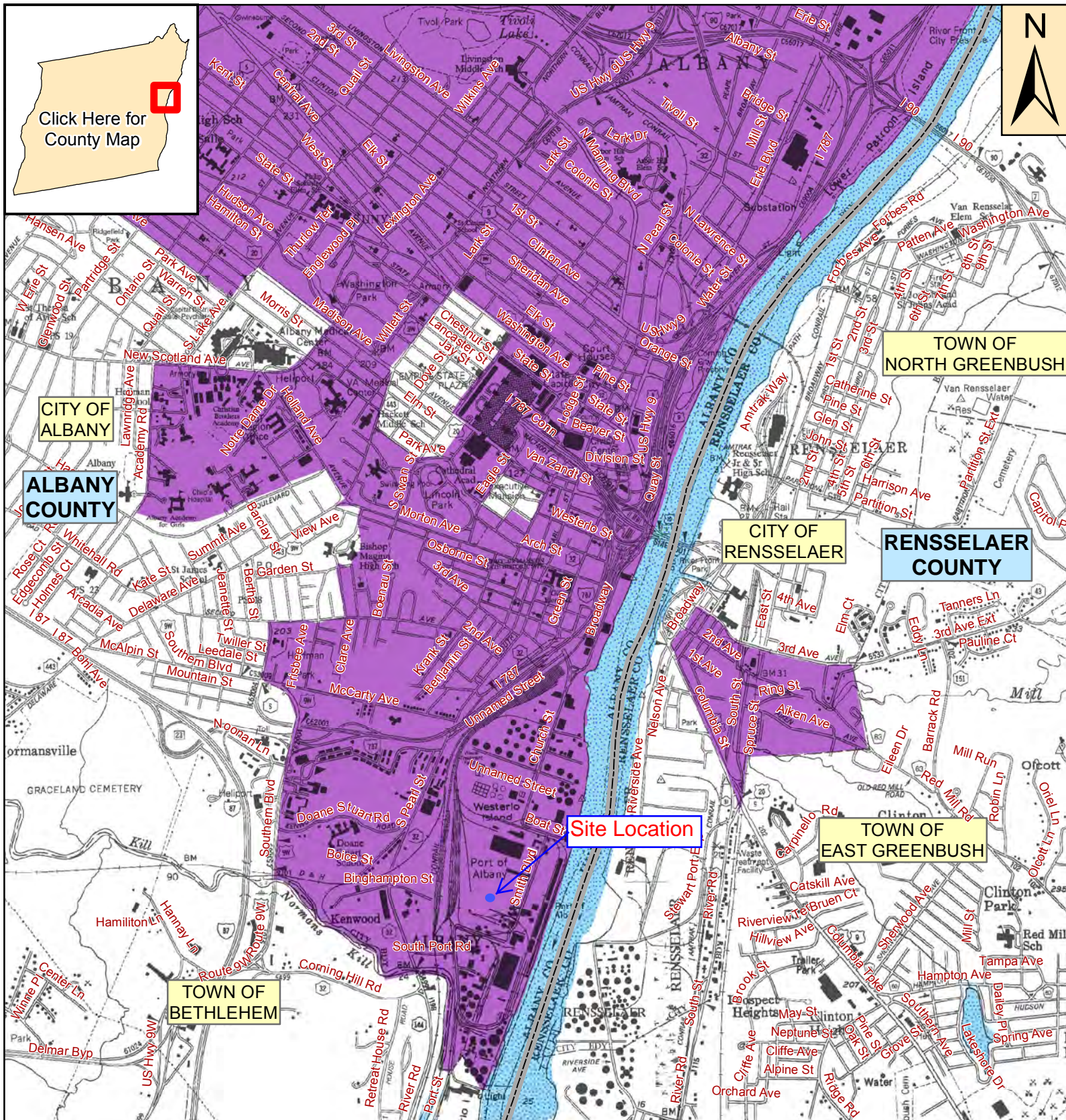
ABBREVIATIONS

PCBs: polychlorinated biphenyls



Potential Environmental Justice Areas in the City of Albany (South detail), Albany County, New York

Figure 8-1



Click Here for County Map

CITY OF ALBANY
ALBANY COUNTY

CITY OF RENSSELAER

TOWN OF NORTH GREENBUSH

RENSSELAER COUNTY

TOWN OF EAST GREENBUSH

TOWN OF BETHLEHEM

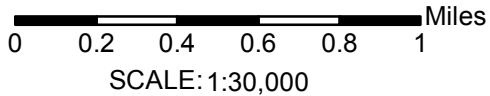
Site Location

This computer representation has been compiled from supplied data or information that has not been verified by EPA or NYSDEC. The data is offered here as a general representation only and is not to be used for commercial purposes without verification by an independent professional qualified to verify such data or information.

Neither EPA nor NYSDEC guarantee the accuracy, completeness, or timeliness of the information shown and shall not be liable for any loss or injury resulting from reliance.

Data Source for Potential Environmental Justice Areas: U.S. Census Bureau, 2000 U.S. Census

- Legend**
- Potential EJ Area
 - County Boundary
 - Waterbodies



For questions about this map contact:
New York State Department of Environmental Conservation
Office of Environmental Justice
625 Broadway, 14th Floor
Albany, New York 12233-1500
(518) 402-8556
ej@gw.dec.state.ny.us



ATTACHMENT A

RAGS Part D Human Health Risk Assessment Tables

ATTACHMENT A TABLE OF CONTENTS:

Table 0	Site Risk Assessment Identification Information
Table 1	Selection of Exposure Pathways
Table 2.1	Occurrence, Distribution, and Selection of Human Health COPCs for Soil
Table 2.Supp.1	Summary of Human Health COPCs
Table 3.1	Exposure Point Concentration Summary for Surface Soil (0-2 ft)
Table 3.2	Exposure Point Concentration Summary for Soil (0-7 ft)
Table 4.1	Values used for Daily Intake Calculations for Soil
Table 4.Supp.1	Constituent-Specific Factors
Table 5.1	Noncancer Toxicity Data – Oral/Dermal
Table 5.2	Noncancer Toxicity Data – Inhalation
Table 6.1	Cancer Toxicity Data – Oral/Dermal
Table 6.2	Cancer Toxicity Data – Inhalation

TABLE 0
 SITE RISK ASSESSMENT IDENTIFICATION INFORMATION
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Site Name/OU:	700 Smith Boulevard, Albany, NY 12202
EPA Region:	2
EPA ID Number:	Not applicable
State:	NYSDEC Spill Number 1045730
Status:	Draft
Federal Facility (Y/N):	N
EPA PCB Coordinator:	James Haklar
EPA Risk Assessor:	Gina Ferreira
Prepared by (Organization):	HDR
Prepared for (Organization):	Albany Port District Commission
Document Title:	Pathway Analysis Report
Document Date:	February 2019
Probabilistic Risk Assessment (Y/N):	N
Comments:	RAGS Tables 0 to 6.2 to support the TSCA PCB Risk-Based Cleanup Application

TABLE 1
 SELECTION OF EXPOSURE PATHWAYS
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Scenario Timeframe	Source	Receptor Population	Receptor Age	Medium / Exposure Medium	Exposure Point	Exposure Route	Type of Evaluation	Rationale for Selection or Exclusion of Exposure Pathway
Future	Soil Containing PCBs	On-Site Construction Worker	Adult	Soil	Soil (0-7 ft)	Ingestion	Quantitative	Redevelopment of the Site is likely to occur, including activities such as tilling and grading of the soil (with engineering controls to assure dust suppression as well as health and safety measures). The PAR included "baseline conditions" for a construction worker's potential exposure to soil in a trench via the ingestion, dermal and inhalation pathways, without consideration of the use of the health and safety measures that would be implemented.
Dermal								
Outdoor Air		Inhalation						
Future		On-Site Commercial/Industrial Worker	Adult	Soil	Surface Soil (0-2 ft)	Ingestion	Quantitative	
Dermal								
Outdoor Air		Inhalation						
Current/Future		On-Site Trespasser	Adult	Soil	Surface Soil (0-2 ft)	Ingestion	None	A trespasser adult or child has the potential to be present on-Site, as there are areas along the perimeter where the fence either is not present or is compromised. Other Port sites present a more likely place for potential trespassing (e.g., shipyard) as they present an attractive nuisance. The Site in question is vacant, with no features or operations that would attract trespassers, except potentially as a crossing point to other areas. Therefore, it is expected that exposure would be minimal and this pathway was not further evaluated.
						Dermal		
			Outdoor Air	Inhalation				
			Child (0-6 years)	Soil	Surface Soil (0-2 ft)	Ingestion	None	
Dermal								
Outdoor Air		Inhalation						
Current/Future	Off-Site Resident	Adult	Soil	Surface Soil (0-2 ft)	Ingestion	Qualitative	Potential exposure to off-site residents (it is approximately 0.3 miles to the closest residences on Old South Pearl St) is unlikely due to the distance to the residences, intervening land use and conditions. The controls currently in place and that will be in place during site remediation minimize potential exposure. This scenario was evaluated qualitatively.	
					Dermal			
		Outdoor Air	Inhalation					
		Child (0-6 years)	Soil	Surface Soil (0-2 ft)	Ingestion	Qualitative		
Dermal								
Outdoor Air	Inhalation							

TABLE 2.1
 OCCURRENCE, DISTRIBUTION, AND SELECTION OF HUMAN HEALTH COPCS FOR SOIL
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Scenario Timeframe: Current/Future
 Medium: Soil
 Exposure Medium: Soil (0-2 ft) and Soil (0-7 ft)

Exposure Point	Constituent Group	Constituent	CASRN	Minimum Detected Concentration (mg/kg)	Qual	Maximum Detected Concentration (mg/kg)	Qual	Location of Maximum Detected Concentration	Sample Count	Detect Count	Detection Frequency (%)	Range of Detection Limits (mg/kg)	Concentration used for Screening (mg/kg) (1)	6 NYCRR Part 375 Industrial Restricted Use SCO (mg/kg)	USEPA RSL Resident Soil (mg/kg) (2)		USEPA RSL Industrial Soil (mg/kg) (2)		COPC Flag (Y/N)	Rationale for Selection or Deletion
															Value	Basis	Value	Basis		
Surface Soil	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	ND		ND		--	114	0	0	0.00296 - 1.62	ND	25	0.41	n	5.1	n	N	Not detected.
Surface Soil	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		--	114	0	0	0.00334 - 1.83	ND	25	0.2	c	0.83	c	N	Not detected.
Surface Soil	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		--	114	0	0	0.00707 - 3.86	ND	25	0.17	c	0.72	c	N	Not detected.
Surface Soil	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	0.386	J-	18	J+	GP-81	114	8	7	0.0045 - 2.46	18	25	0.23	c	0.95	c	Y	Equal to or above screening level.
Surface Soil	PCB	PCB-1248 (Aroclor 1248)	12672-29-6	0.8		25		GP-45	114	57	50	0.005 - 5.6	25	25	0.23	c	0.95	c	Y	Equal to or above screening level.
Surface Soil	PCB	PCB-1254 (Aroclor 1254)	11097-69-1	0.00693	J	74.2		GP-79	114	109	96	0.00365 - 5.6	74.2	25	0.12	n	0.97	c**	Y	Equal to or above screening level.
Surface Soil	PCB	PCB-1260 (Aroclor 1260)	11096-82-5	0.00675	J	140		GP-45	114	108	95	0.00617 - 5.6	140	25	0.24	c	0.99	c	Y	Equal to or above screening level.
Surface Soil	PCB	PCB-1262 (Aroclor 1262)*	37324-23-5	ND		ND		--	53	0	0	0.00424 - 2.31	ND	25	0.12	n	0.97	c**	N	Not detected.
Surface Soil	PCB	PCB-1268 (Aroclor 1268)*	11100-14-4	1.12	J+	9.03		GP-88	53	2	4	0.00346 - 1.89	9.03	25	0.12	n	0.97	c**	N	Detection frequency less than 5%.
Soil 0-7ft	PCB	PCB-1016 (Aroclor 1016)	12674-11-2	2.2	J-	2.2	J-	GP-25	305	1	0.3	0.00288 - 2.7	2.2	25	0.41	n	5.1	n	N	Detection frequency less than 5%.
Soil 0-7ft	PCB	PCB-1221 (Aroclor 1221)	11104-28-2	ND		ND		--	304	0	0	0.00325 - 2.7	ND	25	0.2	c	0.83	c	N	Not detected.
Soil 0-7ft	PCB	PCB-1232 (Aroclor 1232)	11141-16-5	ND		ND		--	305	0	0	0.00688 - 3.86	ND	25	0.17	c	0.72	c	N	Not detected.
Soil 0-7ft	PCB	PCB-1242 (Aroclor 1242)	53469-21-9	0.038	J+	20		GP-90	305	30	10	0.00438 - 2.7	20	25	0.23	c	0.95	c	Y	Equal to or above screening level.
Soil 0-7ft	PCB	PCB-1248 (Aroclor 1248)	12672-29-6	0.0143	J	35	J-	GP-32	305	83	27	0.00487 - 14	35	25	0.23	c	0.95	c	Y	Equal to or above screening level.
Soil 0-7ft	PCB	PCB-1254 (Aroclor 1254)	11097-69-1	0.00421	J	74.2		GP-79	304	197	65	0.00355 - 14	74.2	25	0.12	n	0.97	c**	Y	Equal to or above screening level.
Soil 0-7ft	PCB	PCB-1260 (Aroclor 1260)	11096-82-5	0.00675	J	140		GP-45	305	183	60	0.006 - 14	140	25	0.24	c	0.99	c	Y	Equal to or above screening level.
Soil 0-7ft	PCB	PCB-1262 (Aroclor 1262)*	37324-23-5	ND		ND		--	152	0	0	0.00412 - 2.31	ND	25	0.12	n	0.97	c**	N	Not detected.
Soil 0-7ft	PCB	PCB-1268 (Aroclor 1268)*	11100-14-4	0.524	J+	9.03		GP-88	152	4	3	0.00336 - 1.89	9.03	25	0.12	n	0.97	c**	N	Detection frequency less than 5%.

Notes:
 (1) The maximum detected soil concentrations from 0-7 feet are used for the COPC screening.
 (2) USEPA Regional Screening Levels (RSLs) at a target risk of 1E-06 and target hazard quotient of 0.1.
 Constituents that are detected in less than 5% of the samples are not retained as COPCs.
 The 6 NYCRR Part 375 SCO for total PCBs is applied to the individual Aroclors. The COPC screening applies the minimum of the 6 NYCRR Part 375 SCOs and USEPA Soil RSLs.
 * The USEPA RSLs for PCB-1254 is applied for 1262 and 1268, as they do not have RSLs.

Abbreviations:
 COPC -- Constituent of potential concern
 mg/kg -- milligrams per kilogram
 NC -- No criteria
 ND -- Not detected
 NYCRR -- New York Codes, Rules and Regulations
 PCB -- Polychlorinated biphenyl
 Qual -- Qualifier
 RSL -- USEPA Regional Screening Levels
 SCO -- Soil cleanup objective
 USEPA -- United States Environmental Protection Agency

RSL Basis:
 ** -- Where noncancer RSL < 10 times cancer RSL
 c -- Cancer
 n -- Noncancer

Qualifiers:
 J -- Estimated concentration
 J- -- Estimated concentration biased low
 J+ -- Estimated concentration biased high

References:
 NYSDEC. 2006. 6 NYCRR Part 375. Environmental Remediation Programs. December 14. Available online: <http://www.dec.ny.gov/chemical/brownfields.html>
 USEPA. 2018. Regional Screening Levels Equations, Calculator, Tables. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>

TABLE 2.SUPP.1
 SUMMARY OF HUMAN HEALTH COPCS
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

COPC Group	COPC	CASRN	Surface Soil (0-2 ft)	Soil (0-7 ft)
PCB	PCB Aroclor 1016	79-00-5	No	No
PCB	PCB Aroclor 1221	75-35-4	No	No
PCB	PCB Aroclor 1232	120-82-1	No	No
PCB	PCB Aroclor 1242	107-06-2	Yes	Yes
PCB	PCB Aroclor 1248	541-73-1	Yes	Yes
PCB	PCB Aroclor 1254	106-46-7	Yes	Yes
PCB	PCB Aroclor 1260	75-27-4	Yes	Yes
PCB	PCB Aroclor 1262	37324-23-5	No	No
PCB	PCB Aroclor 1268	11100-14-4	No	No

Abbreviations:

COPC -- Constituent of potential concern

PCB -- Polychlorinated biphenyl



TABLE 3.1
 EXPOSURE POINT CONCENTRATION SUMMARY FOR SURFACE SOIL (0-2 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil (0-2 ft)

COPC Group	COPC	CASRN	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)			6 NYCRR Part 375 Industrial Restricted Use SCO (mg/kg)	USEPA RSL Industrial Soil (mg/kg)	
											Value	Statistic	Rationale		Value	Basis
PCB	PCB Aroclor 1242	107-06-2	mg/kg	18	J+	1.068	95% KM Approximate Gamma UCL	114	8	7	1.068	UCL	Lower of max and UCL	25	0.95	c
PCB	PCB Aroclor 1248	541-73-1	mg/kg	25		3.534	95% KM Approximate Gamma UCL	114	57	50	3.534	UCL	Lower of max and UCL	25	0.95	c
PCB	PCB Aroclor 1254	106-46-7	mg/kg	74.2		9.164	95% KM (Chebyshev) UCL	114	109	96	9.164	UCL	Lower of max and UCL	25	0.97	c**
PCB	PCB Aroclor 1260	75-27-4	mg/kg	140		9.662	95% KM (Chebyshev) UCL	114	108	95	9.662	UCL	Lower of max and UCL	25	0.99	c

Notes:

The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen. The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the dataset and ProUCL guidance. ProUCL outputs are provided in Attachment B. These EPCs for soil (0-2 ft) will be used in the worker scenario. The 6 NYCRR Part 375 SCO for total PCBs is applied to the individual Aroclors. USEPA Regional Screening Levels (RSLs) at a target risk of 1E-06 and target hazard quotient of 0.1.

Abbreviations:

- COPC -- Constituent of potential concern
- EPC -- Exposure point concentration
- NYCRR -- New York Codes, Rules and Regulations
- PCB -- Polychlorinated biphenyl
- Qual -- Qualifier
- RSL -- USEPA Regional Screening Levels
- SCO -- Soil cleanup objective
- UCL -- 95% Upper confidence limit

References:

- NYSDEC. 2006. 6 NYCRR Part 375. Environmental Remediation Programs. December 14. Available online: <http://www.dec.ny.gov/chemical/brownfields.html>
- USEPA. 2016. ProUCL Version 5.1. September 19. Available online: <https://www.epa.gov/land-research/proucl-software>
- USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: <https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads>



TABLE 3.2
 EXPOSURE POINT CONCENTRATION SUMMARY FOR SOIL (0-7 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil (0-7 ft)

COPC Group	COPC	CASRN	Units	Maximum Detected Concentration	Qual	95% UCL	95% UCL Method	Sample Count	Detect Count	Detection Frequency (%)	Exposure Point Concentration (EPC)			6 NYCRR Part 375 Industrial Restricted Use SCO (mg/kg)	USEPA RSL Industrial Soil (mg/kg)	
											Value	Statistic	Rationale		Value	Basis
PCB	PCB Aroclor 1242	107-06-2	mg/kg	20		0.627	95% KM Approximate Gamma UCL	305	30	10	0.627	UCL	Lower of max and UCL	25	0.95	c
PCB	PCB Aroclor 1248	541-73-1	mg/kg	35	J-	1.756	95% KM Approximate Gamma UCL	305	83	27	1.756	UCL	Lower of max and UCL	25	0.95	c
PCB	PCB Aroclor 1254	106-46-7	mg/kg	74.2		4.692	95% KM (Chebyshev) UCL	304	197	65	4.692	UCL	Lower of max and UCL	25	0.97	c**
PCB	PCB Aroclor 1260	75-27-4	mg/kg	140		4.187	95% KM (Chebyshev) UCL	305	183	60	4.187	UCL	Lower of max and UCL	25	0.99	c

Notes:

The exposure point concentration (EPC) is the 95% upper confidence limit (UCL) of the arithmetic mean. When the UCL is greater than the maximum detected concentration or ProUCL did not calculate an UCL, the maximum detected concentration is chosen. The most appropriate UCL is chosen from those ProUCL suggests based on the distribution of the dataset and ProUCL guidance. ProUCL outputs are provided in Attachment B. These EPCs for soil (0-7 ft) will be used in the construction worker scenario. The 6 NYCRR Part 375 SCO for total PCBs is applied to the individual Aroclors. USEPA Regional Screening Levels (RSLs) at a target risk of 1E-06 and target hazard quotient of 0.1.

Abbreviations:

COPC -- Constituent of potential concern
 EPC -- Exposure point concentration
 NYCRR -- New York Codes, Rules and Regulations
 PCB -- Polychlorinated biphenyl
 Qual -- Qualifier
 RSL -- USEPA Regional Screening Levels
 SCO -- Soil cleanup objective
 UCL -- 95% Upper confidence limit

References:

NYSDC. 2006. 6 NYCRR Part 375. Environmental Remediation Programs. December 14. Available online: <http://www.dec.ny.gov/chemical/brownfields.html>
 USEPA. 2016. ProUCL Version 5.1. September 19. Available online: <https://www.epa.gov/land-research/proucl-software>
 USEPA. 2015. ProUCL Version 5.1 User Guide. EPA/600/R-07/041. October. Available online: <https://www.epa.gov/land-research/proucl-version-5100-documentation-downloads>

TABLE 4.1
 VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SOIL
 REASONABLE MAXIMUM EXPOSURE
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Ingestion	Construction Worker	Adult	Soil (0-10 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	$\text{Intake (mg/kg-day)} = (\text{CS} \times \text{IR} \times \text{CF} \times \text{FI} \times \text{EF} \times \text{ED} \times \text{RBA}) / (\text{BW} \times \text{AT})$
				AT	Averaging Time-noncancer	365	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				FI	Fraction Ingested	1	unitless	USEPA RSL Equations	
				ED	Exposure Duration	1	years	USEPA 2014	
	EF	Exposure Frequency	250	days/yr	USEPA 2014				
	IR	Ingestion Rate	330	mg/day	USEPA RSL Equations				
	RBA	Relative Bioavailability	Chemical-specific	unitless	USEPA RSL User Guide				
	Commercial/ Industrial Worker	Adult	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	9125	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2014	
				CF	Conversion Factor	1E-06	kg/mg	--	
CS				Chemical Concentration in Soil	EPC	mg/kg	--		
FI				Fraction Ingested	1	unitless	USEPA RSL Equations		
ED				Exposure Duration	25	years	USEPA 2014		
EF	Exposure Frequency	250	days/yr	USEPA 2011					
IR	Ingestion Rate	100	mg/day	USEPA 2014					
RBA	Relative Bioavailability	Chemical-specific	unitless	USEPA RSL User Guide					
Dermal	Construction Worker	Adult	Soil (0-10 ft)	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	$\text{Dermally Absorbed Dose (DAD) (mg/kg-day)} = (\text{DA-event} \times \text{EF} \times \text{ED} \times \text{EV} \times \text{SA}) / (\text{BW} \times \text{AT})$, where DA-event (mg/cm ² -event) = Csoil x CF x AF x ABSd
				AF	Dermal Adherence Factor	0.3	mg/cm ² -event	USEPA RSL Equations	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	365	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
				ED	Exposure Duration	1	years	USEPA 2011	
				EF	Exposure Frequency	250	days/yr	USEPA 2011	
	EV	Events Frequency	1	events/day	USEPA 2004				
	SA	Skin Surface Area	3527	cm ²	USEPA RSL Equations				
	Commercial/ Industrial Worker	Adult	Surface Soil (0-2 ft)	ABSd	Dermal Absorption Factor	Chemical-specific	unitless	USEPA 2004	
				AF	Adherence Factor	0.12	mg/cm ² -event	USEPA 2011	
				AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	9125	days	USEPA 2011	
				BW	Body Weight	80	kg	USEPA 2011	
				CF	Conversion Factor	1E-06	kg/mg	--	
				CS	Chemical Concentration in Soil	EPC	mg/kg	--	
ED				Exposure Duration	25	years	USEPA 2011		
EF				Exposure Frequency	250	days/yr	USEPA 2011		
EV	Events Frequency	1	events/day	USEPA 2004					
SA	Skin Surface Area	3527	cm ²	USEPA RSL Equations					

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS FOR SOIL
REASONABLE MAXIMUM EXPOSURE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale / Reference	Intake Equation / Model Name
Inhalation Outdoor Particulate / Vapor	Construction Worker	Adult	Soil (0-10 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	Exposure Concentration (EC) (mg/m ³) = (CA x ET x EF x ED x CF) / AT, where CA = CS / (PEF+VF)
				AT	Averaging Time-noncancer	365	days	USEPA 2011	
				CA	Chemical Concentration in Air	Chemical-specific	Calculated		
				CF	Conversion Factor	0.042	day/hr	--	
				CS	Chemical Concentration in Soil	EPC	--		
				ED	Exposure Duration	1	years	USEPA 2011	
				EF	Exposure Frequency	250	days/yr	USEPA 2011	
				ET	Exposure Time	8	hr/day	USEPA 2011	
				PEF	Particulates Emissions Factor	5,400,000	m ³ /kg	USEPA RSL Calculator - see Attachment C	
				VF	Volatilization Factor	Calculated	m ³ /kg	USEPA RSL Calculator - see Attachment C	
	Commercial/ Industrial Worker	Adult	Surface Soil (0-2 ft)	AT	Averaging Time-cancer	25550	days	USEPA 2011	
				AT	Averaging Time-noncancer	9125	days	USEPA 2011	
				CA	Chemical Concentration in Air	Chemical-specific	Calculated		
				CF	Conversion Factor	0.042	day/hr	--	
CS	Chemical Concentration in Soil	EPC	--						
ED	Exposure Duration	25	years	USEPA 2011					
EF	Exposure Frequency	250	days/yr	USEPA 2014					
ET	Exposure Time	8	hr/day	USEPA 2011					
PEF	Particulates Emissions Factor	6,460,000,000	m ³ /kg	USEPA RSL Calculator - see Attachment C					
VF	Volatilization Factor	Calculated	m ³ /kg	USEPA RSL Calculator - see Attachment C					

Note:

The particulate emission factor (PEF) and volatilization factor (VF) for inhalation of particulates and vapors from soil are calculated using the USEPA RSL calculator and the input parameters are described in Attachment C. The worker is the composite of an indoor worker and outdoor worker.

Abbreviations:

DAD -- Dermal absorbed dose
EC -- Exposure concentration
EPC -- Exposure point concentration
RSL -- USEPA Regional Screening Level
USEPA -- United States Environmental Protection Agency

References:

USEPA. 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December. Available online: <https://www.epa.gov/superfund/superfund-soil-screening-guidance>
USEPA. 2004. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment. Final. USEPA/540/R/99/005. July. Available online: <https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part>
USEPA. 2009. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part F Supplemental Guidance for Inhalation Risk Assessment. EPA-540-R-070-002. January. Available online: <https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part>
USEPA. 2011. Exposure Factors Handbook, 2011 Edition. USEPA/600/R-090/052F. September. Available online: <https://cfpub.epa.gov/ncea/risk/recordsisplay.cfm?id=236252>
USEPA. 2014. Memorandum -- Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. OSWER Directive 9200.1-120. February. Available online: <https://www.epa.gov/risk/update-standard-default-exposure-factors>
USEPA. 2018. Regional Screening Levels Equations, Calculator, Tables. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>

TABLE 4.SUPP.1
 CONSTITUENT-SPECIFIC FACTORS FOR SURFACE SOIL EXPOSURES
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

COPC Group	COPC	CASRN	Inhalation Volatilization Factor for Soil Vapor (m ³ /kg) (1) (2)		Dermal Absorption Fraction for Soil/Sediment (unitless) (3)
			Construction Worker	Worker	
PCB	PCB Aroclor 1242	107-06-2	187,000	9.67E+05	0.14
PCB	PCB Aroclor 1248	541-73-1	80,700	4.16E+05	0.14
PCB	PCB Aroclor 1254	106-46-7	272,000	1.40E+06	0.14
PCB	PCB Aroclor 1260	75-27-4	170,000	8.75E+05	0.14

Notes:

- (1) Volatilization Factors (VF) are determined using the USEPA RSL calculator for the different receptor scenarios. If not available, the default is zero. The input values for the calculator are presented in Attachment C.
- (2) The volatilization factors for PCB-1254 are applied for 1262 and 1268, as they are not available in the RSL calculator.
- (3) Dermal absorption factors are taken from Exhibit 3-4 of USEPA RAGS Part E unless a value is provided in the more recently updated USEPA RSL tables. If not available, the default is zero.

Abbreviations:

- COPC -- Constituent of potential concern
- PCB -- Polychlorinated biphenyl
- USEPA -- United States Environmental Protection Agency

References:

USEPA. 2018. Regional Screening Level (RSL) Calculator. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>

TABLE 5.1
 NONCANCER TOXICITY DATA -- ORAL/DERMAL
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

COPC Group	COPC	CASRN	Chronic / Subchronic	Oral Reference Dose (RfD)		GIABS	Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal		Primary Target Organ(s)	Combined Uncertainty / Modifying Factors	Source	Source Date
				Value	Units			Value	Units				
PCB	PCB Aroclor 1242	107-06-2	Chronic	0.00007	mg/kg-day	1	100%	0.00007	mg/kg-day	Developmental Lymphatic, Integumentary, Ocular (Nervous)	100 / 1	USEPA IRIS	1/1/1993
PCB	PCB Aroclor 1248	541-73-1	Chronic	0.00002	mg/kg-day	1	100%	0.00002	mg/kg-day		300 / 1	USEPA IRIS	10/1/1994
PCB	PCB Aroclor 1254	106-46-7	Chronic	0.00002	mg/kg-day	1	100%	0.00002	mg/kg-day		300 / 1	USEPA IRIS	10/1/1994
PCB	PCB Aroclor 1260	75-27-4	Chronic	0.00002	mg/kg-day	1	100%	0.00002	mg/kg-day		300 / 1	USEPA IRIS	10/1/1994
PCB	PCB Aroclor 1254	106-46-7	Subchronic	0.00003	mg/kg-day	1	100%	0.00003	mg/kg-day	Nervous	300 / 1	ATSDR	11/1/2000

Note:

The oral RfDs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.

The absorbed RfD for dermal is calculated by the following equation: RfD-oral x GIABS.

USEPA recommends that the oral RfD should not be adjusted to estimate the absorbed dose for compounds when the absorption efficiency is greater than 50%.

PCB-1016's RfD is applied for PCB-1242 while PCB-1254's RfD is applied for PCB-1248 and 1260.

For a construction worker, which evaluates a short-term exposure duration of one year, a subchronic noncancer oral RfD of 0.00003 mg/kg-day was applied for PCB Aroclor 1254, which will also apply to 1248 and 1260.

Abbreviations:

- COPC -- Constituent of potential concern
- GIABS -- Gastrointestinal absorption factor
- NA -- Not available
- PCB -- Polychlorinated biphenyl
- RfD -- Reference dose
- RSLs -- USEPA Regional Screening Levels

References:

- ATSDR. 2018. Minimal Risk Levels (MRLs). August. Available online: <http://www.atsdr.cdc.gov/mrls/index.asp>
- USEPA. 2018. Regional Screening Levels User's Guide. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>
- USEPA. 2018. Integrated Risk Information System (IRIS). Website Last Updated August 30. Available online: <https://www.epa.gov/iris>

TABLE 5.2
 NONCANCER TOXICITY DATA -- INHALATION
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

COPC Group	COPC	CASRN	Chronic / Subchronic	Inhalation Reference Concentration (RfC)		Primary Target Organ(s)	Combined Uncertainty / Modifying Factors	Source	Source Date
				Value	Units				
PCB	PCB Aroclor 1242	107-06-2	NA	NA	NA	NA	NA	NA	NA
PCB	PCB Aroclor 1248	541-73-1	NA	NA	NA	NA	NA	NA	NA
PCB	PCB Aroclor 1254	106-46-7	NA	NA	NA	NA	NA	NA	NA
PCB	PCB Aroclor 1260	75-27-4	NA	NA	NA	NA	NA	NA	NA

Note:
 There are no RfCs available for PCBs. The inhalation RfCs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.

Abbreviation:
 COPC -- Constituent of potential concern
 NA -- Not available
 PCB -- Polychlorinated biphenyl
 RfC -- Reference concentration
 RSLs -- USEPA Regional Screening Levels

References:
 USEPA. 2018. Regional Screening Levels User's Guide. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>
 USEPA. 2018. Integrated Risk Information System (IRIS). Website Last Updated August 30. Available online: <https://www.epa.gov/iris>

TABLE 6.1
 CANCER TOXICITY DATA -- ORAL/DERMAL
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

COPC Group	COPC	CASRN	Mutagenic	Oral Slope Factor (CSFo)		GIABS	Oral Absorption Efficiency for Dermal	Absorbed CSFd for Dermal		Weight of Evidence / Cancer Guidelines Description	Source	Source Date
				Value	Units			Value	Units			
PCB	PCB Aroclor 1242	107-06-2	N	2	(mg/kg-day) ⁻¹	1	100%	2	(mg/kg-day) ⁻¹	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996
PCB	PCB Aroclor 1248	541-73-1	N	2	(mg/kg-day) ⁻¹	1	100%	2	(mg/kg-day) ⁻¹	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996
PCB	PCB Aroclor 1254	106-46-7	N	2	(mg/kg-day) ⁻¹	1	100%	2	(mg/kg-day) ⁻¹	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996
PCB	PCB Aroclor 1260	75-27-4	N	2	(mg/kg-day) ⁻¹	1	100%	2	(mg/kg-day) ⁻¹	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996

Note:

The oral SFs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy.

The absorbed SFd for dermal is calculated by the following equation: SF-oral / GIABS.

USEPA recommends that the oral SF should not be adjusted to estimate the absorbed dose for compounds when the absorption efficiency is greater than 50%.

The RSL tables applies values taken from USEPA IRIS, which provides toxicity values for "high risk", "low risk" and "lowest risk" PCBs. The RSL User's Guide indicates PCB Aroclor 1016 is considered "lowest risk" and the other Aroclors are considered "high risk".

Abbreviations:

- COPC -- Constituent of potential concern
- GIABS -- Gastrointestinal absorption factor
- NA -- Not available
- PCB -- Polychlorinated biphenyl
- RSLs -- USEPA Regional Screening Levels
- SFd -- Dermal slope factor
- SFo -- Oral cancer slope factor

References:

- USEPA. 2018. Regional Screening Levels User's Guide. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>
- USEPA. 2018. Integrated Risk Information System (IRIS). Website Last Updated August 30. Available online: <https://www.epa.gov/iris>

TABLE 6.2
 CANCER TOXICITY DATA -- INHALATION
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

COPC Group	COPC	CASRN	Mutagenic	Inhalation Unit Risk (IUR)		Weight of Evidence / Cancer Guidelines Description	Source	Source Date
				Value	Units			
PCB	PCB Aroclor 1242	107-06-2	N	0.00057	(ug/m3)-1	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996
PCB	PCB Aroclor 1248	541-73-1	N	0.00057	(ug/m3)-1	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996
PCB	PCB Aroclor 1254	106-46-7	N	0.00057	(ug/m3)-1	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996
PCB	PCB Aroclor 1260	75-27-4	N	0.00057	(ug/m3)-1	B2 / Probable human carcinogen	USEPA IRIS	10/1/1996

Note:
 The IURs are taken from the USEPA Regional Screening Levels (RSLs) table, which gathers toxicity reference values from multiple sources using an established hierarchy. The RSL tables applies values taken from USEPA IRIS, which provides toxicity values for "high risk", "low risk" and "lowest risk" PCBs. The RSL User's Guide indicates PCB Aroclor 1016 is considered "lowest risk" and the other Aroclors are considered "high risk".

