Alkier Steel, LLC

Steel Mineola Second Street, LLC

22 September 2023

Self-Implementing On-Site Cleanup and Disposal Plan/Site Management Corrective Measures Work Plan for the PCBs near ‘DW-05’

AK Allen IHWDS Site No. 130100
Order on Consent and Administrative Settlement Index No. CI 1-20220106-6

225-255 E 2nd Street
Mineola, New York

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225-255 E 2nd Street
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1. INTRODUCTION, PURPOSE & BACKGROUND

This Self-Implementing On-Site Cleanup and Disposal Plan (SIP)/Corrective Measures Work Plan (CMWP) has been prepared by ERM Consulting & Engineering, Inc. (ERM) on behalf of Alkier Steel, LLC and Steel Mineola Second Street, LLC (collectively "Alkier Steel") to comply with the U.S. Environmental Protection Agency (USEPA) requirements for notification of a Self-Implementing On-Site Cleanup and Disposal Plan (SIP) per 40 CFR Part 761.61(a)(3).

Alkier Steel, whose corporate offices are located at 999 South Oyster Bay Road, Bethpage, New York, recently purchased in 2019, and is the current owner of the 4.15-acre parcel of the former AK Allen Company Incorporated (Allen) property located on the southern side of East 2nd Street (225-255 E 2nd Street), in the Village of Mineola, Town of North Hempstead, Nassau County, New York (the "Site"). Alkier Steel Alkier acquired the Site from Allair Holdings, Inc. (f/k/a Allenair Corporation), A.L. Allen Co., Inc., and 255 East Second St. Realty Corp (collectively "Allen"). Allen was a manufacturer of precision-machined metal cylinders and valves, occupied the building from 1957 through circa 2017. The location of the Site and the physiographic features of the surrounding area are depicted on **Figure 1**.

The Site is where the pre-remedial investigations have been, and the cleanup is to be undertaken described herein. A signed certification in accordance with 40 CFR 761.61(a)(3)(i)(E) is presented as Section 6.0 of this document.

This plan is focused on the proposed excavation and off-site disposal of soils classified as polychlorinated biphenyls (PCB) remediation waste (and to a lesser degree copper, nickel and lead-impacted soils) within, adjacent to, and beneath a stormwater drywell identified as DW-05 at the Site.

A Site Layout Map showing the location of DW-05 in the south parking lot is provided as **Figure 2.** The parking lot area, and subsurface soil environment at the location of DW-05 is considered to be a "Low Occupancy" area. PCBs were detected in one soil sample at a concentration above 50,000 micrograms per kilogram (μg/kg), i.e., 55,000 μg/kg in the affected subsurface soils at DW-05.

Since 2000, the Site has been listed as a Class 2 site on the New York State (NYS) Registry of Inactive Hazardous Waste Sites (Site No. 1-30-100) as a result of Site media being impacted by volatile organic compounds (VOCs), semi-VOCs (SVOCs), PCBs and metals. Accordingly, the Site has been subject to the requirements of the NYS Inactive Hazardous Waste Disposal Site Remedial Program with active lead-agency management by the New York State Department of Environmental Conservation (NYSDEC), the NYS Department of Health (NYSDOH),and the Nassau County Department of Health (NCDH).

Between 1996 – 2015 the Site went through remedial investigations, feasibility studies, interim remedial measures pursuant to a 2003 Order on Consent between Allen and NYSDEC with a Record of Decision issued by NYSDEC in 2006. That work involved remediation of several areas of concern where PCBs were one of the identified contaminants of concern. Further details are provided in Section 1.2.2 – Historical Summary.

1.1 Purpose

This document:

- Provides historical and current use background information about the Site.
- Summarizes the scope and findings of the environmental investigations undertaken during 2020-2021 to successfully delineate the extent of PCBs in soil at DW-05 exceeding the 3,200 μg/kg Part 375 Protection of Groundwater Soil Cleanup Objective (SCO)[1], and confirm the absence of PCB impacts to groundwater beneath DW-05. Note that as discussed in Sections

1 https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf

2.3 and 4.4.2, the actual delineation of PCBs to <1,000 µg/kg in soil was accomplished for the purposes of the remedial excavation footprint and depth intended to remove all soils with PCB concentrations in excess of 10,000 µg/kg. There is one outlier sample and its duplicate collected from 44 – 45 feet below grade in the soil boring drilled through the bottom of DW-05 where concentrations were 2,180 µg/kg and 2,930 µg/kg, respectively. Excavation of soil at that depth is technically impracticable and these concentrations are still far below the proposed 10,000 µg/kg cleanup goal, below the New York State Part 375 Protection of Groundwater Soil Cleanup Objective (SCO) of 3,200 µg/kg, and far below the Part 761 25,000 µg/kg cleanup goal for Low Occupancy areas (40 CFR 761.61(a)(4)(i)(B)). Having the delineation completed in advance of remedial action provides for flexibility and streamlined remedial approaches and negates the need for post-remedial sampling in most scenarios. However, a post-excavation verification sampling plan is detailed in Section 4.4.2 in order to comply with 40 CFR Part 761 Subpart O.

- Presents an evaluation of practical remedial approaches/technologies that were considered to mitigate PCB impacts in soil within, adjacent to, and beneath DW-05 exceeding the 10,000 µg/kg PCB presumptive remedy subsurface soil cleanup level allowed by CP-51/Soil Cleanup Guidance[2] for non-Brownfield Cleanup Program (BCP) sites where neither the unrestricted SCOs nor the ecological SCOs (ESCOs) are applied in the remedial program. The evaluation is summarized in a matrix-form using Threshold and Balancing Criteria specified in Chapter 4.3 of DER-10 / Technical Guidance for Site Investigation and Remediation (DER-10)[3], and considers the physical and logistical encumbrances present at, and in close proximity to DW-05, e.g., depth of impacts to be remediated, Long Island Railroad (LIRR) main line tracks, overhead high-voltage electrical lines, seismic/vibration issues for both the LIRR main line tracks, retaining wall, and the building foundation, etc.
- Proposes the recommended remedial approach to mitigate PCB impacts in soil exceeding the 10,000 µg/kg cleanup goal within, adjacent to, and beneath DW-05 where the parking lot area. This remedial goal is more conservative than the allowable 25,000 µg/kg cleanup level for a "Low Occupancy" area (40 CFR 761.61(a)(4)(i)(B)).

  EPA has indicated that a Deed Notice will be required if post-excavation soil PCB concentrations at this location are >1,000 µg/kg but <25,000 µg/kg in a Low Occupancy area. Section 4.7 describes how a new Deed Notice will be filed with Nassau County in accordance with 40 CFR 761.61(a)(8) and certification thereof will be provided in accordance with 40 CFR 761.61(a)(8)(ii).
- Serves as a SIP in accordance with requirements set forth in Subpart D, Chapter 61 of the Toxic Substances Control Act (TSCA: 40 CFR § 761) and satisfies the basic notification requirements to the USEPA under 40 CFR 761.61(a)(3).

  PCBs are regulated under TSCA that is administered by the USEPA. PCBs have been detected in one soil sample at a concentration above 50,000 µg/kg, i.e., 55,000 µg/kg in the affected soils at DW-05, and because the date, source(s) nor original concentration of PCBs are unknown, the presence of PCBs at any concentration in soil are considered a TSCA-regulated remediation waste[4] subject to applicable parts of the TSCA regulation including

2 https://www.dec.ny.gov/docs/remediation_hudson_pdf/cpsoil.pdf, Commissioner's Policy–51 Section V, I., effective 12/03/2010.
3 https://www.dec.ny.gov/docs/remediation_hudson_pdf/der10.pdf

4 As defined in 40 CFR §761.3: PCB remediation waste means waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations >50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was >500 ppm PCBs beginning on April 18, 1978, or >50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under this part. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to: 1) Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment; 2) Sewage sludge containing <50 ppm PCBs and not in use according to §761.20(a)(4); PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs including sludges located in or removed from any pollution control device; aqueous decantate from an industrial sludge; and 3) Buildings and other man-made structures (such as concrete floors, wood floors, or walls contaminated from a leaking PCB or PCB-Contaminated Transformer), porous surfaces, and non-porous surfaces.

40CFR § 761.61 PCB remediation waste..

- Was prepared using relevant sections of https://www.ecfr.gov/current/title-40/section-761.61, https://www.ecfr.gov/current/title-40/part-761/subpart-O, https://www.epa.gov/sites/default/files/2015-08/documents/subpartmopr.pdf and https://www.epa.gov/sites/default/files/2015-08/documents/pcb-guid3-06.pdf
- Is being submitted to both NYSDEC (lead agency for the Site) and USEPA. USEPA is responsible for implementing the PCB cleanup requirements under 40 CFR 761 and will coordinate with NYSDEC for approval of the proposed PCB cleanup.

Additional background information regarding the configuration of the Site, historic and current uses, historic summary, and summary protective measures currently in-place is presented in Section 1.2 below.

1.2 Background

1.2.1 Site Description & Current Use

The Site is located on approximately 4.15 acres on the south side of E 2nd Street and zoned for Industrial Use. The 4.15-acre Site is identified as Section 9 Block 437, Lots 466 & 467 and Section 9, Block 663, Lots 4A, 4B & 5 on the Nassau County Tax Map, New York. The Site is bounded by East 2nd Street to the north, the Long Island Railroad (LIRR) track system to the south, an industrial building/developed property to the east, and an industrial building/developed property to the west.

The majority of the property at the Site is covered by the building, asphalt pavement or a soil cap (landscaped area along northern portion of the building) which prevent exposure to remaining contamination at the Site. The 225-255 E 2nd Street Building comprises one single-story, 120,000-squarefoot (ft^2) industrial building and is located south of E 2nd Street. The building was constructed in sections over a period of years between 1945 and 1982 to its current configuration. Historic aerial photographs (1938-1951) indicate the eastern one-third of this building was part of a former sand mine which was subsequently landfilled with unknown materials (1953-1966). Historical construction drawings for two building expansions on the west side show former storm water drywells or cesspools that were filled in as part of the new construction.

Paved driveways are located to the east and west of the building and paved parking is situated along the northern side of the building as well as to the rear (south of the building). A small area at the building's main entrance is landscaped with grass and trees. Surface elevations in the area of the Site exhibit a slight slope to the south and west. Access to the Long Island Rail Road (LIRR) is restricted by a heavy-duty fence and retaining wall located along the southern boundary of the Site.

The Site is connected to Nassau County Sanitary Sewer System (NCSSS) and is serviced with public well water provided by the Village of Mineola (Town of North Hempstead) in Nassau County. Mineola Building Department records indicate that the 255 East Second Street structure was constructed in 1945 and originally included three cesspools. One of the cesspools was connected to a series of bathrooms and the other two cesspools were connected to water fountains. The building was connected to the municipal sewer system in 1953, approximately eight years after its construction. Historical groundwater investigations did not identify the former cesspools as impacted areas of concern/historical groundwater contaminant sources.

The Property is fully occupied with tenants. The eastern portion of the building is currently occupied by two (2) tenants; Vantec Hitachi Transport System (USA) Inc. who distribute products such as car parts, electronics and other dry uses as well as have office space, and Standard Tinsmith & Roofer Supply Corp who manufacture authentic decorative metal walls and ceilings.

The western portion of the building is occupied by LaserShip, a last-mile delivery service. LaserShip uses their space as a package sorting and shipping facility.

1.2.2 Historical Summary

The Manhasset Machine Company was the initial tenant in the building from 1947 to 1957 prior to occupation by Allen. Allen was a manufacturer of precision-machined metal cylinders and valves, occupied the building from 1957 through circa 2017.

During the 1990s, initial investigations undertaken by the NCDH and then Allen determined that soils beneath the parking lot south of the building were contaminated with petroleum, VOCs, SVOCs, PCBs (Aroclor 1254), and metals. Soil vapor was also found to be impacted by chlorinated VOCs.

According to the 2006 ROD, low levels of five VOCs were detected in groundwater at concentrations only marginally exceeding their respective standards, criteria, and guidance values (SCGs), and it was determined that groundwater would not require active remediation due to the low levels of VOCs and the removal of the on-Site source soil.

Since 2000, the Site has been listed as a Class 2 site[5] on the NYS ("NYS") Inactive Hazardous Waste Disposal Site Registry/Remedial Program, administered by NYSDEC, NYSDOH, and the NCDH.

In November 2002, Allen entered into an Order on Consent, Index #W1-0932-02-08, Site #130100 with NYSDEC that was fully executed on 02 January 2003 and became effective 10-days thereafter on 12 January 2003 (2003 Order), in which Allen agreed to further investigate and remediate the Site.

In March 2006, NYSDEC issued a Record of Decision (ROD) for the Site that established Remedial Goals and a Selected Remedy for the Sites. Allen subsequently became the responsible Remedial Party and performed certain required investigations, remedial actions, monitoring, reporting and management of the Site in accordance with a 2003 Order, ROD and the SMP.

Remediation goals and the Selected Remedy set forth in the 2006 ROD are listed below.

ROD Remediation Goals: The remediation goals for this Site are to eliminate or reduce to the extent possible:

- Exposures of persons at or around the Site to VOCs in soil vapor on-site, VOCs in groundwater, PCBs in on-Site soil, and VOCs, PCBs and metals in off-Site soil;
- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and
- The release of contaminants from subsurface soil into indoor air through soil vapor.

Further, the remediation goals for the Site include attaining to the extent practicable:

- Ambient groundwater quality; and
- Recommended soil cleanup objectives for soil.[6]

ROD Selected Remedy: The Selected Remedy intended to address the above remedial goals included:

- An Interim Remedial Measure (IRM) that involved excavation of contaminated soils from two areas of the Site and the adjacent LIRR right-of-way area located to the south of the Property and off-Site disposal of impacted soils from two areas;
- Design, construction and operation of a soil vapor extraction ("SVE") system plus engineering

5 Classification Code: 2: This classification is assigned to a site at which the disposal of hazardous waste has been confirmed and the presence of such hazardous waste or its components or breakdown products represents a significant threat to public health or the environment.
6 https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf

controls/institutional controls to remediate the residual VOCs in the unsaturated soil at the Interim Remedial Measure ("IRM") excavation, and to minimize the potential impacts to indoor air, i.e., controlling and/or eliminating the soil vapor exposure pathway; and

- Excavation and off-Site disposal of impacted soils.

The soil IRM, and design and construction the SVE system was completed during 2004 - 2007. The SVE system began operation on-Site in January 2008. A Final Engineering Report (FER) was prepared by Allen and submitted to NYSDEC in February 2009.

In July 2009, NYSDEC issued a letter (**Appendix A**) stating that the NYSDEC and the NYSDOH had reviewed the groundwater sampling results and had concluded that groundwater sampling could be discontinued at the Site but required the SVE system to continue to operate.

In 2015, Allen submitted a 2015 Site Management Plan (2015 SMP) to manage residual contamination in soil on the south side of building that requires both ECs and ICs that:

- Restrict the Site to commercial or industrial use;
- Require adherence to an Excavation Management Plan (EMP) for intrusive work in capped former remedial areas,
- Requires vapor intrusion investigations for any new construction in former remedial areas,
- Restricts the use of groundwater,
- Requires annual inspections/periodic certification of the institutional and engineering controls, reporting, and notifications.

In 2015, Allen requested NYSDEC approval to shut down the SVE system based on monitoring data that indicated the SVE system had achieved asymptotic levels of the contaminants of concern at the Site, had achieved its remedial objectives, and that continued operation of the SVE system was no longer beneficial. NYSDEC acknowledged the data and request in November 2015 indicating a work plan for SVE shutdown could be submitted for review and approval.

In February 2016, Allen submitted to NYSDEC an SVE Shutdown Work Plan that was approved by NYSDEC in May of 2016. Sampling to evaluate post-shut down soil vapor VOC concentration rebound as per the approved work plan was completed during May – September 2016. Based on initial sampling results, NYSDEC extended the evaluation program and additional sampling was performed in January 2017, April 2017 and February 2018.

In 2017, Allen concluded operations at the Site and listed the Site for sale.

In June 2018, the NYSDEC issued a letter indicating concern that the February 2018 monitoring data indicated some soil vapor VOC concentration rebound but granted permission to turn off the SVE system with the understanding that the building was currently unoccupied, and therefore there was no need to address potential vapor intrusion at that time. As such, the SVE system and subsequent monitoring could be discontinued with the understanding that future vapor evaluation would need to be conducted in accordance with NYS Department of Health (NYSDOH) soil vapor intrusion (SVI) guidance should the building be sold or reoccupied.

In March 2019, Allen performed one additional SVE sampling event and submitted the results to NYSDEC in requesting that the SVE system be terminated (i.e., need for restart of the SVE be terminated) without further sampling. That request was not approved and the expectation for SVE system restart prior to building occupancy and the need for further evaluation remained in force.

In 2019, Alkier Steel acquired the Site from Allen. As part of the real estate transaction, Alkier Steel identified 23 areas of concern (AOCs) that had not been previously investigated by Allen under the NYS Inactive Hazardous Waste Disposal Site Remedial Program because it was an active facility.

During 2019 – 2021, Alkier Steel performed an extensive environmental due diligence scope of work to screen/evaluate those AOCs for potential environmental impacts from the historical use of the Site based on review of available relevant documentation and Site reconnaissance. The investigative activities were iterative based on initial and subsequent findings, requiring multiple mobilizations to perform multi-media sampling and delineation of impacts exceeding regulatory cleanup objectives.

Based on the due diligence findings, Alkier Steel undertook and completed remedial activities during 2019 – 2021 to address a number of AOCs where environmental media (soil, soil vapor and/or concrete) were found to be impacted by one or more of VOCs, SVOCs, PCBs and metals at levels exceeding applicable standards, criteria and guidance including NYS Part 375 soil cleanup objectives and NYS Department of Health NYSDOH soil vapor intrusion guidance to prepare the building for occupancy in 2020.

In 2020, Alkier Steel voluntarily entered into an Order on Consent, Index # CO 1-20200730-128, Site #130100 with NYSDEC that was fully executed on 15 September 2020 and became effective 10-days thereafter on 25 September 2020 (2020 Order), in which Alkier Steel agreed to implement site management required in the SMP including corrective measures as required by the SMP and the obligations under the Environmental Easement ("EE") recorded in May of 2021 (below).

The 2020 Order established an administrative mechanism for NYSDEC to oversee Alkier Steel's implementation the Site management activities, and corrective measures including continued operation of the SVE system, and to address previously unknown residual historic contamination identified at the Site during Alkier Steel's due diligence environmental screening activities. Alkier Steel's election to perform this work is not an admission of liability for the historic contamination, nor did Alkier Steel, except to the extent set forth in the 2020 Order, assume any of Allen's obligations or liability under the 2003 Order.

In August 2020, Alkier Steel submitted a Site Inspection Report/Periodic Review Report (SIR/PRR) and Corrective Measures Plan (CMP) intended to:

- Fulfill the annual site inspection reporting and certification for the existing ICs and the ECs under the SMP;
- Document protective measures undertaken within the building prior to occupancies by the current tenants that included:
  - Restoration of the SVE system to full operation in the fall of 2019;
  - Installation and operation of a sub-slab depressurization/venting system (SSDS) beneath the eastern portion of the building to vent soil vapor to the rooftop away from heating ventilation and cooling (HVAC) equipment air intakes within that eastern tenant space in early 2020, and present an SSDS operations, maintenance, and monitoring (OM&M) plan; and
  - Decommissioning (empty, clean, dismantle and dispose of) nine (9) above ground storage tanks (AST) within the building associated Allen's former manufacturing operations in early 2020. The ASTs were registered with the Nassau County Department of Health (NCDH) who inspected the tank decommissioning/cleaning/closure activities.;
- Convey the scope and findings of the environmental screening activities undertaken by Alkier Steel pursuant to the real estate transaction that identified previously unknown residual historic contamination in Site media (soils, soil vapor, and indoor air) at concentrations exceeding NY State standards, criteria and guidance (SCGs) at certain areas of concern (AOCs); and
- Present a proposed CMP to address the AOCs containing previously unknown residual historic contamination consistent with the remedial goals of the selected remedy in the ROD intended to be protective of human health and the environment.

In the fall of 2020, Alkier Steel completed corrective measures prior to building space occupancies by the current tenants that addressed residual historic contamination which included:

- Multi-phase concrete floor slab removal/soil excavation, sampling, backfill, and concrete floor slab restoration at multiple areas of concern within and beneath the building;
- Parking lot stormwater drywell cleanouts (except DW-05 to be addressed separately under another work plan per the 2023 Order which is discussed below; and
- Completed installation of the building wide SSDS that affects a vacuum field beneath the entire 120,000 ft^2 building footprint and vents sub-slab soil vapor to the rooftop away from HVAC equipment air intakes.

On 20 May 2021, NYSDEC granted by full execution the EE for the Site that was recorded with the Nassau County Clerk. The EE requires compliance with the most current SMP and all protective engineering controls (ECs)[7] and institutional controls (ICs)[8] placed on the Site. The environmental easement will be maintained as part of the conveyance of the property to the present tenant in-common fee owners.

Components of the EE include:

- The Site ("Controlled Property") may be used for Commercial purposes as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial purposes as described in 6 NYCRR Part 375-1.8(g)(2)(iv);
- All ECs must be operated and maintained as specified in the SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or NCHD to render it safe for use as drinking water or for industrial purposes, and the user must notify and obtain written approval to do so from NYSDEC;
- Groundwater and other environmental monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in the manner defined in the SMP;
- All future activities on the property that will disturb remaining contaminated materials must be conducted in a manner defined in the SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
- Operation, maintenance, inspection, and reporting of any mechanical and physical components of the remedy shall be performed as defined in the SMP;
- Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified in the EE; and
- The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6 NYCRR Part 375-1.8(g)(2)(i) and (ii), and the above-stated ECs may not be discontinued without amendment or extinguishment of the EE.

In August 2021, Alkier Steel submitted a SIR/PRR intended to:

- Fulfill the annual site inspection reporting and certification for the existing ICs and the ECs under the SMP; and
- Document protective measures undertaken within the building prior to occupancies by the current tenants that included:

7 An engineering control is a physical barrier or method to manage contamination. Examples include caps, covers, barriers, fences, and treatment of water supplies.
8 An institutional control is a non-physical restriction on use of the Site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the Site suitable for some, but not all uses.

- Continued operation of the SVE system; and
- Completion of installation of the aforementioned building wide SSDS in late 2020 and present an updated SSDS OM&M plan.

In August 2022, Alkier Steel submitted a SIR/PRR intended to:

- Fulfill the annual site inspection reporting and certification for the existing ICs and the ECs under the SMP, and
- Document continued operation of the SVE system and the building wide SSDS.

In March 2023, an Order on Consent and Administrative Settlement (2023 Order)[9] was executed between the NYSDEC and Alkier Steel. The 2023 Order specifies that it supersedes and replaces the prior 2020 Order with respect to Alkier Steel's obligations thereunder while the original 2003 Order remains in full force and effect. Requirements of the 2023 Order include preparation and submittal to NYSDEC a Corrective Measures Work Plan to address PCB-impacts to soil within and beneath a parking lot stormwater drywell known as "DW-05". A draft of that work plan is currently under review by NYSDEC.

In May 2023 and on behalf of Alkier Steel, ERM Consulting & Engineering, Inc. (ERM) contacted USEPA seeking advice and concurrence regarding remediation of PCB-impacted soil in and beneath stormwater drywell DW-05. For informational purposes, USEPA requested a document summarizing the history of PCB detections / investigations / remediations performed by AK Allen between 1996 - 2007, and subsequent detections/removals performed or yet to be performed by Alkier Steel (i.e., stormwater drywell DW-05). That summary was provided to USEPA in a Technical Memorandum dated 30 June 2023 that presents for the Site a synopsis of the:

- Extent of polychlorinated biphenyl (PCB)-contaminated soil found on-Site prior to any past remedial activities, including figures displaying sampling locations, sample types (methods) and results;
- Details of the PCB remediations performed and results, and
- Extent of all PCB-contaminated soil above 1,000 μg/kg currently found onsite.

A copy of the 30 June 2023 Technical Memorandum is presented in **Appendix B**.

Those areas previously remediated by Allen included an Interim Remedial Measure (IRM) in 2007 that involved excavation and off-Site disposal of PCB-impacted soils at a floor drain within the building and from two areas on the south side of the Site adjacent LIRR right-of-way, one of which extended a short distance off-Site onto the LIRR tracks area located to the south of the Property. Those excavations involved shutting down the main line of the LIRR and successfully removed PCBs to NYSDEC's satisfaction without fouling the LIRR tracks. Subsequent remedial excavation and off-Site disposal of PCB-impacted soils from areas beneath the building completed by Alkier Steel in 2020 were excavated to the maximum possible extent without undermining a building column footer and/or a bearing wall footing. There are seven areas at the Site where PCBs in soil remain at concentrations exceeding 1,000 μg/kg (but all below 25,000 μg/kg) are shown in Figure 30 of the Technical Memorandum that include:

- a former floor drain within the western end of the building;
- the two areas on the south side of the Site adjacent LIRR right-of-way; and
- three other de minimus areas beneath the building;
  - two of which are where further excavation was not possible without causing an unsafe condition by undermining a building column footer and/or a bearing wall footing; and

9 Order on Consent Index # Index No. CI 1-20220106-6., Site #1-30-100 between the NYSDEC, and AK Steel LLC and Steel Mineola Second Street, LLC (Respondent), effective date 8 April 2023. RSR requirements are set forth in VII. Miscellaneous, Appendix A II. Initial Submittal & Exhibit B.

- the third where PCBs were detected at 38'-40' in the footprint of a former historic large sand mine that extended beneath the eastern portion of the Site[10].

All these areas are covered by asphalt or the building concrete floor slab and therefore do not present an exposure pathway to building occupants nor the environment due to leaching.

The Site is currently in the Site Management phase. There are protective administrative mechanisms currently in effect to manage the few areas of residual environmental impacts at the Site that include a Site Management Plan (SMP) and an EE (detailed above) which specifies certain protective ECs and ICs specified in the SMP be maintained to address residual soil impacts for VOCs, metals, and PCBs.

The EC most relevant to the DW-05 post-remedial protectiveness required under the SMP for the Site is that the majority of the property at the Site is covered by the building, asphalt pavement or a soil cap (landscaped area along northern portion of the building) which prevent exposure to remaining contamination at the Site. The building flooring and asphalt pavement are monitored and maintained. At a minimum, an annual evaluation is completed and the results logged and kept on-Site in the building records. Maintenance will be conducted as necessary to continually maintain the integrity of building floor and/or asphalt pavement. All cracks, damage or wear will be repaired.

Appended to the SMP is an Excavation Work Plan (EWP) that establishes requirements, protocols and the procedures required to be implemented in the event the cover system is breached, penetrated, or temporarily removed. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in:

- The Community Air Monitoring Plan (CAMP) prepared for the Site; and
- A Site-specific Health and Safety Plan (HASP) prepared by the Contractor performing the work and tailored to address the potential hazards and materials that may be encountered during performance of the work activities.

Any breach of the Site's cover system must be overseen by a PE who is licensed and registered in New York State (NYS PE) or a qualified person who directly reports to a NYS PE.

[10] Historic aerial photographs (1938-1951) indicate the eastern one-third of this building was constructed over part of a larger former sand mine which was subsequently filled in with unknown materials (1953-1966).

2. ENVIRONMENTAL SCREENING AND PRE-DESIGN RESULTS

A scope of work was developed to screen/evaluate the potential environmental impacts of the historical use of the Site based on review of available relevant documentation and Site reconnaissance that included parking lot storm water drywell sampling. The investigative activities at drywell DW-05 were iterative based on initial and subsequent findings, requiring multiple mobilizations to delineate PCB and metals impacts in soil exceeding the Part 375 Protection of Groundwater SCOs.

2.1 Storm Water Drywell DW-05 Investigations

DW-05 is located in the south parking lot between the building and the adjacent LIRR right-of-way (railroad tracks) (**Figure 2**) where prior remedial actions were undertaken between 2004 and 2007 to address VOCs, PCBs (specifically Aroclor 1254) and metals in soil. Storm water drywell DW-05 was inspected and sampled as part of the larger due diligence screening investigations. The depth to soil within DW-05 is only approximately five feet below ground surface (bgs). Based on observations at other drywells on the Site, the structure is assumed to be approximately 10-foot in diameter by 15 feet deep, constructed of two leaching rings, a dome and collar supporting the cast iron grate.

The initial soil screening sample was collected from 5-7 feet bgs within DW-05 in August 2019 and analyzed for:

- VOCs by USEPA Method 8260C;
- SVOCs by USEPA Method 8270D;
- Pesticides and PCBs by USEPA Method 8081B/8082A/3546;
- Metals by USEPA Method 6010/7471;
- Hexavalent Chromium by USEPA Method 7196A; and
- Cyanide by USEPA Method 9016.