Abbreviation:
 COPC -- Constituent of potential concern
 IUR -- Inhalation unit risk
 NA -- Not available
 PCB -- Polychlorinated biphenyl
 RSLs -- USEPA Regional Screening Levels

References:
 USEPA. 2018. Regional Screening Levels User's Guide. November. Available online: <https://www.epa.gov/risk/regional-screening-levels-rsls>
 USEPA. 2018. Integrated Risk Information System (IRIS). Website Last Updated August 30. Available online: <https://www.epa.gov/iris>

ATTACHMENT B

ProUCL Software Inputs and Outputs

ATTACHMENT B TABLE OF CONTENTS:

Table B.1	Data Input for ProUCL
Table B.2	ProUCL Output for Surface Soil 0-2 ft
Table B.3	ProUCL Output for Soil 0-7 ft

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.046	0	Surface Soil 0-2ft	GP-36	GP-36 (0-1)-20141204	N	12/24/2014	0	1	12/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.046	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.102	0	Surface Soil 0-2ft	GP-91	101718_GP-91_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.102	20
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	18	1	Surface Soil 0-2ft	GP-81	101618_GP-81_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J+	0.247	50
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.743	1	Surface Soil 0-2ft	GP-77	101918_GP-77_0-1	N	10/19/2018	0	1	11/20/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J-	0.0607	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.046	0	Surface Soil 0-2ft	GP-5	GP-5 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.046	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.00459	0	Surface Soil 0-2ft	GP-113	101718_GP-111_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00459	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.025	0	Surface Soil 0-2ft	GP-83	101718_GP-83_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.025	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.103	0	Surface Soil 0-2ft	GP-61	101918_GP-61_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.103	20
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0107	0	Surface Soil 0-2ft	GP-85	101818_GP-85_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0107	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.042	0	Surface Soil 0-2ft	GP-43	GP-43 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.042	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.048	0	Surface Soil 0-2ft	GP-56	GP-56 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.048	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.045	0	Surface Soil 0-2ft	GP-1	GP-1 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.045	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0511	0	Surface Soil 0-2ft	GP-84	101718_GP-84_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0511	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0475	0	Surface Soil 0-2ft	GP-96	101618_GP-96_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0475	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.21	0	Surface Soil 0-2ft	GP-39	GP-39 (7-18)-20141204	N	12/4/2014	0.58	1.5	11/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.21	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.00468	0	Surface Soil 0-2ft	GP-98	101918_GP-98_0-1	N	10/19/2018	0	1	12/10/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00468	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.11	0	Surface Soil 0-2ft	GP-50	GP-50 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.11	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0254	0	Surface Soil 0-2ft	GP-104	101718_GP-104_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0254	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.00459	0	Surface Soil 0-2ft	GP-63	101618_GP-63_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00459	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0236	0	Surface Soil 0-2ft	GP-101	101618_GP-101_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0236	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.2	0	Surface Soil 0-2ft	GP-35	GP-35 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.2	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.102	0	Surface Soil 0-2ft	GP-95	101618_GP-95_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.102	20
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.052	0	Surface Soil 0-2ft	GP-49	GP-49 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.052	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0494	0	Surface Soil 0-2ft	GP-107	101718_GP-107_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0494	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0486	0	Surface Soil 0-2ft	GP-78	101618_GP-78_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0486	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0045	0	Surface Soil 0-2ft	GP-54	GP-54 (0-1)-20141202	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0045	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	2.46	0	Surface Soil 0-2ft	GP-79	101618_GP-79_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	2.46	500
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.1	0	Surface Soil 0-2ft	GP-11	GP-11 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.1	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.00481	0	Surface Soil 0-2ft	GP-97	101918_GP-97_0-1	N	10/19/2018	0	1	10/29/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00481	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0484	0	Surface Soil 0-2ft	GP-74	101818_GP-74_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0484	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.078	0	Surface Soil 0-2ft	GP-47	GP-47 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.078	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.211	0	Surface Soil 0-2ft	GP-88	101818_GP-88_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.211	40
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.25	0	Surface Soil 0-2ft	GP-37	GP-37 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.25	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.116	0	Surface Soil 0-2ft	GP-87	101818_GP-87_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.116	20
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0576	0	Surface Soil 0-2ft	GP-93	101718_GP-93_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0576	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.108	0	Surface Soil 0-2ft	GP-86	101818_GP-86_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.108	20
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.00956	0	Surface Soil 0-2ft	GP-80	101618_GP-80_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00956	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.23	0	Surface Soil 0-2ft	GP-52	GP-52 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.23	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.053	0	Surface Soil 0-2ft	GP-48	GP-48 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.053	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0105	0	Surface Soil 0-2ft	GP-92	101718_GP-92_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0105	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0244	0	Surface Soil 0-2ft	GP-82	101718_GP-82_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0244	5
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.244	0	Surface Soil 0-2ft	GP-94	101618_GP-94_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.244	50
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0525	0	Surface Soil 0-2ft	GP-62	101918_GP-62_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0525	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	1.98	1	Surface Soil 0-2ft	GP-89	101818_GP-89_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J-	0.0502	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.104	0	Surface Soil 0-2ft	GP-90	101818_GP-90_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.104	20
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	3	1	Surface Soil 0-2ft	GP-73	101818_GP-73_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0577	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.042	0	Surface Soil 0-2ft	GP-15	GP-15 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.042	1
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.1	0	Surface Soil 0-2ft	GP-9	GP-9 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.1	2
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.0499	0	Surface Soil 0-2ft	GP-109	101718_GP-109_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0499	10
Surface Soil 0-2ft, PCB-1242 (Aroclor 1242), 53469-21-9	0.1	0	Surface Soil 0-2ft	GP-110	101818_GP-110_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A					

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0569	0	Surface Soil 0-2ft	BP-84	101718_GP-84_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0569	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0584	0	Surface Soil 0-2ft	GP-62	101918_GP-62_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0584	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.112	0	Surface Soil 0-2ft	GP-103	101818_GP-103_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.112	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0539	0	Surface Soil 0-2ft	GP-74	101818_GP-74_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0539	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.00535	0	Surface Soil 0-2ft	GP-97	101918_GP-97_0-1	N	10/19/2018	0	1	10/29/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00535	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	3.5	1	Surface Soil 0-2ft	GP-1	GP-1 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J+	0.23	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.281	0	Surface Soil 0-2ft	GP-105	101718_GP-105_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.281	50
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0642	0	Surface Soil 0-2ft	GP-73	101818_GP-73_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0642	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.271	0	Surface Soil 0-2ft	GP-94	101618_GP-94_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.271	50
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.32	1	Surface Soil 0-2ft	GP-65	101618_GP-66_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0584	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0564	0	Surface Soil 0-2ft	GP-75	101718_GP-105_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.302	50
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.234	0	Surface Soil 0-2ft	GP-88	101818_GP-88_0-1	N	10/18/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0320	5
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.13	0	Surface Soil 0-2ft	GP-87	101818_GP-87_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.13	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.112	0	Surface Soil 0-2ft	GP-110	101818_GP-110_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.112	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.00511	0	Surface Soil 0-2ft	GP-111	101718_GP-111_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00511	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.274	0	Surface Soil 0-2ft	GP-81	101618_GP-81_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.274	50
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0296	0	Surface Soil 0-2ft	GP-106	101718_GP-106_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0296	5
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	10	1	Surface Soil 0-2ft	GP-13	GP-13 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J+	0.51	2
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.8	1	Surface Soil 0-2ft	GP-56	GP-56 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J+	0.25	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0119	0	Surface Soil 0-2ft	GP-85	101818_GP-85_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0119	2
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	9.1	1	Surface Soil 0-2ft	GP-10	GP-10 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J+	0.44	2
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.63	0	Surface Soil 0-2ft	GP-100	101918_GP-100_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.63	100
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.006	0	Surface Soil 0-2ft	GP-102	101618_GP-102_0-1	N	10/16/2018	0	1	10/22/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.006	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.00557	0	Surface Soil 0-2ft	GP-71	101818_GP-71_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00557	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.13	0	Surface Soil 0-2ft	GP-11	101618_GP-11_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.13	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0529	0	Surface Soil 0-2ft	GP-86	101618_GP-86_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0529	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0657	0	Surface Soil 0-2ft	GP-76	101918_GP-76_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0657	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.115	0	Surface Soil 0-2ft	GP-61	101918_GP-61_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.115	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0263	0	Surface Soil 0-2ft	GP-101	101618_GP-101_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0263	5
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0555	0	Surface Soil 0-2ft	GP-109	101718_GP-109_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0555	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.057	0	Surface Soil 0-2ft	GP-68	101918_GP-68_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.057	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0541	0	Surface Soil 0-2ft	GP-78	101618_GP-78_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0541	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	8.4	1	Surface Soil 0-2ft	GP-11	GP-11 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J+	0.53	2
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.116	0	Surface Soil 0-2ft	GP-90	101818_GP-90_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.116	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0637	0	Surface Soil 0-2ft	GP-69	101818_GP-69_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0637	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.005	0	Surface Soil 0-2ft	GP-64	101618_GP-64_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.005	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	2.73	0	Surface Soil 0-2ft	GP-79	101618_GP-79_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	2.73	500
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0116	0	Surface Soil 0-2ft	GP-92	101718_GP-92_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0116	2
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0291	0	Surface Soil 0-2ft	GP-108	101718_GP-108_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0291	5
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0283	0	Surface Soil 0-2ft	GP-104	101718_GP-104_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0283	5
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0641	0	Surface Soil 0-2ft	GP-93	101718_GP-93_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0641	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.113	0	Surface Soil 0-2ft	GP-91	101718_GP-91_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.113	20
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.00521	0	Surface Soil 0-2ft	GP-72	101818_GP-72_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00521	1
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0676	0	Surface Soil 0-2ft	GP-77	101918_GP-77_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0676	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.055	0	Surface Soil 0-2ft	GP-107	101718_GP-107_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.055	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.058	0	Surface Soil 0-2ft	GP-70	101818_GP-70_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.058	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0559	0	Surface Soil 0-2ft	GP-89	101818_GP-89_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0559	10
Surface Soil 0-2ft, PCB-1248 (Aroclor 1248)	0.0593	0	Surface Soil 0-2ft	GP-108	101718_GP-108_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0593	10
Surface Soil 0-2ft, PCB-1254 (Aroclor 1254)	5.3	1	Surface Soil 0-2ft	GP-22	GP-22 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.25	1
Surface Soil 0-2ft, PCB-1254 (Aroclor 1254)	7.1	1	Surface Soil 0-2ft	GP-23	GP-23 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.6	5
Surface Soil 0-2ft, PCB-1254 (Aroclor 1254)	4.9	1	Surface Soil 0-2ft	GP-30	GP-30 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.3	5
Surface Soil 0-2ft, PCB-1254 (Aroclor 1254)	1.1	1	Surface Soil 0-2ft	GP-32	GP-32 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.4	5
Surface Soil 0-2ft, PCB-1254 (Aroclor 1254)	4.8	1	Surface Soil 0-2ft	GP-21	GP-21 (0-1)-201412											

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	5.75	1	Surface Soil 0-2ft	GP-94	101618_GP-94_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.334	50
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3.6	1	Surface Soil 0-2ft	GP-28	GP-28 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.27	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.9	1	Surface Soil 0-2ft	GP-54	GP-54 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.45	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.57	1	Surface Soil 0-2ft	GP-99	101918_GP-99_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.0624	10
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	6	1	Surface Soil 0-2ft	GP-32	GP-32 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.4	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.2	1	Surface Soil 0-2ft	GP-58	GP-58 (0-1)-20141205	N	12/5/2014	0	1	12/2/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.27	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.1	1	Surface Soil 0-2ft	GP-16	GP-16 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.27	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	35.6	1	Surface Soil 0-2ft	GP-100	101918_GP-100_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.776	100
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.8	1	Surface Soil 0-2ft	GP-33	GP-33 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.48	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	4.3	1	Surface Soil 0-2ft	GP-8	GP-8 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.24	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3.13	1	Surface Soil 0-2ft	GP-97	101618_GP-97_0-1	N	10/16/2018	0	1	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.16	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2	1	Surface Soil 0-2ft	GP-34	GP-34 (0-1)-20141204	N	12/4/2014	0	1	12/30/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.54	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.2	1	Surface Soil 0-2ft	GP-103	101818_GP-103_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.38	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	4.3	1	Surface Soil 0-2ft	GP-37	GP-37 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.3	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3	1	Surface Soil 0-2ft	GP-2	GP-2 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.41	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.06	1	Surface Soil 0-2ft	GP-108	101718_GP-108_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.073	10
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3.3	1	Surface Soil 0-2ft	GP-91	101718_GP-91_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.14	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.9	1	Surface Soil 0-2ft	GP-36	GP-36 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.24	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.4	1	Surface Soil 0-2ft	GP-20	GP-20 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.24	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	4.4	1	Surface Soil 0-2ft	GP-23	GP-23 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.6	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.7	1	Surface Soil 0-2ft	GP-21	GP-21 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.93	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	4	1	Surface Soil 0-2ft	GP-26	GP-26 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.4	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.79	1	Surface Soil 0-2ft	GP-35	GP-35 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	JN	1	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.8	1	Surface Soil 0-2ft	GP-43	GP-43 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.22	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.19	1	Surface Soil 0-2ft	GP-62	101918_GP-62_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.072	10
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.6	1	Surface Soil 0-2ft	GP-60	101618_GP-60_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.16	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.372	0	Surface Soil 0-2ft	GP-105	101718_GP-105_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.372	50
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.4	1	Surface Soil 0-2ft	GP-31	GP-31 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.19	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.0769	0	Surface Soil 0-2ft	GP-71	101818_GP-71_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.06687	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.6	1	Surface Soil 0-2ft	GP-30	GP-30 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.3	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.41	1	Surface Soil 0-2ft	GP-76	101918_GP-76_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.0809	10
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.72	1	Surface Soil 0-2ft	GP-51	GP-51 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.23	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	4.1	1	Surface Soil 0-2ft	GP-29	GP-29 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.2	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00642	0	Surface Soil 0-2ft	GP-72	101818_GP-72_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00642	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.1	1	Surface Soil 0-2ft	GP-67	101918_GP-67_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.138	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3.5	1	Surface Soil 0-2ft	GP-52	GP-52 (0-1)-20141205	N	12/5/2014	0	1	12/2/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	1.2	5
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.3	1	Surface Soil 0-2ft	GP-56	GP-56 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.25	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.93	1	Surface Soil 0-2ft	GP-5	GP-5 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.23	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.40	1	Surface Soil 0-2ft	GP-45	GP-45 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.56	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.69	1	Surface Soil 0-2ft	GP-66	101618_GP-66_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.0719	10
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.52	1	Surface Soil 0-2ft	GP-49	GP-49 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.37	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.3	1	Surface Soil 0-2ft	GP-48	GP-48 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.27	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3.7	1	Surface Soil 0-2ft	GP-53	GP-53 (0-1)-20141205	N	12/5/2014	0	1	12/2/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.39	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00617	0	Surface Soil 0-2ft	GP-64	101618_GP-64_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00617	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.7	1	Surface Soil 0-2ft	GP-47	GP-47 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.4	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	3.07	1	Surface Soil 0-2ft	GP-73	101818_GP-73_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.0792	10
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.6	1	Surface Soil 0-2ft	GP-55	GP-55 (0-1)-20141205	N	12/5/2014	0	1	12/2/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.42	2
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	6.65	1	Surface Soil 0-2ft	GP-95	101618_GP-95_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.14	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.138	0	Surface Soil 0-2ft	GP-110	101818_GP-110_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.138	20
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00629	0	Surface Soil 0-2ft	GP-63	101618_GP-63_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00629	1
Surface Soil 0-2ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.05	1	Surface Soil 0-2ft	GP-107	101718_GP-107_0											

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00457	0	Soil 0-7ft	GP-80	101618_GP-80_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00457	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00465	0	Soil 0-7ft	GP-80	101618_GP-80_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00465	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00457	0	Soil 0-7ft	GP-81	101618_GP-81_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00457	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00458	0	Soil 0-7ft	GP-81	101618_GP-81_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00458	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00487	0	Soil 0-7ft	GP-78	101618_GP-78_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00487	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0484	0	Soil 0-7ft	GP-102	101618_GP-102_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0484	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.053	0	Soil 0-7ft	GP-50	GP-50 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.053	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0049	0	Soil 0-7ft	GP-100	101918_GP-100_2-3	N	10/19/2018	2	3	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0049	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00467	0	Soil 0-7ft	GP-100	101918_GP-100_4-5	N	10/19/2018	4	5	11/9/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00467	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0056	0	Soil 0-7ft	26W-2	101718_26W-2_4-5	N	10/17/2018	4	5	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0056	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0275	0	Soil 0-7ft	GP-103	101918_GP-103_2-3	N	10/19/2018	2	3	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0275	50
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00516	0	Soil 0-7ft	26W-2	101718_26W-2_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00516	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00454	0	Soil 0-7ft	GP-85	101818_GP-85_4-5	N	10/18/2018	4	5	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00454	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00516	0	Soil 0-7ft	GP-102	101618_GP-102_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00516	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.114	0	Soil 0-7ft	GP-95	101618_GP-95_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.114	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.076	1	Soil 0-7ft	GP-104	101718_GP-104_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00528	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00438	0	Soil 0-7ft	GP-101	101618_GP-101_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00438	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00518	0	Soil 0-7ft	GP-103	101818_GP-103_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00518	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0737	1	Soil 0-7ft	GP-77	101918_GP-77_4-5	N	10/19/2018	4	5	11/8/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J+	0.00459	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00491	0	Soil 0-7ft	GP-83	101718_GP-83_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00491	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00501	0	Soil 0-7ft	GP-83	101718_GP-83_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00501	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.112	0	Soil 0-7ft	GP-101	101618_GP-101_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.112	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.104	0	Soil 0-7ft	GP-110	101818_GP-110_2-3	N	10/18/2018	2	3	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.104	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0049	0	Soil 0-7ft	GP-92	101718_GP-92_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0049	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00474	0	Soil 0-7ft	GP-93	101718_GP-93_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00474	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0052	0	Soil 0-7ft	GP-93	101718_GP-93_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0052	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00481	0	Soil 0-7ft	GP-90	101818_GP-90_4-5	N	10/18/2018	4	5	11/7/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00481	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.648	1	Soil 0-7ft	GP-61	101918_GP-61_2-3	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J-	0.0522	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0055	0	Soil 0-7ft	GP-61	101918_GP-61_4-5	N	10/19/2018	4	5	11/9/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0055	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00521	0	Soil 0-7ft	GP-94	101618_GP-94_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00521	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00458	0	Soil 0-7ft	GP-62	101918_GP-62_2-3	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00458	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.275	0	Soil 0-7ft	GP-91	101718_GP-91_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.275	50
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00576	0	Soil 0-7ft	GP-63	101618_GP-63_2-3	N	10/16/2018	2	3	10/24/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00576	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00514	0	Soil 0-7ft	GP-63	101618_GP-63_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00514	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00563	0	Soil 0-7ft	GP-64	101618_GP-64_2-3	N	10/16/2018	2	3	10/24/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00563	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00465	0	Soil 0-7ft	GP-65	101618_GP-65_2-3	N	10/16/2018	2	3	10/24/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00465	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.005	0	Soil 0-7ft	GP-62	101918_GP-62_4-5	N	10/19/2018	4	5	11/9/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.005	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.038	1	Soil 0-7ft	GP-106	101718_GP-106_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J+	0.00524	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00455	0	Soil 0-7ft	GP-111	101718_GP-111_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00455	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00448	0	Soil 0-7ft	GP-98	101918_GP-98_4-5	N	10/19/2018	4	5	11/9/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00448	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	5.55	1	Soil 0-7ft	GP-106	101718_GP-106_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00596	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0052	0	Soil 0-7ft	GP-96	101618_GP-96_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0052	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00537	0	Soil 0-7ft	GP-87	101818_GP-87_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00537	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00924	0	Soil 0-7ft	GP-96	101618_GP-96_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00924	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00465	0	Soil 0-7ft	GP-97	101918_GP-97_2-3	N	10/19/2018	2	3	10/29/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00465	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.048	0	Soil 0-7ft	GP-11	GP-11 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.048	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00466	0	Soil 0-7ft	GP-92	101718_GP-92_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00466	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00466	0	Soil 0-7ft	GP-98	101918_GP-98_2-3	N	10/19/2018	2	3	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00466	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0052	0	Soil 0-7ft	GP-91	101718_GP-91_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0052	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.932	1	Soil 0-7ft	GP-77	101918_GP-77_2-3	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J-	0.0555	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	4.6	1	Soil 0-7ft	GP-89	101818_GP-89_2-3	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.104	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.249	0	Soil 0-7ft	GP-89	101818_GP-89_4-5	N	10/18/2018	4	5	11/7/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.249	50
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	20	1	Soil 0-7ft	GP-90	101818_GP-90_2-3	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.519	100
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00511	0	Soil 0-7ft	GP-94	101618_GP-94_2-3	N	10/16/2018	2	3	10/26/2018	SW8					

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1248 (Aroclor 1248)	11	1	Soil 0-7ft	GP-15	GP-15 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	2.1	10
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.42	0	Soil 0-7ft	GP-48	GP-48 (2-3)-20141204	N	12/4/2014	2	3	12/10/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.042	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.43	1	Soil 0-7ft	GP-57	GP-57 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J	0.043	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.046	0	Soil 0-7ft	GP-21	GP-21 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.046	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.098	0	Soil 0-7ft	GP-35	GP-35 (4-5)-20141204	N	12/4/2014	4	5	15/2015	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.098	2
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.048	0	Soil 0-7ft	GP-6	GP-6 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.048	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	2.2	1	Soil 0-7ft	GP-27	GP-27 (2-3)-20141203	N	12/3/2014	2	3	12/9/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	J+	0.25	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.046	0	Soil 0-7ft	GP-12	GP-12 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.046	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.046	0	Soil 0-7ft	GP-7	GP-7 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.046	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.043	0	Soil 0-7ft	GP-55	GP-55 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.043	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00516	0	Soil 0-7ft	GP-84	101818_GP-84_4-5	N	10/18/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00516	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00627	0	Soil 0-7ft	GP-64	101818_GP-64_2-3	N	10/18/2018	2	3	10/24/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00627	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00517	0	Soil 0-7ft	GP-65	101818_GP-65_2-3	N	10/18/2018	2	3	10/24/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00517	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00505	0	Soil 0-7ft	GP-85	101818_GP-85_4-5	N	10/18/2018	4	5	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00505	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.0272	0	Soil 0-7ft	GP-85	101818_GP-85_2-3	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0272	5
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.0547	0	Soil 0-7ft	GP-74	101818_GP-74_2-3	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0547	10
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00572	0	Soil 0-7ft	GP-63	101618_GP-63_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00572	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00642	0	Soil 0-7ft	GP-63	101618_GP-63_2-3	N	10/16/2018	2	3	10/24/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00642	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00558	0	Soil 0-7ft	GP-83	101718_GP-83_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00558	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.306	0	Soil 0-7ft	GP-103	101818_GP-103_2-3	N	10/18/2018	2	3	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.306	50
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00546	0	Soil 0-7ft	GP-83	101718_GP-83_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00546	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00509	0	Soil 0-7ft	GP-62	101918_GP-62_2-3	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00509	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00586	0	Soil 0-7ft	GP-73	101818_GP-73_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00586	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00557	0	Soil 0-7ft	GP-62	101918_GP-62_4-5	N	10/19/2018	4	5	11/9/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00557	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00552	0	Soil 0-7ft	GP-73	101818_GP-73_2-3	N	10/18/2018	2	3	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00552	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00588	0	Soil 0-7ft	GP-84	101718_GP-84_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00588	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00618	0	Soil 0-7ft	GP-84	101718_GP-84_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00618	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00556	0	Soil 0-7ft	GP-93	101718_GP-93_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00556	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00612	0	Soil 0-7ft	GP-65	101618_GP-65_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00612	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.0549	0	Soil 0-7ft	GP-82	101718_GP-82_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0549	10
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00507	0	Soil 0-7ft	GP-82	101718_GP-82_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00507	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.35	0	Soil 0-7ft	GP-86	101818_GP-86_2-3	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.35	50
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00582	0	Soil 0-7ft	GP-86	101818_GP-86_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00582	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00612	0	Soil 0-7ft	GP-61	101918_GP-61_4-5	N	10/19/2018	4	5	11/9/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00612	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00574	0	Soil 0-7ft	26W-2	101718_26W-2_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00574	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00577	0	Soil 0-7ft	GP-74	101818_GP-74_3-4	N	10/18/2018	3	4	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00577	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00587	0	Soil 0-7ft	GP-104	101718_GP-104_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00587	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.115	0	Soil 0-7ft	GP-110	101818_GP-110_2-3	N	10/18/2018	2	3	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.115	20
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00552	0	Soil 0-7ft	GP-66	101618_GP-66_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00552	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.0058	0	Soil 0-7ft	GP-94	101618_GP-94_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0058	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.12	1	Soil 0-7ft	GP-74	101818_GP-74_4-5	N	10/18/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.12	20
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00506	0	Soil 0-7ft	GP-111	101718_GP-111_4-5	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00506	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00509	0	Soil 0-7ft	GP-81	101618_GP-81_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00509	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00568	0	Soil 0-7ft	GP-94	101618_GP-94_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00568	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	4.45	1	Soil 0-7ft	GP-66	101618_GP-66_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0506	10
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00503	0	Soil 0-7ft	GP-111	101718_GP-111_2-3	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00503	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00597	0	Soil 0-7ft	GP-87	101818_GP-87_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00597	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00512	0	Soil 0-7ft	GP-110	101818_GP-110_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00512	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.0057	0	Soil 0-7ft	GP-88	101818_GP-88_2-3	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0057	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00576	0	Soil 0-7ft	GP-103	101818_GP-103_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00576	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00508	0	Soil 0-7ft	GP-81	101618_GP-81_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00508	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00519	0	Soil 0-7ft	GP-98	101918_GP-98_2-3	N	10/19/2018	2	3	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00519	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00517	0	Soil 0-7ft	GP-80	101618_GP-80_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00517	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00579	0	Soil 0-7ft	GP-88	101818_GP-88_4-5	N	10/18/2018	4	5	11/6/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00579	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00588	0	Soil 0-7ft	GP-80	101918_GP-80_2-3	N	10/19/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00588	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.00542	0	Soil 0-7ft	GP-100	101618_GP-100_4-5	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00542	1
Soil 0-7ft_PCB-1248 (Aroclor 1248)	0.125	0	Soil 0-7ft	GP-101	101618_GP-101_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)				

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.00369	0	Soil 0-7ft	GP-72	101818_GP-72_2-3	N	10/18/2018	2	3	10/27/2018	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.00369	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.64	1	Soil 0-7ft	GP-52	GP-52 (2-3)-20141205	N	12/5/2014	2	3	12/2/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.099	0	Soil 0-7ft	GP-2	GP-2 (2-3)-20141202	N	12/2/2014	2	3	12/2/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.099	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.092	0	Soil 0-7ft	GP-37	GP-37 (2-3)-20141204	N	12/4/2014	2	3	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.092	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.5	1	Soil 0-7ft	GP-35	GP-35 (4-5)-20141204	N	12/4/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.5	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-19	GP-19 (5-6)-20141203	N	12/3/2014	5	6	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.098	0	Soil 0-7ft	GP-36	GP-36 (2-3)-20141204	N	12/4/2014	2	3	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.098	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.094	0	Soil 0-7ft	GP-40	GP-40 (5-7)-20141204	N	12/4/2014	5	7	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.094	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.14	0	Soil 0-7ft	GP-34	GP-34 (2-3)-20141204	N	12/4/2014	2	3	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.14	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-6	GP-6 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.01	0	Soil 0-7ft	GP-55	GP-55 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.1	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.86	1	Soil 0-7ft	GP-57	GP-57 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.24	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	8.6	1	Soil 0-7ft	GP-53	GP-53 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	1.3	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-53	GP-53 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.094	0	Soil 0-7ft	GP-51	GP-51 (2-3)-20141205	N	12/5/2014	2	3	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.094	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-60	GP-60 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.51	1	Soil 0-7ft	GP-20	GP-20 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.27	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.4	1	Soil 0-7ft	GP-61	GP-61 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.26	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-9	GP-9 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-56	GP-56 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.088	0	Soil 0-7ft	GP-61	GP-61 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.088	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.13	0	Soil 0-7ft	GP-51	GP-51 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.13	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.097	0	Soil 0-7ft	GP-8	GP-8 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.097	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.099	0	Soil 0-7ft	GP-58	GP-58 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.099	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-14	GP-14 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-7	GP-7 (2-3)-20141203	N	12/3/2014	2	3	12/3/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-59	GP-59 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.12	0	Soil 0-7ft	GP-59	GP-59 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.12	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.1	0	Soil 0-7ft	GP-52	GP-52 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.1	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.12	0	Soil 0-7ft	GP-54	GP-54 (2-3)-20141205	N	12/5/2014	2	3	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.12	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.12	0	Soil 0-7ft	GP-57	GP-57 (4-5)-20141205	N	12/5/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.12	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.14	0	Soil 0-7ft	GP-32	GP-32 (5-7)-20141204	N	12/4/2014	5	7	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.14	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	6.8	1	Soil 0-7ft	GP-29	GP-29 (2-3)-20141203	N	12/3/2014	2	3	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.095	0	Soil 0-7ft	GP-41	GP-41 (2-3)-20141204	N	12/4/2014	2	3	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.095	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-21	GP-21 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	42	1	Soil 0-7ft	GP-32	GP-32 (2-3)-20141204	N	12/4/2014	2	3	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	14	50
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.097	0	Soil 0-7ft	GP-39	GP-39 (2-3)-20141204	N	12/4/2014	2	3	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.097	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.14	0	Soil 0-7ft	GP-25	GP-25 (4-5)-20141203	N	12/3/2014	4	5	16/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.14	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-26	GP-26 (2-3)-20141203	N	12/3/2014	2	3	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4.2	1	Soil 0-7ft	GP-25	GP-25 (2-3)-20141203	N	12/3/2014	2	3	12/3/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.1	0	Soil 0-7ft	GP-23	GP-23 (2-3)-20141203	N	12/3/2014	2	3	12/3/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.1	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.2	1	Soil 0-7ft	GP-27	GP-27 (4-5)-20141203	N	12/3/2014	4	5	16/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.2	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.13	0	Soil 0-7ft	GP-29	GP-29 (4-5)-20141203	N	12/3/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.13	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-24	GP-24 (4-5)-20141203	N	12/3/2014	4	5	16/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.3	1	Soil 0-7ft	GP-28	GP-28 (4-5)-20141203	N	12/3/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.22	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	7.6	1	Soil 0-7ft	GP-33A	GP-33A (4-5)-20141204	N	12/4/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	2.6	10
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-18	GP-18 (4-5)-20141203	N	12/3/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.916	1	Soil 0-7ft	GP-96	101618_GP-96_2-3	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.0075	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.12	0	Soil 0-7ft	GP-40	GP-40 (4-5)-20141204	N	12/4/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.12	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.11	0	Soil 0-7ft	GP-17	GP-17 (4-5)-20141203	N	12/3/2014	4	5	15/2015	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	U	0.11	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	0.13	0	Soil 0-7ft	GP-4												

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.088	0	Soil 0-7ft	GP-61	GP-61 (4-5)-20141205	N	12/5/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.088	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00636	0	Soil 0-7ft	GP-84	GP-84	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00636	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	8	1	Soil 0-7ft	GP-15	GP-15 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	2.1	10
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00744	0	Soil 0-7ft	GP-79	GP-79	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00744	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.12	0	Soil 0-7ft	GP-57	GP-57 (4-5)-20141205	N	12/5/2014	4	5	15/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.12	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.0829	1	Soil 0-7ft	GP-79	GP-79	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00707	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.27	1	Soil 0-7ft	GP-16	GP-16 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.21	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.099	0	Soil 0-7ft	GP-58	GP-58 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.099	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.0242	1	Soil 0-7ft	GP-78	GP-78	N	10/16/2018	2	3	10/24/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.00642	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00685	0	Soil 0-7ft	GP-93	GP-93	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00685	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.0297	1	Soil 0-7ft	GP-83	GP-83	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.00673	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.14	0	Soil 0-7ft	GP-32	GP-32 (5-7)-20141204	N	12/4/2014	5	7	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.14	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.12	0	Soil 0-7ft	GP-16	GP-16 (4-5)-20141203	N	12/3/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.12	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00628	0	Soil 0-7ft	GP-81	GP-81	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00628	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.9	1	Soil 0-7ft	GP-33A	GP-33A (4-5)-20141204	N	12/4/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	2.6	10
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00639	0	Soil 0-7ft	GP-92	GP-92	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00639	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.12	0	Soil 0-7ft	GP-38	GP-38 (4-5)-20141204	N	12/4/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.12	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.47	1	Soil 0-7ft	GP-12	GP-12 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.23	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.95	1	Soil 0-7ft	GP-75	GP-75	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.0657	10
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.13	0	Soil 0-7ft	GP-10	GP-10 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.13	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.11	1	Soil 0-7ft	GP-85	GP-85	N	10/18/2018	2	3	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.0335	5
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.133	1	Soil 0-7ft	GP-90	GP-90	N	10/18/2018	4	5	11/7/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.00659	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.11	0	Soil 0-7ft	GP-24	GP-24 (4-5)-20141203	N	12/3/2014	4	5	1/6/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.11	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00672	0	Soil 0-7ft	GP-92	GP-92	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00672	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00622	0	Soil 0-7ft	GP-85	GP-85	N	10/18/2018	4	5	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00622	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.1	1	Soil 0-7ft	GP-19	GP-19 (4-5)-20141203	N	12/3/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.25	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.48	1	Soil 0-7ft	GP-101	GP-101	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	1.54	20
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00894	1	Soil 0-7ft	GP-80	GP-80	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J	0.00626	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.9	1	Soil 0-7ft	GP-35	GP-35 (4-5)-20141204	N	12/4/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.5	2
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.11	0	Soil 0-7ft	GP-7	GP-7 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.11	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.0451	1	Soil 0-7ft	GP-93	GP-93	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.0065	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.1	0	Soil 0-7ft	GP-23	GP-23 (2-3)-20141203	N	12/3/2014	2	3	12/9/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.1	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.51	1	Soil 0-7ft	GP-82	GP-82	N	10/17/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.0676	10
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	2.1	1	Soil 0-7ft	GP-24	GP-24 (2-3)-20141203	N	12/3/2014	2	3	12/9/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.26	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00639	0	Soil 0-7ft	GP-98	GP-98	N	10/19/2018	2	3	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00639	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00624	0	Soil 0-7ft	GP-82	GP-82	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00624	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00626	0	Soil 0-7ft	GP-81	GP-81	N	10/17/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00626	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.816	1	Soil 0-7ft	GP-99	GP-99	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.0306	5
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.13	0	Soil 0-7ft	GP-12	GP-12 (4-5)-20141202	N	12/2/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.13	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	1.96	1	Soil 0-7ft	GP-67	GP-67	N	10/19/2018	2	3	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.138	20
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.12	0	Soil 0-7ft	GP-42	GP-42 (4-5)-20141204	N	12/4/2014	4	5	1/5/2015	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.12	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	10	1	Soil 0-7ft	GP-31	GP-31 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	1.2	5
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00739	0	Soil 0-7ft	GP-68	GP-68	N	10/19/2018	3	4	11/8/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00739	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.137	1	Soil 0-7ft	GP-102	GP-102	N	10/16/2018	4	5	11/5/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00708	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.12	1	Soil 0-7ft	GP-38	GP-38 (2-3)-20141204	N	12/4/2014	2	3	12/10/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.19	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00635	0	Soil 0-7ft	GP-59	GP-59 (2-3)-20141205	N	12/5/2014	2	3	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.24	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.13	0	Soil 0-7ft	GP-70	GP-70	N	10/18/2018	2	3	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00635	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.11	0	Soil 0-7ft	GP-4	GP-4 (2-3)-20141202	N	12/2/2014	2	3	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.13	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.11	0	Soil 0-7ft	GP-30	GP-30 (2-3)-20141203	N	12/3/2014	2	3	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.11	1
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.76	1	Soil 0-7ft	GP-66	GP-66	N	10/16/2018	2	3	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.0624	10
Soil 0-7ft_PCB-1260 (Aroclor 1260), 11096-82-5	0.00689	0	Soil 0-7ft	GP-68	GP-68	N	10/19/2018	2	3	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00689	1
Soil 0-7ft_PCB-1260 (Aroclor																

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set. The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value. The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0576	0	Soil 0-7ft	GP-93	101718_GP-93_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0576	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.108	0	Soil 0-7ft	GP-86	101818_GP-86_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.108	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00956	0	Soil 0-7ft	GP-80	101618_GP-80_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00956	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.23	0	Soil 0-7ft	GP-52	GP-52 (0-1)-20141205	N	12/5/2014	0	1	12/2/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.23	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.053	0	Soil 0-7ft	GP-48	GP-48 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.053	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0105	0	Soil 0-7ft	GP-92	101718_GP-92_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0105	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0244	0	Soil 0-7ft	GP-82	101718_GP-82_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0244	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.244	0	Soil 0-7ft	GP-94	101618_GP-94_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.244	50
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0525	0	Soil 0-7ft	GP-62	101918_GP-62_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0525	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	1.98	1	Soil 0-7ft	GP-89	101818_GP-89_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J	0.0502	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.104	0	Soil 0-7ft	GP-90	101818_GP-90_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.104	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	3	1	Soil 0-7ft	GP-73	101818_GP-73_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.057	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.042	0	Soil 0-7ft	GP-15	GP-15 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.042	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.1	0	Soil 0-7ft	GP-9	GP-9 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.1	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0499	0	Soil 0-7ft	GP-109	101718_GP-109_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0499	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.1	0	Soil 0-7ft	GP-110	101818_GP-110_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.1	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00468	0	Soil 0-7ft	GP-72	101818_GP-72_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00468	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00539	0	Soil 0-7ft	GP-102	101618_GP-102_0-1	N	10/16/2018	0	1	10/22/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00539	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.086	0	Soil 0-7ft	GP-12	GP-12 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.086	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.21	0	Soil 0-7ft	GP-40	GP-40 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.21	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.044	0	Soil 0-7ft	GP-4	GP-4 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.044	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.00501	0	Soil 0-7ft	GP-71	101818_GP-71_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.00501	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.043	0	Soil 0-7ft	GP-14	GP-14 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.043	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	1.02	1	Soil 0-7ft	GP-75	101918_GP-75_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0272	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.386	1	Soil 0-7ft	GP-76	101918_GP-76_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J	0.059	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.082	0	Soil 0-7ft	GP-104	GP-104 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.082	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0525	0	Soil 0-7ft	GP-66	101618_GP-66_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0525	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.101	0	Soil 0-7ft	GP-67	101918_GP-67_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.101	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0469	0	Soil 0-7ft	GP-99	101918_GP-99_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0469	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.052	0	Soil 0-7ft	GP-16	GP-16 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.052	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.087	0	Soil 0-7ft	GP-54	GP-54 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.087	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0252	0	Soil 0-7ft	GP-65	101618_GP-65_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0252	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.566	0	Soil 0-7ft	GP-100	101918_GP-100_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.566	100
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0261	0	Soil 0-7ft	GP-108	101718_GP-108_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0261	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	13.1	1	Soil 0-7ft	GP-105	101718_GP-105_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.252	50
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.271	0	Soil 0-7ft	GP-105	101718_GP-105_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.271	50
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.089	0	Soil 0-7ft	GP-34	GP-34 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.089	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.101	0	Soil 0-7ft	GP-103	101818_GP-103_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.101	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.095	0	Soil 0-7ft	GP-41	GP-41 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.095	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.083	0	Soil 0-7ft	GP-55	GP-55 (0-1)-20141205	N	12/5/2014	0	1	12/2/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.083	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.046	0	Soil 0-7ft	GP-42	GP-42 (0-1)-20141204	N	12/4/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.046	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.1	0	Soil 0-7ft	GP-13	GP-13 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.1	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0522	0	Soil 0-7ft	GP-70	101818_GP-70_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0522	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0573	0	Soil 0-7ft	GP-69	101818_GP-69_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0573	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.547	1	Soil 0-7ft	GP-68	101918_GP-68_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	J	0.0512	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0266	0	Soil 0-7ft	GP-106	101718_GP-106_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0266	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.0533	0	Soil 0-7ft	GP-108	101718_GP-108_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.0533	10
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.087	0	Soil 0-7ft	GP-57	GP-57 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.087	2
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.052	0	Soil 0-7ft	GP-58	GP-58 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.052	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.041	0	Soil 0-7ft	GP-7	GP-7 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.041	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.047	0	Soil 0-7ft	GP-20	GP-20 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.047	1
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.26	0	Soil 0-7ft	GP-30	GP-30 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.26	5
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.92	0	Soil 0-7ft	GP-38	GP-38 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.92	20
Soil 0-7ft_PCB-1242 (Aroclor 1242), 53469-21-9	0.11	0	Soil 0-7ft	GP-59	GP-59 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1242 (Aroclor 1242)	53469-21-9	U	0.11	2
Soil																

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.116	0	Soil 0-7ft	GP-90	101818_GP-90_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.116	20
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0637	0	Soil 0-7ft	GP-69	101818_GP-69_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0637	10
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.005	0	Soil 0-7ft	GP-64	101618_GP-64_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.005	1
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	2.73	0	Soil 0-7ft	GP-79	101618_GP-79_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.73	500
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0116	0	Soil 0-7ft	GP-92	101718_GP-92_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0116	2
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0291	0	Soil 0-7ft	GP-108	101718_GP-108_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0291	5
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0283	0	Soil 0-7ft	GP-104	101718_GP-104_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0283	5
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0641	0	Soil 0-7ft	GP-93	101718_GP-93_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0641	10
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.113	0	Soil 0-7ft	GP-91	101718_GP-91_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.113	20
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.00521	0	Soil 0-7ft	GP-72	101818_GP-72_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.00521	1
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0675	0	Soil 0-7ft	GP-77	101718_GP-77_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0675	10
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.055	0	Soil 0-7ft	GP-107	101718_GP-107_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.055	10
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.058	0	Soil 0-7ft	GP-70	101818_GP-70_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.058	10
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0559	0	Soil 0-7ft	GP-89	101818_GP-89_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0559	10
Soil 0-7ft_PCB-1248 (Aroclor 1248), 12672-29-6	0.0593	0	Soil 0-7ft	GP-108	101718_GP-108_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1248 (Aroclor 1248)	12672-29-6	U	0.0593	10
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	5.3	1	Soil 0-7ft	GP-22	GP-22 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.25	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	7.1	1	Soil 0-7ft	GP-23	GP-23 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1.6	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4.9	1	Soil 0-7ft	GP-30	GP-30 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1.3	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	11	1	Soil 0-7ft	GP-32	GP-32 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.4	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4.8	1	Soil 0-7ft	GP-21	GP-21 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.93	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	6.5	1	Soil 0-7ft	GP-28	GP-28 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.27	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	8.8	1	Soil 0-7ft	GP-26	GP-26 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.4	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.4	1	Soil 0-7ft	GP-27	GP-27 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	1.9	1	Soil 0-7ft	GP-25	GP-25 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.26	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4.9	1	Soil 0-7ft	GP-24	GP-24 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1.2	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	6.2	1	Soil 0-7ft	GP-45	GP-45 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	JN	5.6	20
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	16	1	Soil 0-7ft	GP-29	GP-29 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1.2	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	6.2	1	Soil 0-7ft	GP-47	GP-47 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.4	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	7.2	1	Soil 0-7ft	GP-50	GP-50 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.54	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4.2	1	Soil 0-7ft	GP-6	GP-6 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	1.7	1	Soil 0-7ft	GP-58	GP-58 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.27	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	5	1	Soil 0-7ft	GP-8	GP-8 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.24	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.8	1	Soil 0-7ft	GP-1	GP-1 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.2	1	Soil 0-7ft	GP-42	GP-42 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.23	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	3.6	1	Soil 0-7ft	GP-53	GP-53 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.39	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	3.8	1	Soil 0-7ft	GP-15	GP-15 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.21	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	7.4	1	Soil 0-7ft	GP-9	GP-9 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.52	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4.9	1	Soil 0-7ft	GP-54	GP-54 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.45	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	5.4	1	Soil 0-7ft	GP-59	GP-59 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.55	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	1.4	1	Soil 0-7ft	GP-56	GP-56 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.25	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	5.7	1	Soil 0-7ft	GP-57	GP-57 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.45	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.3	1	Soil 0-7ft	GP-61	GP-61 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.2	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	1.5	1	Soil 0-7ft	GP-36	GP-36 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.24	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	6.1	1	Soil 0-7ft	GP-7	GP-7 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.21	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	5.5	1	Soil 0-7ft	GP-39	GP-39 (7-18)-20141204	N	12/4/2014	0.58	1.5	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1.1	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	5.3	1	Soil 0-7ft	GP-37	GP-37 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1.3	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	2.8	1	Soil 0-7ft	GP-14	GP-14 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.22	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	6.5	1	Soil 0-7ft	GP-2	GP-2 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.41	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	10	1	Soil 0-7ft	GP-19	GP-19 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	1.1	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	4	1	Soil 0-7ft	GP-34	GP-34 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.45	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	3.3	1	Soil 0-7ft	GP-20	GP-20 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.24	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	3.8	1	Soil 0-7ft	GP-33	GP-33 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	0.48	2
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	3.1	1	Soil 0-7ft	GP-35	GP-35 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J-	1	5
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	1.8	1	Soil 0-7ft	GP-31	GP-31 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1254 (Aroclor 1254)	11097-69-1	J+	0.19	1
Soil 0-7ft_PCB-1254 (Aroclor 1254), 11097-69-1	3.4	1	Soil 0-7ft	GP-40	GP-40 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1254 (Aro				

TABLE B.1
DATA INPUT FOR PROUCL SOFTWARE
700 SMITH BOULEVARD, ALBANY, NY 12202
PATHWAY ANALYSIS REPORT

Notes:
The data set provided here are for constituents of potential concern (COPCs) that were determined in the initial screening of site-wide data to calculate 95% upper confidence limits (UCLs) using USEPA ProUCL software for the risk assessment. This is not a complete data set.
The maximum of the field duplicate and parent sample pairs were applied and a detect was chosen over a non-detect value.
The detection limit is the quantitation limit. If not available, the method detection limit is applied; otherwise, the reporting limit is applied.

ProUCL Group	ProUCL Result (mg/kg)	ProUCL Flag	Soil Zone	Location	Sample ID	Sample Type	Sample Date	Start Depth (ft)	End Depth (ft)	Analysis Date	Analytical Method	COPC	CASRN	Qualifier	Detection Limit (mg/kg)	Dilution Factor
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.1	1	Soil 0-7ft	GP-67	101918-GP-67_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.138	20
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	3.5	1	Soil 0-7ft	GP-52	GP-52 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		1.2	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.3	1	Soil 0-7ft	GP-56	GP-56 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.25	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.93	1	Soil 0-7ft	GP-5	GP-5 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.23	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	140	1	Soil 0-7ft	GP-45	GP-45 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		5.6	20
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.69	1	Soil 0-7ft	GP-66	101618_GP-66_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0719	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.52	1	Soil 0-7ft	GP-49	GP-49 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.27	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.3	1	Soil 0-7ft	GP-48	GP-48 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.27	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	3.7	1	Soil 0-7ft	GP-53	GP-53 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.39	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.00617	0	Soil 0-7ft	GP-64	101618_GP-64_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00617	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.7	1	Soil 0-7ft	GP-47	GP-47 (0-1)-20141205	N	12/5/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.4	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	3.07	1	Soil 0-7ft	GP-73	101818_GP-73_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0792	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.6	1	Soil 0-7ft	GP-55	GP-55 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.42	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	6.65	1	Soil 0-7ft	GP-95	101618_GP-95_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.14	20
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.138	0	Soil 0-7ft	GP-110	101818_GP-110_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.138	20
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.00629	0	Soil 0-7ft	GP-63	101618_GP-63_0-1	N	10/16/2018	0	1	10/24/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.00629	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.05	1	Soil 0-7ft	GP-107	101718_GP-107_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0677	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2	1	Soil 0-7ft	GP-6	GP-6 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.23	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.78	1	Soil 0-7ft	GP-4	GP-4 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.22	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.5	1	Soil 0-7ft	GP-59	GP-59 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.55	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.12	1	Soil 0-7ft	GP-96	101618_GP-96_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0651	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.7	1	Soil 0-7ft	GP-70	101818_GP-70_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.0715	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.73	1	Soil 0-7ft	GP-109	101718_GP-109_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0684	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	5.98	1	Soil 0-7ft	GP-105	101718_GP-105_1-2	N	10/17/2018	1	2	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.346	50
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.815	1	Soil 0-7ft	GP-65	101618_GP-65_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.0346	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.585	1	Soil 0-7ft	GP-106	101718_GP-106_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0364	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.2	1	Soil 0-7ft	GP-41	GP-41 (0-1)-20141204	N	12/4/2014	0	1	12/11/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.49	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	4.3	1	Soil 0-7ft	GP-3	GP-3 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.57	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.25	1	Soil 0-7ft	GP-68	101918_GP-68_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0703	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.31	1	Soil 0-7ft	GP-69	101818_GP-69_0-1	N	10/18/2018	0	1	10/27/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0785	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.47	1	Soil 0-7ft	GP-102	101618_GP-102_0-1	N	10/16/2018	0	1	10/22/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.00739	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	3	1	Soil 0-7ft	GP-40	GP-40 (0-1)-20141204	N	12/4/2014	0	1	12/10/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	1.1	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.07	1	Soil 0-7ft	GP-108	101718_GP-108_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0358	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.24	1	Soil 0-7ft	GP-78	101618_GP-78_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0667	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	5.78	1	Soil 0-7ft	GP-93	101718_GP-93_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.079	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.9	1	Soil 0-7ft	GP-11	GP-11 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.53	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	3.3	1	Soil 0-7ft	GP-61	GP-61 (0-1)-20141205	N	12/5/2014	0	1	12/12/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		1.2	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	7	1	Soil 0-7ft	GP-19	GP-19 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	1.1	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	28.8	1	Soil 0-7ft	GP-79	101618_GP-79_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		3.37	500
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.01	1	Soil 0-7ft	GP-75	101918_GP-75_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.0373	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.08	1	Soil 0-7ft	GP-84	101718_GP-84_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.0701	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.21	1	Soil 0-7ft	GP-77	101918_GP-77_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0832	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.2	1	Soil 0-7ft	GP-25	GP-25 (0-1)-20141203	N	12/3/2014	0	1	12/9/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.26	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.93	1	Soil 0-7ft	GP-14	GP-14 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.22	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.109	1	Soil 0-7ft	GP-98	101918_GP-98_0-1	N	10/19/2018	0	1	11/1/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.00641	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.51	1	Soil 0-7ft	GP-74	101818_GP-74_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0664	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.652	1	Soil 0-7ft	GP-80	101618_GP-80_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0131	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	1.78	1	Soil 0-7ft	GP-82	101718_GP-82_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0334	5
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.338	0	Soil 0-7ft	GP-81	101618_GP-81_0-1	N	10/16/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	U	0.338	50
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	6.1	1	Soil 0-7ft	GP-86	101818_GP-86_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.148	20
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2	1	Soil 0-7ft	GP-18	GP-18 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.19	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.8	1	Soil 0-7ft	GP-10	GP-10 (0-1)-20141202	N	12/2/2014	0	1	12/4/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J-	0.44	2
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	3.54	1	Soil 0-7ft	GP-89	101818_GP-89_0-1	N	10/18/2018	0	1	10/30/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5		0.0689	10
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	2.4	1	Soil 0-7ft	GP-15	GP-15 (0-1)-20141203	N	12/3/2014	0	1	12/8/2014	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.21	1
Soil 0-7ft_PCB-1260 (Aroclor 1260)_11096-82-5	0.852	1	Soil 0-7ft	GP-92	101718_GP-92_0-1	N	10/17/2018	0	1	10/26/2018	SW8082A	PCB-1260 (Aroclor 1260)	11096-82-5	J+	0.0143	2
Soil 0-7ft_PCB-1																

UCL Statistics for Data Sets with Non-Detects			
User Selected Options			
Date/Time of Computation	ProUCL 5.112/5/2018 10:24:26 AM		
From File	WorkSheet.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
result (surface soil 0-2ft_pcb-1242 (aroclor 1242)_53469-21-9)			
General Statistics			
Total Number of Observations	114	Number of Distinct Observations	84
Number of Detects	8	Number of Non-Detects	106
Number of Distinct Detects	8	Number of Distinct Non-Detects	76
Minimum Detect	0.386	Minimum Non-Detect	0.0045
Maximum Detect	18	Maximum Non-Detect	2.46
Variance Detects	46.09	Percent Non-Detects	92.98%
Mean Detects	4.847	SD Detects	6.789
Median Detects	1.5	CV Detects	1.401
Skewness Detects	1.531	Kurtosis Detects	0.892
Mean of Logged Detects	0.677	SD of Logged Detects	1.431
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.705	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.357	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	0.345	KM Standard Error of Mean	0.209
KM SD	2.088	95% KM (BCA) UCL	0.765
95% KM (t) UCL	0.692	95% KM (Percentile Bootstrap) UCL	0.691
95% KM (z) UCL	0.689	95% KM Bootstrap t UCL	1.874
90% KM Chebyshev UCL	0.972	95% KM Chebyshev UCL	1.257
97.5% KM Chebyshev UCL	1.651	99% KM Chebyshev UCL	2.426
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.619	Anderson-Darling GOF Test	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.227	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.306	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.674	k star (bias corrected MLE)	0.504
Theta hat (MLE)	7.194	Theta star (bias corrected MLE)	9.609
nu hat (MLE)	10.78	nu star (bias corrected)	8.071
Mean (detects)	4.847		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.349
Maximum	18	Median	0.01
SD	2.096	CV	6
k hat (MLE)	0.227	k star (bias corrected MLE)	0.227
Theta hat (MLE)	1.542	Theta star (bias corrected MLE)	1.542
nu hat (MLE)	51.68	nu star (bias corrected)	51.66
Adjusted Level of Significance (β)	0.0479		
Approximate Chi Square Value (51.66, α)	36.15	Adjusted Chi Square Value (51.66, β)	35.98
95% Gamma Approximate UCL (use when $n \geq 50$)	0.499	95% Gamma Adjusted UCL (use when $n < 50$)	0.502
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	0.345	SD (KM)	2.088
Variance (KM)	4.36	SE of Mean (KM)	0.209
k hat (KM)	0.0273	k star (KM)	0.0324
nu hat (KM)	6.229	nu star (KM)	7.398
theta hat (KM)	12.63	theta star (KM)	10.64
80% gamma percentile (KM)	0.00633	90% gamma percentile (KM)	0.244
95% gamma percentile (KM)	1.432	99% gamma percentile (KM)	8.719
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (7.40, α)	2.392		2.355
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	1.068	95% Gamma Adjusted KM-UCL (use when $n < 50$)	1.084
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.909	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.177	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.283	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.341	Mean in Log Scale	-6.97
SD in Original Scale	2.098	SD in Log Scale	2.513
95% t UCL (assumes normality of ROS data)	0.667	95% Percentile Bootstrap UCL	0.696
95% BCA Bootstrap UCL	0.814	95% Bootstrap t UCL	2.282
95% H-UCL (Log ROS)	0.0566		

TABLE B.2
 PROUCL OUTPUT FOR SURFACE SOIL (0-2 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-4.971	KM Geo Mean	0.00693
KM SD (logged)	1.6	95% Critical H Value (KM-Log)	2.848
KM Standard Error of Mean (logged)	0.161	95% H-UCL (KM -Log)	0.0383
KM SD (logged)	1.6	95% Critical H Value (KM-Log)	2.848
KM Standard Error of Mean (logged)	0.161		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.402	Mean in Log Scale	-3.138
SD in Original Scale	2.092	SD in Log Scale	1.581
95% t UCL (Assumes normality)	0.727	95% H-Stat UCL	0.23
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Gamma Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM Approximate Gamma UCL	1.068		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
result (surface soil 0-2ft_pcb-1248 (aroclor 1248)_12672-29-6)			
General Statistics			
Total Number of Observations	114	Number of Distinct Observations	94
Number of Detects	57	Number of Non-Detects	57
Number of Distinct Detects	41	Number of Distinct Non-Detects	53
Minimum Detect	0.8	Minimum Non-Detect	0.005
Maximum Detect	25	Maximum Non-Detect	2.73
Variance Detects	16.27	Percent Non-Detects	50%
Mean Detects	5.574	SD Detects	4.033
Median Detects	4.6	CV Detects	0.724
Skewness Detects	2.113	Kurtosis Detects	8.273
Mean of Logged Detects	1.473	SD of Logged Detects	0.742
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.838	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	3.4983E-8	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.121	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.117	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	2.793	KM Standard Error of Mean	0.375
KM SD	3.966	95% KM (BCA) UCL	3.431
95% KM (t) UCL	3.414	95% KM (Percentile Bootstrap) UCL	3.424
95% KM (z) UCL	3.409	95% KM Bootstrap t UCL	3.527
90% KM Chebyshev UCL	3.917	95% KM Chebyshev UCL	4.426
97.5% KM Chebyshev UCL	5.133	99% KM Chebyshev UCL	6.522
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.455	Anderson-Darling GOF Test	
5% A-D Critical Value	0.762	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0852	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.119	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	2.189	k star (bias corrected MLE)	2.086
Theta hat (MLE)	2.546	Theta star (bias corrected MLE)	2.673
nu hat (MLE)	249.5	nu star (bias corrected)	237.7
Mean (detects)	5.574		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	2.792
Maximum	25	Median	0.405
SD	3.984	CV	1.427
k hat (MLE)	0.27	k star (bias corrected MLE)	0.269
Theta hat (MLE)	10.32	Theta star (bias corrected MLE)	10.37
nu hat (MLE)	61.67	nu star (bias corrected)	61.38
Adjusted Level of Significance (β)	0.0479		
Approximate Chi Square Value (61.38, α)	44.36	Adjusted Chi Square Value (61.38, β)	44.17
95% Gamma Approximate UCL (use when $n \geq 50$)	3.863	95% Gamma Adjusted UCL (use when $n < 50$)	3.879
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	2.793	SD (KM)	3.966
Variance (KM)	15.73	SE of Mean (KM)	0.375
k hat (KM)	0.496	k star (KM)	0.488
nu hat (KM)	113	nu star (KM)	111.4
theta hat (KM)	5.634	theta star (KM)	5.717
80% gamma percentile (KM)	4.581	90% gamma percentile (KM)	7.592
95% gamma percentile (KM)	10.82	99% gamma percentile (KM)	18.77
Gamma Kaplan-Meier (KM) Statistics			

TABLE B.2
 PROUCL OUTPUT FOR SURFACE SOIL (0-2 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Approximate Chi Square Value (111.38, α)	88.02	Adjusted Chi Square Value (111.38, β)	87.75
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	3.534	95% Gamma Adjusted KM-UCL (use when $n < 50$)	3.544
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.961	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0.134	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0965	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.117	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	3.166	Mean in Log Scale	0.594
SD in Original Scale	3.73	SD in Log Scale	1.029
95% t UCL (assumes normality of ROS data)	3.746	95% Percentile Bootstrap UCL	3.777
95% BCA Bootstrap UCL	3.84	95% Bootstrap t UCL	3.813
95% H-UCL (Log ROS)	3.824		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-1.902	KM Geo Mean	0.149
KM SD (logged)	3.423	95% Critical H Value (KM-Log)	5.185
KM Standard Error of Mean (logged)	0.324	95% H-UCL (KM -Log)	278.1
KM SD (logged)	3.423	95% Critical H Value (KM-Log)	5.185
KM Standard Error of Mean (logged)	0.324		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.825	Mean in Log Scale	-1.05
SD in Original Scale	3.962	SD in Log Scale	2.765
95% t UCL (Assumes normality)	3.441	95% H-Stat UCL	48.98
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Gamma Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM Approximate Gamma UCL	3.534	95% GROS Approximate Gamma UCL	3.863
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			
result (surface soil 0-2ft_pcb-1254 (aroclor 1254)_11097-69-1)			
General Statistics			
Total Number of Observations	114	Number of Distinct Observations	89
Number of Detects	109	Number of Non-Detects	5
Number of Distinct Detects	85	Number of Distinct Non-Detects	4
Minimum Detect	0.00693	Minimum Non-Detect	0.00365
Maximum Detect	74.2	Maximum Non-Detect	0.46
Variance Detects	85.06	Percent Non-Detects	4.386%
Mean Detects	5.701	SD Detects	9.223
Median Detects	3.96	CV Detects	1.618
Skewness Detects	6.042	Kurtosis Detects	40.39
Mean of Logged Detects	1.239	SD of Logged Detects	1.126
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.413	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.308	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0852	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	5.451	KM Standard Error of Mean	0.852
KM SD	9.052	95% KM (BCA) UCL	7.037
95% KM (t) UCL	6.864	95% KM (Percentile Bootstrap) UCL	6.979
95% KM (z) UCL	6.852	95% KM Bootstrap t UCL	8.965
90% KM Chebyshev UCL	8.006	95% KM Chebyshev UCL	9.164
97.5% KM Chebyshev UCL	10.77	99% KM Chebyshev UCL	13.93
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	3.614	Anderson-Darling GOF Test	
5% A-D Critical Value	0.78	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.156	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0895	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	1.135	k star (bias corrected MLE)	1.11
Theta hat (MLE)	5.024	Theta star (bias corrected MLE)	5.137
nu hat (MLE)	247.4	nu star (bias corrected)	241.9
Mean (detects)	5.701		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.00693	Mean	5.451
Maximum	74.2	Median	3.75
SD	9.092	CV	1.668
k hat (MLE)	0.829	k star (bias corrected MLE)	0.813

TABLE B.2
 PROUCL OUTPUT FOR SURFACE SOIL (0-2 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Theta hat (MLE)	6.579	Theta star (bias corrected MLE)	6.708
nu hat (MLE)	188.9	nu star (bias corrected)	185.3
Adjusted Level of Significance (β)	0.0479		
Approximate Chi Square Value (185.28, α)	154.8	Adjusted Chi Square Value (185.28, β)	154.4
95% Gamma Approximate UCL (use when $n \geq 50$)	6.525	95% Gamma Adjusted UCL (use when $n < 50$)	6.54
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	5.451	SD (KM)	9.052
Variance (KM)	81.94	SE of Mean (KM)	0.852
k hat (KM)	0.363	k star (KM)	0.359
nu hat (KM)	82.67	nu star (KM)	81.83
theta hat (KM)	15.03	theta star (KM)	15.19
80% gamma percentile (KM)	8.667	90% gamma percentile (KM)	15.68
95% gamma percentile (KM)	23.5	99% gamma percentile (KM)	43.41
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (81.83, α)	61.98	Adjusted Chi Square Value (81.83, β)	61.76
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	7.196	95% Gamma Adjusted KM-UCL (use when $n < 50$)	7.222
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.847	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.143	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0852	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	5.466	Mean in Log Scale	1.138
SD in Original Scale	9.084	SD in Log Scale	1.199
95% t UCL (assumes normality of ROS data)	6.877	95% Percentile Bootstrap UCL	6.922
95% BCA Bootstrap UCL	7.759	95% Bootstrap t UCL	8.753
95% H-UCL (Log ROS)	8.4		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	0.947	KM Geo Mean	2.577
KM SD (logged)	1.756	95% Critical H Value (KM-Log)	3.03
KM Standard Error of Mean (logged)	0.166	95% H-UCL (KM -Log)	19.88
KM SD (logged)	1.756	95% Critical H Value (KM-Log)	3.03
KM Standard Error of Mean (logged)	0.166		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5.453	Mean in Log Scale	0.952
SD in Original Scale	9.091	SD in Log Scale	1.786
95% t UCL (Assumes normality)	6.865	95% H-Stat UCL	21.35
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (Chebyshev) UCL	9.164		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			
result (surface soil 0-2ft_pcb-1260 (aroclor 1260)_11096-82-5)			
General Statistics			
Total Number of Observations	114	Number of Distinct Observations	87
Number of Detects	108	Number of Non-Detects	6
Number of Distinct Detects	81	Number of Distinct Non-Detects	6
Minimum Detect	0.00675	Minimum Non-Detect	0.00617
Maximum Detect	140	Maximum Non-Detect	0.372
Variance Detects	193	Percent Non-Detects	5.263%
Mean Detects	4.355	SD Detects	13.89
Median Detects	2.2	CV Detects	3.19
Skewness Detects	9.017	Kurtosis Detects	87.1
Mean of Logged Detects	0.703	SD of Logged Detects	1.145
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.233	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.377	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0855	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	4.127	KM Standard Error of Mean	1.27
KM SD	13.49	95% KM (BCA) UCL	6.577
95% KM (t) UCL	6.233	95% KM (Percentile Bootstrap) UCL	6.461
95% KM (z) UCL	6.215	95% KM Bootstrap t UCL	11.68
90% KM Chebyshev UCL	7.936	95% KM Chebyshev UCL	9.662
97.5% KM Chebyshev UCL	12.06	99% KM Chebyshev UCL	16.76
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	7.647	Anderson-Darling GOF Test	
5% A-D Critical Value	0.794	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.218	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0907	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

TABLE B.2
 PROUCL OUTPUT FOR SURFACE SOIL (0-2 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.776	k star (bias corrected MLE)	0.761
Theta hat (MLE)	5.612	Theta star (bias corrected MLE)	5.726
nu hat (MLE)	167.6	nu star (bias corrected)	164.3
Mean (detects)	4.355		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.00675	Mean	4.126
Maximum	140	Median	2.08
SD	13.55	CV	3.285
k hat (MLE)	0.619	k star (bias corrected MLE)	0.609
Theta hat (MLE)	6.665	Theta star (bias corrected MLE)	6.779
nu hat (MLE)	141.2	nu star (bias corrected)	138.8
Adjusted Level of Significance (β)	0.0479		
Approximate Chi Square Value (138.77, α)	112.6	Adjusted Chi Square Value (138.77, β)	112.3
95% Gamma Approximate UCL (use when $n \geq 50$)	5.087	95% Gamma Adjusted UCL (use when $n < 50$)	5.101
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	4.127	SD (KM)	13.49
Variance (KM)	182.1	SE of Mean (KM)	1.27
k hat (KM)	0.0935	k star (KM)	0.0969
nu hat (KM)	21.32	nu star (KM)	22.1
theta hat (KM)	44.12	theta star (KM)	42.58
80% gamma percentile (KM)	2.734	90% gamma percentile (KM)	10.84
95% gamma percentile (KM)	23.99	99% gamma percentile (KM)	66.59
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (22.10, α)	12.41	Adjusted Chi Square Value (22.10, β)	12.32
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	7.348	95% Gamma Adjusted KM-UCL (use when $n < 50$)	7.403
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.896	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	2.624E-10	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.123	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0855	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	4.136	Mean in Log Scale	0.581
SD in Original Scale	13.55	SD in Log Scale	1.231
95% t UCL (assumes normality of ROS data)	6.241	95% Percentile Bootstrap UCL	6.462
95% BCA Bootstrap UCL	8.473	95% Bootstrap t UCL	11.89
95% H-UCL (Log ROS)	5.062		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	0.429	KM Geo Mean	1.536
KM SD (logged)	1.627	95% Critical H Value (KM-Log)	2.878
KM Standard Error of Mean (logged)	0.155	95% H-UCL (KM -Log)	8.962
KM SD (logged)	1.627	95% Critical H Value (KM-Log)	2.878
KM Standard Error of Mean (logged)	0.155		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	4.129	Mean in Log Scale	0.461
SD in Original Scale	13.55	SD in Log Scale	1.58
95% t UCL (Assumes normality)	6.235	95% H-Stat UCL	8.407
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (Chebyshev) UCL	9.662		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			

TABLE B.3
 PROUCL OUTPUT FOR SOIL (0-7 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

UCL Statistics for Data Sets with Non-Detects			
User Selected Options			
Date/Time of Computation	ProUCL 5.112/5/2018 10:28:29 AM		
From File	WorkSheet.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
result (soil 0-7ft_pcb-1242 (aroclor 1242)_53469-21-9)			
General Statistics			
Total Number of Observations	305	Number of Distinct Observations	175
Number of Detects	30	Number of Non-Detects	275
Number of Distinct Detects	30	Number of Distinct Non-Detects	146
Minimum Detect	0.038	Minimum Non-Detect	0.00438
Maximum Detect	20	Maximum Non-Detect	2.7
Variance Detects	26.1	Percent Non-Detects	90.16%
Mean Detects	3.54	SD Detects	5.109
Median Detects	2.015	CV Detects	1.443
Skewness Detects	2.279	Kurtosis Detects	4.661
Mean of Logged Detects	0.307	SD of Logged Detects	1.595
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.662	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.927	Detected Data Not Normal at 5% Significance Level	
	0.269	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.159	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	0.353	KM Standard Error of Mean	0.11
KM SD	1.895	95% KM (BCA) UCL	0.576
95% KM (t) UCL	0.535	95% KM (Percentile Bootstrap) UCL	0.537
95% KM (z) UCL	0.535	95% KM Bootstrap t UCL	0.659
90% KM Chebyshev UCL	0.684	95% KM Chebyshev UCL	0.834
97.5% KM Chebyshev UCL	1.042	99% KM Chebyshev UCL	1.451
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.458	Anderson-Darling GOF Test	
5% A-D Critical Value	0.797	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.111	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.168	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.64	k star (bias corrected MLE)	0.598
Theta hat (MLE)	5.535	Theta star (bias corrected MLE)	5.922
nu hat (MLE)	38.37	nu star (bias corrected)	35.87
Mean (detects)	3.54		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.357
Maximum	20	Median	0.01
SD	1.897	CV	5.311
k hat (MLE)	0.232	k star (bias corrected MLE)	0.232
Theta hat (MLE)	1.537	Theta star (bias corrected MLE)	1.538
nu hat (MLE)	141.8	nu star (bias corrected)	141.7
Adjusted Level of Significance (β)	0.0492		
Approximate Chi Square Value (141.70, α)	115.2	Adjusted Chi Square Value (141.70, β)	115.1
95% Gamma Approximate UCL (use when $n \geq 50$)	0.439	95% Gamma Adjusted UCL (use when $n < 50$)	0.44
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	0.353	SD (KM)	1.895
Variance (KM)	3.591	SE of Mean (KM)	0.11
k hat (KM)	0.0347	k star (KM)	0.0366
nu hat (KM)	21.19	nu star (KM)	22.32
theta hat (KM)	10.17	theta star (KM)	9.654
80% gamma percentile (KM)	0.0125	90% gamma percentile (KM)	0.324
95% gamma percentile (KM)	1.603	99% gamma percentile (KM)	8.6
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (22.32, α)	12.58	Adjusted Chi Square Value (22.32, β)	12.54
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	0.627	95% Gamma Adjusted KM-UCL (use when $n < 50$)	0.629
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.962	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.927	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.127	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.159	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.352	Mean in Log Scale	-6.177
SD in Original Scale	1.898	SD in Log Scale	2.741
95% t UCL (assumes normality of ROS data)	0.531	95% Percentile Bootstrap UCL	0.541
95% BCA Bootstrap UCL	0.6	95% Bootstrap t UCL	0.639
95% H-UCL (Log ROS)	0.165		

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-4.842	KM Geo Mean	0.00789
KM SD (logged)	1.79	95% Critical H Value (KM-Log)	2.863
KM Standard Error of Mean (logged)	0.106	95% H-UCL (KM -Log)	0.0526
KM SD (logged)	1.79	95% Critical H Value (KM-Log)	2.863
KM Standard Error of Mean (logged)	0.106		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.388	Mean in Log Scale	-3.689
SD in Original Scale	1.895	SD in Log Scale	1.933
95% t UCL (Assumes normality)	0.567	95% H-Stat UCL	0.226
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Gamma Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM Approximate Gamma UCL	0.627		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness.</p> <p>These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			
result (soil 0-7ft_pcb-1248 (aroclor 1248)_12672-29-6)			
General Statistics			
Total Number of Observations	305	Number of Distinct Observations	204
Number of Detects	83	Number of Non-Detects	222
Number of Distinct Detects	60	Number of Distinct Non-Detects	145
Minimum Detect	0.0143	Minimum Non-Detect	0.00487
Maximum Detect	35	Maximum Non-Detect	2.73
Variance Detects	27.28	Percent Non-Detects	72.79%
Mean Detects	4.955	SD Detects	5.223
Median Detects	3.5	CV Detects	1.054
Skewness Detects	3.099	Kurtosis Detects	14.46
Mean of Logged Detects	1.005	SD of Logged Detects	1.376
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.74	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.172	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0974	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	1.353	KM Standard Error of Mean	0.201
KM SD	3.491	95% KM (BCA) UCL	1.698
95% KM (t) UCL	1.685	95% KM (Percentile Bootstrap) UCL	1.723
95% KM (z) UCL	1.684	95% KM Bootstrap t UCL	1.777
90% KM Chebyshev UCL	1.956	95% KM Chebyshev UCL	2.23
97.5% KM Chebyshev UCL	2.609	99% KM Chebyshev UCL	3.354
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.576	Anderson-Darling GOF Test	
5% A-D Critical Value	0.783	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0761	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.101	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.972	k star (bias corrected MLE)	0.945
Theta hat (MLE)	5.096	Theta star (bias corrected MLE)	5.243
nu hat (MLE)	161.4	nu star (bias corrected)	156.9
Mean (detects)	4.955		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	1.356
Maximum	35	Median	0.01
SD	3.495	CV	2.578
k hat (MLE)	0.215	k star (bias corrected MLE)	0.215
Theta hat (MLE)	6.304	Theta star (bias corrected MLE)	6.302
nu hat (MLE)	131.2	nu star (bias corrected)	131.2
Adjusted Level of Significance (β)	0.0492		
Approximate Chi Square Value (131.24, α)	105.8	Adjusted Chi Square Value (131.24, β)	105.7
95% Gamma Approximate UCL (use when $n \geq 50$)	1.682	95% Gamma Adjusted UCL (use when $n < 50$)	1.684
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	1.353	SD (KM)	3.491
Variance (KM)	12.19	SE of Mean (KM)	0.201
k hat (KM)	0.15	k star (KM)	0.151
nu hat (KM)	91.63	nu star (KM)	92.07
theta hat (KM)	9.007	theta star (KM)	8.965
80% gamma percentile (KM)	1.48	90% gamma percentile (KM)	4.016
95% gamma percentile (KM)	7.438	99% gamma percentile (KM)	17.36
Gamma Kaplan-Meier (KM) Statistics			

TABLE B.3
 PROUCL OUTPUT FOR SOIL (0-7 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Approximate Chi Square Value (92.07, α)	70.94	Adjusted Chi Square Value (92.07, β)	70.85
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	1.756	95% Gamma Adjusted KM-UCL (use when $n < 50$)	1.758
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.895	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	1.2498E-7	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.149	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0974	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	1.413	Mean in Log Scale	-1.671
SD in Original Scale	3.474	SD in Log Scale	1.893
95% t UCL (assumes normality of ROS data)	1.741	95% Percentile Bootstrap UCL	1.757
95% BCA Bootstrap UCL	1.815	95% Bootstrap t UCL	1.824
95% H-UCL (Log ROS)	1.557		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-3.585	KM Geo Mean	0.0277
KM SD (logged)	2.904	95% Critical H Value (KM-Log)	4.124
KM Standard Error of Mean (logged)	0.168	95% H-UCL (KM -Log)	3.739
KM SD (logged)	2.904	95% Critical H Value (KM-Log)	4.124
KM Standard Error of Mean (logged)	0.168		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	1.376	Mean in Log Scale	-2.873
SD in Original Scale	3.489	SD in Log Scale	2.745
95% t UCL (Assumes normality)	1.705	95% H-Stat UCL	4.55
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Gamma Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM Approximate Gamma UCL	1.756		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			
result (soil 0-7ft_pcb-1254 (aroclor 1254)_11097-69-1)			
General Statistics			
Total Number of Observations	304	Number of Distinct Observations	209
Number of Detects	197	Number of Non-Detects	107
Number of Distinct Detects	157	Number of Distinct Non-Detects	53
Minimum Detect	0.00421	Minimum Non-Detect	0.00355
Maximum Detect	74.2	Maximum Non-Detect	0.46
Variance Detects	63.61	Percent Non-Detects	35.2%
Mean Detects	4.617	SD Detects	7.976
Median Detects	2.95	CV Detects	1.728
Skewness Detects	5.985	Kurtosis Detects	44.36
Mean of Logged Detects	0.398	SD of Logged Detects	2.098
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.489	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.282	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0635	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	2.995	KM Standard Error of Mean	0.389
KM SD	6.772	95% KM (BCA) UCL	3.739
95% KM (t) UCL	3.637	95% KM (Percentile Bootstrap) UCL	3.672
95% KM (z) UCL	3.635	95% KM Bootstrap t UCL	4.014
90% KM Chebyshev UCL	4.163	95% KM Chebyshev UCL	4.692
97.5% KM Chebyshev UCL	5.426	99% KM Chebyshev UCL	6.869
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	3.456	Anderson-Darling GOF Test	
5% A-D Critical Value	0.816	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.106	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0679	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.553	k star (bias corrected MLE)	0.548
Theta hat (MLE)	8.35	Theta star (bias corrected MLE)	8.427
nu hat (MLE)	217.8	nu star (bias corrected)	215.8
Mean (detects)	4.617		
Gamma ROS Statistics using Imputed Non-Detects			
<p>GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20) For such situations, GROS method may yield incorrect values of UCLs and BTVs This is especially true when the sample size is small. For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates</p>			
Minimum	0.00421	Mean	2.995
Maximum	74.2	Median	0.8
SD	6.783	CV	2.264
k hat (MLE)	0.283	k star (bias corrected MLE)	0.282

TABLE B.3
 PROUCL OUTPUT FOR SOIL (0-7 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Theta hat (MLE)	10.58	Theta star (bias corrected MLE)	10.61
nu hat (MLE)	172.1	nu star (bias corrected)	171.7
Adjusted Level of Significance (β)	0.0492		
Approximate Chi Square Value (171.71, α)	142.4	Adjusted Chi Square Value (171.71, β)	142.3
95% Gamma Approximate UCL (use when $n \geq 50$)	3.612	95% Gamma Adjusted UCL (use when $n < 50$)	3.615
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	2.995	SD (KM)	6.772
Variance (KM)	45.85	SE of Mean (KM)	0.389
k hat (KM)	0.196	k star (KM)	0.196
nu hat (KM)	118.9	nu star (KM)	119.1
theta hat (KM)	15.31	theta star (KM)	15.29
80% gamma percentile (KM)	3.902	90% gamma percentile (KM)	9.056
95% gamma percentile (KM)	15.51	99% gamma percentile (KM)	33.36
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (119.08, α)	94.88	Adjusted Chi Square Value (119.08, β)	94.78
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	3.758	95% Gamma Adjusted KM-UCL (use when $n < 50$)	3.763
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.832	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.19	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0635	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	3.007	Mean in Log Scale	-0.986
SD in Original Scale	6.777	SD in Log Scale	2.584
95% t UCL (assumes normality of ROS data)	3.648	95% Percentile Bootstrap UCL	3.684
95% BCA Bootstrap UCL	3.856	95% Bootstrap t UCL	3.923
95% H-UCL (Log ROS)	18.33		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-1.616	KM Geo Mean	0.199
KM SD (logged)	3.243	95% Critical H Value (KM-Log)	4.531
KM Standard Error of Mean (logged)	0.189	95% H-UCL (KM -Log)	88.79
KM SD (logged)	3.243	95% Critical H Value (KM-Log)	4.531
KM Standard Error of Mean (logged)	0.189		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	3.003	Mean in Log Scale	-1.279
SD in Original Scale	6.779	SD in Log Scale	3.005
95% t UCL (Assumes normality)	3.645	95% H-Stat UCL	52.87
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (Chebyshev) UCL	4.692		
<p>Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. Recommendations are based upon data size, data distribution, and skewness. These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.</p>			
result (soil 0-7ft_pcb-1260 (aroclor 1260)_11096-82-5)			
General Statistics			
Total Number of Observations	305	Number of Distinct Observations	206
Number of Detects	183	Number of Non-Detects	122
Number of Distinct Detects	137	Number of Distinct Non-Detects	70
Minimum Detect	0.00675	Minimum Non-Detect	0.006
Maximum Detect	140	Maximum Non-Detect	0.712
Variance Detects	118.7	Percent Non-Detects	40%
Mean Detects	3.394	SD Detects	10.89
Median Detects	1.95	CV Detects	3.21
Skewness Detects	11.19	Kurtosis Detects	138
Mean of Logged Detects	0.223	SD of Logged Detects	1.593
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.241	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.378	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0659	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
KM Mean	2.041	KM Standard Error of Mean	0.492
KM SD	8.576	95% KM (BCA) UCL	3.126
95% KM (t) UCL	2.853	95% KM (Percentile Bootstrap) UCL	2.926
95% KM (z) UCL	2.851	95% KM Bootstrap t UCL	4.294
90% KM Chebyshev UCL	3.518	95% KM Chebyshev UCL	4.187
97.5% KM Chebyshev UCL	5.116	99% KM Chebyshev UCL	6.94
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	5.014	Anderson-Darling GOF Test	
5% A-D Critical Value	0.809	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.154	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0714	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

TABLE B.3
 PROUCL OUTPUT FOR SOIL (0-7 FT)
 700 SMITH BOULEVARD, ALBANY, NY 12202
 PATHWAY ANALYSIS REPORT

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.616	k star (bias corrected MLE)	0.61
Theta hat (MLE)	5.508	Theta star (bias corrected MLE)	5.566
nu hat (MLE)	225.5	nu star (bias corrected)	223.2
Mean (detects)	3.394		
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)			
For such situations, GROS method may yield incorrect values of UCLs and BTVs			
This is especially true when the sample size is small.			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.00675	Mean	2.04
Maximum	140	Median	0.27
SD	8.591	CV	4.211
k hat (MLE)	0.287	k star (bias corrected MLE)	0.286
Theta hat (MLE)	7.112	Theta star (bias corrected MLE)	7.128
nu hat (MLE)	175	nu star (bias corrected)	174.6
Adjusted Level of Significance (β)	0.0492		
Approximate Chi Square Value (174.61, α)	145	Adjusted Chi Square Value (174.61, β)	144.9
95% Gamma Approximate UCL (use when $n \geq 50$)	2.456	95% Gamma Adjusted UCL (use when $n < 50$)	2.458
Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	2.041	SD (KM)	8.576
Variance (KM)	73.56	SE of Mean (KM)	0.492
k hat (KM)	0.0566	k star (KM)	0.0583
nu hat (KM)	34.54	nu star (KM)	35.53
theta hat (KM)	36.04	theta star (KM)	35.03
80% gamma percentile (KM)	0.453	90% gamma percentile (KM)	3.725
95% gamma percentile (KM)	11.36	99% gamma percentile (KM)	41.7
Gamma Kaplan-Meier (KM) Statistics			
Approximate Chi Square Value (35.53, α)	22.89	Adjusted Chi Square Value (35.53, β)	22.84
95% Gamma Approximate KM-UCL (use when $n \geq 50$)	3.168	95% Gamma Adjusted KM-UCL (use when $n < 50$)	3.174
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Approximate Test Statistic	0.899	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.161	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0659	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	2.061	Mean in Log Scale	-1.065
SD in Original Scale	8.586	SD in Log Scale	2.048
95% t UCL (assumes normality of ROS data)	2.872	95% Percentile Bootstrap UCL	3.037
95% BCA Bootstrap UCL	3.514	95% Bootstrap t UCL	4.31
95% H-UCL (Log ROS)	4.063		
Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution			
KM Mean (logged)	-1.832	KM Geo Mean	0.16
KM SD (logged)	2.831	95% Critical H Value (KM-Log)	4.036
KM Standard Error of Mean (logged)	0.165	95% H-UCL (KM -Log)	16.95
KM SD (logged)	2.831	95% Critical H Value (KM-Log)	4.036
KM Standard Error of Mean (logged)	0.165		
DL/2 Statistics			
DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	2.051	Mean in Log Scale	-1.547
SD in Original Scale	8.588	SD in Log Scale	2.667
95% t UCL (Assumes normality)	2.862	95% H-Stat UCL	13.42
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (Chebyshev) UCL	4.187		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

ATTACHMENT C

USEPA RSL Calculator Inputs and Outputs

For Particulate Emission and Volatilization Factors

ATTACHMENT C TABLE OF CONTENTS:

Table C.1 USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors – Construction Worker

Table C.2 USEPA RSL Calculator Output for Particulate Emission & Volatilization Factors – Construction Worker

Table C.3 USEPA RSL Calculator Input Values for Particulate Emission & Volatilization Factors - Worker

Table C.4 USEPA RSL Calculator Output for Particulate Emission & Volatilization Factors – Worker

Site-specific

Construction Worker Equation Inputs for Soil - Other Construction Activities

* Inputted values different from Construction Worker defaults are highlighted.