All detected compounds in the initial sampling results of the soil sample collected from within storm water drywell DW-05 were compared to their respective NYS Part 375 Protection of Groundwater SCOs and exceedances for acetone, PCBs, copper, lead and nickel were observed as summarized in the table below.

Sample Identification	Analyte	Detected Concentration	NYS Protection of Groundwater SCOs
DW-05	Acetone	0.250 mg/kg	0.050 mg/kg
DW-05	PCBs (Aroclor 1254)	20,800 µg/kg	3,200 µg/kg
DW-05	Copper	1,930 mg/kg	1,720 mg/kg
DW-05	Lead	1,670 mg/kg	450 mg/kg
DW-05	Nickel	480 mg/kg	130 mg/kg

mg/kg = milligrams per kilogram

Exceedances for acetone, copper, lead and nickel were modest, and PCBs were deemed to be the contaminant of concern at this location. Additional soil sampling was recommended to delineate PCB, copper, lead, and nickel impacts in soil at DW-05.

Between October 2019 and February 2021, four subsequent phases of soil boring mobilizations were performed to delineate the horizontal and vertical extents of PCBs, copper, lead and nickel in soil exceeding their respective NYS Part 375 Protection of Groundwater SCOs. The first, second and third soil boring programs stepped out horizontally and extended to the water table that occurs at approximately 46 feet bgs. The fourth soil boring program sought to step back

inward to "tighten-up" the delineations and fill any data gaps observed in the results of prior soil boring programs. This was an intentional effort to fully complete the delineation such that remedial approaches could be accurately developed and negate the need for post-remedial sampling in most scenarios.

In November 2020, a groundwater monitoring well (DW-05) was also installed immediately adjacent to DW-05 with its screen set from 45 – 55 feet bgs intended to straddle the water table surface. Both unfiltered and field-filtered groundwater samples were collected for PCB analysis when the well was developed.. A confirmatory field-filtered groundwater sample was collected in January 2021.

During all field investigations, reusable sampling equipment was decontaminated prior to use and in-between sampling points using a standard triple rinse procedure beginning with an Alconox solution followed by two rinses with distilled water. Soil samples were collected from within/beneath the DW-05 structure, placed into laboratory-provided sample containers and secured in an ice-chilled cooler for transport under standard chain-of-custody procedures to Accutest.

Soil cores were examined by an ERM geologist and continuously screened with a photoionization detector (PID). PID readings above background were not observed. Samples were collected generally at five- or 10-foot intervals depending on location and investigative phase.

Samples were collected into laboratory-provided sample containers and placed in an ice-chilled cooler for courier transport under standard chain-of-custody procedures to SGS-Accutest (Accutest) of Dayton, New Jersey. Accutest is a NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory (NYSDOH Certification No. 10983).

2.2 Analytical Results

Accutest reported all analytical results in New York Analytical Services Protocol (ASP) Category B analytical data deliverable packages. An independent third party, Environmental Data Services, Inc. (EDS), located at 177 Herman Melville Avenue, Newport News, Virginia, reviewed and validated the data. The review of the sampling data by EDS was performed in accordance with the:

- Analytical methods;
- NYSDEC ASP (NYSDEC, 2010);
- USEPA CLP National Functional Guidelines for Organic Superfund Data Review (USEPA, 2017);
- Applicable USEPA Region II Data Review Standard Operating Procedures; and
- Reviewer's professional judgment.

The order in which the aforementioned guidance documents and/or criteria were listed as being used for validation does not imply a hierarchy of reliance. The most comprehensive reference sources were used to perform a complete data validation.

2.2.1 Data Usability

Data Usability Summary Reports (DUSRs) were prepared for all samples based upon the data review. The DUSRs consist of a section that contains an assessment of the deliverables, followed by a section that describes the analytical results and any qualifications that should be considered when using the data. The DUSRs highlight the data results that did not meet QC limits and, therefore, required data qualification. These tables include information such as blank contamination, surrogate recoveries, and internal standard area counts that did not meet QC criteria.

Qualification of data, where appropriate, was made by the use of qualifier codes based upon the data validation process. These qualifiers are defined in the data tables (where used) and serve as an indication of the qualitative and quantitative reliability of the data.

The final review of all DUSRs was performed by the ERM Quality Assurance Officer and the data were determined to be usable with only occasional minor qualification. The DUSRs are presented in **Appendix C** and the NYSDEC ASP Category B deliverables are provided as a separate compressed electronic file deliverable as **Appendix D.**

2.2.2 Soil Analytical Results

Soil sample analytical results for PCBs, copper, lead and nickel are presented in **Table 1.** Detected compound concentrations are highlighted in blue and were compared to their respective NYS Part 375-6 Protection of Groundwater SCOs. Detected compound concentrations exceeding their aforementioned SCOs are identified by light orange shading in **Table 1**. Detected PCBs are limited to only Aroclor 1254, the same PCB species present in the parking lot soils addressed during historical remedial actions by Allen.

No soil samples collected subsequent to the initial soil sample contained concentrations of copper, lead or nickel exceeding their respective Part 375 Protection of Groundwater SCOs indicating a completed delineation of metals impacts.

Color-coded symbols in plan-view **Figure 3** show the locations of the four-phase soil boring scheme and the indicate soil boring locations that yielded one or more soil sample containing PCBs at a concentration exceeding the 3,200 μg/kg Part 375 Protection of Groundwater SCO. The location of groundwater monitoring well DW-05 is also shown in **Figure 3**.

PCB impacts in soil have been fully delineated based on the soil sample data presented in **Table 1.** The delineation is illustrated in **Figures 4, 5 and 6** discussed further below.

Figure 4 shows the plan-view horizontal extent of PCB exceedances in soil and the traces of cross-sections A – A' and B – B'. The plan view footprint of the delineation to the Part 375 Protection of Groundwater SCO occupies an approximate 500 ft^2 triangular-shaped polygon extending down to a depth of approximately 32 feet bgs.

Cross-sections A – A' and B – B' are presented in **Figure 5** and **Figure 6**, respectively. Each cross-section depicts color-coded soil sampling intervals that indicate PCB concentrations exceeding the Part 375 Protection of Groundwater SCO (light orange) or below (blue) with corresponding concentrations posted adjacent to sample. A dashed green line shows the horizontal and vertical delineation along each cross section.

The orientation of cross-section B – B' (**Figure 6**) shows critical distances and other features between the building and the LIRR Main Line, including the trace of groundwater monitoring well DW-05.

2.2.3 Groundwater Analytical Results

Groundwater sample analytical results for PCBs are presented in **Table 2.** A detected PCB concentration of 0.98 micrograms per liter (μg/L) in the unfiltered sample exceeds the NYS Class GA (potable) Groundwater Quality Standard of 0.09 μg/L. The detected PCBs in the unfiltered sample are attributed to be a result of groundwater sample turbidity and likely PCB-impacted particulates dragged down by the drilling method as PCBs were not detected in the corresponding field-filtered sample at a method detection limit of 0.21 μg/L, i.e., a detected lesser concentration would have been reported as estimated value with a "J" qualifier. As such, a confirmatory field-filtered groundwater sample collected in January 2021 and the PCB result was reported as non-detect at 0.28 μg/L, and again a detected lesser concentration would have been reported as an estimated value with a "J" Consequently, the absence of PCB impacts to groundwater beneath DW-05 was confirmed.

NYSDEC concurs with these findings, as the NYSDEC reviewed and accepted the SIP/CMWP prior to submittal to USEPA as indicated in their letter of 17 July 2023, a copy of which is provided in **Appendix A**. The groundwater monitoring well will be abandoned and destroyed as part of the remedial excavation at DW-05.

2.3 Soil Zones and Volume Requiring Remediation

PCBs, copper, lead and nickel impacts in soil associated with this structure have been fully vertically and horizontally delineated to the Part 375 Protection of Groundwater SCOs, and the absence of PCB impacts to groundwater beneath DW-05 has been confirmed. While the delineation of PCBs in soil to the 3,200 μg/kg Part 375 Protection of Groundwater SCO was the goal of the investigations, delineation to <1,000 μg/kg was accomplished for the purposes of the remedial excavation footprint and depth intended to remove all soils with PCB concentrations in excess of 10,000 μg/kg. There is one outlier sample and its duplicate collected from 44 – 45 feet below grade in the soil boring drilled through the bottom of DW-05 where concentrations were 2,180 μg/kg and 2,930 μg/kg, respectively. Excavation of soil at that depth is technically impracticable and these concentrations are still far below the 10,000 μg/kg cleanup goal, and below the New York State Part 375 Protection of Groundwater Soil Cleanup Objective (SCO) of 3,200 μg/kg. Having the delineation completed in advance of remedial action provides for flexibility and streamlined remedial approaches and negates the need for post-remedial sampling in most scenarios. However, a post-excavation verification sampling plan is detailed in Section 4.4.2 in order to comply with 40 CFR Part 761 Subpart O.

Green remedial approaches should always be considered to reduce carbon footprints associated with excavation, off-site transport, disposal, and landfilling or incineration of contaminated soil. The use of the 10,000 μg/kg PCB cleanup level allowed by CP-51 will reduce the volume of soil to be removed and thereby reduce the carbon footprint associated with this site management remediation.

The area requiring remediation to the 10,000 μg/kg PCB cleanup level occupies an approximate 435 ft^2 triangular-shaped polygon extending down to a depth of 24 feet bgs is illustrated in **Figures 7 through 9.** This equates to 390 cubic yards (yd^3) in unexcavated volume (less the volume of the drywell itself). Note that certain remedial approaches, e.g., excavation of rectangular cells, will require over-excavation resulting in additional soil volume to be managed disposed of along with all other excavated soil. Estimated volumes are listed in Section 3.2.4.

3. SITE-SPECIFIC CONSIDERATIONS & REMEDIAL ALTERNATIVE EVALUATION AND SELECTION

3.1 Remedial Goals and Performance Criteria

2006 ROD Remediation Goals: The remediation goals for this Site set forth in the 2006 ROD are to eliminate or reduce to the extent possible:

- Exposures of persons at or around the Site to VOCs in soil vapor on-site, VOCs in groundwater, PCBs in on-site soil, and VOCs, PCBs and metals in off-site soil;
- The release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and
- The release of contaminants from subsurface soil into indoor air through soil vapor.

Further, the remediation goals for the Site include attaining to the extent practicable:

- Ambient groundwater quality.
- Recommended soil cleanup objectives for soil.

The parking lot area and subsurface soil environment at the location of DW-05 is considered to be a "Low Occupancy" area. An evaluation of practical remedial approaches/technologies (alternatives) that were considered to mitigate PCB impacts in soil exceeding the 10,000 μg/kg PCB cleanup level for PCBs within, adjacent to and beneath DW-05 is summarized in **Table 3**.

In addition to ERM, other well-known regional remedial contractors such as Posillico and Vertex Engineering were consulted in developing the remedial alternatives, evaluation and feasibility study-level potential costs.

The evaluation used Threshold and Balancing Criteria specified in Chapter 4.2 of DER-10, and considers the physical and logistical encumbrances present at, and in close proximity to DW-05, e.g., depth of impacts to be remediated, Long Island Railroad (LIRR) main line tracks, overhead high-voltage electrical lines, vibration issues, etc.

3.2 Remedial Alternative Evaluation and Selection

3.2.1 Technologies and/or Approaches Considered

Remedial alternatives considered for DW-05 include:

- No Action;
- In-situ Soil Stabilization;
- Excavation/In-situ Soil Stabilization;
- Excavation Using Auger & Caisson;
- Excavation Using Sheet Piling;
- Excavation Using Freeze Wall; and
- Excavation Using Slide Rail

3.2.2 Evaluation Criteria

- Threshold Criteria include:
  - Overall Protectiveness of The Public Health & The Environment; and
  - Meet Standards, Criteria & Guidance (SCG).
- Balancing Criteria include
  - Long-Term Effectiveness & Permanence;
  - Reduction of Toxicity, Mobility or Volume of Contamination Through Treatment;

- Short-Term Impact & Effectiveness;
- Implementability;
- Cost Effectiveness;
- Land Use; and
- Other Criteria area: Expected Community Acceptance.

3.2.3 Other Physical, Logistical & Administrative Considerations

Selection of a remedial alternatives must consider the known physical and logistical encumbrances present at, and near DW-05 to safely and successfully complete the remediation include:

- Depth of impacts to be remediated.
- Limited working space between the Site building and the LIRR/Site property line (fence) versus some remedial alternatives require larger and more equipment that others and would require ongoing large truck traffic for a "load-and-go" remedial approach as on-site staging/stockpiling is not an option due to available space limitations.
- Duration and significance of disruption to tenant business operations during remedial activities. As noted in Section 2.1.1, the Property is fully occupied with tenants. The eastern portion of the building is currently occupied by two (2) tenants; Vantec Hitachi Transport System (USA) Inc. who distribute products such as car parts, electronics and other dry uses as well as have office space, and Standard Tinsmith & Roofer Supply Corp who - manufacture authentic decorative metal walls and ceilings. The western portion of the building is occupied by LaserShip, a last-mile delivery service. LaserShip uses their space as a package sorting and shipping facility. All three businesses, LaserShip in particular and nearest DW-05, rely on use of bay doors on back of the building to facilitate the flow loading and unloading/ shipping operations. The loss of use of those access points may significantly disrupt/impact tenant operations causing hardship as reconfiguring interior operations would not be as simple as just switching to use of egress points on the front of the building.
- Overhead high-voltage electrical lines on the Site – LIRR main line property line and required safety operating setbacks for large mast or boom construction equipment.
- Compliance with NYS Department of Transportation (DOT) and LIRR requirements to prevent fouling of LIRR main line tracks and obtain LIRR approval to do the work where fouling includes:
  - Any work within 15 ft. of or along LIRR tracks.
  - Operation of equipment or any part of equipment (i.e., large mast booms or a crane) which could fall onto or within six (6) feet of LIRR tracks. See *General Requirements For Projects Adjacent To LIRR Property With Potential To Impact LIRR Safety And Operations* in https://new.mta.info/document/87641.
  - Excavations that intrude on live load influence lines. See Figure 23-4 in https://www.dot.ny.gov/divisions/engineering/design/dqab/hdm/hdm-repository/chapt_23.pdf.

    Figure 10 shows the anticipated live load influence line set at a 1:1 horizontal to vertical ratio superimposed on Cross-section B-B' and other distances that will be critical to acquiring LIRR approval to perform remedial work in close proximity to the LIRR – Site property boundary. Based on the distances, depths, and positions of the delineation and live load line, **Figure 7** shows that remedial excavation or other technology/approaches can be deployed to safely affect the remediation to the targeted depth of 24 feet bgs.
- Depending on the remedial alternative selected and LIRR review and approval conditions, it is

likely that LIRR flag protection must be on site and overhead crane/boom equipment operations may be restricted to 10:00 am to 3:00 pm daily.