Variable	Construction Worker Soil - Other Default Value	Form-input Value	Site-specific Comment
A _{c-doz} (areal extent of dozing) acres		12.14	Site-specific
A _{excav} (area of excavation site) m ²		24564.42	50% of 12.14 acres, site-specific
A _{c-grade} (areal extent of grading) acres		12.14	Site-specific
A (PEF Dispersion Constant)	2.4538	2.4538	
A _{surf} (areal extent of site) m ²	2023.43	49128.8804	12.14 acres
A _{till} (areal extent of tilling) acres		12.14	Site-specific
A (VF Dispersion Constant)	2.4538	2.4538	
B _l (dozing blade length) m		2.337	Generic blade
B _l (grading blade length) m		1.524	Generic blade
B (PEF Dispersion Constant)	17.566	17.566	
B (VF Dispersion Constant)	17.566	17.566	
C (PEF Dispersion Constant)	189.0426	189.0426	
C (VF Dispersion Constant)	189.0426	189.0426	
d _{excav} (average depth of excavation site) m		0.3048	No default available, 8 ft
F _D Unitless Dispersion Correction Factor	0.185837208	0.185837208	
foc (fraction organic carbon in soil) g/g	0.006	0.006	
F(x) (function dependant on U _m /U _t derived using Cowherd et al. (1985))	0.194	0.194	
M _{m-doz} (Gravimetric soil moisture content) %	7.9	7.9	
M _{m-excav} (Gravimetric soil moisture content) %	12	12	
M _{wind} (dust emitted by wind erosion) g	51288.84717	213759.0209	Applied Hartford, CT scenario
N _{A-doz} (number of times site was dozed)		1	Assume 1 time
N _{A-dump} (number of times soil is dumped)	2	2	
N _{A-grade} (number of times site was graded)		1	Assume 1 time
N _{A-till} (number of times soil is tilled)	2	2	
n (total soil porosity) L _{pore} /L _{soil}	0.43396	0.43396	
p _b (dry soil bulk density) g/cm ³	1.5	1.5	
p _b (dry soil bulk density) g/cm ³	1.5	1.5	
p _s (soil particle density) g/cm ³	2.65	2.65	
Q/C _{sa} (g/m ² -s per kg/m ³)	14.31407	8.157189238	Applied Hartford, CT scenario
Q/C _{vol} (g/m ² -s per kg/m ³)	14.31407	14.31407	
Q/C _{sa} (g/m ² -s per kg/m ³)	14.31407	8.157189238	Applied Hartford, CT scenario
p _{soil} (density) g/cm ³ - chemical-specific	1.68	1.68	
A _c (acres)	0.5	12.14	Site-specific
A _s (VF _{milm-sc} acres)	0.5	0.5	
A _s (VF _{ulim-sc} acres)	0.5	12.14	Site-specific
s _{doz} (soil silt content) %	6.9	6.9	
AF _{cw} (skin adherence factor - construction worker) mg/cm ²	0.3	0.3	
AT _{cw} (averaging time - construction worker) days	365	365	
BW _{cw} (body weight - construction worker) kg	80	80	
ED _{cw} (exposure duration - construction worker) yr	1	1	
EF _{cw} (exposure frequency - construction worker) day/yr	250	250	
ET _{cw} (exposure time - construction worker) hr/day	8	8	
THQ (target hazard quotient) unitless	0.1	1	Does not impact PEF/VF

Site-specific

Construction Worker Equation Inputs for Soil - Other Construction Activities

* Inputted values different from Construction Worker defaults are highlighted.

IR _{cw} (soil ingestion rate - construction worker) mg/day	330	330	
LT (lifetime) yr	70	70	
SA _{cw} (surface area - construction worker) cm ² /day	3527	3527	
TR (target cancer risk) unitless	0.000001	0.000001	
S _{doz} (dozing speed) kph	11.4	11.4	
S _{grade} (dozing speed) kph	11.4	11.4	
s _{till} (soil silt content) %	18	18	
t _c (overall duration of construction) hours	8400	8400	
T _c (overall duration of construction) s	30240000	30240000	
Theta _a (air-filled soil porosity) L _{air} /L _{soil}	0.28396	0.28396	
Theta _w (water-filled soil porosity) L _{water} /L _{soil}	0.15	0.15	
T (time over which traffic occurs) s	7200000	7200000	
T _t (overall duration of traffic) s	7200000	7200000	
U _m (mean annual wind speed) m/s	4.69	4.69	
U _t (equivalent threshold value) m/s	11.32	11.32	
VF _{min-sc} (volatilization factor) m ³ _{air} /kg _{soil}		0	Ran unlimited mass scenario
V (fraction of vegetative cover)	0	0	

Output generated 03OCT2018:12:18:25

Site-specific Construction Worker Risk for Soil - Other Construction Activities

Chemical	CAS Number	Mutagen?	Volatile?	Ingestion SF (mg/kg-day) ⁻¹	SFO Ref	Inhalation Unit Risk (ug/m ³) ⁻¹	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m ³)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Conc (mg/kg)	S (mg/L)	K _{oc} (cm ² /g)	K _d (cm ² /g)	HLC (atm-m ³ /mole)	Henry's Law Constant (unitless)
Aroclor 1242	53469-21-9	No	Yes	2.00E+00	S	5.71E-04	S	-	-	-	-	1.00E+00	1.40E-01	1.00E+00	-	2.77E-01	7.81E+04	4.69E+02	3.43E-04	1.40E-02
Aroclor 1248	12672-29-6	No	Yes	2.00E+00	S	5.71E-04	S	-	-	-	-	1.00E+00	1.40E-01	1.00E+00	-	1.00E-01	7.65E+04	4.59E+02	4.40E-04	1.80E-02
Aroclor 1254	11097-69-1	No	Yes	2.00E+00	S	5.71E-04	S	3.00E-05	A /Subchronic	-	-	1.00E+00	1.40E-01	1.00E+00	-	4.30E-02	1.31E+05	7.83E+02	2.83E-04	1.16E-02
Aroclor 1260	11096-82-5	No	Yes	2.00E+00	S	5.71E-04	S	-	-	-	-	1.00E+00	1.40E-01	1.00E+00	-	1.44E-02	3.50E+05	2.10E+03	3.36E-04	1.37E-02

Chemical	Henry's Law Constant (8.3 °C)	Henry's Law Constant Used in Calcs (unitless)	H ⁺ and HLC Ref	Enthalpy of vaporization @ groundwater temperature ΔH _{v,gw} (cal/mol)	Exponent for ΔH _{v,gw}	Normal Boiling Point T _{boil} (K)	BP Ref	Critical Temperature T _{crit} (K)	T _{crit} Ref	CHEM TYPE	D _{la} (cm ² /s)	D _{la} (8.3 °C) (cm ² /s)	D _{la} Used in Calcs (cm ² /s)	D _{lw} (cm ² /s)	D _{lw} (8.3 °C) (cm ² /s)	D _{lw} Used in Calcs (cm ² /s)	D _A (cm ² /s)	Particulate Emission Factor (m ³ /kg)	Volatilization Factor (m ³ /kg)
Aroclor 1242	2.29E-03	2.29E-03	PHYSPROP	1.87E+04	4.10E-01	6.33E+02	EPI	8.97E+02	Approx. from Tcrit=1.5xTBoil	PCB	2.39E-02	2.19E-02	2.19E-02	6.11E-06	5.77E-06	5.77E-06	5.78E-09	5.30E+07	1.87E+05
Aroclor 1248	-	1.80E-02	PHYSPROP	-	3.80E-01	6.13E+02	EPI	9.20E+02	Approx. from Tcrit=1.5xTBoil	PCB	1.63E-02	1.49E-02	1.49E-02	3.94E-06	3.72E-06	3.72E-06	3.12E-08	5.30E+07	8.07E+04
Aroclor 1254	1.82E-03	1.82E-03	PHYSPROP	1.90E+04	3.90E-01	6.51E+02	EPI	9.57E+02	Approx. from Tcrit=1.5xTBoil	PCB	2.37E-02	2.18E-02	2.18E-02	6.10E-06	5.76E-06	5.76E-06	2.75E-09	5.30E+07	2.72E+05
Aroclor 1260	-	1.37E-02	PHYSPROP	-	4.00E-01	6.89E+02	EPI	9.87E+02	Approx. from Tcrit=1.5xTBoil	PCB	2.20E-02	2.02E-02	2.02E-02	5.61E-06	5.29E-06	5.29E-06	7.06E-09	5.30E+07	1.70E+05

Output generated 03OCT2018:12:18:25

Site-specific

Composite Worker Equation Inputs for Soil

* Inputted values different from Composite Worker defaults are highlighte

Variable	Composite Worker Soil Default Value	Form-input Value	Site-specific Comment
A (PEF Dispersion Constant)	16.2302	12.5907	Applied Hartford, CT scenario
A (VF Dispersion Constant)	11.911	12.5907	Applied Hartford, CT scenario
A (VF Dispersion Constant - Mass Limit)	11.911	11.911	
B (PEF Dispersion Constant)	18.7762	18.8368	Applied Hartford, CT scenario
B (VF Dispersion Constant)	18.4385	18.8368	Applied Hartford, CT scenario
B (VF Dispersion Constant - Mass Limit)	18.4385	18.4385	
City _{PEF} (Climate Zone) Selection	Default	Hartford, CT (8)	Applied Hartford, CT scenario
City _{VF} (Climate Zone) Selection	Default	Hartford, CT (8)	Applied Hartford, CT scenario
C (PEF Dispersion Constant)	216.108	215.4377	Applied Hartford, CT scenario
C (VF Dispersion Constant)	209.7845	215.4377	Applied Hartford, CT scenario
C (VF Dispersion Constant - Mass Limit)	209.7845	209.7845	
foc (fraction organic carbon in soil) g/ç	0.006	0.006	
F(x) (function dependent on U _w /U _t) unitless	0.194	0.0345	Applied Hartford, CT scenario
n (total soil porosity) l _{porø} /L _{soil}	0.43396	0.43396	
p _b (dry soil bulk density) g/cm ³	1.5	1.5	
p _b (dry soil bulk density - mass limit) g/cm ³	1.5	1.5	
PEF (particulate emission factor) m ³ /kg	1359344438	6457349501	Applied Hartford, CT scenario
p _s (soil particle density) g/cm ³	2.65	2.65	
Q/C _{wind} (g/m ² -s per kg/m ³)	93.77	43.48082592	Applied Hartford, CT scenario
Q/C _{vol} (g/m ² -s per kg/m ³)	68.18	43.48082592	Applied Hartford, CT scenario
Q/C _{vol} (g/m ² -s per kg/m ³)	68.18	68.18	
A _s (PEF acres)	0.5	12.14	Site-specific
A _s (VF acres)	0.5	12.14	Site-specific
A _s (VF mass-limit acres)	0.5	0.5	
AF _w (skin adherence factor - composite worker) mg/cm ²	0.12	0.12	
AT _w (averaging time - composite worker)	365	365	
BW _w (body weight - composite worker)	80	80	
ED _w (exposure duration - composite worker) yr	25	25	
EF _w (exposure frequency - composite worker) day/yr	250	250	
ET _w (exposure time - composite worker) hr	8	8	
THQ (target hazard quotient) unitless:	0.1	1	Does not impact PEF/VF
IR _w (soil ingestion rate - composite worker) mg/day	100	100	
LT (lifetime) yr	70	70	
SA _w (surface area - composite worker) cm ² /day	3527	3527	
TR (target risk) unitless	0.000001	0.000001	
T _w (groundwater temperature) Celsius	25	8.3	Site-specific based on USEPA 2004 GW temperature map
Theta _a (air-filled soil porosity) l _{air} /L _{soil}	0.28396	0.28396	
Theta _w (water-filled soil porosity) l _{water} /L _{soil}	0.15	0.15	

Site-specific

Composite Worker Equation Inputs for Soil

* Inputted values different from Composite Worker defaults are highlighte

T (exposure interval) z	819936000	819936000	
T (exposure interval) y	26	26	
U _m (mean annual wind speed) m/s	4.69	3.84	Applied Hartford, CT scenario
U _t (equivalent threshold value)	11.32	11.32	
V (fraction of vegetative cover) unitless	0.5	0.5	
VF _{ml} (volitization factor - mass limit) m ³ /kg		.0	Ran unlimited mass scenario

Output generated 03OCT2018:11:55:04

Site-specific Composite Worker Risk for Soil

Chemical	CAS Number	Mutagen?	Volatile?	Ingestion SF (mg/kg-day) ⁻¹	SFO Ref	Inhalation Unit Risk (ug/m ³) ⁻¹	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m ³)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Conc (mg/kg)	S (mg/L)	K _{oc} (cm ³ /g)	K _d (cm ³ /g)	HLC (atm-m ³ /mole)	Henry's Law Constant (unitless)
Aroclor 1242	53469-21-9	No	Yes	2.00E+00	S	5.71E-04	S	-	-	-	-	1.00E+00	1.40E-01	1.00E+00	-	2.77E-01	7.81E+04	4.69E+02	3.43E-04	1.40E-02
Aroclor 1248	12672-29-6	No	Yes	2.00E+00	S	5.71E-04	S	-	-	-	-	1.00E+00	1.40E-01	1.00E+00	-	1.00E-01	7.65E+04	4.59E+02	4.40E-04	1.80E-02
Aroclor 1254	11097-69-1	No	Yes	2.00E+00	S	5.71E-04	S	2.00E-05	I	-	-	1.00E+00	1.40E-01	1.00E+00	-	4.30E-02	1.31E+05	7.83E+02	2.83E-04	1.16E-02
Aroclor 1260	11096-82-5	No	Yes	2.00E+00	S	5.71E-04	S	-	-	-	-	1.00E+00	1.40E-01	1.00E+00	-	1.44E-02	3.50E+05	2.10E+03	3.36E-04	1.37E-02

Chemical	Henry's Law Constant (8.3 °C)	Henry's Law Constant Used in Calcs (unitless)	H ⁺ and HLC Ref	Enthalpy of vaporization @ groundwater temperature ΔH _{v, gw} (cal/mol)	Exponent for ΔH _{v, gw}	Normal Boiling Point T _{boil} (K)	BP Ref	Critical Temperature T _{crit} (K)	T _{crit} Ref	CHEM TYPE	D _{la} (cm ² /s)	D _{la} (8.3 °C) (cm ² /s)	D _{la} Used in Calcs (cm ² /s)	D _{lw} (cm ² /s)	D _{lw} (8.3 °C) (cm ² /s)	D _{lw} Used in Calcs (cm ² /s)	D _A (cm ² /s)	Particulate Emission Factor (m ³ /kg)	Volatilization Factor (m ³ /kg)
Aroclor 1242	2.29E-03	2.29E-03	PHYSPROP	1.87E+04	4.10E-01	6.33E+02	EPI	8.97E+02	Approx. from Tcrit=1.5xTBoil	PCB	2.39E-02	2.19E-02	2.19E-02	6.11E-06	5.77E-06	5.77E-06	5.78E-09	6.46E+09	9.67E+05
Aroclor 1248	-	1.80E-02	PHYSPROP	-	3.80E-01	6.13E+02	EPI	9.20E+02	Approx. from Tcrit=1.5xTBoil	PCB	1.63E-02	1.49E-02	1.49E-02	3.94E-06	3.72E-06	3.72E-06	3.12E-08	6.46E+09	4.16E+05
Aroclor 1254	1.82E-03	1.82E-03	PHYSPROP	1.90E+04	3.90E-01	6.51E+02	EPI	9.57E+02	Approx. from Tcrit=1.5xTBoil	PCB	2.37E-02	2.18E-02	2.18E-02	6.10E-06	5.76E-06	5.76E-06	2.75E-09	6.46E+09	1.40E+06
Aroclor 1260	-	1.37E-02	PHYSPROP	-	4.00E-01	6.89E+02	EPI	9.87E+02	Approx. from Tcrit=1.5xTBoil	PCB	2.20E-02	2.02E-02	2.02E-02	5.61E-06	5.29E-06	5.29E-06	7.06E-09	6.46E+09	8.75E+05

Output generated 03OCT2018:11:55:04

APPENDIX B

Site Management Plan


Site Management Plan

**Port of Albany
700 Smith Boulevard
Albany, New York**

NYSDEC Site No. 401080(P)

CHA Project Number: 28952.1201.31000

*Prepared for:
Port of Albany
106 Smith Boulevard
Albany, New York 12202*

Prepared by:

*III Winners Circle
Albany, New York 12205
Phone: (518) 453-4500
Fax: (518) 453-4773*

*February 14, 2019
Revised March 2020*

TABLE OF CONTENTS

1.0	INTRODUCTION & DESCRIPTION OF REMEDIAL PROGRAM	1
1.1	Introduction	1
1.1.1	SMP Organization	1
1.1.2	General.....	1
1.1.3	Purpose	2
1.1.4	Revisions.....	3
1.2	Site Background.....	3
1.2.1	Site Location & Description	3
1.2.2	Site History	4
1.2.3	Geologic Conditions	4
1.3	Summary of Remedial Investigation Findings	5
1.3.1	Nature & Extent of Contamination	5
2.0	REMEDIAL ACTIVITIES.....	7
2.1	Remedial Action Objectives.....	7
2.2	Excavation and Offsite Disposal.....	7
2.3	Remaining Contamination.....	8
3.0	ENGINEERING & INSTITUTIONAL CONTROL PLAN	10
3.1	Introduction	10
3.1.1	General.....	10
3.1.2	Purpose	10
3.2	Engineering Controls	11
3.2.1	Engineering Control Systems.....	11
3.2.1.1	Site Protective Capping (High-Occupancy Areas).....	11
3.2.2	Fencing (Low-Occupancy Areas)	12
3.2.3	Criteria for Removal of Capping System	12
3.3	Institutional Controls.....	12
3.3.1	Environmental Easement/Deed Restriction	12
3.3.2	Excavation Work Plan	13
3.4	Inspections & Notifications.....	14
3.4.1	Inspections	14
3.5	Contingency Plan.....	15
3.5.1	Emergency Telephone Numbers	15
3.5.2	Map and Directions to Nearest Health Facility.....	15
3.5.3	Response Procedures	16
3.5.3.1	Spill Response Procedures.....	17
3.5.3.2	Methods of Disposal of Recovered Materials.....	18
3.5.3.3	Spill Incident Reporting.....	18
3.5.3.4	Evacuation Procedures	19
3.5.3.5	Contingency Plan Amendments.....	20
4.0	SITE MONITORING PLAN.....	21

4.1	Introduction	21
4.1.1	General.....	21
4.1.2	Purpose & Schedule	21
4.2	Site-Wide Inspection.....	21
4.3	Monitoring Reporting Requirements	24
5.0	INSPECTIONS, REPORTING & CERTIFICATIONS	25
5.1	Site Inspections.....	25
5.1.1	Inspection Frequency.....	25
5.1.2	Inspection Forms	25
5.1.3	Evaluation of Records and Reporting.....	25
5.2	Certification of Engineering & Institutional Controls	26
5.3	Annual Monitoring Report	26
5.4	Corrective Measures Plan.....	27
6.0	EXCAVATION WORK PLAN.....	28
6.1	Notification.....	28
6.2	Soil Screening Methods	29
6.3	Stockpile Methods	29
6.4	Material Excavation & Load Out.....	30
6.5	Material Transport Off-Site.....	31
6.6	Material Disposal Off-Site	32
6.7	Material Re-Use On-Site	32
6.8	Fluids Management.....	33
6.9	Site Protective Capping Restoration	33
6.10	Backfill From Off-Site Sources	33
6.11	Stormwater Pollution Prevention.....	35
6.12	Temporary Erosion Control measures	36
6.13	Permanent Erosion Control Measures.....	37
6.14	Community Air Monitoring Plan.....	38
6.15	Odor Control Plan.....	39
6.16	Dust Control Plan.....	40
7.0	HEALTH & SAFETY PLAN REQUIREMENTS	42
7.1	Compliance.....	43
7.2	Responsibilities.....	43
7.3	Elements of a Health and Safety Plan.....	45
7.4	Potential Site Hazards	46
7.4.1	Physical Hazards	46
7.4.2	Biological Hazards	46
7.4.3	Chemical Hazards.....	46

LIST OF TABLES

Table 1	Summary of Contamination to Remain in Soil – PCBs
Table 2	Summary of Contamination to Remain in Soil - PAHs and Metals
Table 3	Emergency Contact Numbers
Table 4	Schedule of Monitoring/Inspection Reports
Table 5	Inspection Schedule
Table 6	Sampling Frequency Requirements for Imported Soils
Table 7	Possible Chemical Hazard Exposures

LIST OF FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Excavation Plan
Figure 3a	Excavation Plan: GP-26 Area
Figure 4	Protective Capping Detail

LIST OF APPENDICES

Appendix A	Environmental Easement (To be Included in Final SMP)
Appendix B	Site Wide/Capping/Fencing Checklist

LIST OF ACRONYMS & ABBREVIATIONS

APDC	Albany Port District Commission
bgs	Below Ground Surface
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHA	Clough Harbour & Associates LLP
cis-1,2-DCE	cis-1,2-Dichloroethene
CNS	Central Nervous System
CY	Cubic Yards
DER	Division of Environmental Remediation
1,1-DCE	1,1-Dichloroethene
DOL	United States Department of Labor
EC	Engineering Control
EPA	United States Environmental Protection Agency
ESC	Erosion and Sediment Control
EWP	Excavation Work Plan
FPS	Feet per Second
HASP	Health & Safety Plan
IC	Institutional Control
mg/m ³	Milligrams per Cubic Meter
SDS	Safety Data Sheet
MTBE	Methyl Tert Butyl Ether
NRC	National Response Center
NYCRR	New York Code, Rules & Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OSHA	Occupational Safety & Health Administration
PAH	Polyaromatic Hydrocarbon
PCBs	Polychlorinated Biphenyls
PM	Particulate Matter
PPE	Personal Protective Equipment
PPB	Parts Per Billion
PPM	Parts Per Million
RAP	Reclaimed Asphalt Pavement
RI	Remedial Investigation
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SO	Safety Officer
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TOGs	Technical and Operational Guidance Series
TSCA	Toxic Substances Control Act

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
μm	Micrometers or microns
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
VOC	Volatile Organic Compound

1.0 INTRODUCTION & DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

CHA Consulting, Inc. (CHA) has prepared this Site Management Plan (SMP) to address the management of soil impacted with polychlorinated biphenyls (PCBs) in exceedance of applicable Toxic Substance Control Act (TSCA) regulations that will remain in place on an approximate 12.14-acre portion of a 14.5-acre parcel located at 700 Smith Boulevard in the Port of Albany, City of Albany, New York (the Site) following implementation of the PCB Risk-Based Cleanup and Disposal Application (CHA, March 2020), hereafter referred to as “Application”. The Site was formerly in the NYSDEC Spills Program and is now being classified as a potential New York State Superfund Site (Site No. 401080P). An Order on Consent (Order) was executed as between the APDC and DEC on May 5, 2020 regarding 700 Smith Boulevard (CO 4-20200424-56). In accordance with the Order, the requirements of the Risk-Based Cleanup and Disposal Application are integrated in the Order by reference.

1.1.1 SMP Organization

This SMP has been divided into seven (7) major sections, including:

- Section 1: Summarizes the purpose of the SMP, provides the Site background, and summarizes the investigations completed at the Site
- Section 2: Summarizes the proposed remedial actions to be completed
- Section 3: Engineering and Institutional Control Plan
- Section 4: Site Monitoring Plan (including Site-Wide Inspection requirements)
- Section 5: Provides requirements for inspections of the Site and reporting & certification requirements
- Section 6: Excavation Work Plan (for all intrusive Site activities)
- Section 7: Health and Safety Plan Requirements (minimum requirements)

1.1.2 General

The Site is owned by the Albany Port District Commission (APDC) and is a portion of the greater APDC property which makes up the Port of Albany and is currently zoned for industrial use. A Site location map is provided as Figure 1, and the boundaries of this Site are provided on Figure 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in Appendix A.

After completion of the remedial work described in the Revised PCB Risk-Based Cleanup and Disposal Application, some contamination will be left in the subsurface at this Site, which is hereafter referred to as ‘remaining contamination.’ This SMP has been prepared to manage remaining contamination at the Site until the Deed Restriction is extinguished in accordance with state and federal law and addresses the means for implementing the required Institutional Controls (ICs) and Engineering Controls (ECs). Reports associated with the Site can be viewed by contacting the NYSDEC and the EPA Region 2 Administrator.

1.1.3 Purpose

The Site contains contamination which will be left after completion of the remedial action. ECs will be incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site for the protection of public health and the environment. A Deed Restriction, to be completed in accordance with New York State law, granted to the EPA Region 2 Administrator, and recorded with the Albany County Clerk, will include an Environmental Easement document that will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP was prepared to specify the methods necessary for compliance with all ECs and ICs required by the Environmental Easement for contamination that remains at the Site.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the Remedial Action, including: (1) maintenance and management of all ECs/ICs and (2) performance of periodic inspections, certification of results, and submittal of Annual Monitoring Reports.

To address these needs, this SMP includes five plans: (1) Description of Remedial Activities, (2) an EC/IC Control Plan for implementation and management of EC/ICs upon development of the Site; (3) a Site Monitoring Plan for monitoring of the Site capping and fencing; (4) required inspections, reporting and certifications, and (5) an Excavation Work Plan (EWP).

This SMP also includes a description of Annual Monitoring Reports for the periodic submittal of data, information, recommendations, and certifications to EPA.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement;
- Failure to comply with this SMP is a violation of applicable TSCA regulations pursuant to 40 CFR 761.61, and thereby subject to applicable penalties.

1.1.4 Revisions

Revisions to this plan will be proposed in writing to the EPA Region 2 Administrator and NYSDEC Project Manager. Any approved revisions to this SMP must be denoted on the cover page of the plan. In accordance with the Environmental Easement for the Site, the EPA and NYSDEC will be provided copies of the approved and revised SMP document for its files.

Proposed changes to the allowable Site uses in the Environmental Easement should only be considered under extraordinary circumstances due to the fact that the cleanup levels achieved at the Site were specific to the proposed use of the Site, and therefore, may limit other types of uses, particularly lighter type uses, such as residential use. However, any such changes would require the explicit, written authorization by the EPA as well as significant modifications to both this SMP and the Environmental Easement for the Site, at a minimum.

1.2 SITE BACKGROUND

1.2.1 Site Location & Description

The Site is located in the Port of Albany, City of Albany, Albany County, New York and is identified as Tax Map Parcel No.87.10-4-1 on the City of Albany Tax Map. The property totals approximately 14.5 acres of industrial land (see Figure 2); however, only approximately 12.14 of these acres are subject to the remedial actions proposed in the Application. The Deed Restriction, Environmental Easement and compliance with this SMP, however will pertain to the entire 14.5 acre parcel.

The Site is bounded by industrial land also owned by APDC, including a scrapyard (Ben Weitsman of Albany) to the north, Capital Scrap Metal Company and Albany Port Railroad Corp. to the south, Westway Feed Products to the east, and railroad tracks to the west (see Figure 2 – Site Plan). The boundaries of the Site are more fully described in Appendix A – Environmental Easement. The owner of the Site parcel at the time of issuance of this SMP is APDC.

1.2.2 Site History

The Site has been owned by the ADPC since approximately 1925, with no prior industrial usage. Prior to ownership by ADPC, the area surrounding the subject Site was mostly agricultural with commercial development to the north and south of the subject Site. Sometime after 1937 the Site was used by Atlantic Steel Corporation and as a rail yard until 1951. Subsequently, the Site was used for metal recycling operations since at least 1964. Two existing one-story structures located on the east side of the Site were built in the early 1950s. During this time period, the Port of Albany to the north and south of the Site continued to transition from agricultural land to industrial/commercial properties.

On or about 2013, metal recycling operations ceased and the most recent tenant of the property, Sims Metal Management, screened the surficial soils to remove metal, plastic, wood, and other debris. The Site is currently vacant with the exception of a few remaining buildings and structures, including the scale house/office building, maintenance/storage building, which are located on the eastern portion of the Site, rail siding in the central area of the Site and exiting through the eastern property boundary, and an emergency generator located in the south area of the Site.

1.2.3 Geologic Conditions

The United States Department of Agriculture (USDA) Soil Survey for Albany County indicates that the soils of the subject Site are classified as Urban Land. The Urban Land designation is assigned to areas where 85 percent or greater of the surfaces are covered by impervious materials. Previous subsurface investigations at the Site have indicated that the first several feet of soil consists of brown sand mixed with variable amounts of organics and fill debris, followed by brown to gray fine to coarse sand to silt to a depth of 13 feet or greater. Bedrock geologic maps compiled by the New York State Geological Survey indicate that the unconsolidated deposits are underlain by bedrock of the Snake Hill Shale, which consists of silty micaceous shale with occasional interbeds of siltstones, mudstones, and fine-grained sandstones.

Based on previous investigations, groundwater is estimated to exist between six (6) to 16 feet below ground surface (bgs), and the apparent direction of shallow groundwater flow is generally to the southeast towards the Hudson River. As inferred from regional topography, surface water likely flows in an east/southeasterly direction toward the Hudson River, with storm water runoff directed in a southeasterly direction to storm drains along bordering streets.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

Site Characterization activities have been performed to characterize the nature and extent of contamination at the Site. The results of the Site Characterization activities are described in detail in the following reports and transmittals:

- Supplemental Phase II Investigation Report (CHA, April 2015)
- Supplemental Groundwater Analytical Data Transmittal (CHA, May 2015)
- Supplemental Groundwater Analytical Data Transmittal (CHA, June 2015)
- Progress Report and Work Plan Addendum (Sterling Environmental Engineering, September 2015)
- Additional Site Characterization Report (CHA, February 2019)

1.3.1 Nature & Extent of Contamination

Soil

Based on analytical results to-date, PCB contamination at concentrations of 1.0 parts per million (ppm) or greater is present throughout the majority of the Site in surficial (i.e., 0-1 feet bgs) and subsurface soils to a maximum depth of five (5) feet bgs, although the majority of concentrations are situated at three (3) feet or less. PCB detections in soils range from 0.07 ppm to 2,170 ppm, although most concentrations are less than 25 ppm. A total of eleven localized hot spot areas (having total PCBs > 25 ppm) have been identified near soil borings SS-11, GP-15, GP-26, GP-32, GP-45, GP-46, GP-79, GP-81, GP-90, GP-91, and GP-100.

Secondary contaminants of concern in soil include the following metals: arsenic, lead, and mercury, and polyaromatic hydrocarbons (PAHs) which extend to depths of five (5) feet bgs (metals) and four (4) feet bgs (PAHs) but are primarily located in soil at a depth of 0 - 1 feet bgs, and thus will be removed and/or covered as part of the proposed PCB remediation. Volatile organic compounds (VOCs) were not detected above Title 6 of the New York Codes, Rules and Regulations (NYCRR), Part 375 - Soil Cleanup Objectives (SCO) – Restricted Industrial Use in soil.

Groundwater

Groundwater has not been significantly impacted by Site conditions. VOCs detected in groundwater include methyl tert butyl ether (MTBE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene

(1,1-DCE) and vinyl chloride. The concentrations are relatively low-level, are isolated, and may be attributable to off-site sources, as such compounds have either not been detected in Site soils to-date or were detected at low-level concentrations well below the NYCRR Industrial SCOs. Semi-volatile organic compounds (SVOCs) have not been detected above the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (TOGS) in Site groundwater. Although total metals were detected in exceedance in groundwater, the results of the dissolved metals analysis have indicated that only iron, magnesium, manganese, nickel and sodium were detected above NYSDEC TOGS Standards.

There were no detected concentrations of dissolved PCBs in the 11 on-site monitoring wells when last sampled in 2015. The conclusion, at that time with the concurrence of the NYSDEC Spills Project Manager, was and still is that there are no PCB impacts to groundwater and that no further action is required regarding groundwater at the Site. Furthermore, the Site and properties in the vicinity currently utilize public water. There is no current or anticipated future use of groundwater at the site for potable or non-potable uses.

2.0 REMEDIAL ACTIVITIES

2.1 REMEDIAL ACTION OBJECTIVES

The proposed remedial approach will include the excavation and off-Site disposal of PCB impacted soils with concentrations greater than 25 ppm and the placement of a cap of 12 inches of RAP on the entire site with the exception of the areas currently improved with buildings or currently paved. This remediation is detailed in the Revised Risk-Based Cleanup and Disposal Application (CHA, March 2020) which has been submitted for approval by EPA. The following sections provide a general overview of the proposed remediation.

2.2 EXCAVATION AND OFFSITE DISPOSAL

The proposed remedial activities will include excavation and off-Site disposal of PCB impacted soils with concentrations greater than 25 ppm. Proposed areas of excavation were developed based on the concentrations of PCBs observed during Site characterization activities. Eleven hot spots were identified, including SS-11, GP-15, GP-26, GP-32, GP-45, GP-46, GP-79, GP-81, GP-90, GP-91, and GP-100, as shown on Figure 3. Anticipated excavation dimensions and volumes are summarized as follows:

Hot Spot	Dimensions (ft)	Depth (ft)	Total Volume (CY)	
			PCBs > 25 ppm, < 50 ppm	PCBs > 50 ppm
SS-11	15 x 15	2	0	20
GP-15	7.5 x 7.5	4	10	0
GP-26	See Figure 3a	2	40	30
GP-32	15 x 15	4	0	35
GP-45	15 x 15	2	0	20
GP-46	7.5 x 7.5	2	5	0
GP-79	10 x 15	2	0	15
GP-81	10 x 10	2	10	0
GP-90	10 x 15	4	25	0
GP-91	10 x 10	4	15	0
GP-100	10 x 15	2	15	0
TOTAL:			120	120

ft = feet

CY = cubic yards

Lateral excavation dimensions for SS-11, GP-15, GP-32 GP-45, GP-46, GP-79, GP-81, GP-90, GP-91, and GP-100 are depicted on Figure 3. Lateral excavation dimensions for GP-26 are depicted on Figure 3a.

Following removal, PCB-impacted soils with concentrations greater than 25 ppm but less than 50 ppm will be removed and transported off-Site to a licensed disposal facility in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(ii), and impacted soils classified as hazardous waste (greater than 50 ppm), will be disposed of at a hazardous waste landfill in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(iii). Disposal facilities will be identified prior to the implementation of the remedial work. Verification samples will be collected following excavation activities in each of the hot spot excavation areas. Excavated areas will be backfilled and/or graded to the surrounding elevation. At the fence line, property boundaries, and paved areas impacted soil will be cut and graded back to allow for the cap to match the elevation of the surrounding grade. A cap of 12 inches of RAP will then be placed over the soil that remains following the excavation and grading work. Backfill and cap material will consist of clean fill or RAP. Documentation will be obtained confirming the clean fill material that is not clean gravel, rock or stone, or is recycled concrete or brick consistent with 6 NYCRR Part 360. Backfill imported to the Site will be subject to chemical testing in accordance with the table below or will be subject to the allowable exemptions for specified beneficial use materials per 6 NYCRR Part 360 – 1.15(b), if such materials are approved by the Owner. The RAP to be used for the cap will be compliant with the NYSDEC approved BUD. Any other soils imported will meet the chemical testing requirements.

2.3 REMAINING CONTAMINATION

Table 1 summarizes the results of PCBs and Table 2 summarizes the results of metals and PAHs which will remain in Site soils after completion of remedial activities. In summary, the following constituents will remain in Site-wide soils at concentrations exceeding applicable criteria at the indicated concentration ranges and depths:

Compound	Applicable Criteria (ppm)	Site Concentration Range Exceeding Criteria (ppm)	Depth Range (ft bgs)
Total PCBs	1 ¹	1 - 25	0 - 5
Benzo(a)pyrene	1 ²	1 - 3.87	0 - 4
Dibenzo(a,h)anthracene	1 ²	1 - 1.77	0 - 1
Arsenic	16 ²	16 - 65.2	0 - 5
Lead	3,900 ²	3,900 - 4,800	0 - 3
Mercury	5.7 ²	5.7 - 42	0 - 3

Ft = feet

¹ TSCA High-Occupancy Cleanup Level

² NYCRR Industrial SCO

In addition, the following constituents are known to be present in groundwater at concentrations exceeding applicable criteria at the indicated concentration ranges (highest historic concentration shown):

Compound*	NYSDEC TOGs Standard (ug/L)	Site Concentration Range (ug/L)
1,1-Dichloroethene	5	ND – 15
cis-1,2-Dichloroethene	5	ND – 15.3
Methyl Tert Butyl Ether	10	ND – 52.5
Vinyl Chloride	2	ND – 31
Iron (Dissolved)	300	ND – 2,600
Magnesium (Dissolved)	35,000	2,100 – 107,000
Manganese (Dissolved)	300	16 – 4,900
Nickel (Dissolved)	100	ND - 760
Sodium (Dissolved)	20,000	7,700 – 289,000

ND = Non-detect

*For non-VOC compounds, only dissolved concentrations of constituents are shown. Refer to Section 1.3.1 regarding discussions of total PCBs as well as total metals detected historically in groundwater.

The Site is currently secured by a six (6) foot tall chain link fence affixed with barbed wire, although there are currently areas where the fence either is not present or is compromised. Such areas will be secured in the near future. Access is restricted through a locked gate located on the eastern property line, thereby limiting vehicular and pedestrian traffic to the Site.

3.0 ENGINEERING & INSTITUTIONAL CONTROL PLAN

3.1 INTRODUCTION

The goal of the remedial program is to redevelop the Site or portions of the Site to high-occupancy industrial usage. Pursuant to 40 CFR 761.3, a high occupancy area means “any area where PCB remediation waste has been disposed of on-Site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more (an average of 16.8 hours or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school class room, a cafeteria in an industrial facility, a control room, and a work station at an assembly line.” Pursuant to 40 CFR 761.61(a)(4)(i)(A), the cleanup level for bulk PCB remediation waste in high occupancy areas is ≤ 1 ppm.

Because soils will remain on-Site which contain PCBs at concentrations > 1 ppm and ≤ 25 ppm, the implementation of ECs/ICs are required in any high-occupancy area to be protective of human health and the environment.

3.1.1 General

This EC/IC Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by the EPA.

3.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs that will be set forth in the Environmental Easement;
- A description of the features to be evaluated during each required inspection and periodic review;

- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the EWP for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the EPA.

3.2 ENGINEERING CONTROLS

ECs to be implemented include placement of a protective cap consisting of a 12” layer of RAP and fencing to control exposure to remaining contamination left in place. This activity is outlined in the Revised Risk-Based Cleanup and Disposal Application. .

3.2.1 Engineering Control Systems

3.2.1.1 Site Protective Capping (High-Occupancy Areas)

Exposure to remaining PCB-impacted soil/fill within portions of the Site which are deemed high-occupancy usage will be prevented by placement of protective capping. At this time the areas to receive a cap are identified as all unpaved areas and unimproved areas (areas without buildings) of the 12.14 acre Site. Per the Application, the cap will consist of 12 inches of RAP which satisfies the requirements of 6NYCRR Part 360.12(d) for a Beneficial Use Determination. A cap must have of sufficient strength to maintain its effectiveness and integrity during the use of the cap surface which is exposed to the environment. A cap shall not be contaminated at a level ≥ 1 ppm PCB per Aroclor™ (or equivalent) or per congener. Repairs shall begin within 72 hours of discovery for any breaches which would impair the integrity of the cap.”

In the future if the current cap is changed, altered or replaced in areas deemed to be high-occupancy, it shall be comprised of one or more of the following:

- **Asphalt Cap:** Six (6) inches of asphalt (or similar material) (Detail #1 on Figure 4);
- **Concrete/Building Cap:** Six (6) inches of concrete (Detail #2 on Figure 4);
- **Soil Cap:** Ten (10) inches of clean, compacted soil with high clay and/or silt content and meeting the parameters listed in 40 CFR 761.75(b)(1)(ii) through 40 CFR 761.75(b)(1)(v) (Detail #3 on Figure 4); or,
- **Reclaimed Asphalt Pavement (RAP) Cap:** Twelve (12) inches of compacted RAP (Detail #4 on Figure 4).

3.2.2 Fencing (Low-Occupancy Areas)

In addition to protective capping, any areas of the Site which will become low-occupancy and which will not be improved with one of the above caps will be surrounded by chain-link fencing to restrict individual access of these areas to less than 6.7 hours per week. The installation of fencing is more than what is required to control risk in low occupancy areas but will serve as an important visual and physical control to delineate low and high occupancy areas, which will be clear to all on Site. It is anticipated that future Site development will consist of minimal low occupancy areas and will likely be limited to areas such as stormwater retention ponds or other such areas that would not be occupied regularly.

3.2.3 Criteria for Removal of Capping System

The protective capping system and fencing are permanent controls and the quality and integrity of these systems will be inspected at defined, regular intervals in perpetuity, until such time that the EPA and/or NYSDEC agrees in writing that inspection of the ECs is no longer required and/or if soils have been removed to ≤ 1.0 ppm PCBs at the site or a portion of the site and appropriate environmental easement and deed restriction changes have been made and approved by EPA.