- Seismic loading/vibration issues for the Site building and concrete retaining wall along the LIRR tracks and as a form of the LIRR fouling where vibration monitoring may be required for certain remedial alternative technologies, e.g., driving sheet piling.
- Contractor personnel working around an open excavation or open auger boreholes to depths of 24 feet bgs.
- Actions that result in the need to relocate dry well versus install a new drywell as part of Site restoration.

3.2.4 Evaluation Summary

The two Threshold Criteria and must be satisfied for a remedial alternative to be considered for potential selection and further evaluated using Balancing Criteria, and other physical and logistical considerations listed above.

All the remedial alternatives listed in Section 2.4.1 satisfy the Threshold Criteria of 1) Overall Protectiveness of The Public Health & The Environment, and 2) Meeting SCGs except the No-Action alternative that is not further considered.

The remaining alternatives all meet the first three Balancing Criteria of 1) Long-Term Effectiveness and Permanence, 2) Reduction of Toxicity, Mobility or Volume of Contamination Through Treatment, and 3) Short-Term Impact and Effectiveness. Hence, differentiating criteria are Implementability, Cost Effectiveness, and the Other Physical and Logistical Considerations listed in Section 3.2.3. Preliminary estimated costs presented in the following sections are based on consultation with contractors capable of implementing such work.

Brief summaries of each remedial alternative are presented below based on the evaluation presented in **Table 3.**

3.2.4.1 In-situ Soil Stabilization

This alternative would involve excavation of the concrete drywell structure and immediately adjacent soils down to approximately 18 feet using a large track-hoe excavator. Backfill with clean soil and proceed with soil stabilization by injection and mixing of Portland cement with impacted soils using large diameter augers on both the down and up passes from grade to a depth of 24 feet.

Site-specific PCB-impacted soils retained from the delineation soil boring programs were submitted to Prima Environmental (Prima), of El Dorado Hills, California to conduct a bench-scale soil stabilization treatability study that is detailed in the report presented in **Appendix E.**

Bench-scale treatability testing focused on evaluating the ability of Portland cement to solidify and stabilize PCBs and metals (copper, nickel and lead) in soil. Laboratory testing demonstrated treatment of Site soil with up to 12% Portland cement could solidify soil, eliminate leaching of PCBs, and reduce leachability of most metals. Leaching results were similar for all three doses of Portland cement tested (6%, 9%, and 12%), but unconfined compressive strength (UCS) of treated soils increased by a factor of 8 and permeability decreased by a factor of about 100 as the amount of Portland cement increased from 6% to 12%. This confirms that soil stabilization using Portland cement mixed in-place would work to effectively remove further contaminant mobility.

Figure 11 illustrates an in-situ soil stabilization mixing scheme based on the 10,000 μg/kg PCB cleanup level that could be implemented using 48-inch diameter augers that would require 36 individual overlapping auger/mixing bores to cover the delineation footprint. This action can be considered a "Greener" approach as there is no intensive trucking to transport impacted soils to appropriately permitted waste-disposal facility.

Detracting concerns related to implementation include but are not limited to:

- Most all the physical and logistical concerns are listed in Section 3.2.3.
- Large amount of equipment is required.
- An extended time duration >one month for the field work (tenant disruption/hardship).
- A non-permeable monolith will be left in-place resulting in the need to:
    - Relocate a new drywell in suitable soils and associated extended Site regrading/restoration; or
    - Replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west; or
    - The surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.
- Cost estimated at 1,000,000-$1,200,000.

3.2.4.2 Excavation/In-situ Soil Stabilization

This alternative would involve excavation of the concrete drywell structure and adjacent soils out to the horizontal extent of the 10,000 μg/kg PCB cleanup level and down to approximately 18 feet using a large track-hoe excavator. Backfill with clean soil and proceed with soil stabilization by injection and mixing of Portland cement with impacted soils using large diameter augers on both the down and up passes for the 18 to 24-foot interval. The treatability study results confirm that soil stabilization using Portland cement mixed in-place would work to effectively remove further contaminant mobility.

Detracting concerns related to implementation include:

- All the physical and logistical concerns are listed in Section 3.2.3.
- This is a more complicated and more expensive approach than soil mixing discussed above.
- Contractors deem this alternative not feasible as soil mixing typically occurs from grade to the target depth.
- A non-permeable monolith will be left in-place resulting in the need to:
    - Relocate a new drywell in suitable soils and associated extended Site regrading/restoration; or
    - Replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west; or
    - The surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.
- Other approaches are less expensive and easier to implement.

3.2.4.3 Excavation Using Auger & Caisson

This alternative would involve excavation of the concrete drywell structure and immediately adjacent soils down to approximately 18 feet using a large track-hoe excavator. Backfill with clean soil and proceed with soil excavation from grade to 24-foot bgs using large diameter auger and caisson advancement. Back fill each bore with clean soil. Conduct bores in an overlapping configuration.

Figure 11 illustrates an auger and caisson excavation scheme based on the 10,000 μg/kg PCB cleanup level that could be implemented using 48-inch diameter augers that would require 36 individual overlapping auger bores to cover the delineation footprint. This alternative allows for replacement of the drywell.

This alternative could be implemented but detracting concerns related to implementation include:

- All the physical and logistical concerns are listed in Section 3.2.3.
- Extended time duration >two months for fieldwork (tenant disruption/hardship).
- Large amount of equipment is required.
- Production of additional volume of material to be disposed of off-site due to the need for overlapping bores containing clean soil from previous bore backfill.
- Use of flowable fill is required or backfill will not meet compaction requirements.
- A non-permeable monolith will be left in place resulting in the need to:
    - Relocate a new drywell in suitable soils and associated extended Site regrading/restoration; or
    - Replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west; or
    - The surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.
- Cost estimated at $1,600,000-$1,700,000.

3.2.4.4 Excavation Using Sheet Piling

- This alternative would involve driving sheet piling to appropriate depth with cross bracing to allow excavation to a depth of 24 feet. Excavation of the concrete drywell structure and adjacent soils using a large track-hoe excavator or bucket crane and backfill the excavation with clean soil. . Former drywell DW-05 will not be replaced resulting in the need to:
- Relocate a new drywell in suitable soils and associated extended Site regrading/restoration; or
- Replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west; or
- The surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.

This alternative could be implemented. **Figure 12** illustrates a two-cell excavation scheme based on the 10,000 μg/kg PCB cleanup level using sheet piling to support the excavation. The two cells represent at total footprint of approximately 600 ft^2 or a target estimated volume of 535 yds^3**,** i.e., **(600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3).**

This is one of the least easily implemented alternatives where detracting concerns related to implementation include:

- All the physical and logistical concerns are listed in Section 3.2.3.
- Seismic/vibration loading on the Site building foundation and the 8-foot retaining wall on the property boundary adjacent to LIRR main line tracks that is located within 10-feet of the excavation.
- Extended time duration >two months for fieldwork (tenant disruption/hardship).
- Large equipment required, will need a long-reach excavator.
- Internal bracing is required that slows the excavation process.
- Steel sheeting is expensive and there is significant price volatility with steel.
- Cost estimated at $1,400,000-$1,800,000.

3.2.4.5 Excavation Using a Freeze Wall

This alternative would involve establishing stabilized footprint of excavation using a soil freezing system to facilitate excavation to a depth of 24 feet. Excavation of the concrete drywell structure

and adjacent soils using a large track-hoe excavator and/or bucket crane. Backfill the excavation with clean soil. Former drywell DW-05 will not be replaced resulting in the need to:

- Relocate a new drywell in suitable soils and associated extended Site regrading/restoration; or
- Replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west; or
- The surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.

This alternative could be implemented. **Figure 12** illustrates a two-cell excavation scheme using a freeze wall system to support the excavation. The two cells represent at total footprint of approximately 600 ft^2 or a target estimated volume of 535 yds^3**,** i.e., **(600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3).**

Detracting concerns related to implementation include:

- All the physical and logistical concerns are listed in Section 3.2.3.
- Extended time duration >two months for fieldwork (tenant disruption/hardship), need at least four to six weeks for soil freezing, possibly longer in warmer months.
- Ground freezing soil expansion could affect the 8-foot retaining wall on the property boundary adjacent to LIRR main line tracks.
- Large equipment required, will need a long-reach excavator.
- Cost estimated at $1,600,000-$1,800,000.

3.2.4.6 Excavation Using a Slide Rail System

This alternative would involve installation of a slide rail vertical sheeting and trench support system to facilitate excavation of the concrete drywell structure and adjacent soils to a depth of approximately 24 feet using a large track-hoe excavator and/or bucket crane. Backfill the excavation with clean soil. This work could be implemented in only several weeks. Former drywell DW-05 will not be replaced resulting in the need to:

- Relocate a new drywell in suitable soils and associated extended Site regrading/restoration; or
- Replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west; or
- The surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.

This alternative could be implemented. **Figure 12** illustrates a two-cell excavation scheme using a slide rail system to support the excavation. The two cells represent at total footprint of approximately 600 ft^2 or a target estimated volume of 535 yds^3**,** i.e., **(600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3).**

Detracting concerns related to implementation are less than the other alternative and are limited to:

- All the physical and logistical concerns are listed in Section 3.2.3.
- Need to know construction/stability/integrity of the soldier pile concrete wall at LIRR property line.
- Large equipment required, will need a long-reach excavator.
- Cost estimated at $900,000-$1,000,000.

The slide rail system is the recommended remedial alternative. It meets all the evaluation criteria, is the most cost-effective with an anticipated duration of only several weeks causing the least tenant disruption/hardship, less potential for railroad fouling, less seismic concerns, and allows for replacement of the drywell.

A slide rail shoring system comes with a number of benefits when compared to traditional tight sheeting, sloping or complex trench shield assemblies that include:

- ***Slide Rail Shoring Provides More Clearance Than Standard Trench Shields*** - Trench shields are usually constructed with sidewalls of varying thickness and are held apart by spreaders, which can be interchanged to match the width of the trench. Trench shields have a maximum clearance that they can withstand without buckling. Slide rail shoring provides more clearance than standard trench shields.
- ***Slide Rail Shoring Enables Smaller Excavators*** - Slide rail shoring is a durable, modular component system that allows workers to push the system in place while digging the excavation to depth. Due to its design, the components of a slide rail shoring system require only smaller, more accessible machines during installation and removal than those needed to dig the same excavation using tight sheeting or trench shields. Furthermore, the individual components of a slide rail system are lighter and easier to handle than large trench shields.
- ***Slide Rail Shoring Decreases Labor Time*** - Due to the ease and efficiency of its design, slide rail shoring decreases the overall installation and removal times of the system.
- ***Slide Rail Shoring Controls Ground Subsidence*** - Land subsidence is a gradual settling or sudden sinking of the Earth's surface. Subsidence is caused due to underground material movement such as the removal of water, oil, natural gas, or mineral resources out of the ground by pumping, fracking, or mining activities. Slide rail shoring is effective in controlling ground subsidence.

4. SUMMARY OF TASKS / ACTIVITIES FOR IMPLEMENTING THE WORK

4.1 Implementation Schedule

A Corrective Measures Implementation Schedule is presented in **Figure 13**, This schedule is tentative, and starts with submittal of this CMWP to NYSDEC and subsequent submittal to USEPA following NYSDEC acceptance that was granted on 17 July 2023. Based on the draft implementation schedule, the CMWP fieldwork must be initiated during early September 2023 to complete the work by the end of October so as not to severely impede tenant business operations related to the holiday season starting in the beginning of November 2023. The duration of the fieldwork is estimated at 8 weeks from mobilization to demobilization following Site restoration activities.

4.2 General Planning and Preparation Tasks

The following subsections describe some of the more important tasks and activities required to implement the CMWP.

4.2.1 Register DW-05/Other On-Site Stormwater Drywells with USEPA UIC Program

Drywell DW-05 and all other on-Site stormwater drywells meet the definition of a Class V underground injection control structure (stormwater drainage drywell) and must be registered as such with the USEPA UIC Program if it was not previously registered. This is a simple process completed by preparing and submitting an Inventory of Injection Wells form to USEPA to complete the registration process.

4.2.2 Pre-Approval For Off-Site Disposal of Remediation Waste and Backfill Material

4.2.2.1 Excavated Soils and Concrete Debris

Advance waste characterization samples will be collected by soil borings if, and as required by the Contractor's proposed disposal facilities (i.e., hazardous or non-hazardous disposal requirements). The anticipated receiving facility for disposal of all excavated soils is the Heritage Subtitle C Landfill, Roachdale, Indiana (EPA ID No. IND 980 503 890).

All analytical testing will be submitted for analysis for pre-acceptance testing required by the disposal facility. Testing may involve Toxicity Characteristic Leaching Procedure (TCLP) sample preparation and analysis for TCLP VOCs, TCLP PCBs, and TCLP RCRA Metals by USEPA Methods 8260B, 8080, 6010 and any other parameters required by the disposal facility.

Upon receiving the analytical results, the results will be forwarded to the disposal facility for review and acceptance of the soil. Once the disposal facility has completed its review of the analytical results and sets up a waste profile for the soil, then it can be manifested for a "load-and-go" remedial approach as on-site staging/stockpiling is not an option due to available space limitations.

4.2.2.2 Water Generated from Decontaminating Equipment

All decontamination water generated by the Contractor during decontamination of equipment will be disposed of offsite at a waste disposal facility permitted to receive PCB remediation wastes based on the results of waste characterization analytical testing required by the receiving facility. The Contractor will utilize appropriate waste storage and disposal practices to minimize the quantities of water generated, and to reduce the quantity of sediment in the wash waters.

4.2.2.3 Backfill Materials

Backfill brought on-Site to fill the excavation will be from a pre-determined source of clean backfill documented with analytical samples in conformance with the requirements of Chapter 5.4 of DER-

10 (Table 5.4(e)10), and current November 2022 NYSDEC guidance for Per- And Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs . The source of clean backfill and testing thereof will be determined and completed, and the results submitted to NYSDEC for approval prior to field mobilization.

DER-10 requires testing for full list Target Compound List (TCL) organic compounds and Target Analyte List (TAL) inorganics including 23 metals plus cyanide. The PFAS guidance states that testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS will be compared to the applicable Restricted Commercial Use guidance values of 500 μg/kg and 440 μg/kg, respectively. PFOA, PFOS and 1,4-dioxane are all considered SVOCs, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. NYS ASP Category B deliverables will be submitted for backfill samples.