3.3 INSTITUTIONAL CONTROLS

A series of ICs is required to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to restricted high-occupancy and/or low-occupancy industrial uses only.

3.3.1 Environmental Easement/Deed Restriction

Adherence to all ECs on the Site will be guaranteed by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement and the Deed Restriction with the prior approval of EPA and NYSDEC. These ICs are:

- The property may only be used for industrial use provided that the long-term ECs/ICs included in this SMP are employed;
- Low-occupancy areas (if applicable) shall maintain appropriate ECs (i.e., fencing) and ICs. Individuals are not permitted to occupy these areas for greater than 6.7 hours per week unless appropriate dermal and respiratory protection are worn.

- High-occupancy areas (i.e., areas of the Site occupied by an individual greater than 6.7 hours per week) shall maintain appropriate ECs (i.e., protective capping) and ICs.
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP, including any excavation on Site;
- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the Controlled Property must be inspected at a frequency and in a manner defined in this SMP;
- Soil and other environmental or public health monitoring must be performed as defined in this SMP; and,
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;
- Access to the Site must be provided to agents, employees, or other representatives of the EPA and NYSDEC with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.

ICs identified in the Environmental Easement/Deed Restriction may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

3.3.2 Excavation Work Plan

The proposed site remedy allows for high-occupancy industrial usage, provided that ECs/ICs are implemented. Any future intrusive work that will penetrate the protective capping, or encounter or disturb the PCB impacted soils that remain, including any modifications or repairs to the existing cover system will be performed in compliance with Section 6.0, Excavation Work Plan (EWP). Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. HASP requirements are summarized in Section 7.0 of this SMP and shall be prepared in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, a HASP and CAMP will be prepared and submitted with the notification provided in the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (Section 5.0).

The Site owner and associated parties preparing the remedial documents submitted to the EPA and/or NYSDEC, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). Site development activities shall not interfere with, or otherwise impair or compromise, the ECs described in this SMP.

3.4 INSPECTIONS & NOTIFICATIONS

3.4.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive Site-wide inspection will be conducted annually, regardless of the frequency of the Annual Monitoring Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Site Monitoring Plan (Section 4.0). The reporting requirements are outlined in the Annual Monitoring Reporting section of this plan (Section 5.0).

If an emergency, such as a natural disaster or an unforeseen failure of an EC occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site. Repairs shall begin within 72 hours of discovery for any breaches or damage which would impair the integrity of the ECs, pursuant to 40 CFR 761.61(a)(7).

3.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

3.5.1 Emergency Telephone Numbers

In the event of an environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to CHA. These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 3. Emergency Contact Numbers

Contact	Phone Number
Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480; 811 (3-day notice required for utility markout)
Poison Control Center:	(800) 222-1222
National Response Center (for Pollution Toxic Chemical Oil Spills):	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
CHA, Seth Fowler:	(518) 453-4547
APDC, Patrick Jordan:	(518) 463-8763
EPA, Dr. James Haklar:	(212) 637-3037

3.5.2 Map and Directions to Nearest Health Facility

Site Location: 700 Smith Blvd, Albany, NY

Nearest Hospital Name: Albany Medical Center Hospital

Hospital Location: 43 New Scotland Avenue, Albany, NY

Hospital Telephone: (518) 262-1200

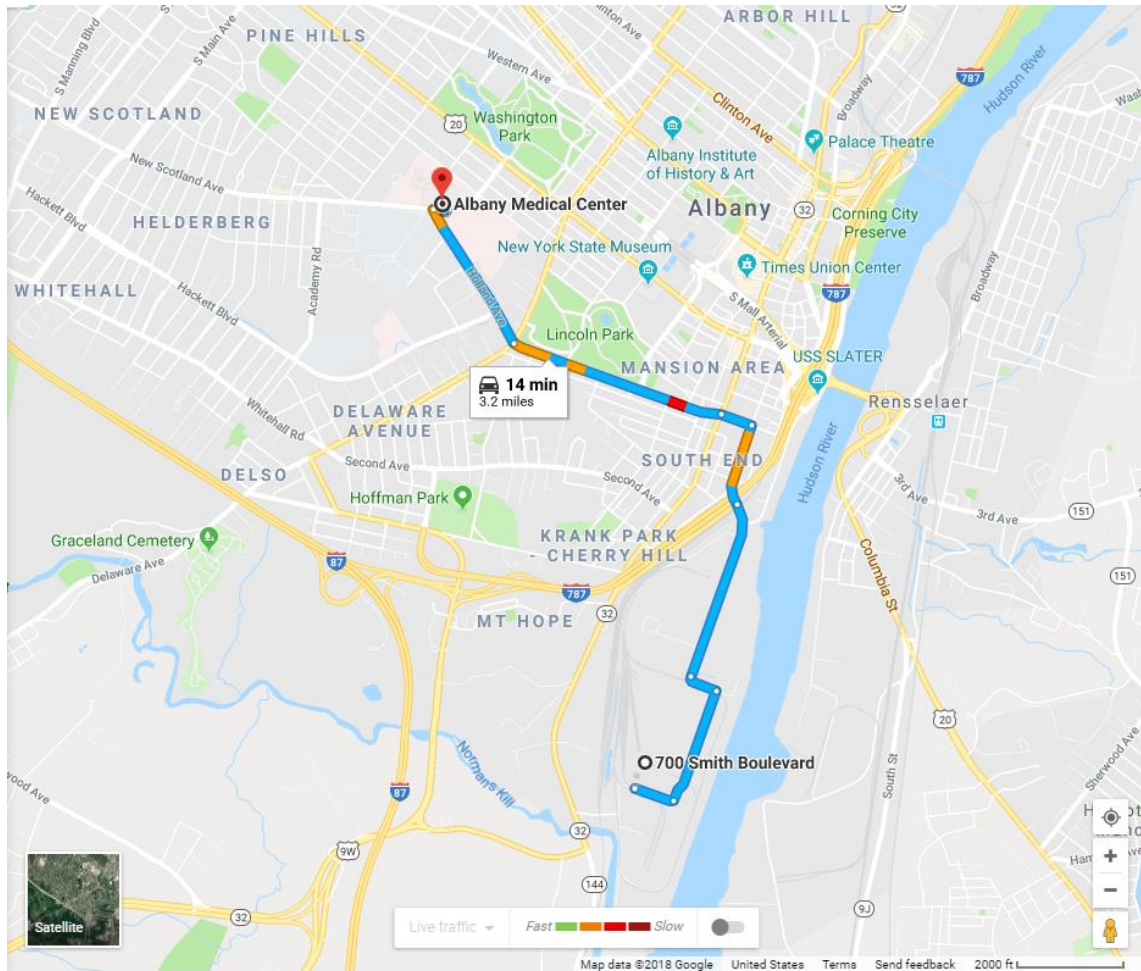
Directions to the Hospital:

1. Head north on Smith Blvd.
2. Turn left onto Boat Street
3. Continue onto Church Street
4. Continue onto Green St/Vine St
5. Turn left onto Rensselaer St

6. Continue onto Morton Ave
7. Continue onto Holland Ave
8. Turn right onto New Scotland Ave
9. Turn left into Albany Medical Center

Total Distance: 3.2 miles

Total Estimated Time: 14 minutes



3.5.3 Response Procedures

As appropriate, the fire department and other emergency response groups will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 3). The list will also be posted prominently at the Site and made readily available to all personnel at all times.

3.5.3.1 Spill Response Procedures

1. Immediately upon evidence that a spill or release has occurred, facility personnel shall call the APDC Emergency Contact (Table 3) and inform them of the pertinent facts related to the spill event (i.e., location, source of spill, immediate threats).
2. Secure the spill Site.
3. Check for immediate threats or people in danger.
4. Evaluate exposures to response personnel, the public, and the environment.
5. Call environmental services contractor, as necessary, for assistance with spill containment and cleanup.
6. Begin to contain the spill using spill containment equipment. All cleanup personnel will utilize appropriate personal protective equipment (PPE), such as gloves, boots, coveralls, eye protection, etc. in accordance with the HASP.
7. Barricade the point of release and the point at which the discharge exits the building (if applicable) with oil absorbent materials.
8. Prevent the flow into storm drains or other points of concern using oil absorbent booms and other materials to the extent possible.
9. Call Emergency Response (Fire Department) for assistance if necessary or if the surrounding community is affected.
10. Call the State Spill Hotline at (800) 457-7362 for spills or releases that exceed Federal or State reportable quantities, within two hours of discovery of the spill.
11. Call the National Response Center (NRC) at (800) 424-8802 if the spill has reached navigable water or adjoining shorelines.

In some situations, an accidental discharge can be discovered without knowing the source of the spill. An example of this would be someone reporting an oil sheen on a surface water body. In these cases, the following spill alert procedures will be implemented:

1. Call APDC and inform them of the pertinent facts related to the spill event (i.e., location, extent, immediate threats).
2. Contain the spill as much as possible. For example, if an oil discharge is discovered on a surface water body, use an oil absorbent boom to surround the affected area to the extent practical.
3. Trace the spill either upstream or up-gradient to locate the source. Look for culverts which may be conveying the oil or chemical, areas of sloped ground from which there may be a seep of oil or evidence of chemical staining, or storm sewer catch basins, grates, or pipes that may have evidence of oil or chemicals present.

4. If the release cannot be traced back to a definite source, a systematic check of all potential on-site sources should be performed (see items 5 through 8 below), while some response team members stay at the Site of the detected spill to begin cleanup and continue containment.
5. Begin checking vehicles or maintenance equipment closest to where the spill was detected. Examine the area for staining, odors, or corrosion.
6. Check parking areas that have storm drainage that discharges to the affected area.
7. If the source of the release is found, implement the spill response procedures outlined above.
8. If cause of the release is not found and the discharge is continuing, response and containment should continue, and the fire department should be contacted. Appropriate authorities should also be contacted (state and NRC).

3.5.3.2 Methods of Disposal of Recovered Materials

Materials recovered from spill response measures will be appropriately containerized and labeled as to contents, including the date and nature of the contamination. APDC or designated representatives will make a hazardous waste evaluation of the containerized waste in accordance with the requirements of 6 NYCRR Part 371. In the event that the material is determined to be a regulated hazardous waste, it will be managed and disposed of in accordance with the appropriate requirements of 6 NYCRR Part 374 and 376, including manifesting of the hazardous waste. If the material is being disposed of by APDC, the facility will need to apply to EPA to create an ID number. Any waste generated under a different potential future owner will require application to the EPA for another ID number.

In the event that the recovered material is determined to be non-hazardous, it will be managed and transported in accordance with the requirements of 6 NYCRR Part 364. Only appropriately trained and/or certified vendors and/or contractors will be utilized to perform cleanup and disposal services. APDC will retain a spill response contractor to perform such services.

3.5.3.3 Spill Incident Reporting

All spills will be reported to the NYSDEC Spill Hotline at (800) 457-7362 unless they meet all of the following criteria:

- The spill amount does not exceed a reportable quantity;

For spills of petroleum products only:

- The spill is a petroleum product and known to be less than 5 gallons;
- The spill is contained and under control;
- The spill has not and will not reach the State's waterways or land; and
- The spill is cleaned up within 2 hours of discovery.

When reporting a spill, the following information should be documented and provided to the NYSDEC for each reportable spill:

- The facility address and phone number;
- Date and time of the discharge;
- Type of material discharged;
- Estimated total quantity of material discharged;
- Source and/or cause of the discharge;
- A description of all affected media;
- Any damages or injuries caused by the discharge;
- Actions being used to stop, remove, and mitigate the effects of the discharge;
- Whether an evacuation may be needed; and
- The names of the individuals and/or organizations who have also been contacted.

3.5.3.4 Evacuation Procedures

It is not always necessary to evacuate the Site during an emergency. However, if there is a catastrophic failure of the Site engineering controls, a significant release that poses a threat to human health, or a significant weather event that poses a threat to the Site, evacuation may become necessary. It is important that occupants on the Site are prepared and plan for such evacuations in advance.

Evacuation from the Site

In the event that it becomes necessary to evacuate the Site, the following procedures will be utilized:

1. Stay calm.
2. Safely stop work.

3. Gather personal belongings only if it is safe to do so (Reminder: take prescription medications with you if at all possible, as it may be hours before you are allowed back in the Site).
4. Evacuate persons with disabilities first if possible. Always ask someone with a disability how you can assist BEFORE attempting any rescue technique or giving assistance.
5. Proceed to the designated gathering point, which is the main gate at Smith Blvd., and report to the appropriate roll taker. All persons should remain at the gathering point until released. Call 911 if emergency responders have not already been contacted.
6. Wait for instructions from emergency responders.
7. Do not re-enter the Site until emergency responders indicate it is safe to do so.

In the event it is necessary to evacuate the Site, emergency responders (e.g. police or fire departments) will coordinate such evacuations and determine when it is safe to return to the Site. If an evacuation is ordered, all persons on the Site should heed all safety personnel instructions relative to evacuation routes from the Site and/or follow the general flow of traffic.

3.5.3.5 Contingency Plan Amendments

APDC will notify the EPA of any amendments or changes to the Contingency Plan a minimum of 60-days prior to implementing the proposed changes. The procedures noted in this SMP are general in nature given that the Site was vacant at the time the SMP was prepared. However, as the Site is developed, more detailed plans, particularly evacuation plans, will be prepared.

4.0 SITE MONITORING PLAN

4.1 INTRODUCTION

4.1.1 General

The Site Monitoring Plan describes the measures for evaluating the performance and effectiveness of the protective cover system and fencing. This SMP may only be revised with the approval of EPA.

4.1.2 Purpose & Schedule

This Site Monitoring Plan describes the methods to be used for:

- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Site Monitoring Plan provides information on:

- Reporting requirements; and
- Site-wide inspection and periodic certification.

Monitoring of the performance of the remedy will be conducted on an annual basis until a time at which based on prior monitoring results a relaxation in that frequency is warranted, at which time such a request will be made to EPA for approval prior to any change in the monitoring schedule. The monitoring program is summarized in Table 4 below and outlined in detail in Sections 4.2 and 4.3 below.

Table 4. Schedule of Monitoring/Inspection Reports

Monitoring Program	Frequency ¹	Analysis
Site Protective Capping, Fencing, and Site Wide Inspection	Annually	Visual Inspection

Note: 1. The frequency of events will be conducted as specified until otherwise approved by EPA.

4.2 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or

monitoring devices. During these inspections, an inspection form will be completed (Appendix B). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- Confirm that Site records are up to date.

As part of the site-wide inspection, ECs, including site protective capping and Site fencing, will be inspected to evaluate the condition and the performance of the remedy. This will include a visual inspection to identify deficiencies associated with the ECs. An inspection checklist, as included in Appendix B, will be completed during each of the annual inspections, and submitted to the EPA. If at any time, the protective capping is damaged, it will be repaired in accordance with the capping specifications outline in Section 3.2, and fencing should be repaired appropriately to its original usable condition. Repairs which require the removal of impacted soils with PCBs concentrations greater than 1.0 ppm must comply with the EWP as outlined in Section 6.0.

The following list provides a summary of the types of damage that are most typical for RAP or soil capping systems and the recommended repair procedures.

1. **Shallow depressions (less than 12 inches):** In areas where shallow depressions are discovered in the capping system, the capping system may be repaired by placing additional soil/RAP in the area of the depression, grading to maintain positive drainage, and compacting the material prior to re-establishing the finished surface.
2. **Deep depressions and/or sink holes:** Deep depressions may be attributable to subsurface erosion and scouring which will need to be investigated prior to making repairs to reduce the likelihood of future reoccurrence. Following the requirements of the EWP (Section 6.0), the area should be excavated to explore for the cause of the depression. All imported materials will be RAP or clean fill and tested in accordance with the EWP (Section 6.0) prior to use.
3. **Eroded areas of the soil cover, scour or ruts:** Areas where erosion of the capping is observed will be repaired by replacing the eroded soil and compacting it prior to re-establishing the vegetative cover. Drainage paths should be rerouted to prevent future erosion problems, and appropriate erosion and sedimentation controls (ESCs) should be

temporarily installed (e.g. silt fence, rock check dams, etc.) until vegetative cover has been reestablished.

4. **Bare spots:** Bare spots on the top of the soil capping system will be repaired by re-working soil capping, re-seeding, fertilizing and mulching.
5. **Vector activity:** The annual Site-wide inspection will identify the presence of any live vectors, dead vectors, animal tracks, droppings, feeding areas, or dens. If the visual observations determine that there is a presence of burrowing vectors on-site, a professional exterminator will be contacted to develop and implement a plan to control the vector population.
6. **Overgrowth of vegetation:** The lawn/grass areas of the soil capping shall be mowed periodically to prevent establishment of “woody” vegetation that may potentially damage the soil capping system.

Damaged soil capping should be repaired with the specified materials indicated in Section 3.2. Maintenance requirements for each protective capping type are described below:

1. **Buildings/Asphalt/Concrete/RAP-** Owner or Owner’s contractor will maintain buildings and asphalt in good condition, repairing any damage or exposed subsurface soils. The cause of the damage will also be identified so future damage can be avoided.
2. **Landscaped/Green Space Areas-** Owner or Owner’s contractors will maintain landscaped or green space areas. Damaged or eroded protective capping soils will be repaired and replaced as necessary, in accordance with the EWP. The cause of all damage will be assessed as to avoid future erosion or damage.

Damaged fencing should be repaired to its original usable condition. Common problems or deficiencies which may occur with the fencing include storm damage, corrosion, frost heaving, animals (e.g. deer), vegetation growth, and damage due to trespassing. The area around the fence shall be mowed and clear and prevent establishment of “woody” vegetation that could damage the fencing.

4.3 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular inspections will be kept on file at the ADPC offices. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by EPA and (2) submitted at the time of the Annual Monitoring Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to EPA on an annual basis in the Annual Monitoring Report and will include, at a minimum:

- Date of event;
- Personnel conducting the visual inspection;
- Description of the activities performed;
- Copies of all field forms completed (e.g., inspection forms); and
- Any observations, conclusions, or recommendations.

Data will be reported in hard copy and/or digital format as determined by EPA. Maintenance reports and any other information generated during regular operations at the Site will be kept on-file on-Site. All reports, forms, and other relevant information generated will be available upon request to the EPA and submitted as part of the Annual Monitoring Report, as specified in Section 5.0 of this SMP.

5.0 INSPECTIONS, REPORTING & CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

Inspections will be conducted at the frequency specified in the schedules provided in Section 4.0 (Site Monitoring Plan) of this SMP. As previously described, a Site-wide inspection of ECs will be conducted annually. Inspections of ECs will also be conducted after a severe condition has taken place, such as an erosion or flooding event that may affect the ECs. The table below describes the inspection schedule for the Site.

Table 5. Inspection Schedule

Monitoring Program	Frequency ¹
Site Protective Capping, Fencing, and Site Wide Inspection	Annually

Note: 1. The frequency of events will be conducted as specified until otherwise approved by EPA.

5.1.2 Inspection Forms

Inspections and monitoring events will be recorded on the appropriate site management forms provided in Appendix B. These forms are subject to EPA revision. Applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the Annual Monitoring Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Site Monitoring Plan is being implemented;
- The Site remedy continues to be protective of public health and the environment.

5.2 CERTIFICATION OF ENGINEERING & INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, an annual monitoring report will be prepared that will include the following certification:

For each EC or IC identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the ECs/ICs required by the remedial program was performed under my direction;
- The IC and/or EC employed at this Site is unchanged from the date the control was put in place, or last approved by the EPA;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any Site management plan for this control;
- Access to the Site will continue to be provided to the EPA and/or NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the Environmental Easement;
- The EC systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices; and
- The information presented in this report is accurate and complete.

The signed certification will be included in the Annual Monitoring Report described below.

5.3 ANNUAL MONITORING REPORT

Annual Monitoring Report will be submitted to the EPA every year, beginning with the end of the first full calendar year following the completion of the Site protective capping installation. The report will be submitted within 45 days of the end of each certification period. Media sampling results will also be incorporated into the Annual Monitoring Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;

- Results of the required annual Site inspections and severe condition inspections, if applicable;
- Applicable inspection forms and other records generated for the Site during the reporting period in electronic format; and
- A Site evaluation, which includes the following:
 - The compliance of the remedy with the requirements of the Risk-Based Cleanup and Disposal Work Plan (CHA, February 2019);
 - Recommendations regarding any necessary changes to the Monitoring Plan; and
 - The overall performance and effectiveness of the remedy.

The Annual Monitoring Report will be submitted in electronic format to the EPA Region 2 Administrator.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an IC or EC, a corrective measures plan will be submitted to the EPA and NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the EPA and NYSDEC.

6.0 EXCAVATION WORK PLAN

As previously indicated, the Site contains contamination left after the completion of the remedial action. This Excavation Work Plan (EWP) will be implemented for all intrusive activities (as defined in Section 3.3.1) at the Site. Specifically, all activities that involve intrusive activities beneath the protective capping, or that will encounter or disturb the PCB impacted soils that remain, including any modifications or repairs to the existing site protective capping, will necessitate the implementation of this EWP as well as the preparation of a HASP.

6.1 NOTIFICATION

At least 60 days prior to the start of any activity that is anticipated to encounter remaining contamination, the Site owner or their representative will notify the EPA and NYSDEC. Currently, this notification will be made to:

Chief, Corrective Action Section
Hazardous Waste Programs Branch
Land, Chemicals and Redevelopment Division
United States Environmental Protection Agency Region 2
290 Broadway
New York, NY 10007-1866
(212) 637-3030

John Grathwol, DEC Project Manager (1 hard copy (unbound for work plans) & 1 electronic copy)
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, Albany, N.Y. 12233
john.grathwol@dec.ny.gov

These notifications will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for Site re-grading, intrusive elements or utilities to be installed below the Site protective cap, estimated volumes of contaminated soil to be excavated and any work that may impact an EC;

- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's HASP, in electronic format, in accordance with Section 7.0, Health and Safety Plan Requirements;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

6.2 SOIL SCREENING METHODS

It is anticipated that following hot spot area excavations, the residual concentrations of PCBs on-Site will be less than 25 ppm. Visual, olfactory and instrument-based soil screening will be performed during all remedial and development excavations into known or potentially contaminated material (remaining contamination). This screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work below the Site protective cap performed during development, such as excavations for foundations and utility work.

Soils will be segregated based on previous environmental data and visual, olfactory and instrument-based soil screening results into material that requires off-Site disposal, material that requires further testing, and material that can be returned to the subsurface. Should free product (e.g., oil) be encountered it will be containerized immediately. Material encountered that exhibits staining or odors will be sampled in-situ and analyzed for PCBs. Work in this area will not continue until the PCB concentrations are determined. Though not anticipated, if material containing PCBs at concentrations exceeding 25 ppm is encountered it will be disposed of off-Site in accordance with local, State and Federal regulations and the underlying/surrounding soil will also be sampled for PCBs.

6.3 STOCKPILE METHODS

If temporary stockpiling of Site soils is determined to be necessary, all excavated materials beneath the Site protective cap will be required to be stockpiled on a temporary containment pad. The temporary containment pad will be of sufficient size to store a minimum of 110 percent of the maximum amount of soil that will be stockpiled prior to re-use or off-Site disposal. At a minimum, any soil containment pads will include the following:

- A sufficiently large area with accessibility for trucks and construction equipment. The area shall be relatively flat and away from drainage inlets;
- A 20-mil thick polyethylene sheeting liner with a minimum of two-foot wide overlaps between successive rows;
- A minimum of a one-foot high soil berm shall be constructed around the perimeter of each pad to control runoff/run-on to and from the stockpiles. Gravel/stone ramps with gentler slopes will be constructed at locations of ingress and egress for each pad;
- Soil stockpiles that will remain in place for more than one (1) week will also be continuously encircled with silt fence;
- Hay bales and other erosion and sediment controls will be installed as needed near catch basins and other discharge points;
- Stockpiles will be kept covered at all times with appropriately anchored 10-mil polyethylene sheeting. Stockpiles will be routinely inspected, and damaged tarp covers will be promptly replaced;
- Stockpiles shall be maintained at a maximum height of 15 feet above surrounding surface subgrade elevation with a maximum slope of 1.5:1 to maintain stability. However, the appropriate slope may vary by material and the contractor performing stockpiling activities will be responsible for determining the safe allowable slopes for each material stockpiled on Site in accordance with all applicable regulations; and,
- Material will be stockpiled for no more than 180 days.

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.

6.4 MATERIAL EXCAVATION & LOAD OUT

The Owner's engineer or Contractor's engineer will oversee all invasive work and the excavation and load-out of all excavated material. If both an engineering consultant and a contractor consultant are part of the excavation work team, the roles of each party will be identified to the EPA as part of the notification process.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The presence of utilities and easements on the Site will be investigated. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

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

A truck wash will be operated on-Site if the trucks come in contact with contaminated soils at the Site. All outbound trucks which come into contact with remaining contamination will be decontaminated at the truck wash before leaving the Site until the activities performed under this section are complete. Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking. Truck wash water will be collected and disposed of off-Site in accordance with Section 6.8.

The Owner and/or Contractor's engineer is responsible for coordinating that all egress points for truck and equipment transport from the Site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

6.5 MATERIAL 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.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: All trucks shall utilize Smith Boulevard to enter and exit the Site. Upon exiting the Site, trucks shall proceed to Church Street and then enter Green Street for access to Interstate 787. All trucks loaded with Site materials will exit the vicinity of the Site using only this approved truck route. This is the most appropriate route and takes into account: (a) limiting transport through residential areas; (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 the directly outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site development activities.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

6.6 MATERIAL DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6 NYCRR Part 360) and Federal regulations. Impacted soils will be removed and transported off-site to a licensed disposal facility in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(ii). If disposal of soil/fill from this Site is proposed for unregulated off-Site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the EPA. Unregulated off-Site management of materials from this Site will not occur without formal EPA approval.

Off-Site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility, if appropriate (i.e. hazardous waste disposal facility, solid waste landfill, etc.). Actual disposal quantities and associated documentation will be reported to the EPA in the Annual Monitoring Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

6.7 MATERIAL RE-USE ON-SITE

Following remedial activities identified in the PCB Risk-Based Cleanup and Disposal Application, “reuse on-Site” means reuse on-Site of material that originates from the Site, contains less than 25 ppm PCBs and which does not leave the Site during the excavation. The Owner’s engineer or Contractor’s engineer will check that procedures defined for material reuse in this SMP are followed and that unacceptable material, including organic matter (including, but not limited to, vegetation, wood, roots, and stumps), does not remain on-site. Unacceptable material will be disposed of off-Site in accordance with local, State and Federal regulations based upon the concentration of PCBs in the area where the organic matter originated. PCB-impacted soil that is acceptable for reuse on-site (i.e. less than 25 ppm PCBs) must be placed below the Site protective cap and the cap restored.

6.8 FLUIDS MANAGEMENT

Liquids to be removed from the Site, including excavation dewatering and truck wash water, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site but will be managed off-Site. Pre-treatment may be used in lieu of off-Site disposal if appropriate permits from the local sewer authority are obtained and is accepted by the Owner. The concentrations of PCBs in the liquid to be disposed of at the local sewer authority will be no more than 3 parts per billion (ppb) in accordance with CFR 761.79(b)(1)(ii). Liquids which are pending off-site disposal of which have not yet been treated prior to discharging to the local sewer authority will be temporarily held in appropriate containers (e.g., 55-gallon drums) in accordance with local, State, and Federal regulations.

6.9 SITE PROTECTIVE CAPPING RESTORATION

After the completion of soil removal and any other invasive activities, the Site protective cap will be restored in a manner that complies with the Engineering Control Systems defined in Section 3.2.1. If the type of cap system changes from that which exists prior to the excavation or intrusive activities (i.e., RAP replaced by asphalt), a figure showing the modified surface will be included in the subsequent Annual Monitoring Report and in any updates to the SMP.

6.10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the Owner’s engineer and will be in compliance with provisions in this SMP prior to receipt at the Site. Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

Backfill and cap material will consist of clean fill, determined as follows, or RAP. Documentation will be obtained confirming the clean fill material that is not clean gravel, rock or stone, or is recycled concrete or brick consistent with 6 NYCRR Part 360. Backfill imported to the Site will be subject to chemical testing in accordance with the following table or will be subject to the allowable exemptions for specified beneficial use materials per 6 NYCRR Part 360 – 1.15(b), if such materials are approved by the Owner. The RAP to be used for the cap will be compliant with the NYSDEC approved BUD, any other soils imported will meet the chemical testing requirements. Any other soils imported will meet the chemical testing requirements. Please note that at the request of EPA, this table has been modified from NYSDEC regulations to require that PCBs be analyzed from discrete intervals rather than from composite samples.

Table 6. Sampling Frequency Requirements for Imported Soils

Soil Quantity (cubic yards)	VOCs & PCBs	SVOCs, Inorganics & Pesticides	
	Discrete Samples	Composite	Discrete Samples/Composite
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1,000	7	2	
1,000	Add an additional 2 VOC/PCB discrete samples and 1 composite sample for each additional 1,000 Cubic yards		

The analytical results for imported soil must meet the “industrial use” values provided in Appendix 5 of DER-10, Allowable Constituent Levels for Imported Fill or Soil. As such, imported material will not contain PCB concentrations exceeding 1 ppm.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases. 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.

Bills of lading should be provided to the Site Owner or Owner's representative to document that the fill was delivered from an approved source. The bills of lading will be included with Annual Monitoring Reports.

6.11 STORMWATER POLLUTION PREVENTION

Prior to beginning any intrusive activities, appropriate ESCs will be installed. This section is intended to provide general guidelines for installing and maintaining ESCs; however, the appropriate ESCs need to be selected on a case-by-case basis given the location of the activity, the size on the disturbance, the proximity of the activity to discharge points, etc. All erosion and sediment controls should be designed and installed in accordance with the NYSDEC's Standards and Specifications for Erosion and Sediment Control, dated August 2005 or later.

Proven soil conservation practices will be incorporated in future work plans involving intrusive activities to mitigate soil erosion, off-Site sediment migration, and water pollution from erosion. These practices may combine both vegetative and structural measures. Some measures will be permanent in nature and become part of the completed project (design features such as drainage channels and grading). Other measures will be temporary and serve only during the construction stage. The Contractor will remove temporary measures at the completion of construction and stabilization of the Site. The selection of ESC measures will be based on several general principles, including:

- The minimization of erosion through project design (maximum slopes, phased construction, etc.).
- The incorporation of temporary and permanent erosion control measures.
- The removal of sediment from sediment-laden storm water before it leaves the Site.

The use of appropriate temporary erosion control measures such as silt fencing and/or hay bales will be required around all soil/fill stockpiles and un-vegetated soil surfaces during construction activities. These methods are described below. Stockpiles shall be graded and compacted as necessary to provide positive surface water runoff and dust control. Stockpiles of soil/fill will be placed a minimum of twenty feet from the Site boundaries and as far away from discharge points as practical.

6.12 TEMPORARY EROSION CONTROL MEASURES

Prior to any intrusive activity, temporary ESC measures shall be installed and maintained until such time that permanent ESC measures are installed and effective. Additional sediment control measures may also be necessary. Structural measures, such as those described below, will be designed and installed to provide the required ESC:

- Silt fencing
- Straw bales
- Temporary vegetation/mulching

Re-grading and cover activities may result in sheet flow to various areas of the Site, and therefore, silt fencing will be used as the primary sediment control measure for disturbed areas. Prior to extensive clearing, grading, excavation, and placement of cover/capping soils, silt fences will be installed along all construction perimeter areas to prevent sedimentation in low areas and drainage areas. The location and orientation of silt fencing will be determined based upon the planned intrusive activities, drainage pathways, etc. Breaks and overlaps in the silt fencing may be required to allow construction vehicles access to the construction areas but will be minimized. Intermediate silt fencing will be used upslope of perimeter areas where phased construction activities are occurring. This measure will effectively lower sheet flow velocities and reduce sediment loads to perimeter fencing. In addition, silt fencing around soil stockpiles will be required. The perimeter silt fences will remain in place until construction activities in the area are completed and vegetative cover or other erosion control measures are adequately established.

Straw bales will be used to intercept sediment-laden runoff from storm water channels as needed during various phases of intrusive activities. Additional straw bale dikes may be necessary in some areas during some phases of construction. Use of straw bales will be limited to swales and/or diversion ditches where the anticipated flow velocity will not be greater than five (5) feet per second (FPS). Where flows may eventually exceed five (5) FPS along a swale or diversion ditch, an intermediate straw bale barrier will be installed up-gradient of the final bale barrier. The intermediate bale barrier will effectively reduce flow velocities and sediment load to the final barrier. Straw bale barriers will remain in place until construction activities contributing sediment to the barrier are complete and vegetative cover or other erosion control measures are adequately established.

In areas where activities will not resume for a period in excess of two weeks, the disturbed areas will be seeded with a quick germinating variety of grass or covered with a layer of straw mulch. The temporary cover will act to stabilize the soil and reduce erosion. As construction progresses, areas containing temporary vegetation or straw mulch can be covered without removal of the temporary vegetation or mulch.

The following minimal checks will be made throughout the duration of intrusive activities to ensure the continued performance of the ESCs:

- 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. All necessary repairs shall be made immediately;
- Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Accumulated sediment will be removed when fifty (50) percent of the storage capacity of the straw bale barrier has been reached in order to maintain performance of the barrier and prevent overtopping or failure of the straw bale barrier;
- All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Accumulated sediment on the up-gradient side of the silt fence will be removed whenever fifty (50) percent of the storage capacity of the fence has been reached in order to maintain performance of the fence and reduce the likelihood of a structural failure of the fence;
- Removed sediment and sediment laden straw bales will be stockpiled, dewatered and disposed of off-Site in accordance with 40 CFR 761.61(a)(5)(i)(B)(2)(ii);
- Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering;
- ESC measures identified in the SMP 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; and,
- Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

6.13 PERMANENT EROSION CONTROL MEASURES

Permanent erosion control measures and facilities will be incorporated into the Site as part of all future intrusive activities as appropriate. Permanent ESCs and facilities will be installed as early as possible during construction phases. Preventing erosion and scour of the site protective capping (e.g., soil cover) system will be a critical component of all future intrusive activities.

Final site protective capping system requirements are detailed in Section 3.2.1.1.

6.14 COMMUNITY AIR MONITORING PLAN

Air monitoring will be performed at the Site during all intrusive activities conducted below Site protective capping and within any uncapped Site “low-occupancy” areas in accordance with the New York State Department of Health (NYSDOH) *Generic CAMP*, and Appendix 1A and 1B of DER-10. All air monitoring will be conducted on a real-time basis using both hand-held field instruments and perimeter air monitoring stations. All air monitoring readings will be recorded in a logbook and/or recorded by data loggers and made available for review by the EPA. The CAMP developed for the Site consists of two primary components, fugitive dust control plan and vapor control plan. Air monitoring will be conducted both upwind and downwind of the intrusive activities and will be compared to assess if the activities are causing potential airborne migration of particulates and/or gases.

The CAMP is not intended for use in establishing action levels for worker respiratory protection that are otherwise described in Site-specific HASPs prepared for the intrusive Site activities. Rather, its intent is to provide a measure of protection for the downwind community (i.e. off-Site receptors including residences and businesses and on-Site workers not directly involved with the subject work activities) from potential airborne releases as a direct result of the proposed work activities. Reliance on the CAMP should not preclude simple, common-sense measures to keep dust and odors at a minimum around the work areas, and supplements to the CAMP may be required depending on the nature of the planned intrusive activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP will assist in preventing the intrusive activities from spreading contamination off-Site through the air. Actions necessary to respond to exceedances of the action levels will be included in the EWP.

Particulate air monitoring will be performed during excavation activities to evaluate fugitive dust generated by excavating. An air monitoring program will be prepared to provide for real-time air monitoring of particulates at the downwind perimeter of each designated work area during the remedial excavation. The particulate monitoring will use visual assessment as well as real-time

monitoring equipment capable of measuring particulate matter less than ten (10) micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. Sampling stations will be situated upwind and downwind of the largest dust producing activity occurring at the Site at the boundary of the work zone. The sampling locations will be periodically adjusted to account for observed changes in wind direction. Instruments will be calibrated in accordance with HASP and the instrument manufacturer's recommendations.

Each set of equipment will be equipped with audible alarms to indicate exceedance(s) of action levels indicated in the NYSDOH Generic Community Air Monitoring Plan CAMP. The downwind action level is 100 micrograms per cubic meter (ug/m³) greater than background (as measured from the upwind station) and measured over a 15-minute average. If particulate levels are detected in excess of this value or if fugitive dust is observed leaving the Site, dust suppression techniques will then be implemented to reduce the generation of fugitive dust and corrective action taken to protect Site personnel and reduce the potential for contaminant migration. Work may resume under the condition that dust suppression and other measures are undertaken and particulate levels do not exceed 150 ug/m³ (15-minute average) above the upwind level and provided no visible dust is observed leaving the Site.

Air monitoring of particulate concentrations will be documented using an air monitoring field form. This form will be completed on a daily basis and records of this form will be available for regulatory agency review upon request. Response actions to observed exceedances of action levels will be documented using a field form that will be available for regulatory agency review upon request.

6.15 ODOR CONTROL PLAN

The odor control plan will be implemented as warranted to control emissions of nuisance odors off-Site and on-Site. If nuisance odors are identified at the Site boundary, or if odor complaints are received, 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. EPA will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the Owner's engineer and/or Contractor and Contractor's engineer, and any measures that are implemented will be discussed in the Annual Monitoring Report.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, the following specific odor control measures will be used on a routine basis:

1. Limiting the area of open excavations and size of soil stockpiles.

2. Reducing the speed of excavation activities.
3. Shrouding open excavations with tarps and other covers.
4. Considering weather factors when planning daily activities.
5. Using foams to cover exposed odorous soils.
6. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include:
 - a. Direct load-out of soils to trucks for off-Site disposal.
 - b. Use of chemical odorants via spray or misting systems.
 - c. Use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

6.16 DUST CONTROL PLAN

Dust emissions may occur at the project Site during intrusive activities, including but not limited to, excavation activities. Therefore, fugitive dust control measures will be implemented during intrusive excavation activities conducted below the Site protective cap. A dust suppression plan that addresses dust management during invasive on-Site work may include the items listed below:

1. Dust suppression through the use of a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles. Fire hoses and/or garden hoses equipped with sprayers will be utilized for smaller type projects. All water utilized for dust control must be potable water from municipal water systems. The use of groundwater from the Site will not be permitted;
2. Clearing and grubbing of larger sites will be done in stages to limit the size of the area of exposed, un-vegetated soils vulnerable to dust production;
3. Gravel will be used on access roadways to provide a clean and dust-free road surface;
4. On-Site roads will be limited in total area to minimize the area required for water truck sprinkling;
5. Traffic speeds, particularly for construction traffic, will be reduced; and,

6. Stockpiles and excavations will be covered with tarps and polyethylene sheets, as previously described, to reduce the potential for dust generation.

Appendix 1B – Fugitive Dust Suppression and Particulate Monitoring as provided in the NYSDEC’s DER-10 provides guidance for monitoring particulate matter at impacted Sites and suppressing fugitive dust that will be implemented for intrusive activities performed at this Site.

7.0 HEALTH & SAFETY PLAN REQUIREMENTS

All individuals performing intrusive activities at the Site that will penetrate the Site protective capping, or encounter or disturb the PCB impacted soils that remain in soils, including any modifications or repairs to the existing Site protective capping will be required to prepare and implement a Site-specific and activity-specific HASP. The activities that may require a HASP include, but are not limited to: redevelopment, improvement, maintenance, monitoring, or other intrusive activities on the Site. The HASP must be prepared by a qualified person in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standard of the federal Occupational Safety and Health Administration (OSHA), U.S. Department of Labor (DOL), as well as any other federal, state or local applicable statutes and regulations.

Because it is not feasible to prepare a HASP that is inclusive of all possible activities that may occur on the Site, a separate HASP will be prepared for each project or activity. The persons performing the annual Site wide inspection and monitoring activities will be responsible for preparing a HASP to cover such activities.

Contractors performing work at the Site will be responsible for preparing their own task-specific HASP. While much of the information contained in this SMP may be sufficient, the need for additional hazard analyses is expected to change based upon the type of work to be performed (e.g. hot work permits, confined space entry, etc.) and the equipment (e.g. heavy machinery, ladders, scaffolding, etc.) that is to be used. Additionally, some of the emergency contact info may change, Safety Data Sheets (SDSs) may need to be added, etc. The contractors' HASP must be submitted to the Site Owner and/or the Site representative prior to the commencement of intrusive activities for review.