If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill will be rejected, unless a site-specific exemption were to be sought and approved NYSDEC based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 nanograms per liter (ng/L) (the Maximum Contaminant Levels established for drinking water by the NYSDOH, then the soil is not acceptable.

4.2.3 Roles and Responsibilities

4.2.3.1 Work to Be Performed by Contractor

The Contractor will hold or obtain such Business Licenses, Registrations, and/or Permits, as required by the State of New York and local statutes for completion of the work. Key Contractor responsibilities include the following:

- Provide a NYS-licensed Professional Engineer (PE) with specialized geotechnical experience that is familiar with LIRR requirements to prepare the necessary geotechnical calculations/evaluations, Construction Drawings to guide the field operations, and other submittals required for compliance with NYS DOT and LIRR requirements to prevent fouling of LIRR main line tracks and obtain LIRR approval to do the work.
- Identify any additional necessary pre-design information and work with ERM and Alkier Steel to obtain the same.
- Apply for and obtain the LIRR permits as necessary.
- Coordinate any pre-construction as-built surveys required by the LIRR permit application process.
- Prepare specifications for backfill and backfilling of final excavation.
- Prepare any required written vibration monitoring plans,
- Participate in progress meetings with Alkier Steel, LIRR and ERM, as needed.
- Prepare a Contractor Site Safety Plan (CSSP).
- Work with Alkier Steel, and their preferred waste handler to manifest, and coordinate the disposal of all wastes generated during the project.
- Participate in pre- and post-construction job site inspections.
- Perform the remedial fieldwork that includes Site preparation, subsurface and overhead utility clearance, remedial excavation and Site restoration activities.
- Respond to any releases from the Contractor's equipment. The emergency procedures would be in accordance with the CSSP that is to be developed as part of this work.

4.2.3.2 Work to Be performed by ERM

- Project coordination with Contractor and Alkier Steel.
- Assist in collection of any additional pre-design information deemed necessary by the

Contractor.

- Review all Contractor submittals.
- Register Drywell DW-05 and all other on-Site stormwater drywells with the USEPA UIC Program.
- Contract a licensed well driller to abandon monitor well DW-05 prior to the Contractor mobilizing to the Site.
- Assist Alkier Steel to coordinate and participate in pre- and post-construction job site inspections.
- Inspection and construction oversight of Site preparatory, utility clearance, remedial and Site restoration activities undertaken by Contractor.
- Implement the Community Air Monitoring Plan (CAMP),
- Work with Alkier Steel, and their preferred waste handler to obtain waste disposal facility pre-approval for acceptance of all remedial wastes and coordinate the disposal of all wastes generated during the project.
- Collect water and or soil samples for laboratory analysis to characterize wastes for off-site disposal. Results will be provided to the Contractor and Alkier Steel on a 5-day turnaround basis (when available).
- Coordinate any post-construction as-built surveys required for preparation of the Site Management Corrective Measures Construction Completion Report for the PCBs near 'DW-5'.
- Prepare the Site Management Corrective Measures Construction Completion Report for the PCBs near 'DW-5' documenting the work performed for submittal to the NYSDEC.
- Provide input to the Contractor should any releases occur from their equipment during performance of the work.

4.2.4 Develop and Implement Contractor Site Safety Plan

The Contractor will be responsible for the health and safety of all persons engaged in the work under the Contractor's direction. ERM and/or Alkier Steel will not be responsible for the health and safety of the Contractor's employees or its subcontractors. Prior to mobilization to the Site, the Contractor will prepare a CSSP to provide for the safety of their on-site and subcontractor personnel, as well as Alkier Steel and/or Tenant personnel working in adjacent areas of the Site. This plan will include at least the following components:

- Evaluation of potential physical and chemical hazards.
- Air monitoring program to be performed during the remediation activities on a daily (or more frequent basis) to protect the health and safety of site workers and of the public.
- Description of levels of protection required for the specified activities.
- Action-levels for all planned field activities.
- Description of decontamination procedures.
- Soil excavation activities requiring input and review by a Competent Person as defined by the Occupational Safety and Health Administration regulations within 29 Code of Federal Regulations (CFR) 1926.650(b).
- Injury reporting procedures.
- An emergency action plan that will include the following minimum requirements:
    - Procedures for responding to potential releases from the Contractor's equipment,
    - Emergency telephone numbers,
    - Location of on-site emergency equipment, and
    - Directions to the nearest hospital.

- The CSSP will be in compliance with the HAZWOPER and Hazard Communications regulations found in 29 CFR 1910.120 and 29 CFR 1910.1200, respectively.

4.2.5 Community Air Monitoring Plan

This CAMP prescribes real-time monitoring for VOCs and particulate matter less than ten (10) microns in diameter (PM-10), i.e., dust at the downwind perimeter of the designated work area when intrusive/excavation activities are in progress. The CAMP provides a measure of protection for on-Site workers, on-Site tenants, and the downwind community (i.e., off-site receptors including residences, parks, businesses, etc.) not directly involved with the subject work activities.

Routine monitoring is required to evaluate concentrations and corrective action and/or work stoppage may be required to abate emissions detected at concentrations above specified action levels. Data collected during implementation of the CAMP will also help document that work activities did not spread compounds of potential concern off-site through the air. Reliance on the procedures and action levels described in this CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around work areas.

4.2.5.1 Approach

Prior investigations at DW-05 did not indicate significant VOC impacts in soil, so elevated concentrations of VOCs in air are not anticipated as result of the remedial excavation activities. Nevertheless, appropriate health and safety air monitoring for VOCs and particulate matter is required and will be implemented during all intrusive and above grade contaminated soil handling work activities.

VOC and particulate matter concentrations will be measured/monitored using a minimum of three (3) typical stationary CAMP stations mounted on tripods. VOC concentrations in air will be measured using PIDs. Particulate matter concentrations will be measured using calibrated electronic aerosol monitors.

CAMP equipment placement locations will be determined daily based on wind direction and expected workday activities. Wind direction will be recorded daily through the use of a weather station, windsock, or wind vane for the purpose of establishing an upwind station and a downwind station.

Portions of the work to be performed at DW-05 may be within 20 feet of the tenant-occupied building and a potentially exposed worker population. The continuous monitoring locations for VOCs and particulates must be protective of the nearest potentially exposed individuals and/or the location of ventilation system intakes for nearby structures. Accordingly, the CAMP stations will be positioned immediately adjacent to the building, and at locations upwind and downwind of the work area based on prevailing wind direction each day.

The upwind location will be established at the beginning of each day. The purpose of the upwind location is to establish a baseline level of VOCs and PM-10 that are present in the air and independent of Site activities. The downwind location will provide information regarding any VOCs or PM-10 emissions from the Site activities. Should the wind direction change by more than 60 degrees from the established morning direction, both CAMP stations will be adjusted. Any location changes will be documented in field logs. Rain or precipitation events may eliminate the need for particulate monitoring as dust generation is suppressed naturally and can damage CAMP equipment.

The use of engineering controls such as wetting dry soils, vapor/dust barriers, temporary negative pressure enclosures, or special ventilation devices will be considered to prevent exposures related to the work activities, and to control dust and odors. In the unlikely event that engineering controls are insufficient, consideration would be given to implementing the planned activities when

potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

CAMP data will be transmitted daily to the NYSDEC and NYSDOH (the Agencies) and should there be any exceedances, the Agencies will be informed of those exceedances on the day of the exceedance, what was exceeded, and the steps taken to address the exceedance.

Periodic monitoring for VOCs will be performed during non-intrusive activities. Non-intrusive activities include any work activity that does not disturb the subsurface or staged soil piles, including routine site visits, installation of equipment, operations and maintenance, surveying, etc. Periodic monitoring if performed will consist of collecting readings downwind of the work area at the following intervals:

- Upon arrival at the work activity location;
- During performance of the relevant work activity; and
- Prior to leaving the work activity location.

4.2.5.2 VOC Monitoring, Response Levels & Actions

During PDI work activities, PID measurements will continuously monitor air in the work area for total VOCs. Each CAMP station will be equipped with a 10.6 electron volt (eV) lamp PID (MiniRae 2000 Handheld VOC Monitor or equivalent) to monitor VOCs with ionization potentials below 10 eV.

A second PID, equipped with an 11.7 eV lamp (Thermo Environmental 580B Organic Vapor Meter or equivalent) will be placed at each CAMP station to monitor VOCs with higher ionization potentials. The monitoring equipment will be equipped with an alarm to indicate an exceedance of a specified action level.

At the beginning of each workday, the PID instruments will be turned on and calibrated, alarms set, and instruments placed in the work area. VOC concentrations will be continuously monitored, and concentration data recorded at 15-minute intervals. Instruments will be shut down at the end of the workday.

When intrusive activities are occurring, the exclusion zone will encompass the area around the work site extending outward a minimal distance to exceed the swing radius of any excavation equipment to allow for workers to pass safely should they need to access locations around the excavation area. Therefore, the distance to the downwind extent of the exclusion zone will vary with the given work activity for that day with respect to the equipment's position and the wind direction.

The OSHA permissible exposure limit (PEL) for TCE and PCE is 100 parts per million (ppm) and the short-term exposure limit (STEL) set by the American Conference of Governmental Industrial Hygienists (ACGIH) for TCE is 25. Action levels are typically set at 25% of the OSHA PEL, which is also the TCE STEL set by ACGIH. VOC monitoring, response levels and required actions are as follow:

- Special requirements are necessary because portions of the work to be performed at DW-05 may be within 20 feet of the tenant-occupied building. In this circumstance, if total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate predetermined response levels (response actions should also be pre-determined). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If the ambient air concentration of VOCs at the downwind perimeter of the work area exclusion zone exceeds 5 ppm above background (upwind perimeter) for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the VOC readings readily decrease (per instantaneous readings) below 5 ppm over background, work activities can

resume with continued monitoring.

- If a PID instrument registers readings exceeding 25 ppm for a sustained period of 2 minutes, additional action will be undertaken. The instruments will be placed near the excavation and/or placed a safe distance from the open hole and Teflon tubing (connected to the instrument) extended to a point near the open hole. The instruments will continuously monitor VOCs in the work zone as the sub-surface soils are exposed.
- If VOCs levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of VOCs identified, corrective actions taken to abate emissions (if the source is related to work activities) and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the total VOC concentration is greater than 25 ppm above background at the downwind perimeter, intrusive work activities will be halted, and the source of the VOCs will be identified. Work will resume when additional continuous monitoring demonstrates that VOC concentrations have dropped below 25 ppm for a minimum of one-half hour, and the total VOC concentration 200 feet downwind of the work area, or half the distance to the nearest potential receptor, whichever is less (but in no case less than 20 feet), is below 5 ppm above background for the 15-minute average.

4.2.5.3 Particulate Monitoring, Response Levels, & Actions

Dust monitoring will be conducted to protect workers in the work area and to provide real-time monitoring for particulates in the surrounding environment. Air quality monitoring will be performed consistent with the CAMP as follows: dust monitoring will be conducted along the perimeters of the work area and an action level of 100 micrograms per cubic meter ($\mu g/m^3$) above ambient/background has been established to trigger mitigation measures

Fugitive dust migration from the work area will be visually assessed during intrusive activities. Particulate concentrations will be monitored continuously at the downwind perimeter during intrusive activities. Particulate monitoring will be performed using real-time electronic aerosol monitoring equipment capable of measuring particulate matter less than 10-micrometers in size (PM-10) and capable of integrating over a period of 15 minutes for comparison to the airborne particulate action levels referenced below. The monitoring equipment will be equipped with an alarm to indicate an exceedance of a specified action level.

- If the downwind PM-10 concentration is 100 $\mu g/m^3$ greater than background for the 15-minute period, or if airborne dust is observed leaving the work area, dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 concentration does not exceed 150 $\mu g/m3$ above background and provided that significant visible dust is not migrating from the work area.
- If downwind PM-10 concentrations are greater than 150-$\mu g/m^3$ above background after the implementation of dust suppression activities, intrusive activities will be stopped, and a re-evaluation of the intrusive activities will be initiated. Work can resume if dust suppression measures and/or other controls are successful in reducing the downwind PM-10 concentration to within 150 mcg/m^3 of background and in preventing significant visible dust migration.
- If visible dust is seen leaving the Site regardless of PM-10 levels picked up by the air monitoring equipment, additional dust suppression techniques must be employed.
- In the event of heavy rain, particulate monitoring will not be performed for the protection of the equipment. Heavy rain would limit the effectiveness of the sensors in the equipment and act as a suppressor of particulates. In the event of extreme wind conditions that make dust control ineffective, work activities may need to be suspended. Work activities will be stopped and modified if fugitive dust migration is observed during poor weather conditions.

4.3 Site Preparation Tasks

The following subsections describe the necessary site preparation activities for implementation of the remedial action.

4.3.1 Pre-Construction Site Inspection

ERM and the Alkier Steel will organize a pre-construction condition inspection to document Site conditions prior to Contractor mobilization and initiation of job site preparatory activities. This will include pre-construction inspection of the job site, building walls and foundation, LIRR retaining wall and tracks. Attendees may include ERM, the Contractor, Alkier Steel and possibly LIRR representatives.

4.3.2 Establish Work Zones, Decontamination Zones, and Site Security

Entrance to the work zones at the project Site will be limited to only ERM and Owner- authorized personnel and its authorized contractors. The Contractor will be responsible for maintaining a secondary restricted-access work area using a combination of Jersey barriers, traffic barrels, and barrier tape as needed to secure and segregate the work area from other portions of the Site.

Establishing suitable work zones is necessary to limit the potential for exposure of Contractor's workers to contamination, protect the public and surrounding environment from Site hazards, and prevent unauthorized entry into the work area. To accomplish these goals, the Site will be divided into the following three zones: a support zone, a contamination-reduction zone, and an exclusion zone. The location of the support zone will be established to allow access to the contamination-reduction zone, to reduce traffic flow in the contamination-reduction zone and reduce potential exposures to site hazards. Excavation activities will commence only after preparation of the contamination-reduction and support zones.

4.3.2.1 Support Zone

The support zone will include an ancillary item (e.g., project office, portable toilets, water, and food supplies) required to complete the work. All traffic entering and leaving the Site will pass through this zone. Access to the Support Zone will be restricted to individuals involved with the project. All emergency telephone numbers and directions will be posted in the support zone by the Contractor.

4.3.2.2 Contamination-Reduction Zone

A contamination-reduction zone (CRZ) will be established between the exclusion zone and the support zone. Allowing the contamination-reduction zone to be constructed next to the support zone enables the movement of equipment and personnel in to and out of the remedial area. Equipment and personnel decontamination activities will occur in this zone.

A temporary decontamination pad will be constructed with two layers of polyethylene sheeting that will be bermed at the sides in the work staging area.

4.3.2.3 Exclusion Zone

An exclusion zone will be established surrounding the excavation remedial area and roll-off containers containing potentially impacted soils and/or the soil staging areas.

4.3.2.4 Site Security

The Contractor will evaluate the level of Site security for this project. It is recommended that the Contractor seek advisement from local police enforcement to measure the adequacy of Site security. At a minimum, the Contractor will erect a temporary security fence around the work area of the Site. Contractor will be responsible for Site security during CMWP implementation and will have

personnel and Site visitors sign in on a Site Access Log and will brief all personnel entering the Site.

4.3.2.5 Site Traffic Control

The Contractor will control traffic into and out of the Site and onto public roads. Flag men will be used when large construction vehicles enter East 2nd Street. The Contractor will ensure all vehicle wheels are free of dirt and mud from the construction activities. Also, all roll-off containers will be properly tarped to minimize the potential for dirt becoming airborne during transportation.

4.3.3 Utility Protection

4.3.3.1 Subsurface Utilities

The Contractor will self-perform or hire a third-party utility locating company to locate and/or confirm the absence of any underground utilities that may be present within the extents of the delineation/remedial excavation area.

Relocation of subsurface utilities is not anticipated as there are no known subsurface utilities within the remedial area.

4.3.3.2 Overhead Electrical Lines

High voltage overhead electrical lines are present along the LIRR Main Line/Site south property line in close proximity to the remedial area. The Contractor will inspect the jobsite and take necessary precautions protect overhead lines and comply with all applicable OSHA safety requirements such observing required safety operating setbacks for large mast or boom construction equipment to maintain a safe job site work environment.

4.3.4 Erosion and Sedimentation Control

An Erosion and Sediment Control permit is not required for the remedial activities at DW-05 because most of the work area and surrounding area are asphalt or concrete paved and the disturbed area will be less than 1 acre. However, erosion and sedimentation control measures will be implemented to reduce the potential for excavated soils to enter other nearby un-impacted stormwater drywells at the Site.

Specific erosion and sedimentation control measures will include silt fence and straw wattle around the perimeter of the remediation area, and diversion of building roof drains and surface runoff away from the area of DW-05. The Contractor will temporarily re-route roof drains away from the treatment area, and in general, ensure that sediments from disturbed areas do not migrate from the Exclusion Zone. The Contractor also may implement other measures deemed beneficial at preventing erosion of surface soils and transport of sediment in runoff. Further, any excavated soils may not be stockpiled on Site, but will be either directly loaded into trucks for off-site disposal or placed in roll-off containers and covered with tarps. Excavated soils are not to be stockpiled overnight on the ground surface.

4.3.5 Saw Cut Asphalt at Perimeter of Remediation Zone

The Contractor will saw-cut the asphalt in a footprint large enough to accommodate the needed excavation at drywell DW-05 to prevent damage to the surrounding surface material. Areas to be saw-cut and removed will be specified in the final Contractor Construction Drawings.

4.3.6 Disposal of Asphalt

Based on historic soil borings in the area of drywell DW-05, the asphalt thickness ranges from approximately 2 to 4 inches thick. The Contractor will safely breakup, remove, and haul the asphalt

pavement to a local asphalt batch plant for recycling. Asphalt requirements will be specified in the final Contractor Construction Drawings.

4.4 Site Remediation Tasks

4.4.1 Excavation of DW-05

The target excavation depth is 24 feet bgs to achieve removal of PCB-impacted soils at concentrations exceeding the 10,000 μg/kg cleanup level. The less complicated slide rail systems are rated to be effective for depths of up to 20 feet bgs. The contractor will prepare the excavation area by completing a larger initial shallow ramped excavation to a depth of four to six feet bgs prior to installing the slide rail system that will facilitate excavation of the two excavation cells to 24 feet bgs.

Soils removed from the shallow preparatory excavation to a depth of four feet bgs will be stockpiled on and covered with polyethylene sheeting in another area of the Site and reused for backfilling/restoration of the excavations.

Soils removed from the four- to six-foot bgs interval from the shallow preparatory excavation will be considered PCB-impacted and staged on, and covered with polyethylene sheeting or in a lined, covered roll-off container in another area of the Site for off-Site disposal.

The Contractor will then incrementally install a slide rail excavation system to facilitate excavation of the 10,000 μg/kg cleanup level delineation footprint, the concrete drywell structure, and adjacent soils down to approximately 24 feet using large track-hoe excavator or bucket crane.

Continuous air monitoring will be implemented during all active excavation and soil handling activities in accordance with the CAMP presented in Section 4.2.5 including the special requirements noted as a result of the work to be performed at DW-05 may be within 20 feet of the tenant-occupied building.

An experienced ERM geologist or engineer will observe and document the work under the direction of the NYS Professional Engineer of Record. There are numerous manufacturers of slide rail systems but all of them are comprised of similar basic components which are deployed/removed using similar procedures. A brochure from one such manufacturer known as PRO-TEC is provided in **Appendix F** for informational purposes. A simple excerpted cartoon from the brochure shows the basic system deployment and removal procedures below.

4.4.2 Post-Remedial Excavation Verification Sampling, Analyses & Validation

It was noted in Section 2.3 that while the delineation of PCBs in soil to the 3,200 μg/kg Part 375 Protection of Groundwater SCO was the goal of the investigations, delineation of PCBs to <1,000 μg/kg in soil was accomplished for the purposes of the remedial excavation footprint and depth intended to remove all soils with PCB concentrations in excess of 10,000 μg/kg. There is one outlier sample and its duplicate collected from 44 – 45 feet below grade in the soil boring drilled through the bottom of DW-05 where concentrations were 2,180 μg/kg and 2,930 μg/kg, respectively. Excavation of soil at that depth is technically impracticable and these concentrations are still far below the 10,000 μg/kg cleanup goal, and below the New York State Part 375 Protection of Groundwater Soil Cleanup Objective (SCO) of 3,200 μg/kg. Having the delineation completed in advance of remedial action provides for flexibility and streamlined remedial approaches and negates the need for post-remedial sampling in most scenarios. However, a post-excavation verification sampling plan is detailed below in order to comply with 40 CFR Part 761 Subpart O..

Collection of sidewall samples will not be possible using the slide rail excavation system. However, attempts will be made to safely collect composite soil samples from the bottom of the excavation in accordance with 40 CFR Part 761 Subpart O which requires sampling using a 1.5-meter grid.

Drywell DW-05 is considered a single-point source and the gridded composite sampling scheme was developed in accordance with guidance set forth in https://www.ecfr.gov/current/title-40/part-761/subpart-O#p-761.289(b)(1)(ii) and illustrated in https://www.epa.gov/sites/default/files/2015-08/documents/subpartmopr.pdf.

Figure 14 presents the 1.5-meter gridded sampling scheme overlain on the two slide-rail system excavation cells (**Figure 12)** that will yield eight post-remedial excavation verification samples. Composite areas are color-coded in **Figure 14** and consistent with the guidance, the initial compositing areas in each of the two cells consist of a maximum of nine grid points and the seven subsequent compositing areas of maximum of eight adjacent grid points.

Each composite soil sample will be analyzed for PCBs by USEPA Method 8082A (extraction by Method 3500B/3540C or Method 3500B/3550B) by a National Environmental Laboratory Accreditation Program (NELAP) and NYSDOH Environmental Laboratory Accreditation Program (ELAP)-certified laboratory.

All analytical results will be reported in New York Analytical Services Protocol (ASP) Category B analytical data deliverable packages. An independent third party, Environmental Data Services, Inc. (EDS), located in Newport News, Virginia, will review and validate the data. The review of the data by EDS will be performed in accordance with the:

- Analytical methods;
- NYSDEC ASP (NYSDEC, 2010);
- USEPA CLP National Functional Guidelines for Organic Superfund Data Review (USEPA, 2017);
- Applicable USEPA Region II Data Review Standard Operating Procedures; and
- Reviewer's professional judgment.

The order in which the aforementioned guidance documents and/or criteria were listed as being used for validation does not imply a hierarchy of reliance. The most comprehensive reference sources will be used to perform a complete data validation.

4.4.3 Backfill of Excavation

In accordance with the backfill specifications prepared by the Contractor, backfill will be placed in 2-foot lifts and tamped with excavator equipment, plate tampers or similar equipment back to grade. As backfilling proceeds to the appropriate level, a new solid-bottom catch basin will be placed in the excavation and connected by drain piping to the existing drywells located to the east and west; or. Backfilling will then continue to within approximately 1.5-foot of grade around the new catch basin cast iron frame and grate set at grade. Alternatively, the surface restoration may be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.

4.4.4 Equipment Decontamination

All slide rail excavation system and excavation equipment components that come in contact with presumed PCB-contaminated soil will be cleaned on the decontamination pad in the CRZ upon leaving the Exclusion Zone using an all-purpose cleaner and degreaser (e.g., Simple Green All-Purpose Cleaner) and power washing with potable water.

Re-usable sampling equipment and tools will be cleaned with Alconox® and potable water solution followed by distilled water rinse between uses.

The Contractor will utilize appropriate waste storage and disposal practices to minimize the quantities of water generated, and to reduce the quantity of sediment in the wash waters. All decontamination water and any accumulated sediments from the pad will be placed into 55-gallon drums and labelled accordingly as PCB waste.

As noted in Section 4.2.2, all decontamination water generated by the Contractor during decontamination of equipment will be disposed of offsite at a waste disposal facility permitted to receive PCB remediation wastes based on the results of waste characterization analytical testing required by the receiving facility.

4.5 Site Restoration Tasks

After remedial excavation and backfilling are complete, the Contractor will grade and repave the area to cap the DW-05 remedial area, remove all construction debris, and remove all construction equipment, materials, and security fencing. ERM, the Contractor, and/or Alkier Steel will inspect the Site and provide final approvals of Site restoration activities prior to completion of Contractor's restoration responsibilities. Specific details for the required Site Restoration work are summarized below.

4.5.1 Final Grading and Capping/Repaving

The Contractor will deliver, grade, and compact an 8-inch-thick layer of gravel subbase (NYSDOT Type 2 Crusher Run) on top of the excavation backfill with an appropriate slope to facilitate flow of stormwater toward and into the new catch basin grate.

Following placement of the gravel subbase, a 6-inch-thick layer of asphalt will be placed, which will be comprised of 2 inches of Asphalt Top Course-Type 7F overlying 4 inches of Type 3 Asphalt Binder to create a permanent surface cap over the entire DW-05 remedial footprint.

4.5.2 Site Cleanup and Restoration

During this work, the Site will be restored (at a minimum) to its condition prior to commencement of work. The Site dismantling activities may include, but are not limited to, removal and disposal of all erosion control materials, safety fencing, and other materials transported to and/or constructed on the Site, decontaminating all the Site areas used by the Contractor, temporary structures, and site facilities. The Contractor will remove all signs of temporary construction such as signs, barriers, work areas, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work.

4.6 Final Site Inspection and Acceptance of Work

When the Contractor considers the work to be completed in accordance with the project requirements, ERM and Alkier Steel will organize a final inspection walk through of the Site. This will include post-construction inspection of the job site, building walls and foundation, LIRR retaining wall and tracks. Attendees may include ERM, the Contractor, Alkier Steel and possibly LIRR representatives. The purpose of this walk through is to identify any items that require correction and/or to obtain approvals for the project completion. ERM representatives will inspect and comment on the Contractor's claim for final completion.

4.7 Deed Notice and Certification

EPA has indicated that a Deed Notice will be required if post-excavation soil PCB concentrations are >1,000 μg/kg but <25,000 μg/kg in a Low Occupancy area. A new Deed Notice will be filed with Nassau County in accordance with 40 CFR 761.61(a)(8) and certification thereof will be provided in accordance with 40 CFR 761.61(a)(8)(ii). The Deed Notice will identify the seven areas of the Site (including DW-05) where PCBs will remain in soil at concentrations >1,000 μg/kg but <25,000 μg/kg. Relevant text pertaining to the Low Occupancy areas from the regulation is as follows:

"When a cleanup activity conducted under 40 CFR 761.61 includes the use of a fence or a cap, the owner of the site must maintain the fence or cap, in perpetuity. In addition, whenever a cap, or the procedures and requirements for a Low Occupancy area, is used, the owner of the site must meet the following conditions:

- *Within 60 days of completion of a cleanup activity, the owner will submit a signed certification to the USEPA Regional Administrator that he/she has recorded the notation specified in paragraph 40 CFR 761.61(a)(8)(i)(A) -Deed restrictions for caps, fences and Low Occupancy areas which includes:*
  - *Record, in accordance with State law, a notation on the Deed to the property, or on some other instrument which is normally examined during a title search, that will in perpetuity notify any potential purchaser of the property:*

    (1) That the land has been used for PCB remediation waste disposal and is restricted to use as a Low Occupancy area as defined in § 761.3.

    (2) Of the existence of the fence or cap and the requirement to maintain the fence or cap.

    (3) The applicable cleanup levels left at the site, inside the fence, and/or under the cap."

5. REPORTING

The Site Management Corrective Measures Construction Completion Report for the PCBs near 'DW-5' will be prepared per the 2023 Order in accordance with Chapter 5.8 of DER-10, stamped, certified and signed by a NYS PE. The report will document the performance of activities in accordance with this NYSDEC-approved CMWP, and thereby present the necessary information to the NYSDEC for issue a Certificate of Completion (COC). The report will generally present the following:

- Objectives of the Corrective Measure remedial activities;
- Site description, including the physical and environmental setting of the Site and study area;
- Identification of applicable NYS Standards, Criteria and Guidelines (SCGs). Any additional Applicable or Relevant and Appropriate Requirements (ARARs) will also be identified;
- A description of the Corrective Measure remedial activities and results of the same;
- Scaled figures showing the dimensions of the final remedial excavation;
- As-built drawings from a NYS-licensed land surveyor;
- Post-decontamination sample locations, parameters analyzed for, and supporting documentation (e.g., field notes, field data forms, photographs, etc.);
- Information documenting that the source of clean backfill used to complete the remedial activities was in conformance with the requirements of Chapter 5.4 of DER-10 discussed in Section 4.4.3;
- Copies of DUSRs and analytical data packages;
- Copies of residuals management and disposal documentation;
- Copies of community air monitoring results;
- Summaries and evaluation of post-decontamination sample results using tables and figures and comparison with applicable SCGs and ARARs to assess any residual impacts;
- Findings, conclusions and recommendations;
- A copy of the new Deed Notice filed with Nassau County (Section 4.7); and
- A final certification statement with appropriate signatures from an Alkier Steel corporate officer, and a NYS PE.