This section provides only the minimum requirements for a HASP, but should not be construed as the HASP, as it is not activity specific, nor hazard specific. The Contractor will not be permitted to commence with construction/intrusive activities until the HASP has been received by the EPA and Site Owner's representative.

Acceptance of the Plan does not waive any responsibility of the Contractor to ensure that the HASP is adequate to comply with all regulations or compliance by personnel. Neither the Site owner, nor the EPA, assume, in any manner, the control or responsibility of the Contractor to provide safe working conditions of the contractor's employees or subcontractors in requiring the Contractor to

follow general safety requirements. The contractors shall maintain the following items on the Site, at a minimum, when conducting intrusive Site activities:

- A copy of the HASP
- First aid kit
- Fire extinguisher(s)
- Personal protective equipment (PPE)
- Air monitoring equipment and calibration equipment
- Spill containment equipment and cleanup materials

7.1 COMPLIANCE

Disregard for the provisions of the HASP by the remedial Contractor and/or his subcontractors or employees shall be deemed just and sufficient to cause for stoppage of work by the Owner and/or EPA. Furthermore, compliance with the minimum requirements in this document does not relieve the Contractor from the responsibility for implementing proper health and safety procedures during unanticipated conditions throughout the duration of the work at the Site covered by this SMP.

All on-Site workers must comply with the requirements of the HASP. The Contractor's HASP must comply with all applicable federal (including 29 CFR 1910.120 and 29 CFR 1926) and state regulations protecting human health and the environment from the hazards posed by activities during intrusive Site activities.

7.2 RESPONSIBILITIES

The Contractor shall:

1. Be responsible and liable for the health and safety of all on-Site personnel and off-Site community impacted by the Site redevelopment activities;
2. Ensure all OSHA health and safety requirements are met (29 CFR 1910 – General Industry Safety and Health Standards and 29 CFR 1926 – Construction Industry Safety and Health Standards) and be responsible for compliance with all federal and state regulations;
3. Ensure that all project personnel have been trained in accordance with 29 CFR 1910.120;
4. Perform all work in a safe and environmentally acceptable manner. The Contractor will provide for the safety of all project personnel and make all reasonable efforts to protect

- the environment and community during the remedial activities. Barricades, warning lights, roped-off areas, and proper signs shall be furnished in sufficient amounts and locations to safeguard the project personnel and public at all times;
5. Employ a Safety Officer (SO) who shall be assigned full-time responsibility for all tasks herein described under this HASP and be on-Site during all remedial activities. In the event the SO cannot meet his or her responsibilities, the Contractor shall be responsible for obtaining the services of an "alternate" SO meeting the minimum requirements and qualifications. No work will proceed on this project in the absence of an approved SO;
 6. Ensure that all project personnel have obtained the required physical examination prior to and at the termination of work covered by the contract;
 7. Be responsible for the pre-job indoctrination of all project personnel with regard to the HASP and other safety requirements to be observed during work, including but not limited to (a) potential hazards, (b) personal hygiene principles, (c) personal protection equipment, (d) respiratory protection equipment usage and fit testing, and (e) emergency procedures dealing with fire and medical situations;
 8. Be responsible for the implementation of this HASP and the Emergency Contingency and Response Plan;
 9. Provide and ensure that all project personnel are properly clothed and equipped and that all equipment is kept clean and properly maintained in accordance with the manufacturer's recommendations or replaced as necessary;
 10. Will perform all Site redevelopment work in a safe and environmentally acceptable manner. The Contractor will provide for the safety of all project personnel and the community for the duration of the redevelopment activities;
 11. Have sole and complete responsibility for safety conditions for the project, including safety of all persons (including employees);
 12. Maintain a chronological log of all persons entering the project Site. It will include organization, date, and time of entry and exit. Each person must sign in and out;
 13. Maintain and keep available safety records, up-to-date copies of all pertinent safety rules and regulations, material safety data sheets, the Contractor's Site-specific HASP, and the emergency response plan;
 14. Hold safety meetings, including routine on-Site safety meetings; and,

15. Stop work whenever a work procedure or a condition at the work Site is deemed unsafe by the SO.

7.3 ELEMENTS OF A HEALTH AND SAFETY PLAN

A Site-specific HASP will be prepared in accordance with OSHA regulations and 29 CFR 1910.120. The HASP will contain the following elements at a minimum:

- All items identified in OSHA regulations 29 CFR 1910.120(b)(4);
- Organization and responsibilities of the project/health and safety team along with emergency phone numbers;
- Characterization of the chemical, biological, and physical hazards present at the Site;
- Identification and evaluation of all Site hazards/risks associated with each task to be completed;
- A description of the medical monitoring program for on-Site personnel;
- A summary of the real-time air-monitoring program or CAMP to be conducted during intrusive activities. The CAMP is intended to provide a measure of protection for the downwind community rather than for use in establishing action levels for worker respiratory protection. The CAMP requires that particulate levels are visually monitored within the exclusion zone, and if dust levels are observed to be increasing, to conduct real-time monitoring at the upwind and downwind perimeters of the Exclusion Zone. The CAMP should establish a downwind action level and discuss the measures to be employed (e.g., dust suppression) if an exceedance of the action level is observed;
- Site control measures;
- Instructions on the selection and use of PPE and action levels for upgrading or downgrading PPE.
- Proper delineation of work zones;
- Decontamination procedures for both equipment and on-Site personnel;
- An accident prevention and contingency plan; and,
- Other applicable procedures relative to Hazard Communication (Right-to-Know) Program, first aid procedures, cold/heat stress, confined space entry, hot work permits, lockout/tagout, spill containment program, etc. and material safety data sheets for all chemicals brought onto the project Site.

7.4 POTENTIAL SITE HAZARDS

7.4.1 Physical Hazards

Physical hazards such as the following may be encountered on Site:

- Slip/Trip/Fall (e.g. from animal burrows, debris, steep topography, ice, etc.)
- Ultraviolet rays
- Lifting strains (e.g., equipment)
- Heavy machinery and vehicles (e.g. excavator)
- Flying debris (e.g. debris from excavation equipment)
- Noise (e.g. elevated noise levels associated with excavation equipment)
- Heat/cold stress

7.4.2 Biological Hazards

Biological hazards such as the following may be encountered on Site:

- Poisonous plants – poison ivy, poison oak, poison sumac
- Insects/animals – deer ticks, mosquitoes, rabid animals, snakes, turkeys, stray animals

7.4.3 Chemical Hazards

Based upon past environmental investigations completed at the Site, Site personnel may be exposed to the following chemical hazards during intrusive activities.

Table 7. Possible Chemical Hazard Exposures

Chemical	Target Organ
Arsenic	Liver, kidneys, skin, lungs, lymphatic system
Benzo(a)pyrene	Skin, respiratory system, bladder, kidneys
Dibenzo(a,h)anthracene	Skin, respiratory system, bladder, kidneys
1,1-Dicloroethene	Eyes, skin, respiratory system, central nervous system (CNS), liver, kidneys
Iron	Eyes, skin, respiratory system, liver, GI tract
Lead	Eyes, gastrointestinal (GI) tract, CNS, kidneys, blood, gingival tissue
PCBs	Skin, eyes, liver, reproductive system
Magnesium	Eyes, respiratory system
Manganese	Respiratory system, CNS, blood, kidneys
Methyl Tert Butyl Ether	Liver, CNS, kidneys
Mercury	Eyes, skin, respiratory system, CNS, kidneys

Chemical	Target Organ
Sodium	Eyes, CNS, cardiovascular system, GI tract
Vinyl Chloride	Liver, CNS, blood, respiratory system, lymphatic system

The potential exposure mechanism that can transport particulates from the areas of the inspection and monitoring to other areas of the Site as well as beyond the boundaries of the Site are:

- Soil from intrusive activities projected by air currents; and
- Contact with the soil and/or groundwater.

TABLES

Table 1
 Summary of Contamination to Remain in Soil - PCBs
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments	
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'		
SS-1	Plumley	8/12/2014	No	15.46 a	--	--	--	--	--	--		
SS-2	Plumley	8/12/2014	No	15.16	--	--	--	--	--	--		
SS-3	Plumley	8/12/2014	No	11.01	--	--	--	--	--	--		
SS-4	Plumley	8/12/2014	No	11.43 a	--	--	--	--	--	--		
SS-5	Plumley	8/12/2014	No	9.7 a	--	--	--	--	--	--		
SS-6	Plumley	8/12/2014	No	6.84	--	--	--	--	--	--		
SS-7	Plumley	8/12/2014	No	11.78	--	--	--	--	--	--		
SS-8	Plumley	8/12/2014	No	2.914 a	--	--	--	--	--	--		
SS-9	Plumley	8/12/2014	No	10.77 a	--	--	--	--	--	--		
SS-10	Plumley	8/12/2014	No	1.15 a	--	--	--	--	--	--		
SS-11	Plumley	8/12/2014	No	-----Excavate to 2 ft-----		--	--	--	--	--		
SS-11	CHA	10/16/2018	Yes	-----Excavate to 2 ft-----		3.49 J	--	0.0357 U	--	--		
11N	Sterling	6/17/2015	No	4.48	--	--	--	--	--	--		
11E	Sterling	6/17/2015	No	4.55	--	--	--	--	--	--		
11EDup	Sterling	6/17/2015	No	4.5	--	--	--	--	--	--		
11W	Sterling	6/17/2015	No	4.58	--	--	--	--	--	--		
SS-12	Plumley	8/12/2014	No	7.76 a	--	--	--	--	--	--		
B-1	Plumley	8/12/2014	No	--	8.14	--	--	--	0.039 U	--		
B-2	Plumley	8/12/2014	No	--	--	5.11		--	--	--		
B-3	Plumley	8/12/2014	No	1.078			--	--	--	--		
B-4	Plumley	8/12/2014	No	0.942 a			--	--	--	--		
B-5	Plumley	8/12/2014	No	0.040 U			--	0.041 U	--	--		
B-6	Plumley	8/12/2014	No	--	--	5.64		--	--	--		
B-7	Plumley	8/12/2014	No	--	--	--	--	--	0.042 U	--		
B-8	Plumley	8/12/2014	No	2.301 a			--	--	--	--		
B-9	Plumley	8/12/2014	No	1.11 a			--	--	--	--		
B-10	Plumley	8/12/2014	No	1.917			--	0.041 U	--	--		
B-11	Plumley	8/12/2014	No	--	--	--	--	0.037 U	--	--		
S-1	Plumley	8/12/2014	No	--	--	--	17.61* a	--	--	--	*Sample obtained from 3.5'	
DB-1	Plumley	8/12/2014	No	0.469 a	--	--	--	--	--	--		
GP-1	CHA	12/2/2014	Yes	7.9	--	0.27 U	--	--	--	--		
GP-2	CHA	12/2/2014	Yes	18.2 J	--	0.21 U	--	--	--	--		
GP-3	CHA	12/2/2014	Yes	20.2	--	0.21 U	--	--	--	--		
GP-4	CHA	12/2/2014	Yes	3.08	--	--	0.27* U	--	--	--	*Sample obtained from 2'8"-3'7"	
GP-5	CHA	12/2/2014	Yes	6.23 J	--	0.22 U	--	--	--	--		
GP-6	CHA	12/2/2014	Yes	13.5 J	--	0.25 U	--	--	--	--		
GP-7	CHA	12/2/2014	Yes	14.5	--	0.24 U	--	--	--	--		
GP-8	CHA	12/2/2014	Yes	17 J	--	0.21 U	--	--	--	--		
GP-9	CHA	12/2/2014	Yes	21.2	--	0.24 U	--	--	--	--		
GP-10	CHA	12/2/2014	Yes	18.3 J	--	0.28 U	--	--	--	--		
GP-11	CHA	12/2/2014	Yes	17.6 J	--	0.36 J	--	2.9 J	--	--		
GP-12	CHA	12/2/2014	Yes	14	--	3.71 J	--	0.28 U	--	--		
GP-13	CHA	12/2/2014	Yes	18.3 J	--	0.24 U	--	--	--	--		
GP-14	CHA	12/2/2014	Yes	7.23 J	--	0.23 U	--	--	--	--		
GP-15	CHA	12/3/2014	Yes	-----Excavate to 4 ft-----				9.8	0.26 U	--	--	
15W	Sterling	6/17/2015	No	--	--	3.48	--	--	--	--		
15N	Sterling	6/17/2015	No	--	--	10.4	--	--	--	--		
15E	Sterling	6/17/2015	No	--	--	13.6	--	--	--	--		
GP-16	CHA	12/3/2014	Yes	8.7	--	0.7 J	--	0.25 U	--	--		
GP-17	CHA	12/3/2014	Yes	9.4 J	--	--	--	4.8 R	--	--		

Table 1
 Summary of Contamination to Remain in Soil - PCBs
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-18	CHA	12/3/2014	Yes	7.8 J	--	5.9 J	--	0.23 U	--	--	
GP-19	CHA	12/3/2014	Yes	22.5 J	--	--	--	3.6	0.23 U	--	
GP-20	CHA	12/3/2014	Yes	8.4	--	1.15 J	--	2.52	--	--	
GP-21	CHA	12/3/2014	Yes	11.2 J	--	0.24 U	--	--	--	--	
GP-22	CHA	12/3/2014	Yes	10.4 J	--	0.19 U	--	--	--	--	
GP-23	CHA	12/3/2014	Yes	21.5 J	--	0.22 U	--	--	--	--	
GP-24	CHA	12/3/2014	Yes	17.4	--	10.8 J	--	0.23 U	--	--	
GP-25	CHA	12/3/2014	Yes	5.7	--	11.8 J	--	0.069 J	--	--	
GP-26	CHA	12/3/2014	Yes	-----Excavate to 2 ft-----		0.23 U	--	--	--	--	
26N	Sterling	6/17/2015	No	14.4	--	--	--	--	--	--	
26E-2	Sterling	7/9/2015	No	10.6	--	--	--	--	--	--	
26W-2	CHA	10/17/2018	Yes	--	--	0.0136 J	--	0.00725 J	--	--	
SS-100	Sterling	9/15/2015	No	9.22	--	--	--	--	--	--	
SS-100 Dup	Sterling	9/15/2015	No	6.7	--	--	--	--	--	--	
SS-101	Sterling	9/15/2015	No	4.28	--	--	--	--	--	--	
SS-102	Sterling	9/15/2015	No	3.83	--	--	--	--	--	--	
SS-103	Sterling	9/15/2015	No	6.56	--	--	--	--	--	--	
SS-104	Sterling	9/15/2015	No	4.19	--	--	--	--	--	--	
SS-105	Sterling	9/15/2015	No	4.8	--	--	--	--	--	--	
SS-106	Sterling	9/15/2015	No	6.04	--	--	--	--	--	--	
SS-107	Sterling	9/15/2015	No	4.75	--	--	--	--	--	--	
SS-108	Sterling	9/15/2015	No	4.33	--	--	--	--	--	--	
SS-109	Sterling	9/16/2015	No	12.7	--	--	--	--	--	--	
SS-110	Sterling	9/16/2015	No	9.23	--	--	--	--	--	--	
SS-124	Sterling	9/16/2015	No	21.6	--	--	--	--	--	--	
SS-123	Sterling	9/16/2015	No	8.2	--	--	--	--	--	--	
SS-122	Sterling	9/16/2015	No	11.8	--	--	--	--	--	--	
GP-27	CHA	12/3/2014	Yes	8 J	--	6.9 J	--	0.4 J	--	--	
GP-28	CHA	12/3/2014	Yes	18 J	--	--	--	0.72 J	0.26 U	--	
GP-29	CHA	12/3/2014	Yes	15.7 J	--	10.6 J	--	0.27 U	--	--	
GP-30	CHA	12/3/2014	Yes	16 J	--	0.23 U	--	--	--	--	
GP-31	CHA	12/3/2014	Yes	3.2 J	--	24 J	--	19	--	--	
GP-32	CHA	12/4/2014	Yes	-----Excavate to 4 ft-----				13.5	0.29 U	--	
32W	Sterling	6/17/2015	No	--	--	4.9	--	--	--	--	
32E	Sterling	6/17/2015	No	--	--	0.835	--	--	--	--	
32N	Sterling	6/17/2015	No	--	--	4.56	--	--	--	--	
GP-33	CHA	12/4/2014	Yes	10.2 J	--	15.3 J	--	20.5 J	--	--	
GP-34	CHA	12/4/2014	Yes	11 J	--	0.3 U	--	--	--	--	
GP-35	CHA	12/4/2014	Yes	9.59	--	--	--	8.1	--	--	
GP-36	CHA	12/4/2014	Yes	3.4	--	0.21 U	--	--	--	--	
GP-37	CHA	12/4/2014	Yes	9.6 J	--	0.2 U	--	--	--	--	
GP-38	CHA	12/4/2014	Yes	24 J	--	0.27 J	--	0.74	--	--	
GP-39	CHA	12/4/2014	Yes	25*	--	0.21 U	--	--	--	--	*Collected from 7" - 18"
GP-40	CHA	12/4/2014	Yes	6.4 J	--	--	--	0.25 U	0.2 U	--	
GP-41	CHA	12/4/2014	Yes	12.6 J	--	0.2 U	--	--	--	--	
GP-42	CHA	12/4/2014	Yes	6.1 J	--	1.12 J	--	0.16 JN	0.25 U	--	
GP-43	CHA	12/4/2014	Yes	12.2 J	--	2.5 J	--	3.51	--	--	

Table 1
 Summary of Contamination to Remain in Soil - PCBs
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-44	CHA	12/4/2014	Yes	23 J	--	0.26 U	--	--	--	--	
GP-45	CHA	12/4/2014	Yes	-----Excavate to 2 ft-----		0.56 J	--	3.58	--	--	
45S	Sterling	6/17/2015	No	23.3	--	--	--	--	--	--	
45N	Sterling	6/17/2015	No	4.7	--	--	--	--	--	--	
45W	Sterling	6/17/2015	No	7.76	--	--	--	--	--	--	
GP-46	CHA	12/5/2014	Yes	-----Excavate to 2 ft-----		0.23 U	--	--	--	--	
46W	Sterling	6/17/2015	No	14.8	--	--	--	--	--	--	
46S	Sterling	6/17/2015	No	5.24	--	--	--	--	--	--	
46E	Sterling	6/17/2015	No	3.38	--	--	--	--	--	--	
GP-47	CHA	12/5/2014	Yes	13.9 J	--	4.6	--	0.26 U	--	--	
GP-48	CHA	12/5/2014	Yes	6.4 J	--	0.22 U	--	--	--	--	
GP-49	CHA	12/5/2014	Yes	2.21	--	0.23 U	--	--	--	--	
GP-50	CHA	12/5/2014	Yes	15.8	--	4.9	--	0.27 U	--	--	
GP-51	CHA	12/5/2014	Yes	3.92	--	1.41	--	0.28 U	--	--	
GP-52	CHA	12/5/2014	Yes	20.7	--	1.44	--	0.22 U	--	--	
GP-53	CHA	12/5/2014	Yes	10.1 J	--	23.7	--	0.24 U	--	--	
GP-54	CHA	12/5/2014	Yes	12	--	0.25 U	--	--	--	--	
GP-55	CHA	12/5/2014	Yes	7.5	--	0.22 U	--	--	--	--	
GP-56	CHA	12/5/2014	Yes	3.5	--	0.23 U	--	--	--	--	
GP-57	CHA	12/5/2014	Yes	13.6	--	2.23	--	0.25 U	--	--	
GP-58	CHA	12/5/2014	Yes	3.85	--	0.21 U	--	--	--	--	
GP-59	CHA	12/5/2014	Yes	12.5	--	0.175 J	--	0.25 U	--	--	
GP-60	CHA	12/5/2014	Yes	5.6	--	0.24 U	--	--	--	--	
GP-61	CHA	12/5/2014	Yes	7.0	--	5.6	--	0.19 U	--	--	
GP-61	CHA	10/19/2018	Yes	7	--	6.2 J	--	0.0408 U	--	--	
DUP-04	CHA	10/19/2018	Yes	8.5	--	--	--	--	--	--	Parent sample GP-61_0-1
DUP-05	CHA	10/19/2018	Yes	--	--	9.6 J	--	--	--	--	Parent sample GP-61_2-3
GP-62	CHA	10/19/2018	Yes	3.9	--	0.0207 J	--	0.0107 J	--	--	
GP-63	CHA	10/16/2018	Yes	0.0538	--	0.0428 U	--	0.0382 U	--	--	
GP-64	CHA	10/16/2018	Yes	0.0334 U	--	0.0418 U	--	NA	--	--	
GP-65	CHA	10/16/2018	Yes	4.57	--	0.119 J	--	0.0408 U	--	--	
GP-66	CHA	10/16/2018	Yes	10.1	--	7.11	--	0.00444 JR	--	--	
GP-67	CHA	10/19/2018	Yes	4.74	--	10.5	--	6.33	--	--	
GP-68	CHA	10/19/2018	Yes	5.8	--	0.447	0.04 U	--	--	--	Refusal @ 4 ft, no sample 4-5 ft
GP-69	CHA	10/18/2018	Yes	5.26	--	0.619	--	0.0404 U	--	--	
GP-70	CHA	10/18/2018	Yes	4.43	--	0.0344 U	--	0.0405 U	--	--	
GP-71	CHA	10/18/2018	Yes	0.168	--	0.0389 U	--	0.0384 U	--	--	
GP-72	CHA	10/18/2018	Yes	0.0347 U	--	0.0338 U	--	NA	--	--	
GP-73	CHA	10/18/2018	Yes	13.1	--	0.0114 J	--	0.039 U	--	--	
GP-74	CHA	10/18/2018	Yes	3.58	--	7.14	0.0384 U	--	--	--	Refusal @ 4 ft, no sample 4-5 ft
GP-75	CHA	10/19/2018	Yes	3.08 J	--	4.18	--	0.0362 U	--	--	
DUP-03	CHA	10/19/2018	Yes	6.47 J	--	--	--	--	--	--	Parent sample GP-75_0-1
GP-76	CHA	10/19/2018	Yes	4.3 J	--	9.72	--	0.0351 U	--	--	
GP-77	CHA	10/19/2018	Yes	7.1	--	4.53 J	--	0.263	--	--	
DUP-06	CHA	10/19/2018	Yes	7.17	--	--	--	--	--	--	Parent sample GP-77_0-1
DUP-07	CHA	10/19/2018	Yes	--	--	7.29 J	--	--	--	--	Parent sample GP-77_2-3
GP-78	CHA	10/16/2018	Yes	4.17	--	0.0242 J	--	0.0362 U	--	--	

Table 1
 Summary of Contamination to Remain in Soil - PCBs
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-79	CHA	10/16/2018	Yes	-----Excavate to 2 ft-----		0.159	--	0.0145 J	--	--	
GP-79_E5	CHA	11/26/2018	Yes	14.8	--	NA	--	NA	--	--	
GP-79_N5 (RE)	CHA	11/26/2018	Yes	0.0154 J	--	--	--	--	--	--	Re-analysis of GP-79_N5_0-1
DUP-09 (RE)	CHA	11/26/2018	Yes	5.92 J	--	--	--	--	--	--	
GP-79_N10	CHA	11/26/2018	Yes	0.116 J	--	NA	--	NA	--	--	
GP-79_W5	CHA	11/26/2018	Yes	14.3	--	NA	--	NA	--	--	
DUP-10	CHA	11/26/2018	Yes	22.3 J	--	NA	--	NA	--	--	Parent sample GP-79_W5_0-1
GP-79_S5	CHA	11/26/2018	Yes	-----Excavate to 2 ft-----		0.0184 J	--	NA	--	--	
GP-79_S10	CHA	11/26/2018	Yes	7.91	--	0.0207 J	--	NA	--	--	
GP-80	CHA	10/16/2018	Yes	1.55	--	0.0203 J	--	0.005 J	--	--	
GP-81	CHA	10/16/2018	Yes	-----Excavate to 2 ft-----		0.00421 J	--	0.0339 U	--	--	
GP-81_E5	CHA	11/27/2018	Yes	2.19	--	NA	--	NA	--	--	
GP-81_N5	CHA	11/27/2018	Yes	0.627 J	--	NA	--	NA	--	--	
DUP-11	CHA	11/27/2018	Yes	1.0 J	--	NA	--	NA	--	--	Parent sample GP-81_N5_0-1
GP-81_W5	CHA	11/27/2018	Yes	4.83	--	NA	--	NA	--	--	
GP-81_S5	CHA	11/27/2018	Yes	2.06	--	NA	--	NA	--	--	
GP-82	CHA	10/17/2018	Yes	3.79	--	5.64	--	0.0338 U	--	--	
GP-83	CHA	10/17/2018	Yes	3.99 J	--	0.0644 J	--	0.0372 U	--	--	
GP-84	CHA	10/17/2018	Yes	3.88 J	--	0.00681 J	--	0.0344 U	--	--	
GP-85	CHA	10/18/2018	Yes	1.47	--	5.04	--	0.0337 U	--	--	
GP-86	CHA	10/18/2018	Yes	11.5	--	20.5	--	0.0388 U	--	--	
GP-87	CHA	10/18/2018	Yes	11	--	0.121	--	0.0398 U	--	--	
GP-88	CHA	10/18/2018	Yes	21.7	--	0.128	--	0.0386 U	--	--	
GP-89	CHA	10/18/2018	Yes	8.9	--	13.7	--	10.1	--	--	
GP-90	CHA	10/18/2018	Yes	-----Excavate to 4 ft-----				0.133 J	--	--	
GP-90_E5	CHA	11/28/2018	Yes	-----Excavate to 4 ft-----				NA	--	--	
GP-90_E10	CHA	11/28/2018	Yes	6.52	--	NA	--	NA	--	--	
GP-90_N5	CHA	11/28/2018	Yes	4.41	--	1.07	--	NA	--	--	
GP-90_W5	CHA	11/28/2018	Yes	7.05	--	3.56	--	NA	--	--	
GP-90_S5	CHA	11/28/2018	Yes	8.4	--	4.6	--	NA	--	--	
GP-91	CHA	10/17/2018	Yes	-----Excavate to 4 ft-----				0.0308 J	--	--	
GP-91_E5	CHA	11/28/2018	Yes	2.53	--	0.0138 J	--	NA	--	--	
GP-91_N5	CHA	11/27/2018	Yes	7.7	--	1.45 J	0.775	NA	--	--	
GP-91_W5	CHA	11/27/2018	Yes	8.15	--	5.06	--	NA	--	--	
GP-91_S5	CHA	11/28/2018	Yes	5.3	--	1.7	--	NA	--	--	
GP-92	CHA	10/17/2018	Yes	2.08 J	--	0.0346 U	--	0.0363 U	--	--	
GP-93	CHA	10/17/2018	Yes	11.4 J	--	0.0451	--	0.037 U	--	--	
GP-94	CHA	10/16/2018	Yes	18.9 J	--	0.0205 J	--	0.0163 J	--	--	
GP-95	CHA	10/16/2018	Yes	13.7	--	19.7	--	0.0375 U	--	--	
GP-96	CHA	10/16/2018	Yes	3.54	--	1.13	--	0.0385 U	--	--	
GP-97	CHA	10/19/2018	Yes	0.0884	--	0.0345 U	--	--	--	--	Hand auger. Refusal @ 3 ft, no sample 4-5 ft
DUP-01	CHA	10/19/2018	Yes	0.0884	--	--	--	--	--	--	Parent sample GP-97_0-1
DUP-02	CHA	10/19/2018	Yes	--	--	0.0332 U	--	--	--	--	Parent sample GP-97_2-3
GP-98	CHA	10/19/2018	Yes	0.109	--	0.0346 U	--	0.0333 U	--	--	
GP-99	CHA	10/19/2018	Yes	2.96	--	1.88	--	0.394	--	--	
DUP-08	CHA	10/19/2018	Yes	4.15	--	--	--	--	--	--	Parent sample GP-99_0-1
GP-100	CHA	10/19/2018	Yes	-----Excavate to 2 ft-----		0.607	--	0.0346 U	--	--	

Table 1
 Summary of Contamination to Remain in Soil - PCBs
 700 Smith Boulevard
 Port of Albany, NY

Location or Sample ID	Sampled By	Date	Validated?	Sample Depths							Sample/Drilling Comments
				0-1'	1-2'	2-3'	3-4'	4-5'	5-7'	7-10'	
GP-100_E5	CHA	11/29/2018	Yes	13.1	--	NA	--	NA	--	--	
GP-100_N5	CHA	11/29/2018	Yes	8.71	--	NA	--	NA	--	--	
GP-100_W5	CHA	11/29/2018	Yes	-----Excavate to 2 ft-----		7.47	--	NA	--	--	Insufficient recovery to collect 4-5 ft sample
GP-100_W10	CHA	11/29/2018	Yes	2.04 J	--	NA	--	NA	--	--	Refusal @ 2 ft. No 2 - 3' or 4 -5' sample
GP-100_S5	CHA	11/29/2018	Yes	10.2	NA	--	--	--	--	--	Terminated at 2 ft due to utilities
GP-101	CHA	10/16/2018	Yes	1.43	--	8.26	--	0.0325 U	--	--	
GP-102	CHA	10/16/2018	Yes	1.13	--	3.96 J	--	0.293	--	--	
GP-103	CHA	10/18/2018	Yes	5.3	--	9.09	--	0.0384 U	--	--	
GP-104	CHA	10/17/2018	Yes	2.15	--	0.2	--	0.00635 J	--	--	
GP-105	CHA	10/17/2018	Yes	18.9	23.3	--	--	--	--	--	Refusal @ 2 ft, no samples 2-3 ft and 4-5 ft
GP-106	CHA	10/17/2018	Yes	1.49	--	13.5	--	0.0538 J	--	--	
GP-107	CHA	10/17/2018	Yes	6.66	--	0.0393 U	--	0.0403 U	--	--	
GP-108	CHA	10/17/2018	Yes	2.7	5.43	--	--	--	--	--	Refusal @ 2 ft, no samples 2-3 ft and 4-5 ft
GP-109	CHA	10/17/2018	Yes	3.99	--	0.0297 J	--	0.0394 U	--	--	
GP-110	CHA	10/18/2018	Yes	3.96	--	6.74	--	0.0065 J	--	--	
GP-111	CHA	10/17/2018	Yes	0.0137 J	--	0.0336 U	--	0.00525 J	--	--	

Notes:

All results are in parts per million (ppm = mg/kg).

"--" Denotes no sample taken at the indicated depth interval.

NA: Sample collected, but not analyzed

U: Sample analyzed for but not detected at the specified concentration.

a: Estimated value due to the presence of other Aroclor pattern.

J: Estimated value. Refer to the corresponding Category B Report and/or DUSR for further details.

N: Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence of absence during future sampling events.

R: Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.

5.6 Gray highlighted values exceed the TSCA High-Occupancy Cleanup Level of 1.0 ppm Total PCBs.

Table 2
 Summary of Contamination to Remain in Soil - PAHs and Metals
 700 Smith Boulevard
 Port of Albany, NY

Location / Sample ID	Analyte	Sample Depths					
		0-1'	1-2'	2-3'	3-4'	4-5'	5-7'
SS-1	Benzo(a)pyrene	1.96	--	--	--	--	--
	Dibenzo(a,h)anthracene	1.1 U	--	--	--	--	--
	Arsenic	19.2 b	--	--	--	--	--
	Lead	2210	--	--	--	--	--
	Mercury	6.1	--	--	--	--	--
SS-2	Benzo(a)pyrene	1.77	--	--	--	--	--
	Dibenzo(a,h)anthracene	0.59 U	--	--	--	--	--
	Arsenic	18.0 b	--	--	--	--	--
	Lead	2030	--	--	--	--	--
	Mercury	6.3	--	--	--	--	--
SS-3	Benzo(a)pyrene	3.87	--	--	--	--	--
	Dibenzo(a,h)anthracene	1.12	--	--	--	--	--
	Arsenic	20.9 b	--	--	--	--	--
	Lead	1480 b	--	--	--	--	--
	Mercury	7.1	--	--	--	--	--
SS-5	Benzo(a)pyrene	1.17	--	--	--	--	--
	Dibenzo(a,h)anthracene	1.1 U	--	--	--	--	--
	Arsenic	11.4 b	--	--	--	--	--
	Lead	946 b	--	--	--	--	--
	Mercury	6.3	--	--	--	--	--
SS-7	Benzo(a)pyrene	1.69	--	--	--	--	--
	Dibenzo(a,h)anthracene	0.55 U	--	--	--	--	--
	Arsenic	16.4 b	--	--	--	--	--
	Lead	6490	--	--	--	--	--
	Mercury	42	--	--	--	--	--
SS-12	Benzo(a)pyrene	2.6 U	--	--	--	--	--
	Dibenzo(a,h)anthracene	2.6 U	--	--	--	--	--
	Arsenic	16.1 b	--	--	--	--	--
	Lead	1180 b	--	--	--	--	--
	Mercury	6	--	--	--	--	--
S-1	Benzo(a)pyrene	--	--	--	1.68	--	--
	Dibenzo(a,h)anthracene	--	--	--	0.485	--	--
	Arsenic	--	--	--	19.6 b	--	--
	Lead	--	--	--	1520 b	--	--
	Mercury	--	--	--	4.3	--	--
GP-3	Benzo(a)pyrene	NA	--	NA	--	--	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	--	--
	Arsenic	17.1	--	3.9	--	--	--
	Lead	1860	--	9.9	--	--	--
	Mercury	5.4	--	0.025	--	--	--
GP-23	Benzo(a)pyrene	NA	--	NA	--	--	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	--	--
	Arsenic	21.5	--	4.4	--	--	--
	Lead	1470	--	40.7	--	--	--
	Mercury	6.2	--	0.025	--	--	--
GP-28	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	16.4	--	3.4	--	6.9	--
	Lead	1220	--	46.4	--	27.8	--
	Mercury	6.5	--	0.19 H	--	0.18 H	--
GP-30	Benzo(a)pyrene	NA	--	NA	--	--	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	--	--
	Arsenic	16.6	--	2.4	--	--	--
	Lead	744	--	7.7	--	--	--
	Mercury	2.9	--	0.015 J	--	--	--
GP-31	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	8.8	--	31.4	--	29.8	--
	Lead	448	--	4050	--	3880	--
	Mercury	1.1	--	10.4	--	1.7 H	--
	Benzo(a)pyrene	NA	--	NA	--	NA	--

Table 2
 Summary of Contamination to Remain in Soil - PAHs and Metals
 700 Smith Boulevard
 Port of Albany, NY

Location / Sample ID	Analyte	Sample Depths					
		0-1'	1-2'	2-3'	3-4'	4-5'	5-7'
GP-33	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	15.6	--	10.1	--	10.7	--
	Lead	1610	--	642	--	650	--
	Mercury	3.2	--	2.4	--	1.7 H	--
GP-34	Benzo(a)pyrene	NA	--	NA	--	--	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	--	--
	Arsenic	18.9	--	5.8	--	--	--
	Lead	2300	--	113	--	--	--
	Mercury	2	--	0.29	--	--	--
GP-37	Benzo(a)pyrene	NA	--	NA	--	--	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	--	--
	Arsenic	17.8	--	3.6	--	--	--
	Lead	4400	--	10.1	--	--	--
	Mercury	25.5	--	0.03	--	--	--
GP-38	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	14.5	--	65.2	--	3.6	--
	Lead	4800	--	213	--	44	--
	Mercury	4.8	--	0.084	--	0.13 H	--
GP-40	Benzo(a)pyrene	NA	--	--	--	NA	NA
	Dibenzo(a,h)anthracene	NA	--	--	--	NA	NA
	Arsenic	19.1	--	--	--	4.3	2.5
	Lead	1320	--	--	--	17.4	5.8
	Mercury	5.2	--	--	--	0.039 H	0.02 UH
GP-41	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	--	--
	Arsenic	20.4	--	2.4	--	--	--
	Lead	1410	--	6.2	--	--	--
	Mercury	3.3	--	0.023 U	--	--	--
GP-43	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	15.5	--	3.5	--	3.5	--
	Lead	967	--	105	--	88.2	--
	Mercury	2.9	--	0.086	--	0.27 H	--
GP-47	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	15.7	--	8.2	--	7.7	--
	Lead	1320	--	4530	--	14.6	--
	Mercury	2.5	--	0.33	--	0.044 H	--
GP-51	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	19.9	--	12.4	--	9.7	--
	Lead	372	--	70.8	--	21	--
	Mercury	1.3	--	0.089	--	0.032 H	--
GP-52	Benzo(a)pyrene	NA	--	NA	--	NA	--
	Dibenzo(a,h)anthracene	NA	--	NA	--	NA	--
	Arsenic	17.1	--	9.7	--	2.2 J	--
	Lead	1930	--	74.9	--	9.7	--
	Mercury	4.3	--	0.31	--	0.037 H	--

Notes:

All results are in parts per million (ppm = mg/kg).

"--" denotes no sample taken at the indicated depth interval.

NA - Sample not analyzed for the indicated parameter.

30.3 Yellow highlighted and bold values exceed the 6 NYCRR Part 375 Restricted Industrial Soil Cleanup Objectives.

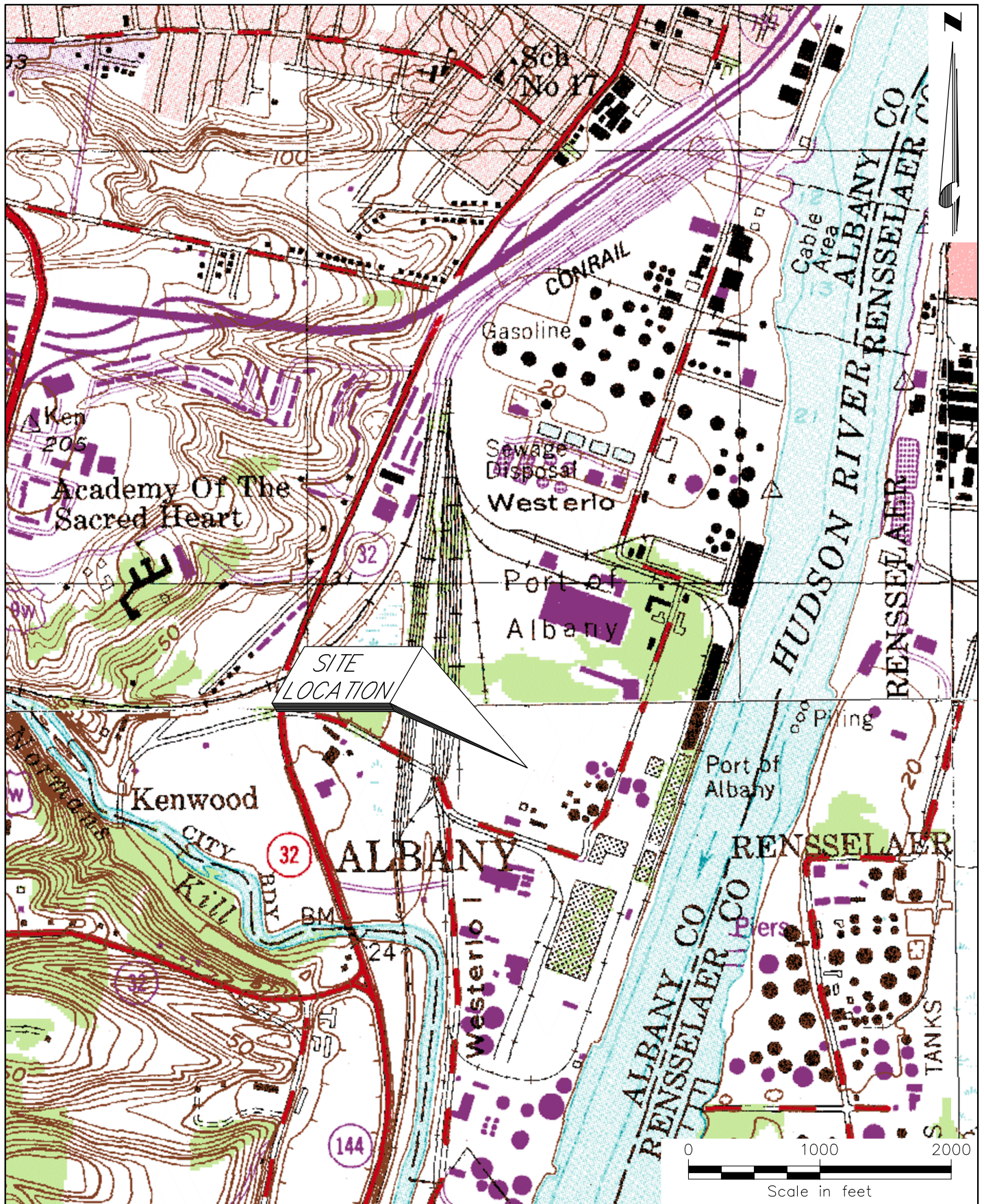
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

U - Sample analyzed for but not detected at the specified concentration.