6. SIP CERTIFICATION

Alkier Steel certifies as owner of the Site where the pre-remedial investigations have been, and the cleanup is to be undertaken, and as the party conducting the cleanup, that all 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 on file at Alkier Steel's corporate office located at 999 South Oyster Bay Road, Bethpage New York, and are available for USEPA inspection.

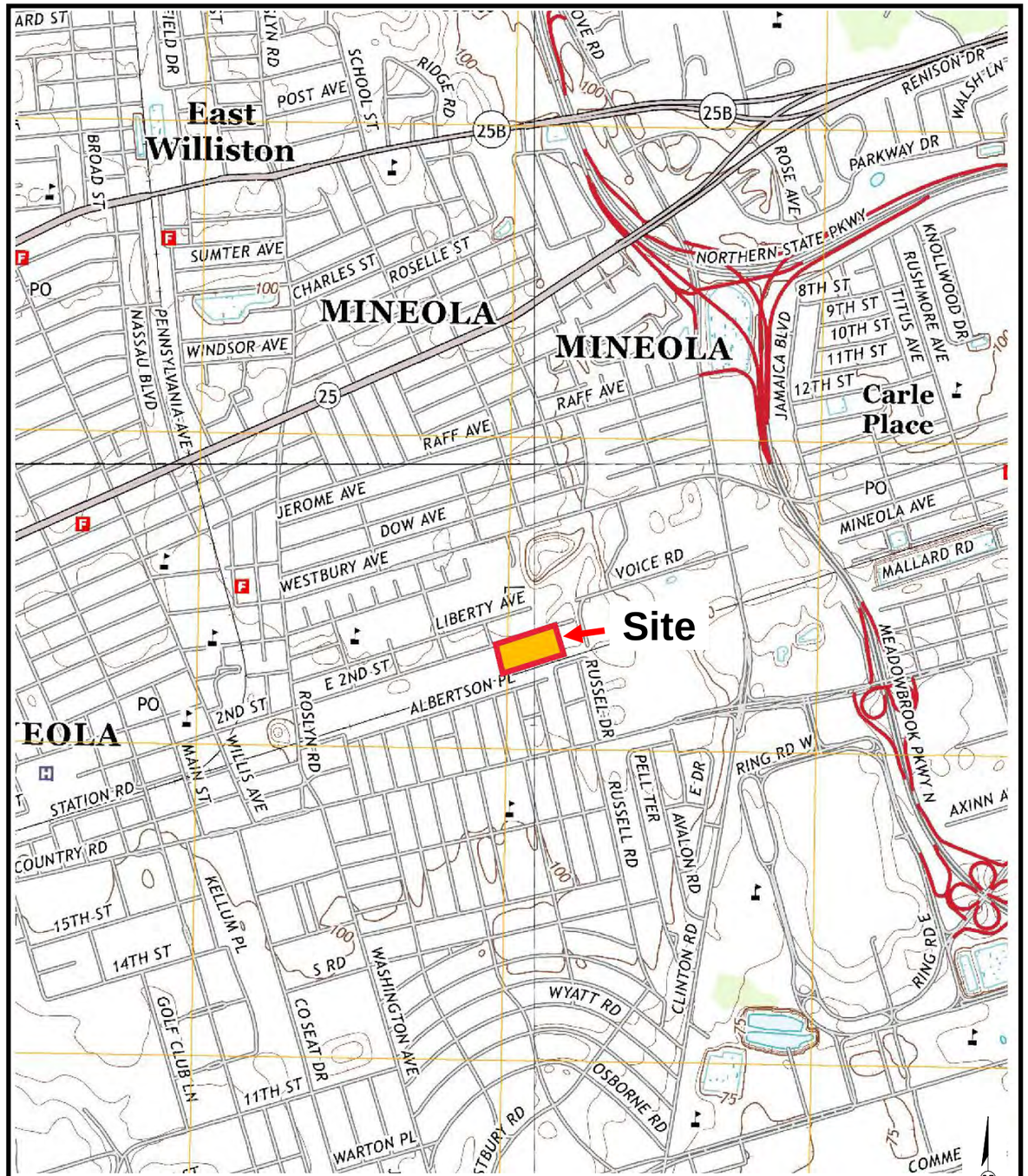
Signature

Title Joseph J. Lostritto, Principal

7/27/2023

Date

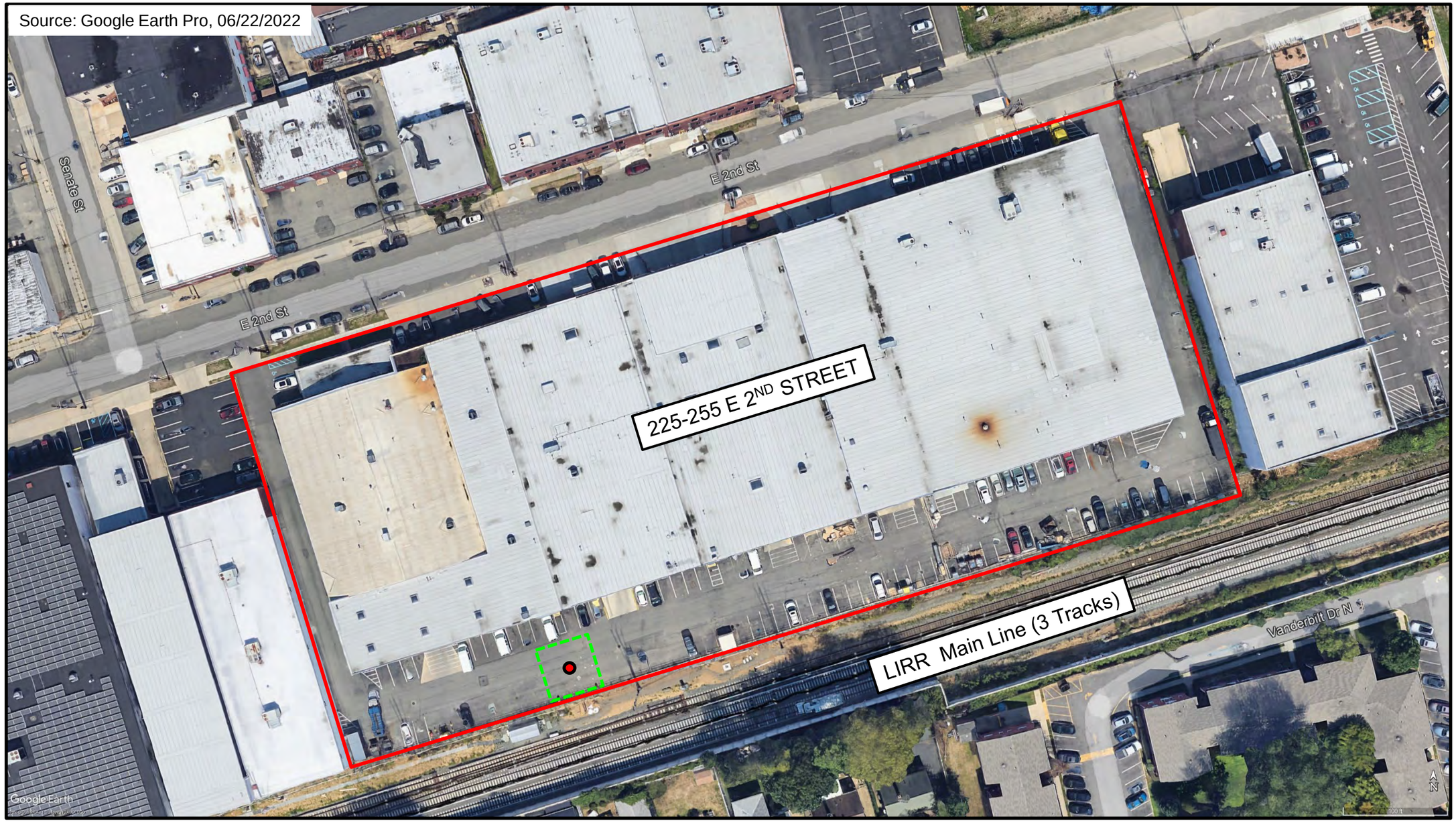
LIST OF FIGURES



SOURCE: Freeport, NY 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, 2013
SCALE: 1:25,000

ERM	**SITE LOCATION MAP** **225-255 E 2nd Street** **Mineola, New York**	Figure **1**

Source: Google Earth Pro, 06/22/2022



N

Approximate Property Boundary

Approximate Area of Concern

Drywell DW-05

Approximate Distance In Feet

0 50 100 200

ERM

SITE LAYOUT MAP SHOWING REMEDIAL AREA OF CONCERN

225-255 E 2nd Street, Mineola, New York

Figure

2

Initial Sampling and First Phase Delineation Location

Second Phase Delineation Location

Third Phase Delineation Location

Fourth/Final Phase Delineation Location

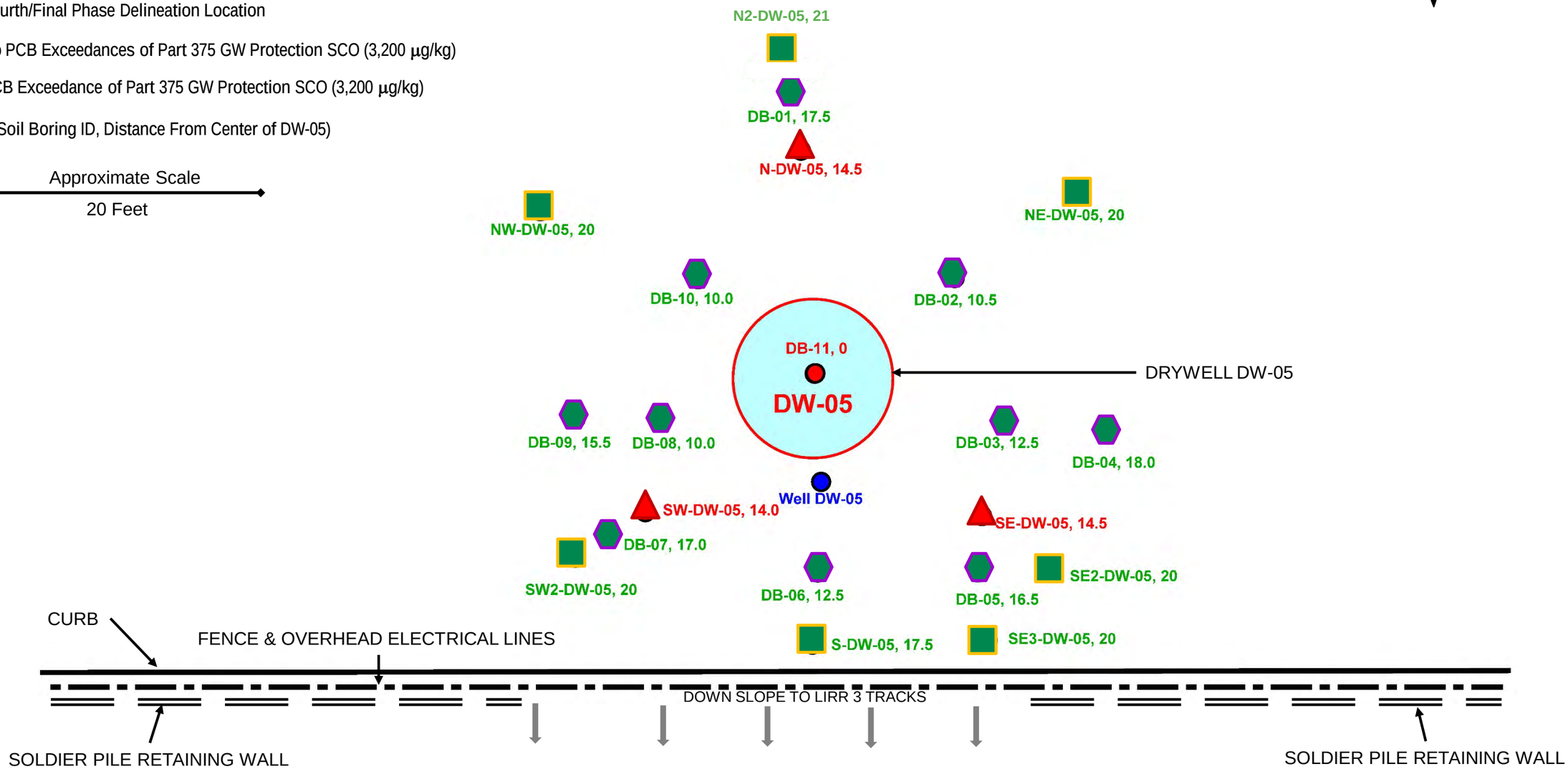
No PCB Exceedances of Part 375 GW Protection SCO (3,200 µg/kg)

PCB Exceedance of Part 375 GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-05)