H - Sample was prepped or analyzed beyond the specified holding time.

b - Elevated RL due to dilution required for high interfering element.

FIGURES



Drawing Copyright © 2016



111 Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 • www.chacompanies.com

SITE LOCATION MAP

700 SMITH BLVD, ALBANY NY

PROJECT NO.
28952

DATE: 01/2018

FIGURE 1



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE FENCE LINE



Drawing Copyright © 2018

III Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 • www.chacompanies.com

SITE PLAN

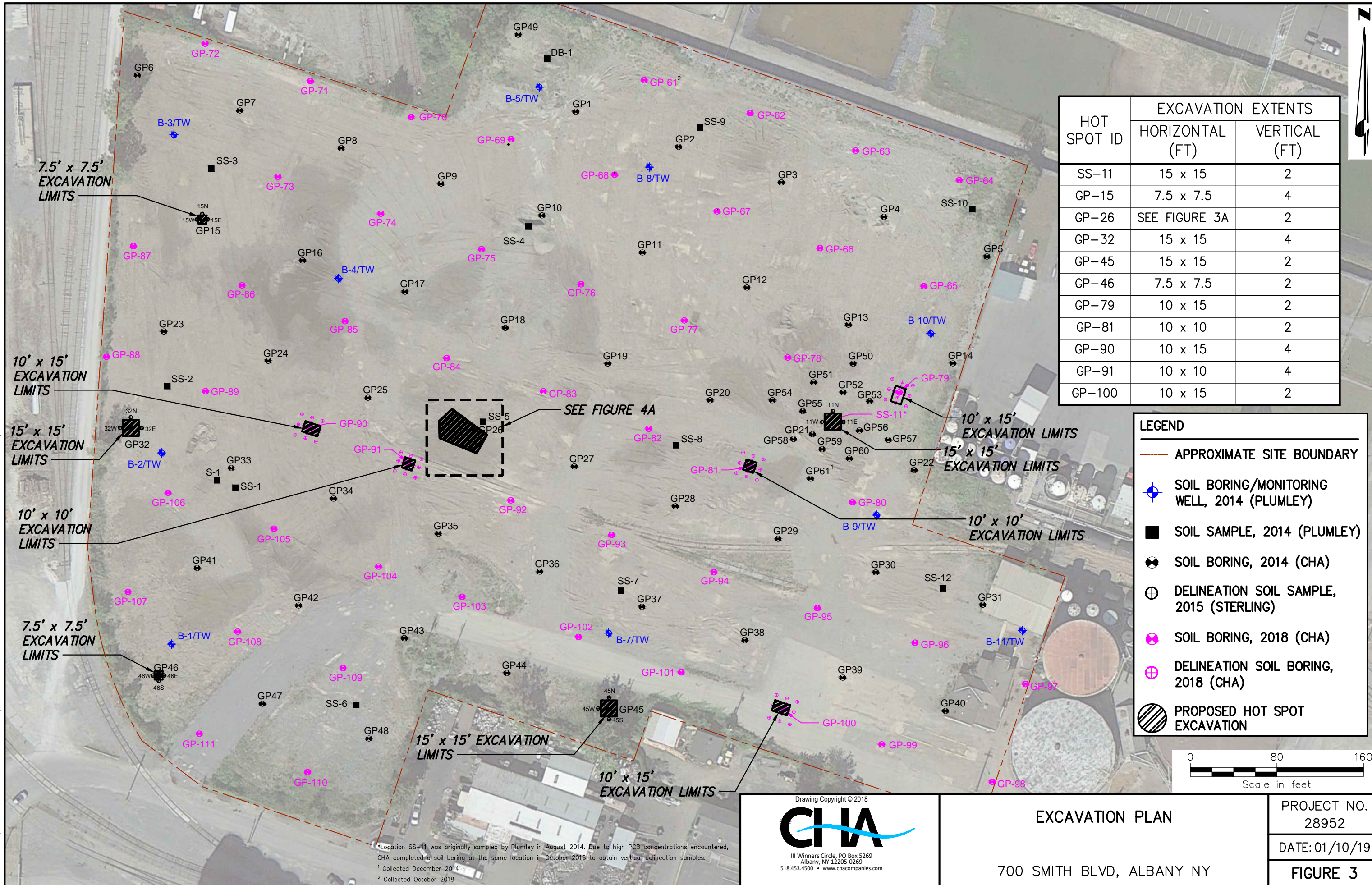
700 SMITH BLVD, ALBANY NY

PROJECT NO.
28952

DATE: 12/19/18

FIGURE 2

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2019-01 UPDATES\FIG-4-4A_28952_EXCAVATION_PLAN.DWG
 Saved: 4/18/2019 7:40:43 AM Plotted: 4/19/2019 8:13:27 AM Current User: Miller, Samantha LastSavedBy: 4187

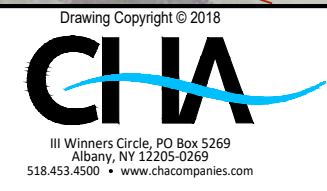


HOT SPOT ID	EXCAVATION EXTENTS	
	HORIZONTAL (FT)	VERTICAL (FT)
SS-11	15 x 15	2
GP-15	7.5 x 7.5	4
GP-26	SEE FIGURE 3A	2
GP-32	15 x 15	4
GP-45	15 x 15	2
GP-46	7.5 x 7.5	2
GP-79	10 x 15	2
GP-81	10 x 10	2
GP-90	10 x 15	4
GP-91	10 x 10	4
GP-100	10 x 15	2

LEGEND

- APPROXIMATE SITE BOUNDARY
- SOIL BORING/MONITORING WELL, 2014 (PLUMLEY)
- SOIL SAMPLE, 2014 (PLUMLEY)
- SOIL BORING, 2014 (CHA)
- + DELINEATION SOIL SAMPLE, 2015 (STERLING)
- SOIL BORING, 2018 (CHA)
- + DELINEATION SOIL BORING, 2018 (CHA)
- PROPOSED HOT SPOT EXCAVATION

*Location SS-11 was originally sampled by Plumley in August 2014. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.
 1 Collected December 2014
 2 Collected October 2018

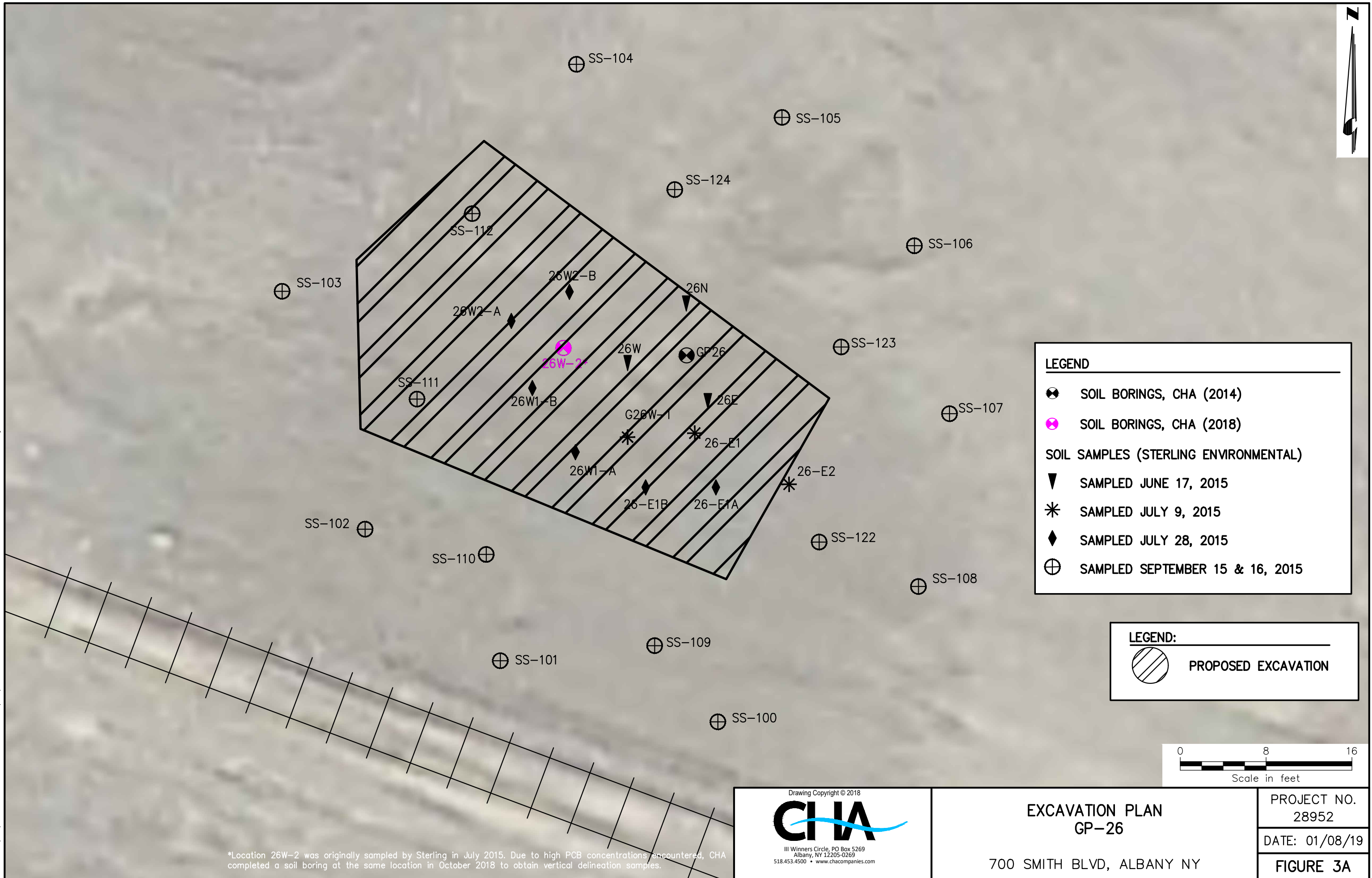


EXCAVATION PLAN

700 SMITH BLVD, ALBANY NY

PROJECT NO. 28952
DATE: 01/10/19
FIGURE 3

File: V:\PROJECTS\ANY\K3\28952\CADD\FIGURES\RISK-BASED WORK PLAN\2019-01 UPDATES\FIG-4-4A_28952_EXCAVATION PLAN.DWG
 Saved: 4/18/2019 7:40:43 AM Plotted: 4/19/2019 8:13:57 AM Current User: Miller, Samantha LastSavedBy: 4187



LEGEND

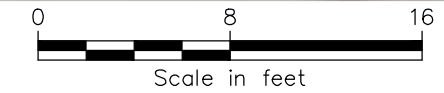
- SOIL BORINGS, CHA (2014)
- SOIL BORINGS, CHA (2018)

SOIL SAMPLES (STERLING ENVIRONMENTAL)

- SAMPLED JUNE 17, 2015
- SAMPLED JULY 9, 2015
- SAMPLED JULY 28, 2015
- SAMPLED SEPTEMBER 15 & 16, 2015

LEGEND:

- PROPOSED EXCAVATION



*Location 26W-2 was originally sampled by Sterling in July 2015. Due to high PCB concentrations encountered, CHA completed a soil boring at the same location in October 2018 to obtain vertical delineation samples.

Drawing Copyright © 2018

III Winners Circle, PO Box 5269
 Albany, NY 12205-0269
 518.453.4500 • www.chacompanies.com

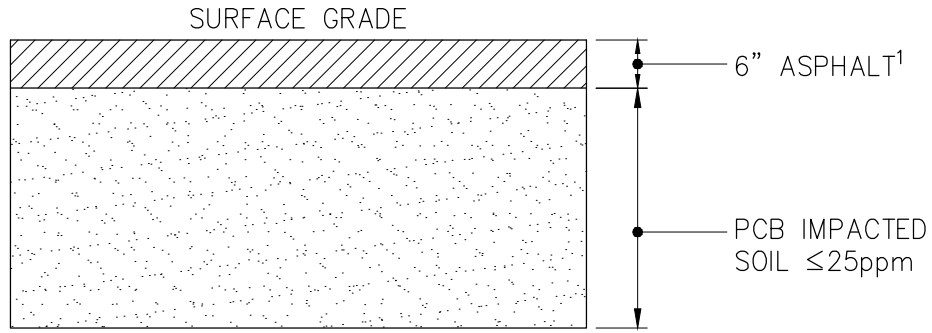
EXCAVATION PLAN
 GP-26

700 SMITH BLVD, ALBANY NY

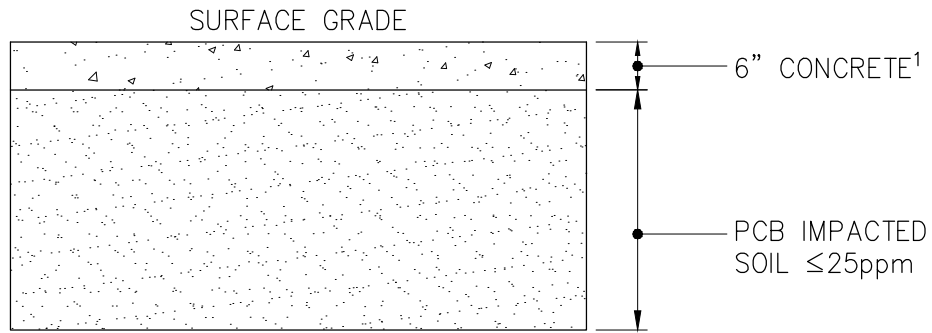
PROJECT NO.
 28952

DATE: 01/08/19

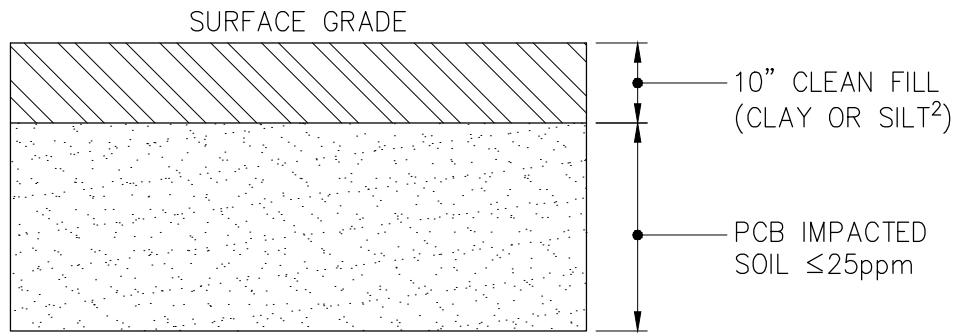
FIGURE 3A



1 ASPHALT CAP
NOT TO SCALE



2 CONCRETE/BUILDING CAP
NOT TO SCALE



3 SOIL CAP
NOT TO SCALE

¹ MINIMUM THICKNESS 6 INCHES, NOT INCLUDING ANY NECESSARY SUBBASE/COMPACTED FILL FOR SUPPORT BENEATH (NOT SHOWN IN DETAIL)

² MUST MEET THE FOLLOWING REQUIREMENTS IN ACCORDANCE WITH 40 CFR 761.75(b)(1)(ii-v)

1. PERMEABILITY $\leq 1 \times 10^{-7}$ CM/SEC;
2. PERCENT SOIL PASSING No. 200 SIEVE > 30 ;
3. LIQUID LIMIT > 30 ; AND
4. PLASTICITY INDEX > 15

APPENDIX A

Environmental Easement (To be Included in Final SMP)

APPENDIX B

Site Wide/Covering/Fencing Checklist



SITE-WIDE / CAPPING / FENCING ANNUAL INSPECTION CHECKLIST

Report No. _____	
Page 1 of 2	
Date: _____	Time: _____

Site Name: Port of Albany – 700 Smith Blvd.	Project No. _____
Address: 700 Smith Blvd, Albany, NY	Weather: _____
Inspector(s): _____	
Type of Inspection: <input type="checkbox"/> Routine <input type="checkbox"/> Post Severe Condition	Temp.: Hi _____ Low _____

SITE ACCESSIBILITY INSPECTION

ITEM/CONDITION	YES	NO	N/A	COMMENTS
Site accessible and passable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SITE RECORDS INSPECTION

ITEM/CONDITION	YES	NO	N/A	COMMENTS
Site Records are up to date with latest revisions or changes to SMP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

INSTITUTIONAL CONTROL INSPECTION

ITEM/CONDITION	YES	NO	N/A	COMMENTS
The Site continues to be utilized for industrial uses only.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Low-occupancy areas (if applicable) continue to be occupied by individuals < 6.7 hours per week OR appropriate dermal and respiratory protection is worn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

FENCE INSPECTION

ITEM/CONDITION	YES	NO	NA	COMMENTS
Is a gate present at the entrance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the gate locked and secured?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of damaged fencing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SOIL CAP SYSTEM INSPECTION

ITEM/CONDITION	YES	NO	NA	COMMENTS
Evidence of erosion of cover soils?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of cracks or depressions in cover soils?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of exposed or damaged subgrade soils?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

ASHPALT/CONCRETE CAP SYSTEM INSPECTION

ITEM/CONDITION	YES	NO	NA	COMMENTS
Evidence of damaged asphalt or concrete?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of pitting, rutting, cracks or depressions in asphalt or concrete cover?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

DRAINAGE SYSTEM INSPECTION				
ITEM/CONDITION	YES	NO	NA	COMMENTS
Evidence of erosion in drainage structures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Presence of siltation in drainage structures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of settlement in drainage structures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of restrictions of water flow in drainage ditches and structures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VECTOR INSPECTION				
ITEM/CONDITION	YES	NO	NA	COMMENTS
Were any vectors observed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of vector activity (tracks, droppings, dens, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Evidence of damage due to vector activity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VEGETATIVE INSPECTION (if applicable)				
ITEM/CONDITION	TRUE	FALSE	N/A	COMMENTS
Vegetation is well established over greenspace areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is no evidence of stressed vegetation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is no evidence of bare or thin vegetative cover.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is no evidence of overgrowth or areas that need to be mowed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is no evidence of recent areas of excavation or disturbed areas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ADDITIONAL NOTES & OBSERVATIONS				
Signature:		Time Charged:		Mileage Charged:

Appendix C

**Petition for Beneficial Use Determination (BUD), Sterling
Environmental Engineering, P.C. (January 2020); With NYSDEC
Determination Approval**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau B

625 Broadway, 12th Floor, Albany, NY 12233-7016

P: (518) 402-9767 | F: (518) 402-9773

www.dec.ny.gov

May 12, 2020

Mark Millspaugh
Sterling Environmental Engineering, P.C.
24 Wade Road
Latham, NY 12110

Re: **Beneficial Use Determination**
Reuse of Asphalt Pavement Millings
700 Smith Boulevard, Port of Albany, NY
Site No. 401080
Consent Order No. CO 4-20200424-56

Dear Mr. Millspaugh:

The New York State Department of Environmental Conservation (DEC) has reviewed the January 21, 2020 Beneficial Use Determination (BUD) Petition submitted on behalf the Albany Port District Commission (APDC). This petition proposes to use reclaimed asphalt pavement millings as cover material at the subject site. The placement of a site cover is a component of the Risk-Based Cleanup and Disposal Application (Application) that is currently under revision to address comments from the Environmental Protection Agency (EPA). The implementation of the Application under EPA oversight is a requirement of the Order on Consent between the APDC and DEC.

DEC has determined the asphalt millings used as cover at the 700 Smith Boulevard site constitute a beneficial use pursuant to 6 NYCRR 360.12(d), provided the following conditions are met:

1. Millings are sourced only from locations described in the Petition and meet specifications for cover as described therein on arrival at the site. Only the volume of millings necessary for cover to meet Application requirements may be imported to the site,
2. The cover must be installed as described in the Petition. In addition, a demarcation layer/boundary must be placed between the cover material and the existing surface of the site,
3. In accordance with EPA's comments on the Application, the material must be sampled and analyzed for poly-chlorinated biphenyls (PCBs) adhering to the soil sampling frequencies included in the Application, and
4. A final report following completion of the site cover must be submitted in accordance with Section 6.0 of the Petition and any additional requirements under the Order on Consent. This report must state the actual quantity of millings beneficially used to construct the cover, and summarize all analytical results.



Department of
Environmental
Conservation



The approval of this BUD will become effective upon submission by APDC to DEC that the risk-based Application has been accepted by EPA.

Please contact DEC's Project Manager, Kyle Forster, at 518-402-8644 or kyle.forster@dec.ny.gov if you have any questions regarding this matter.

Sincerely,

Gerard Burke

Gerard Burke
Director
Remedial Bureau B
Division of Environmental Remediation

ec: S. Quandt
K. Forster
M. Murphy
K. Prather
V. Schmitt, Region 4
Ben Conetta, James Haklar – EPA
Seth Fowler, Rich Totino – CHA
Patrick Jordan – Port of Albany
John Privitera – McNamee Lochner P.C.



PETITION FOR BENEFICIAL USE DETERMINATION

**REUSE OF ASPHALT PAVEMENT MILLINGS AT
700 SMITH BOULEVARD
PORT OF ALBANY
ALBANY, NEW YORK**

Prepared for:

Sims Metal Management
1 Linden Avenue East
Jersey City, New Jersey 07305

Prepared by:

Sterling Environmental Engineering, P.C.
24 Wade Road
Latham, New York 12110

January 21, 2020



“Serving our clients and the environment since 1993”

PETITION FOR BENEFICIAL USE DETERMINATION

**REUSE OF ASPHALT PAVEMENT MILLINGS AT
700 SMITH BOULEVARD, PORT OF ALBANY
ALBANY, NEW YORK**

Table of Contents

	<u>Page #</u>
1.0 INTRODUCTION	1
1.1 Purpose & Objective	1
2.0 SUMMARY OF PROPOSED USE	1
2.1 Site Location and Background	1
2.2 Remediation Work Plan, SWPPP & Site Management Plan	2
2.3 Source of Asphalt Millings	2
2.4 Proposed Grading Plan and Cover Installation	2
2.5 Anticipated Use of Property	3
3.0 PREDETERMINED BENEFICIAL USES (360.12(c)(3)(ix)) AND EXEMPTIONS	3
3.1 Exempt Activities	3
3.2 6 NYCRR 360.12(c)(3)(ix)	4
3.3 Reclaimed Asphalt Pavement Reuse Specifications and Standards	5
3.4 Reclaimed Asphalt Pavement Use Benefit	5
4.0 CASE-SPECIFIC BENEFICIAL USE	6
4.1 General	6
4.2 Asphalt Pavement Composition	6
4.3 Description of Asphalt Millings	6
4.4 Description of Proposed Beneficial Use	7
4.5 Physical and Chemical Properties of Millings	7
4.5.1 Chemical Properties	7
4.5.2 Gradation	7
4.5.3 Compactive Properties	8
4.5.4 Permeability	8
4.6 Reuse as a Substitute for Compacted Crushed Stone and as an Effective Site Cover in Accordance with the Remediation Work Plan	8
4.7 Demonstration of Known Market	9
4.7.1 Quantity Needed	9
4.7.2 Identified Opportunities	9
4.8 Environmental and Public Health Considerations	9
4.8.1 High Occupancy Use	9
4.8.2 Stormwater Erosion and Quality	9
4.8.3 Dust Generation	9
4.8.4 Odor	10
4.8.5 Human Health and Groundwater	10
4.9 Material Control Plan	10
4.9.1 Testing Requirements	10
4.9.2 Storage and Placement Requirements	10
4.9.3 Schedule for Placement	11

5.0	SITE MANAGEMENT PLAN.....	11
6.0	RECORDKEEPING	12
7.0	CLIMATE LEADERSHIP AND COMMUNITY PROTECTION ACT CONSIDERATIONS ..	12
8.0	CONCLUSION.....	12
9.0	REFERENCES	12

Figures

Figure 1	Site Location Map
Figure 2	Site Map

Appendices

Appendix A	RAP Specifications
Appendix B	NYC Asphalt Millings Bank Fact Sheet
Appendix C	Cover Placement Specifications

1.0 INTRODUCTION

1.1 Purpose & Objective

This document and attachments comprise a petition pursuant to 6 NYCRR 360.12(d) for a Beneficial Use Determination (BUD) to use Reclaimed Asphalt Pavement (RAP) millings as cover material in support of the remediation of the property located at 700 Smith Boulevard in the Port of Albany (the Site). The remediation will be performed under an Order on Consent between the Albany Port District Commission (APDC or Port of Albany) and the New York State Department of Environmental Conservation (NYSDEC) as well as under an approved Risk-Based Cleanup and Disposal Application (hereinafter “Remediation Work Plan”) with the United States Environmental Protection Agency (USEPA).

The Site is the subject of remediation to address Polychlorinated Biphenyls (PCB) contamination in the surficial and shallow soil. The recommended remedy to be approved by the USEPA is to place a protective cover consisting of RAP over the Site following limited, hot spot removal of PCB-impacted soil with concentrations greater than 25 ppm. The mandated remediation creates a need for a cover material, which can be met by using RAP rather than other similar materials.

This BUD Petition is prepared to satisfy the requirements of 6 NYCRR Part 360.12(d) for a Case Specific BUD as this proposed use is:

- A single application.
- At a single location.
- A limited application of materials with known physical and chemical properties from limited known sources.
- Placement at a site that will be subject to a long term Site Management Plan inclusive of monitoring and inspection.
- Proposed use is an effective substitute to conventional construction materials.

This proposed use is comparable to placement of an aggregate cover and it lends itself to industrial yard use and anticipated vehicle and truck traffic expected with the anticipated future use of the Site. This planned beneficial application also presents greenhouse gas benefits through the avoidance of mining, transporting and processing other suitable cover materials. Lastly, this proposed use does not cause or create any adverse impacts to public health or the environment.

2.0 SUMMARY OF PROPOSED USE

2.1 Site Location and Background

The Site is owned by the Albany Port District Commission (APDC or Port of Albany), a New York State Public Benefit Corporation whose members are appointed by the Governor. The APDC has owned the Site since 1925. The Site is zoned exclusively for industrial use.

The Site property is currently vacant and totals approximately 12.14 acres located in the Port of Albany at 700 Smith Boulevard, Albany, NY. The Site location is shown on Figure 1. A map of the site showing the site boundary and relevant features is shown on Figure 2. The property is west of Smith Boulevard in the Port of Albany and was leased by Simsmetal East LLC, d/b/a Sims Metal Management (Sims or Sims Metal) for use as a scrap metal recycling facility from approximately 1989 to 2013. PCBs were detected in surficial and near-surface soil during Site investigations conducted from 2014 through 2018.

The Site was previously used by Atlantic Steel Corporation and as a rail yard before 1951. Subsequently, the Site was used for metal recycling operations since at least 1964. Two existing one-story structures on the Site were built in the early 1950s. The Site is served by natural gas, electricity, public water, and public sewers.

2.2 Remediation Work Plan, SWPPP & Site Management Plan

A Remediation Work Plan was prepared by CHA Consulting, Inc. (CHA) consultant for the Port of Albany and is reportedly tentatively approved by the USEPA. The Remediation Work Plan also addresses stormwater management and erosion control by requiring development of a Stormwater Pollution Prevention Plan (SWPPP).

Following successful implementation of the remedial plan and placement of the protective cover, the Site will be subject to a long-term Site Management Plan (SMP) that details the post-remedial engineering and monitoring requirements for the Site. Further information regarding the purpose and scope of the SMP is provided in Section 5.0.

Pursuant to the Order on Consent with NYSDEC, the Site will be subject to an Environmental Easement (EE) as an institutional control that is tied to the land, which requires that the Site remain in industrial use and which prevents use of the groundwater at the Site. The EE will also reference the detailed SMP applicable to the Site, which is described in greater detail in Section 5.0.

2.3 Source of Asphalt Millings

Sims Metal engages in the handling and storage of asphalt millings and is currently handling millings from several projects in the greater New York City area. The three primary sources are as follows:

- The majority is from a runway resurfacing project at LaGuardia Airport;
- The second largest source is asphalt projects at Kennedy Airport;
- Small quantities from various downstate road resurfacing projects.

The millings are shipped by barge to the Sims facility located at 140 Port Road South in the Port of Albany. The millings are temporarily stockpiled at the Sims facility prior to shipment offsite for reuse in accordance with 6 NYCRR Part 360. Additional supplies of asphalt millings are scheduled and ongoing.

2.4 Proposed Grading Plan and Cover Installation

Following the focused, hot-spot removal of PCB-impacted soil greater than 25 ppm and rough grading of the Site, the millings available from Sims will be used to create a minimum 12-inch thick protective cover as a barrier to the underlying soil to remain. This separation cover layer will establish a protective cover at the Site. The placement of the cover will create a condition that is protective of public health and the environment. The cover will also be installed in a manner that promotes stormwater drainage while maintaining preconstruction drainage patterns. The physical appearance and characteristics of the RAP after placement will be distinctly different than the underlying soil. This difference will provide a clearly identifiable demarcation between the protective RAP cover and the underlying soil for any future ground intrusive work at the Site performed in accordance with an approved SMP and any Excavation Work Plans.

2.5 Anticipated Use of Property

The future use of the property will be strictly limited to industrial use consistent with the activities and businesses operating at the Port of Albany and will not include any residential or agricultural use. The future use will be limited by Deed Restrictions enforceable by NYSDEC and consistent with 6 NYCRR Part 375. The exact future use of the Site is unknown until such time that the Port of Albany leases the property to a new tenant. Regardless of the future use, the proposed cover will prevent humans (workers or visitors) or sensitive environmental receptors from coming into contact with the soil beneath the protective RAP cover.

3.0 PREDETERMINED BENEFICIAL USES (360.12(c)(3)(ix)) AND EXEMPTIONS

3.1 Exempt Activities

It is noteworthy that 6 NYCRR 360.12, and the September 19, 2019 Enforcement Discretion Letter issued by the NYSDEC, both recognize circumstances whereby the management of road construction debris, inclusive of RAP, are exempt from solid waste management regulation.

These include:

1) 363-2.1(h):

(h) a facility, except those located in Nassau or Suffolk counties, where waste consisting only of recognizable, uncontaminated concrete or concrete products (including those that have embedded steel or fiberglass reinforcing rods), asphalt pavement, brick, glass, rock, and general fill from construction and demolition activities, is accepted for disposal, and which complies with the following conditions:

- (1) no fee or other form of consideration is obtained for using the facility or for acceptance or placement of the waste;*
- (2) the waste is only accepted during daylight hours between sunrise and sunset;*
- (3) the waste does not include residues from C&D debris handling and recovery facilities;*
- (4) waste is placed above the seasonal high groundwater table and no waste is placed in a surface water body; and*
- (5) no more than a total of 5,000 cubic yards of waste is received during the lifetime of the facility;*

2) 363-2.1(i):

(i) a facility except those located in Nassau or Suffolk counties, where waste generated by State or municipal highway projects and managed on highway rights-of-way or municipally owned properties is accepted, consisting only of recognizable, uncontaminated concrete or concrete products (including those that have embedded steel or fiberglass reinforcing rods), asphalt pavement, brick, glass, rock, general fill, and restricted-use fill from construction and demolition activities, and which complies with the following conditions:

- (1) the waste does not include residues from C&D debris handling and recovery facilities; and*
- (2) waste is placed above the seasonal high groundwater table and no waste is placed in a surface water body.*

3) From Enforcement Discretion Letter:

Recognizable, uncontaminated concrete, asphalt, rock, brick, and soil used for reclamation at a facility permitted pursuant to the Mined Land Reclamation Law, will not be subject to the otherwise applicable provisions of Parts 360, 361, and 364 if the material has been reviewed, approved, and incorporated into the mined land reclamation permit issued to the facility. No fee or any form of consideration may be received by the operator for use of this material. Any material transported to a mine site for such reclamation purposes is subject to monitoring and enforcement by the Department to ensure that no unapproved wastes are accepted or disposed of during mining and reclamation activities. The Department reserves the right to disapprove use of such materials if placement of these materials at a mine site may constitute an environmental hazard.

These exemptions are provided for in the regulation and policy documents without any specific criteria regarding physical or chemical properties of the material. These are specific exemptions from the Solid Waste Management regulations and reflect the benign nature of these construction-derived materials.

3.2 6 NYCRR 360.12(c)(3)(ix)

Predetermined BUD 6 NYCRR 360.12(c)(3)(ix) states:

(ix) recycled material or residue generated from uncontaminated asphalt pavement and asphalt millings which meets a municipal or State specification or standard for use as an ingredient in asphalt pavement or other paved surface construction and maintenance uses if separated from other waste prior to processing and subsequently processed and stored in a separate area as a discrete material stream;

Examples of an existing municipal specification for RAP are set forth in NYSDOT specifications. For example, Specification 733-06 authorizes the use of RAP for:

- Type 1, 3 or 4 Subbase §733-04
- Embankment §733-08
- Select granular subbase §733-13

It is noteworthy that the New York State construction specifications do not impose any environmental restrictions or limitations on quantity. A copy of these specifications is provided in Appendix A.

Similarly, New York City has established an “Asphalt Millings Bank” with the following reported uses:

- Anti-tracking pads at construction site entrances/exits,
- Backfill outside foundation walls,
- Excavation grading and ramp construction,
- Sub-base aggregate for concrete slab-on-grade, sidewalks and asphalt parking surfaces,
- Trenching and drainage,
- Landscaping (swales, berms and change in grade); and
- Other uses as substitute for conventional aggregate above the water table.

A Fact Sheet describing the Asphalt Millings Bank is provided in Appendix B.

The proposed beneficial use application at the Site is similar in nature to the RAP applications identified by the NYSDOT specifications. The RAP material is separately processed and handled and the millings are not comingled with other waste. Millings can be readily used in a manner consistent with generally accepted municipal specifications and the proposed placement will achieve the stated purpose for a final cover on the Site.

Therefore, the proposed use of RAP material at the Site satisfies the parameters set forth in the pre-determined BUD at 360.12(c)(3)(ix).

3.3 Reclaimed Asphalt Pavement Reuse Specifications and Standards

The NYSDOT and the Federal Highway Administration (FHWA) encourage the reuse and recycling of RAP. The National Asphalt Pavement Association also provides guidance on use of RAP as a clean fill material. Examples of these specifications and guidance are provided in Appendix A.

3.4 Reclaimed Asphalt Pavement Use Benefit

There are very clear benefits to utilizing RAP millings for the final cover at the Site pursuant to 6 NYCRR 360.12(c)(3)(ix). These include:

- Effective substitute to gravel or soil.
- Avoidance of mining new materials.
- Consistency with NYS hierarchy for Solid Waste Management where reuse and recycle are preferred over disposal.
- Consistency with NYS Climate Leadership and Community Protection Act.
- Creation of an immediately useable industrial surface consistent with High Occupancy Use and preparing the Site for future tenant use.
- Avoidance of a vegetative cover system with associated maintenance because stabilization of the ground surface will be attained.
- Transportation of the millings is limited to 1 mile within the Port Authority without the use of public roads.
- Avoids the environmental impacts of shipping over 1,000 truckloads of clean fill or similar material over public highways and roads in the vicinity of the Port of Albany.

4.0 CASE-SPECIFIC BENEFICIAL USE

4.1 General

While a predetermined BUD pursuant to 6 NYCRR 360.12(c)(3)(ix) appears applicable to the proposed use, NYSDEC may prefer to treat this use as a Case-Specific BUD in accordance with 360.12(d). The intended use can be viewed as case-specific in consideration that:

- Sources of the RAP are well defined and limited.
- RAP is received and handled in accordance with an existing NYSDEC solid waste registration.
- The Site is a single property located at 700 Smith Boulevard, Port of Albany less than one mile from the barge offloading location and is accessible without the use of public roads.
- A one-time application is proposed, limited to approximately 20,000 to 25,000 cubic yards.
- The use fulfills a specific final cover need for remediation of the Site, consistent with a Remediation Work Plan.
- Following placement of the protective RAP millings cover, the Site will be subject to a Site Management Plan, an Environmental Easement, and a Deed Restriction (Section 5.0).
- The Site is publicly owned and the majority of the material is from municipal/public projects within New York State.
- The Site would be an exempt facility if the millings were limited to public road projects and did not include the airport projects. Under 6 NYCRR 363-2.1(i), facilities for the use/management of asphalt millings are an exempt facility “ *where waste generated by State or municipal highway projects and managed on ... municipally owned properties is accepted, consisting only of .. asphalt pavement, .. and which complies with the following conditions:(1) the waste does not include residues from C&D debris handling and recovery facilities; and (2) waste is placed above the seasonal high groundwater table and no waste is placed in a surface water body.*”

4.2 Asphalt Pavement Composition

Asphalt pavement generally consists of specified gradations of crushed stone blended with liquid asphalt. The mix design and ratio of ingredients are adjusted to achieve the desired pavement properties.

4.3 Description of Asphalt Millings

Sims Metal facility, located at 140 Port Road South, Albany NY, has the capability to readily receive and store millings in quantities to expedite completion of this project, and is ideally situated for this purpose. These millings are from LaGuardia and Kennedy Airport projects and, to a limited extent, road projects downstate. The RAP millings were generated by using milling machines to grind a specified thickness of the asphalt pavement in preparation for placement of new asphalt pavement. Accordingly, the millings consist only of the stone product and asphaltic binder of the original pavement section that was subjected to milling. No other material is present in the stockpiled millings.

A review of the literature reveals that millings perform essentially similar to crushed stone, which is the primary component of asphalt.

4.4 Description of Proposed Beneficial Use

Under the Remediation Work Plan, impacted soil containing greater than 25 ppm of PCBs will be removed and the Site will be graded in preparation for the final cover installation.¹ Asphalt millings at the Sims facility will be moved by truck to the Site for placement as final protective cover.

Trucks will enter the Site through a stabilized construction entrance installed in satisfaction to the Site SWPPP. Trucks will be directed to the work zone and will traverse the Site on previously placed millings. Truck tires will not come in contact with underlying soil. Prior to construction, laboratory compaction and density testing will be performed to identify the optimal compaction for placement. During initial construction, millings will be spread in approximate 8-inch loose lifts and compacted. Following compaction of the base lift, a second 8-inch loose lift will be placed over the first and similarly compacted. The compacted lifts will be field measured to verify the minimum thickness of 12-inches is achieved. This will result in a final cover with a 12-inch minimum thickness over the portions of the Site specified for unrestricted occupancy/industrial use. The installed cover will provide the requisite separation layer over the soil remaining after remediation. Field compaction achieved will be verified by in-situ measurement to determine the ideal lift thickness to achieve the desired density and thickness of the protective cover. Additional details pertaining to compaction are provided in Part 3 of the cover placement specifications presented in Appendix C.

4.5 Physical and Chemical Properties of Millings

4.5.1 Chemical Properties

The Federal Highway Administration (FHWA) Research and Technology division of the US Department of Transportation (Publication Number: FHWA-RD-97-148; Appendix A) provides considerable information on the origin, management options, market sources, highway uses and processing requirements, and material properties (physical, chemical, and mechanical) of asphalt millings. This information source lists the physical properties as follows:

Physical Properties

Asphalt millings are also known as Reclaimed Asphalt Pavement (RAP), which is a mixture of 93-97% mineral aggregates and 3-7% asphalt cement binder (% by weight). The unit weight of milled RAP ranges from 120 to 140 lb/ft³. The aggregate size of millings generally varies from 0.3 to 1.5 inches (10-40 mm). Smaller size particles may also be included in the millings. The moisture content of RAP stockpiles varies due to weather exposure, but generally varies from 5% to 8% by weight.

When pavement is milled, the resultant millings retain the same relative percentages of the stone and asphalt constituents found in the original pavement section.

4.5.2 Gradation

The crushed stone aggregate used to produce pavement is subject to strict mix designs to achieve the desired pavement properties. As noted in Section 4.5.1, typical stone in pavement section ranges from 0.3 to 1.5 inches in particle size.

¹ According to the Remediation Work Plan, PCBs are the contaminant of concern.

When subjected to milling, the pavement is broken up releasing individual stones or several stones aggregated together with binder. There are typically some larger pieces of milled asphalt that may be several inches in dimension. Larger pieces tend to break up with subsequent handling, placement and compaction. Final gradation in a reuse setting will closely mirror the original stone gradation in the pavement subjected to milling.

4.5.3 Compactive Properties

RAP millings behave much like crushed stone when placed and compacted. The individual particles interlock when compacted. Evidence for the similarity between the properties of crushed stone and RAP millings is the well-known and accepted use of RAP millings as a sub-base material for road construction. The NYC Asphalt Millings Bank Fact Sheet (Appendix B) states RAP is used for subbase aggregate for concrete slab-on-grade, sidewalks and asphalt parking surfaces; trenching and drainage; and other substitute uses for conventional aggregate.

4.5.4 Permeability

The permeability of a layer of compacted millings is similar to an equivalent thickness of compacted crushed stone and gravel. Hydraulic conductivity testing results reported by Mijic (2017) demonstrate that the hydraulic conductivity of RAP is comparable to that of the natural aggregate with the gradation of clean sand-gravel mixture, ranging from 6.89×10^{-3} to 1.14×10^{-2} cm/s.

This research confirms that stormwater infiltration into compacted millings is equal to or less than an equivalent placement of gravel. Infiltration may be expected to be less than for a gravel surface because of reduced void space in the asphalt millings matrix due to residual asphaltic binder, or the presence of fine material generated during milling that was not present in the original gravel used to produce the asphalt.

Groundwater sampling and analysis during investigations by the Port of Albany consultant (CHA) confirmed that concentrations of select dissolved metals (iron, magnesium, manganese, and sodium) detected at concentrations exceeding the NYSDEC TOGS Standards are likely naturally occurring and not representative of a contamination issue. There were no detected concentrations of PCBs in the 11 on-site monitoring wells and therefore no indications of PCB impacts to the groundwater at the Site. As a result, groundwater is not considered an exposure route. The Environmental Easement will prevent use of the groundwater.

As detailed in Section 3.0, RAP has received regulatory approval for use in a variety of applications as a substitute for crushed stone aggregate including, but not limited to, embankment fill (NYSDOT), backfill outside foundation walls, excavation grading, trenching and drainage, and landscaping. Regulatory approval and acceptance of the use of RAP in these wide range of applications above the water table and not placed in a surface water body is an indication that regulatory agencies do not view infiltration of precipitation through RAP as an environmental concern.

4.6 Reuse as a Substitute for Compacted Crushed Stone and as an Effective Site Cover in Accordance with the Remediation Work Plan

Reuse as a substitute for compacted crushed stone will provide an effective Site cover. The NYSDOT and other entities have adopted construction specifications and guidance that recognizes and encourages reuse and recycling of asphalt pavement and millings. Representative specifications and guidance are provided in Appendix A.

As described in Section 4.5, the physical and chemical properties of millings are essentially equivalent to crushed stone products incorporated into the original pavement specifications. Millings consist only of mechanically ground asphalt pavement.

4.7 Demonstration of Known Market

4.7.1 Quantity Needed

The approximately 12 acre site requires approximately 20,000 cubic yards of compacted millings, measured in-place, to construct a 12-inch thick protective cover.

4.7.2 Identified Opportunities

This case-specific BUD is limited to one project. All material subject to this BUD will be used to cover the Site in accordance with the Remediation Work Plan and are subject to the installation specifications discussed herein.

4.8 Environmental and Public Health Considerations

4.8.1 High Occupancy Use

As discussed in Section 2.5, the placement of the protective cover will prepare the Site for High Occupancy Use in anticipation of an industrial use with people working at or visiting the property. The protective cover provides separation from underlying soil preventing exposures to people or releases to the environment.

4.8.2 Stormwater Erosion and Quality

The proposed construction activities will be subject to a SWPPP inclusive of an Erosion Control Plan that will conform to the requirements of the NYSDEC SPDES General Permit for Construction Stormwater Discharge (Permit # GP-0-15-002).

No additional stormwater management or erosion control measures are required due to the use of RAP millings. When placed and compacted, the RAP millings harden and are not prone to erosion by typical stormwater flow. Flow paths with concentrated flow will be appropriately designed and constructed in accordance with the SWPPP to prevent erosion.

4.8.3 Dust Generation

Publications by Koch, et al. (2011) and Mahajan (2015) demonstrate using RAP on gravel or unpaved roads is effective at reducing dust generation. The reduction of dust from using RAP compared to gravel is understandable given the composition of RAP millings being asphalt coated gravel. Experience gained by Sims in the handling, stockpiling and reuse of RAP millings indicates that fugitive dust typically is not a problem. Standard effective dust mitigation measures (e.g., light water spray or mist) and best management practices would be employed, if needed to mitigate fugitive dust. The compacted surface of RAP millings is not substantially different from asphalt pavement and is not expected to generate dust.

No new or special measures are required for the placement of RAP millings. RAP millings will be placed over the soil remaining after Site remediation is complete.

4.8.4 Odor

Placement of millings does not produce offensive or nuisance odors. Sims is experienced with the millings stockpiled at their facility and has demonstrated that millings can be handled, stockpiled and re-handled with no adverse odor impact. The same is expected to hold true when RAP millings cover materials are placed at the Site.

4.8.5 Human Health and Groundwater

Placement of the cover over the soil remaining after remediation will prevent human dermal exposure to the impacted soil. Covering the site also will prevent generation of the dust from the soil and the potential inhalation of soil particles.

The numerous investigations and risk-based analysis previously concluded that the impacted soil currently at the Site with no cover is not adversely affecting groundwater quality. Covering the site with asphalt millings is similarly expected to have no adverse impact on groundwater. As a practical matter, groundwater at the Site is not a source of drinking water and the Site is served by municipal water.

Human exposure to RAP millings during temporary construction activities will be minimal, and substantially similar to standard road construction and milling operations. It is anticipated that RAP millings can be placed and compacted at a rate of 1,000 to 2,000 cy per day. Accordingly, placement of millings is expected to require 10 to 20 work days to complete.

4.9 Material Control Plan

4.9.1 Testing Requirements

Insomuch as the sources/projects providing RAP millings to Sims are limited and known, no testing of the millings is warranted. Sims will retain records documenting the sources of all millings received. All materials are inspected upon receipt at Sims during the unloading process. The RAP millings must not contain extraneous materials or waste. Upon placement at the Site the material will again be inspected to confirm no extraneous materials are contained in the millings and that there are no large pieces of pavement that are not conducive to proper compaction.

4.9.2 Storage and Placement Requirements

Storage of millings will occur at the Sims facility under the existing Solid Waste Management Facility registration. There is no anticipated need for additional storage at the Site.

When needed, millings will be loaded from the stockpile at the Sims facility and transported by truck to the Site. It is anticipated that multiple small piles of millings may be placed at the Site until there is a sufficient quantity to efficiently spread the material with a bulldozer. Placement will be in accordance with the specifications provided in Appendix C.

4.9.3 Schedule for Placement

Sims is capable of, and prepared to, acquire suitable millings for this beneficial use opportunity. Upon completion of Site remediation and grading, the stabilized construction entrance will be installed to begin delivery of millings. Sims estimates the cover placement will require 10 to 20 work days of onsite effort to spread and compact the cover materials.

5.0 SITE MANAGEMENT PLAN

A SMP is included as part of the Remediation Work Plan, per the request of the USEPA and will be required under the NYSDEC Order on Consent. The purpose of the SMP is to ensure continued management of potentially PCB-impacted soil that may remain after completion of remedial measures, including placement of the protective cover. The SMP will remain in effect until the Deed Restriction is extinguished in accordance with 40 CFR 761.61(a)(8)(ii) and the NYSDEC Order on Consent and addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs). The SMP consists of the procedures that will be in place to maintain any ECs, requirements for periodic inspections and reporting, and certification of the Site conditions.

The SMP includes plans for monitoring and inspecting the Site protective cover and fencing; the required reporting and certification; and an Excavation Work Plan to guide future intrusive work that may penetrate the protective cover. Implementation of the SMP will be required by the Environmental Easement that will be filed for the Site. Future compliance with the SMP is required by TSCA regulations pursuant to 40 CFR 761.61.

An Environmental Easement will be filed for the Site that will require adherence to ICs that may not be discontinued without an amendment to, or extinguishment of, the Environmental Easement and Deed Restriction. The ICs stipulated in the SMP include the following:

- The property may only be used for industrial use provided that the long-term ECs/ICs included in the SMP are employed.
- Occupancy restricted areas, if any, shall maintain appropriate ECs and ICs.
- Future activities on the property that will disturb remaining contaminated soil must be conducted in accordance with the SMP.
- The Grantor and successors, and assigns must comply with the Environmental Easement and the SMP.
- ECs must be operated and maintained as specified in the SMP.
- ECs on the Site must be inspected and certified at a frequency and in a manner defined in the SMP.
- Environmental or public health monitoring must be performed as defined in the SMP when intrusive activities are undertaken that penetrate the protective cover.
- Data and information generated while implementing the SMP must be reported in accordance with the SMP; and
- Access to the Site must be provided to NYSDEC with reasonable prior notice to assure compliance with the restrictions identified by the Environmental Easement.

The SMP provides a positive level of assurance that the protective cover will be maintained, inspected, and will continue to be an effective barrier to underlying soil. The SMP further ensures that future owners and tenants are made aware of the environmental conditions and that appropriate procedures are in place to control and mitigate potential exposure to soil remaining below the cover and that any physical or environmental conditions related to the cover are identified and addressed.

6.0 RECORDKEEPING

6 NYCRR 360.12(d)(8) provides that an annual report be filed with the NYSDEC by March 1 of the following year. The report must:

(8) By March 1st following each calendar year of approval, the petitioners of an approved case-specific beneficial use determinations must submit a report to the department, on a form acceptable to the department that includes the quantity of waste beneficially used during the previous calendar year of operation and any analytical data or other information required in the approved case-specific beneficial use determination. The report must also contain a signed statement by a responsible official of the petitioner's organization that the organization has been in compliance with the terms and conditions of the approved case-specific beneficial use determination during the reporting period.

7.0 CLIMATE LEADERSHIP AND COMMUNITY PROTECTION ACT CONSIDERATIONS

The newly enacted CLCPA mandates that State agencies consider the climate implications of agency decisions. This strongly supports the issuance of this proposed BUD. Covering the Site with soil or gravel necessitates mining and transporting suitable materials to the Site (e.g., potentially over 20,000 cubic yards or 1,000 truckloads with 20 cubic yards).

Surplus millings that exceed the market need for recycling into production of new asphalt pavement can be used beneficially as the protective cover at the Site. The energy investment to mine and produce these materials has already been made. Directing the RAP millings to this beneficial use opportunity avoids the need to mine and produce 20,000 cubic yards of suitable material from other sources.

Beneficially using the material also avoids consuming the additional energy to transport the millings to an authorized disposal facility. A large stockpile of RAP millings is currently present at the Sims Port of Albany facility for distribution to local or regional projects. The beneficial use of the RAP millings at the Site less than one (1) mile from the Sims facility represents a net reduction in energy use that would otherwise be expended to transport the millings to other more distant locations.

8.0 CONCLUSION

This Petition meets the requirements of 6 NYCRR Part 360.12(d) for a case-specific Beneficial Use Determination. The proposed use of RAP millings represents an energy savings and environmental benefit as compared to constructing a protective cover using virgin earth materials. RAP millings do not present any human health or environmental concerns and future control of this Site under a Site Management Plan and Environmental Easement ensures continued protection of the public and the environment after placement of a protective cover. In consideration of these clear benefits, approval of this BUD Petition by the NYSDEC is recommended.

9.0 REFERENCES

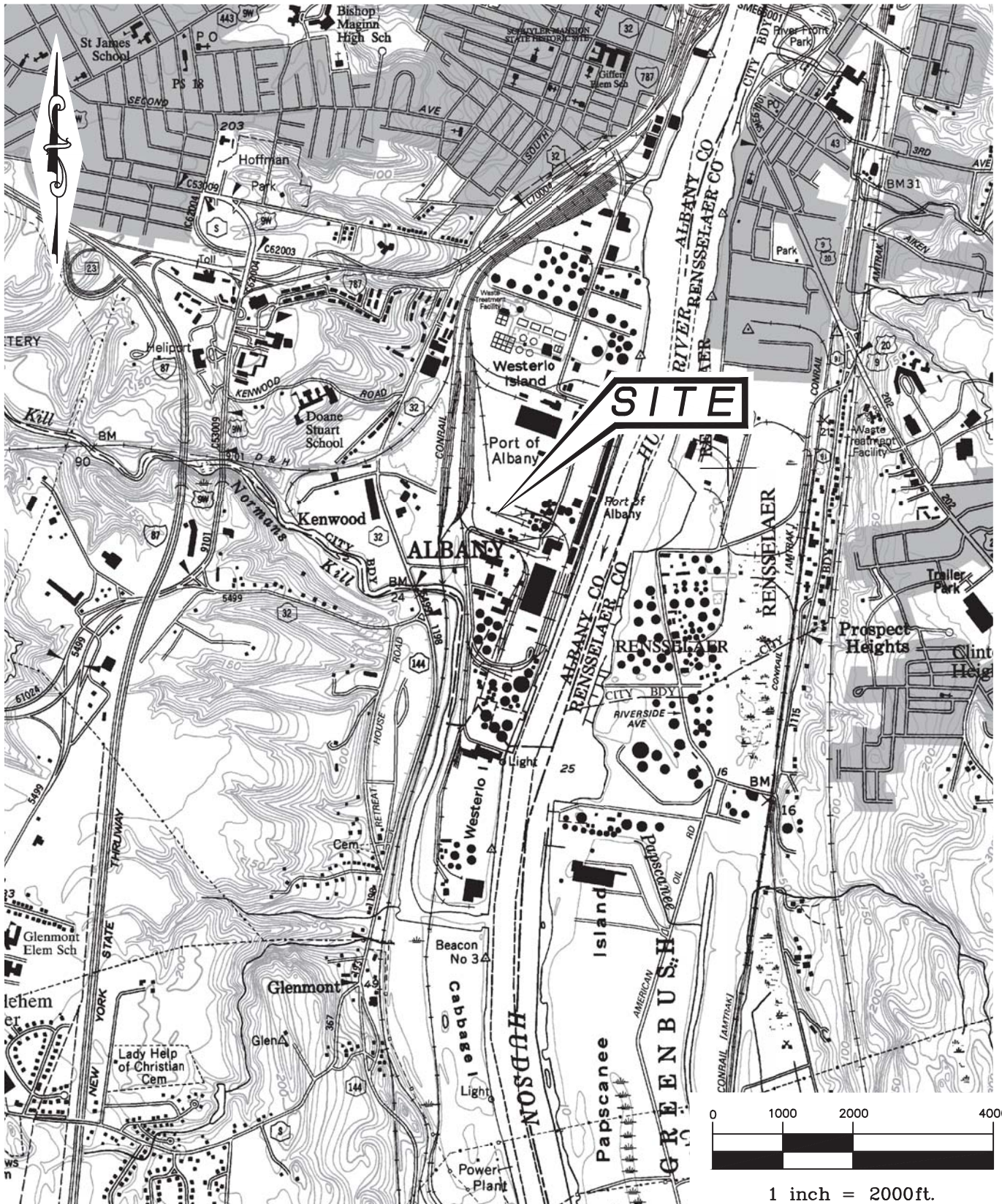
Koch, S. et al. (2011), Performance of Reclaimed Asphalt Pavement on Unpaved Roads; No. FHWA-WY-11/03F. Wyoming Dept. of Transportation.

Mahajan, S. S. (2015), Usage of Recycled Asphalt Pavement on Minnesota Gravel Roads: Performance Evaluation and Analysis; Iowa State University Graduate Theses and Dissertations. 14953.

Mijic, Z. (2017); Hydraulic and Environmental Behavior of Recycled Asphalt Pavement in Highway Shoulder Applications; University of Maryland Theses and Dissertations.

S:\Sterling\Projects\2014 Projects\700 Smith - Port of Albany - 2014-40\Reports and Work Plans\BUD Petition\2020-1-21_BUD Petition.docx

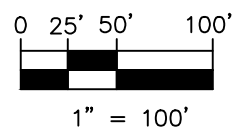
FIGURES



S:\Drawings\2014-40 - Sims Metal - Port of Albany\2014-XX0001.Site\Loc.dwg 11/6/2015 7:40 AM

<h1>STERLING</h1> <p>Sterling Environmental Engineering, P.C. 24 Wade Road • Latham, New York 12110</p>		<p>SITE LOCATION MAP</p> <p>700 SMITH BOULEVARD</p> <p>CITY OF ALBANY ALBANY CO., N.Y.</p>							
PROJ. No.:	2014-40	DATE:	11/6/15	SCALE:	1" = 2000'	DWG. NO.	2014-40101	FIGURE	1

S:\Drawings\2014-40 - 700 Smith - Port of Albany\2014-40013_F-2 - Site Map.dwg SWEETT 12/27/2019 2:11 PM



STERLING

Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SITE MAP

700 SMITH BOULEVARD

CITY OF ALBANY

ALBANY CO., NEW YORK

PROJ. No.: 2014-40	DATE: 12/27/2019	SCALE: 1" = 100'	DWG. NO. 2014-40013	FIGURE 2
--------------------	------------------	------------------	---------------------	----------

APPENDIX A

RAP Specifications

733-06 RECLAIMED ASPHALT PAVEMENT FOR EARTHWORK AND SUBBASE

SCOPE. This specification covers the material requirements and methods of assessing Reclaimed Asphalt Pavement (RAP) generally used as fill material.

SAMPLING. Perform material tests and assurance methods pertaining to the RAP requirements in conformance with the procedures contained in the geotechnical control procedure “*Procedure for the Control and Quality Assurance of Granular Materials*”.

MATERIAL REQUIREMENTS.

A. SOURCE. Provide written documentation that the reclaimed bituminous material originated on a Department project. Include an identifier, such as State Highway number, construction contract number or Department Project Identification Number (PIN).

B. GRADATION.

1. Gradation Spread. Provide RAP having a maximum top size of 2 in. at the time of placement.

2. Elongated Particles. A flat or elongated particle is defined herein as one which has its greatest dimension more than three (3) times its least dimension. Provide material consisting of particles where not more than 30%, by weight, of the particles retained on a ½ in. sieve are flat or elongated. When the State elects to test for this requirement, material with a percentage greater than 30 will be rejected. Acceptance for this requirement will normally be based on a visual inspection by the Regional Geotechnical Engineer.

C. CHARACTERISTICS. Bituminous material that is well-graded from coarse to fine and free from organic or other deleterious material, including tar. This material is at least 95%, by weight, reclaimed bituminous material. No soundness or Plasticity Index testing will be required.

BASIS OF APPROVAL. RAP will be approved based upon a visual inspection by the Regional Geotechnical Engineer.

BASIS OF ACCEPTANCE. If this material becomes unstable during construction, it may be necessary to add a mixture of natural suitable material to the RAP. Acceptance of the final product will be based on an evaluation by the Engineer.

Approved RAP will be accepted upon successful completion of the Quality Assurance (QA) program indicating that the material conforms to the specification. If the QA program is not introduced, RAP will be accepted upon the basis of the visual inspection by the Regional Geotechnical Engineer.

Federal Highway Administration

1200 New Jersey Avenue, SE
Washington, DC 20590
202-366-4000

Federal Highway Administration Research and Technology Coordinating, Developing, and Delivering Highway Transportation Innovations



This report is an archived publication and may contain dated technical, contact, and link information

[Federal Highway Administration](#) > [Publications](#) > [Research Publications](#) > [97148](#) > User Guidelines for Waste and Byproduct Materials in Pavement Construction

Publication Number: FHWA-RD-97-148

User Guidelines for Waste and Byproduct Materials in Pavement Construction

[[Material
Description](#)]

[[Asphalt Concrete \(Hot
Recycling\)](#)]

[[Asphalt Concrete \(Cold
Recycling\)](#)]

[[Granular
Base](#)]

RECLAIMED ASPHALT PAVEMENT

User Guideline

Embankment or Fill

INTRODUCTION

In addition to recycling into asphalt paving or incorporation into bases or subbases, some reclaimed asphalt pavement (RAP) has been used for embankment construction. It can also be used as a fill material. When used as an embankment or fill material, the undersize portion of crushed and screened RAP, typically less than 50 mm (2 in), may be blended with soil and/or finely graded aggregate. Uncrushed or more coarsely graded RAP may be used as the embankment base.

Although the use of RAP in embankment construction does not take any advantage of the asphalt cement component, it does, nevertheless, provide an alternate application where no other markets for reuse are readily available, or where the RAP may be unsuitable for use in asphalt concrete pavement. The properties of RAP are largely dependent on the properties of the constituent materials and asphalt concrete type used in the old pavement.^(1,2)

PERFORMANCE RECORD

Although use of RAP as an embankment construction material does not appear to be extensive, it has been reported that at least nine states have made some use of RAP for this purpose. States that have made use of RAP as an additive in embankment construction include Connecticut, Indiana, Kansas, Montana, New York, and Tennessee. States that have used RAP directly as an embankment base material include California, Connecticut, Illinois, Louisiana, and Tennessee.⁽³⁾ The performance of RAP in these applications was generally considered to be satisfactory to good.

MATERIAL PROCESSING REQUIREMENTS

Crushing

Processing requirements for embankment or fill applications are minimal. Primary crushing may be necessary to satisfy gradation requirements. However, some jurisdictions permit the use of broken pieces of old asphalt pavement, provided the specified maximum size (similar to boulders) is not exceeded.

Blending

Crushed RAP is sometimes mixed with conventional earth fill materials or crushed aggregates and used in embankment construction.

ENGINEERING PROPERTIES

Some of the engineering properties of RAP that are of particular interest when RAP is used in embankment applications include gradation, compacted density, moisture content, shear strength, consolidation characteristics, permeability, durability, drainage characteristics, bearing strength, and corrosivity.

Gradation: The gradation of RAP is controlled by crushing and screening. The gradation and physical requirements of AASHTO M145⁽⁴⁾ are usually readily satisfied by RAP or blends of RAP and soil or crushed aggregate. If used as an embankment base material, the maximum particle size of RAP will probably be less than 600 mm (24 in).

Compacted Density: Due to its asphalt cement content, the compacted unit weight of RAP (1600 to 2000 kg/m³ (100 to 125 lbs/ft³)) is likely to be somewhat lower than that of earth or rock.⁽⁵⁾ The finer the RAP is crushed and sized, the higher its compacted density.

Moisture Content: The optimum moisture content for RAP-aggregate blends is reported to be higher than for conventional embankment material, particularly for RAP from pulverizing operations, due to higher fines generation.⁽⁶⁾

Shear Strength: The shear strength of RAP that has been crushed and sized will be based on internal friction, with little or no cohesion, and should be comparable to that of a similarly graded natural aggregate. RAP-aggregate blends should also have an internal friction angle in the same range as the natural aggregate. The shear strength of RAP-soil blends will likely be based mainly on internal friction, with little or no cohesion, and will be dependent on the relative proportions of the RAP and the soil.

Consolidation Characteristics: The compressibility or consolidation characteristics of RAP-soil blends will probably be within the range of a granular soil, depending on the gradation, moisture content, and proportion of soil added to the RAP. For coarsely graded RAP, or RAP-aggregate blends, the potential for compressibility should, for all practical purposes, be negligible.

Permeability: The permeability of blended RAP is similar to that of conventional granular material or soil-aggregate blends having similar gradation.⁽⁶⁾

Durability: Since the quality of virgin aggregates used in asphalt concrete usually exceeds the requirements for embankment/fill material, there are generally no durability concerns regarding the use of RAP in this application.

Drainage Characteristics: RAP is nonplastic, free draining, is not frost susceptible, and can be blended and compacted with other suitable fill materials.

Bearing Strength: The bearing strength of an embankment is mainly of importance only in the top 1 meter (3 ft), which is the portion of the embankment that provides the subgrade support for the pavement structure. The bearing strength of subgrade materials is usually determined by the California Bearing Ratio (CBR) test. The CBR value for RAP should be comparable to that of crushed stone of a similar gradation. The CBR of RAP-soil blends should be comparable to that of a well-graded granular soil. The top portion of an embankment will normally consist of soil-like materials, with the coarser materials (crushed stone or rock) in the lower portions of the embankment.

Corrosivity: On the basis of limited testing results, RAP is considered noncorrosive.^(7,8)

DESIGN CONSIDERATIONS

The design requirements for RAP in embankment construction are the same as for similar sized soil-aggregate blends, conventional aggregates, or shot rock fill. Where pieces of broken asphalt pavement are used as embankment base, size and placement restrictions should apply in the same manner as for boulders and cobbles. It is recommended that such uncrushed materials not be placed where they may have an impact on future construction activities. Some jurisdictions require that a minimum separation be maintained between watercourses and fill materials containing RAP to avoid submersion of RAP in water, which may or may not be a potential environmental concern.⁽⁹⁾

Design procedures for embankments or fill containing RAP are the same as design procedures for conventional embankment materials. The design should take into consideration slope stability, settlement or consolidation, and bearing capacity concerns. If the embankment is to be constructed using a blend of RAP with soil and/or crushed aggregate, a representative sample of the blended material should be tested, if possible, for triaxial compression⁽¹⁰⁾ and California Bearing Ratio (CBR).⁽¹¹⁾ The maximum particle size for the triaxial test is 5 mm (No. 4 sieve). The maximum particle size for the CBR test is 19 mm (3/4 in sieve).

CONSTRUCTION PROCEDURES

Material Handling and Storage

The same methods and equipment used to store or stockpile conventional aggregates are applicable for reclaimed asphalt pavement.

Since each source of RAP will be different, random sampling and testing of the RAP stockpile must be performed to quantify and qualify the RAP. Representative samples of the stockpiled RAP should be used in the optimum blend design.⁽²⁾ Additional care is required during stockpiling and handling to avoid segregation or re-agglomeration.

Placing and Compacting

The same methods and equipment for compacting conventional fill can be used for compacting crushed RAP or blends of soil and RAP. It is reported that granular materials containing RAP appear to compact better if little or no water is used.⁽⁵⁾ Where large, broken pieces of old asphalt pavement are incorporated in embankment construction, additional attention is needed during compaction to ensure that no large voids are formed within the fill that could contribute to subsequent long-term differential settlement. Standard laboratory and field test methods for compacted density are given by AASHTO T191,⁽¹²⁾ T205,⁽¹³⁾ T238,⁽¹⁴⁾ and T239.⁽¹⁵⁾

Quality Control

The same field test procedures used for conventional soils or crushed aggregate materials are also appropriate for RAP, or blends of RAP and soils or crushed aggregates.

When RAP is used for construction of an embankment base or foundation material, compaction operations must be visually inspected on a continuous basis to ensure that the specified degree of compaction can be achieved, or that there is no movement under the action of compaction equipment. The construction of embankment bases or foundations containing rock or oversize materials usually requires a method specification, in which the procedures and type of equipment for placement and compaction are stipulated, but no testing methods or acceptance criteria are indicated.

UNRESOLVED ISSUES

Although RAP is not frequently incorporated into embankments, there is a need to establish standard specifications for the use of RAP in embankment construction, either by itself as an embankment base material, or blended with soil and/or crushed aggregate.

Although the available body of technical data indicate that RAP is a nonleachable material, there is a need to develop a procedure for stockpiling and placing of fill materials containing RAP in situations where there may be groundwater contact or concerns about runoff quality.

REFERENCES

1. *Engineering and Environmental Aspects of Recycling Materials for Highway Construction*, Federal Highway Administration, Report No. FHWA-RD-93-008, Washington, DC, May 1993.
2. *Pavement Recycling Executive Summary and Report*, Federal Highway Administration, Report No. FHWA-SA-95-060, Washington, DC, 1995.
3. Ahmed, Imtiaz. *Use of Waste Materials in Highway Construction*. Federal Highway Administration, Report No. FHWA/IN/JHRP-91/3, Washington, DC, January, 1991.
4. AASHTO Designation: M145-82. "Standard Method of Test for the Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes," American Association of State Highway and Transportation Officials, Part I Specifications, 16th Edition, 1993.
5. Senior, S. A., S. I. Szoke, and C. A. Rogers. "Ontario's Experience with Reclaimed Materials for Use in Aggregates." Presented at the International Road Federation Conference, Calgary, Alberta, 1994.
6. Hanks, A. J. and E. R. Magni. *The Use of Bituminous and Concrete Material in Granular Base and Earth*. Materials Information Report MI-137, Engineering Materials Office, Ontario Ministry of Transportation, Downsview, Ontario, 1989.
7. Bansci, J. J., A. Benedek, J. J. Emery, and J. Lawrence, "The Leaching of Toxic Organic Compounds from Solid Wastes," Presented at U.S. EPA National Conference on Management of Uncontrolled Waste Sites, Washington, DC, 1980.
8. Krietch, A.J. "Evaluation of RAP as Clean Fill," *Asphalt*, Vol.5, No.1, p.8, The Asphalt Institute, Lexington, Kentucky, Summer 1991.
9. Krietch, A.J. *Leachability of Asphalt and Concrete Pavements*, Heritage Research Group Report, Indianapolis, Indiana, March, 1992.
10. ASTM D2850-87. "Standard Test Method for Unconsolidated, Undrained Compressive Strength of Cohesive Soils in Triaxial Compression." American Society for Testing and Materials, *Annual Book of ASTM Standards*, Volume 04.08, West Conshohocken, Pennsylvania.
11. ASTM D1883-87. "Standard Test Method for CBR (California Bearing Ratio) of Laboratory-Compacted Soils." American Society for Testing and Materials, *Annual Book of ASTM Standards*, Volume 04.08, West Conshohocken, Pennsylvania.
12. American Association of State Highway and Transportation Officials. Standard Method of Test, "Density of Soil In-Place by the Sand Cone Method," AASHTO Designation: T191-86, Part II Tests, 14th Edition, 1986.
13. American Association of State Highway and Transportation Officials. Standard Method of Test, "Density of Soil In-Place by the Rubber-Balloon Method," AASHTO Designation: T205-86, Part II Tests, 14th Edition, 1986.
14. American Association of State Highway and Transportation Officials. Standard Method of Test, "Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)," AASHTO Designation: T238-86, Part II Tests, 14th Edition, 1986.
15. American Association of State Highway and Transportation Officials. Standard Method of Test, "Moisture Content of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)," AASHTO Designation: T239-86, Part II Tests, 14th Edition, 1986.

[[Material Description](#)]

[[Asphalt Concrete \(Hot Recycling\)](#)]

[[Asphalt Concrete \(Cold Recycling\)](#)]

[[Granular Base](#)]

[Previous](#) | [Table of Contents](#) | [Next](#)

TRT Terms: Waste products as road materials--Handbooks, manuals, etc, Pavements, Asphalt concrete--Design and construction--Handbooks, manuals, etc, Pavements, Concrete--Design and construction--Handbooks, manuals, etc, Pavements--Additives--Handbooks, manuals, etc, Fills (Earthwork)--Design and construction--Handbooks, manuals, etc, Roads--Base courses--Design and construction--Handbooks, manuals, etc, Wastes, Environmental impacts, Recycling

Scheduled Update: Archive - No Update needed

This page last modified on 03/08/2016

Reclaimed Asphalt Pavement (RAP) as a Clean Fill Material

The asphalt pavement industry is America's biggest recycler. More than 60 million tons of asphalt pavement material is reclaimed each year during road widening and resurfacing projects, and nearly all of that material is reused. Incorporating reclaimed asphalt pavement (RAP) into new pavements reduces demands for virgin asphalt binder, helping to keep costs down as well as improving the environmental footprint of projects.

Not all RAP is recycled into new asphalt pavements, however. Occasionally, the question arises as to whether or not RAP can be used as "clean fill." Although obviously not the highest and best use of this vital resource, regulations regarding when and where RAP can be placed as fill material vary from state to state and can be complex. In most instances, RAP falls under state solid-waste requirements and purview.

Because state environmental agencies often have more restrictive solid-waste disposal regulations than the federal Environmental Protection Agency, it is important to understand how RAP is defined. U.S. EPA classifies RAP as construction and demolition (C&D) debris that is part of the federal solid-waste chain. Federal regulations also identify that if materials are "recycled," then they are not considered solid waste. However, there is a "speculative accumulation" federal definition that requires a 75 percent annual "turnover" to maintain the recycled material classification vs. solid waste.

RAP is not, and never has been, considered a "hazardous" solid waste. Years of leaching studies show that there are no harmful components leached from RAP under the most stringent waste definition extraction conditions. (See NAPA Special Report 190: "Reclaimed Asphalt Pavement (RAP) Stockpile Emissions and Leachate.")

In general, it is acceptable for RAP to be used as a road material — as part of the base, recycled back into pavement, etc. — both from a federal and state perspective. Although U.S. EPA does not appear to have a strict definition of "clean fill", specific requirements do apply to solid-waste materials applied to land.

In contrast, a number of state environmental agencies do have specific definitions for "clean fill" and many state regulations prescribe how RAP can or cannot be used as a

fill-like material. In a number of states, the use of RAP fill is specifically restricted, for example, near surface or subsurface sources of water.

The bottom line is that each state's environmental agency will likely dictate whether or not RAP can be used as a clean fill material. Under normal use and circumstances, RAP should never be considered as hazardous waste.

See Also

- NAPA Special Report 190: "Reclaimed Asphalt Pavement (RAP) Stockpile Emissions and Leachate"
<http://www.asphaltpavement.org/images/stories/SR-190revised.pdf>
- IS-123: Recycling Hot-Mix Asphalt Pavements
<http://store.asphaltpavement.org/index.php?productID=171>

APPENDIX B

NYC Asphalt Millings Bank Fact Sheet

October 19, 2015

Asphalt Millings: Physical and Mechanical Properties

Asphalt Millings Source: NYC's Department of Transportation (DOT), Roadway Repair and Maintenance

Asphalt Millings Stockpile Locations:

- 2300 Conner Street, Bronx
- 78-88 Park Drive East, Queens
- 6080 Flatlands Avenue, Brooklyn
- 3551 Richmond Terrace, Staten Island

Reported Uses:

- Anti-tracking pads at construction site entrances/exits,
- Backfill outside foundation walls,
- Excavation grading and ramp construction,
- Sub-base aggregate for concrete slab-on-grade, sidewalks and asphalt parking surfaces,
- Trenching and drainage,
- Landscaping (swales, berms and change in grade).
- Other uses as substitute for conventional aggregate above the water table.

Physical Properties¹

Asphalt millings are also known as Reclaimed Asphalt Pavement (RAP), which is a mixture of 93-97% mineral aggregates and 3-7% asphalt cement binder (% by weight). The unit weight of milled RAP ranges from 120 to 140 lb/ft³. The aggregate size of millings generally varies from 0.3 to 1.5 inches (10-40 mm). Smaller size particles may also be included in the millings. The moisture content of RAP stockpiles varies due to weather exposure, but generally varies from 5% to 8% by weight.

Mechanical Properties¹

When RAP is blended with natural aggregate for use in granular base, the asphalt cement in the RAP has a significant strengthening effect on the natural aggregate over time. For example, the California Bearing Ratio (CBR) of RAP is 20-25%, but a mixture containing 40% RAP and 60% natural aggregate can have a CBR of 150% or higher. Where specific geotechnical performance goals are desired, geotechnical characterization is recommended to determine the suitability of the material prior to transfer. As the binder used in asphalt pavement contains a family of organic compounds that has the potential to migrate to the surrounding environment, asphalt millings are not to be placed below the water table.

**For further information,
please contact:**

Isabel McRae, Program Manager
(212) 341-2034
IMcRae@dep.nyc.gov

NYC OER
100 Gold Street, Second Floor
New York, NY 10038
Brownfields@cityhall.nyc.gov

¹The information contained in this Fact Sheet is based on information provided in the literature and is intended for general purposes only.

APPENDIX C

Cover Placement Specifications

SECTION 02200

ASPHALT MILLINGS COVER SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings, general provisions of the Contract, and Division 01 Specification sections, apply to this section.

1.2 SUMMARY

- A. Furnish all labor, materials, equipment tools, and appurtenances required to complete the work of importing, placing, grading, and compacting Reclaimed Asphalt Pavement (RAP) to construct an Asphalt Millings Cover System and other related and incidental work within the designated area.

1.3 REFERENCES

- A. ASTM D6913 - Standard Test Methods for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.
- B. ASTM D1557 – Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
- C. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 JOB CONDITIONS

- A. Locate all existing aboveground and underground utilities in the work area prior to commencing construction activities. Notify Owner and Engineer immediately of any conflicts or discrepancies between field conditions and Contract Drawings. The Contract Drawings do not define all aboveground or underground utilities, structures, wells, or other existing facilities at, or adjacent to, the work area. Any representations of utility location on the Contract Drawings are approximate.
- B. Plan and conduct construction operations to prevent damage to existing structures, aboveground and underground utilities.
- C. Health and Safety: Plan and conduct construction operations to safeguard people and to provide safe working conditions in accordance with applicable laws and regulations.
- D. Dust Control: Control dust and airborne particulates in the work area and haul roads by sprinkling with potable water or by other methods approved by the OWNER. Petroleum products cannot be used for dust control.

- E. Access Roads, Ramps, and Staging Areas:
 - 1. Construct temporary staging areas and access roads necessary to provide access to the work areas, as approved by the Owner and the Engineer.
 - 2. Maintain temporary staging areas, temporary access roads, and existing access roads throughout the duration of the Contract to provide access to the site for the Contractor, Owner, and others as may be engaged by the Owner.
 - 3. Remove all temporary roads, ramps, and staging areas when no longer needed, and restore the site to conditions as approved by the Owner and Engineer.
- F. Stockpile materials at designated areas approved by the Owner or as directed by the Engineer.
- G. Construction Quality Assurance/Quality Control: The Engineer will implement a construction quality assurance/quality control (QA/QC) program during construction to ensure that materials and construction practices meet the requirements of these specifications. The Contractor shall assist the Engineer with required testing.

1.5 SUBMITTALS:

- A. Dust Control Plan describing methods and procedures for controlling dust.
- B. Construction Plan describing roles and responsibilities, earthwork procedures, stockpile locations, and quality control procedures.
- C. Material Source: Submit documentation that demonstrates the material source can consistently produce and supply cover system material that meets the specified requirements. Each material source must be approved by the Engineer.
- D. Product Data: Submit product information consisting of material source, grain size distribution (ASTM D6913) and moisture-density relationship (ASTM D1557) for all cover system materials prior to import for use at a frequency of one test per 5,000 cubic yard per source.

PART 2 - PRODUCTS

2.1 MATERIAL DESCRIPTIONS:

- A. Reclaimed Asphalt Pavement (RAP)
 - 1. The Asphalt Millings Cover System shall be constructed entirely of RAP that consists only of demolished asphalt pavement from asbestos free pavement and free from all perishable and objectionable material.
 - 2. RAP shall be prepared by cold milling or similar removal techniques approved by the Engineer that produce a granular material with a maximum particle size of 1.5 inches.

3. The bitumen component of the RAP shall be asphalt cement free of significant contents of solvents, tars, or other contaminating substances as determined by the Engineer.
4. RAP shall meet the following particle size gradation, subject to the approval of the Engineer:

Screen Size (mesh)	Percent Finer
37.5 mm (1.5 in)	100
12.5 mm (1/2 in)	70 - 100
75 mm (No. 4)	38 - 75
2.36 mm (No. 8)	25 - 60
1.18 mm (No. 16)	17 - 40
0.60 mm (No. 30)	10 - 25
0.075 mm (No. 200)	2 - 15

PART 3 - EXECUTION

3.1 LAYOUT

- A. Verify and accurately locate and maintain location of all proposed construction components, existing roads, utilities, monitoring wells, drainage structures, and existing site components, features, and advise the Engineer of any discrepancies prior to commencing work.

3.2 ASPHALT MILLINGS COVER SYSTEM MATERIAL PLACEMENT

- A. Place cover system material in two (2) uniform lifts. The first lift will be loose-placed to a thickness of eight (8) inches and compacted. A second eight (8) inch lift will be placed over the base lift and similarly compacted.
- B. Each lift shall be compacted to a minimum 90% of the modified proctor (ASTM D1557) with a vibratory smooth drum roller.
- C. In-place density and water content measurements will be recorded for each compacted lift at a frequency of five (5) locations per acre. Measurement locations on subsequent lifts must be offset at least 25 feet from testing locations on the lower compacted lift. Locations failing to achieve the minimum specified compaction will be recompacted and retested.
- D. Record ground surface elevations to the nearest 0.05-foot on a pre-established 50-foot grid spacing prior to and after placement of the cover system to document placement of the minimum required 12-inch thickness. Identified areas with less than 12 inches of cover system must be corrected by placing and compacting additional material to achieve the minimum thickness.

END OF SECTION

CHIA