Approximate Scale

20 Feet



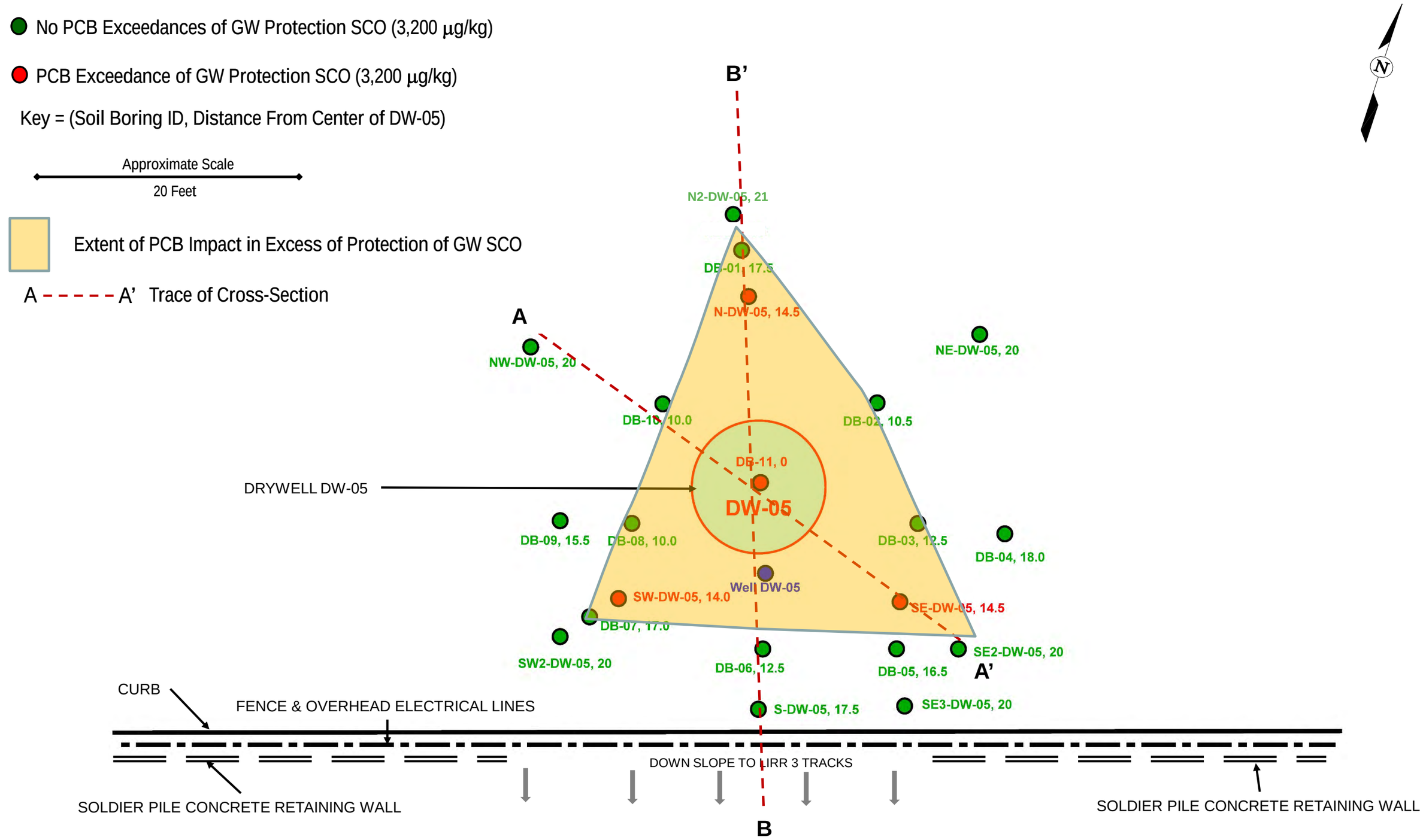
ERM

DW-5 PHASED DELINEATION SAMPLING LOCATIONS

225-255 E 2nd Street, Mineola, New York

Figure

3



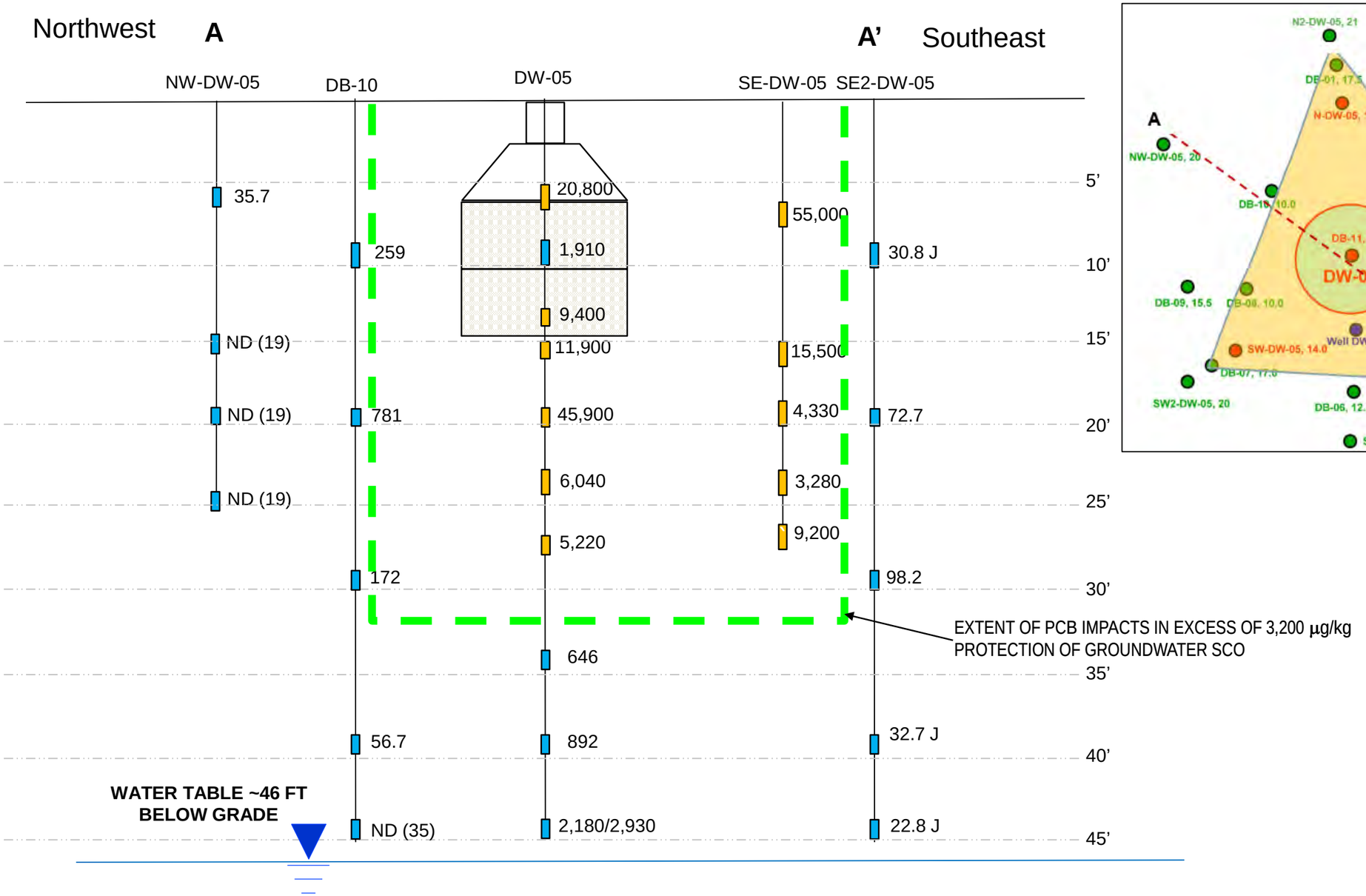
ERM

DW-05 PHASED DELINEATION SAMPLING LOCATIONS & CROSS-SECTION TRACES

225-255 E 2nd Street, Mineola, New York

Figure

4



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

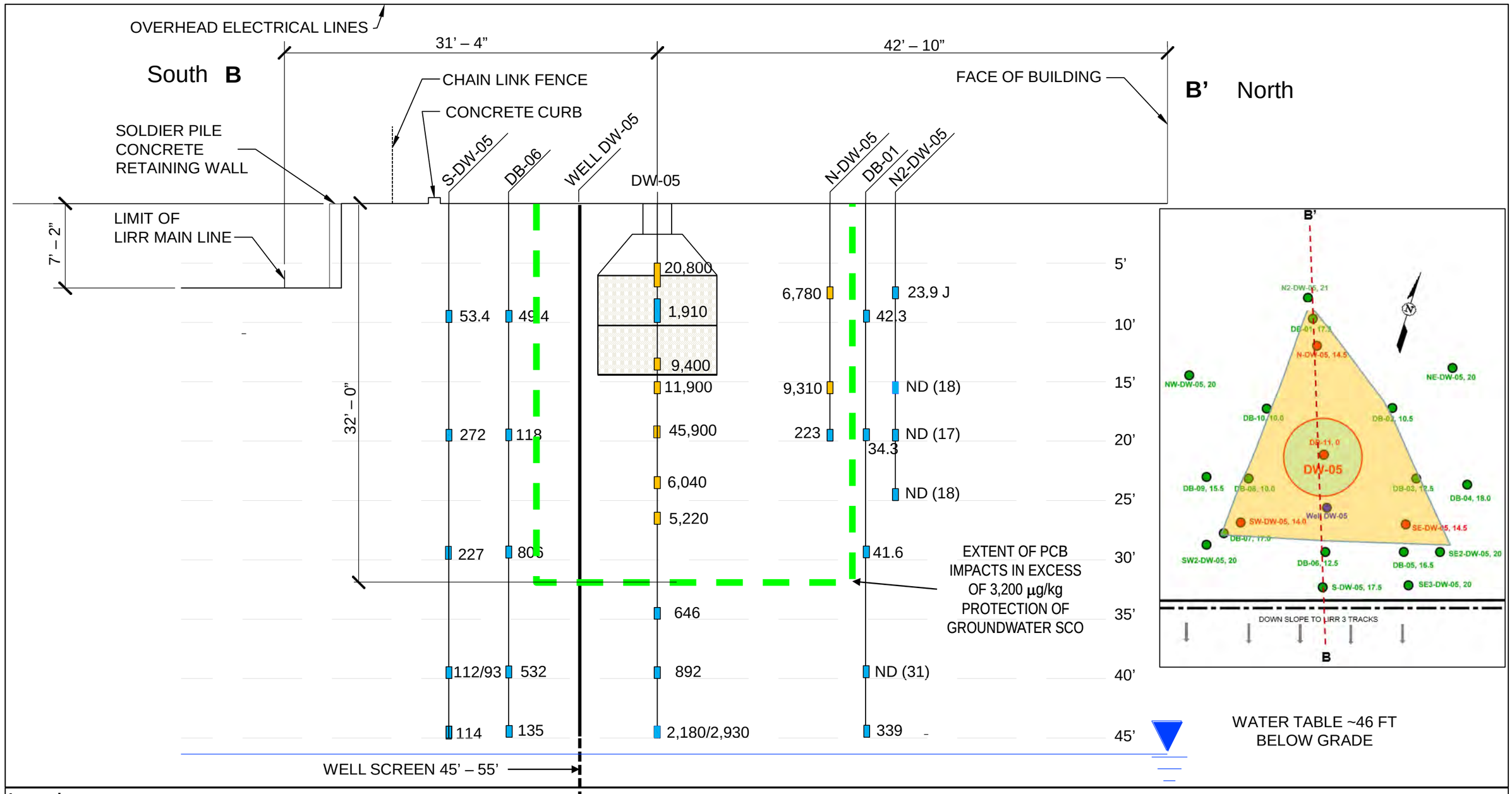
ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 5
Cross-section A - A'
Stormwater Drywell DW-05
PCB Impacts & Delineation Results

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 6
Cross-section B - B'
Stormwater Drywell DW-05
PCB Impacts & Delineation Results

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com

No PCB Exceedances of GW Protection SCO (3,200 µg/kg)

PCB Exceedance of GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-5)

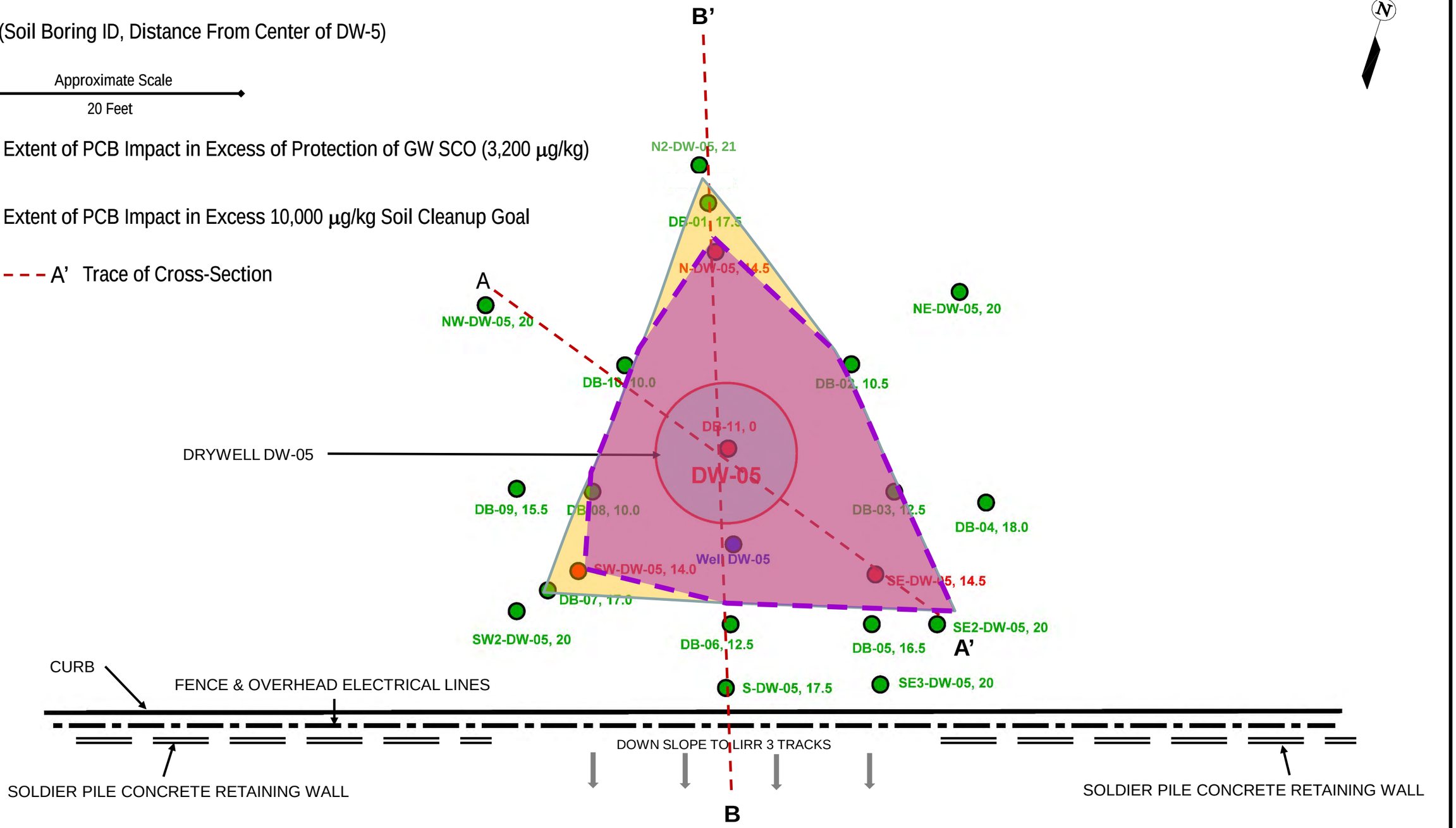
Approximate Scale

20 Feet

Extent of PCB Impact in Excess of Protection of GW SCO (3,200 µg/kg)

Extent of PCB Impact in Excess 10,000 µg/kg Soil Cleanup Goal

A - - - - - A' Trace of Cross-Section



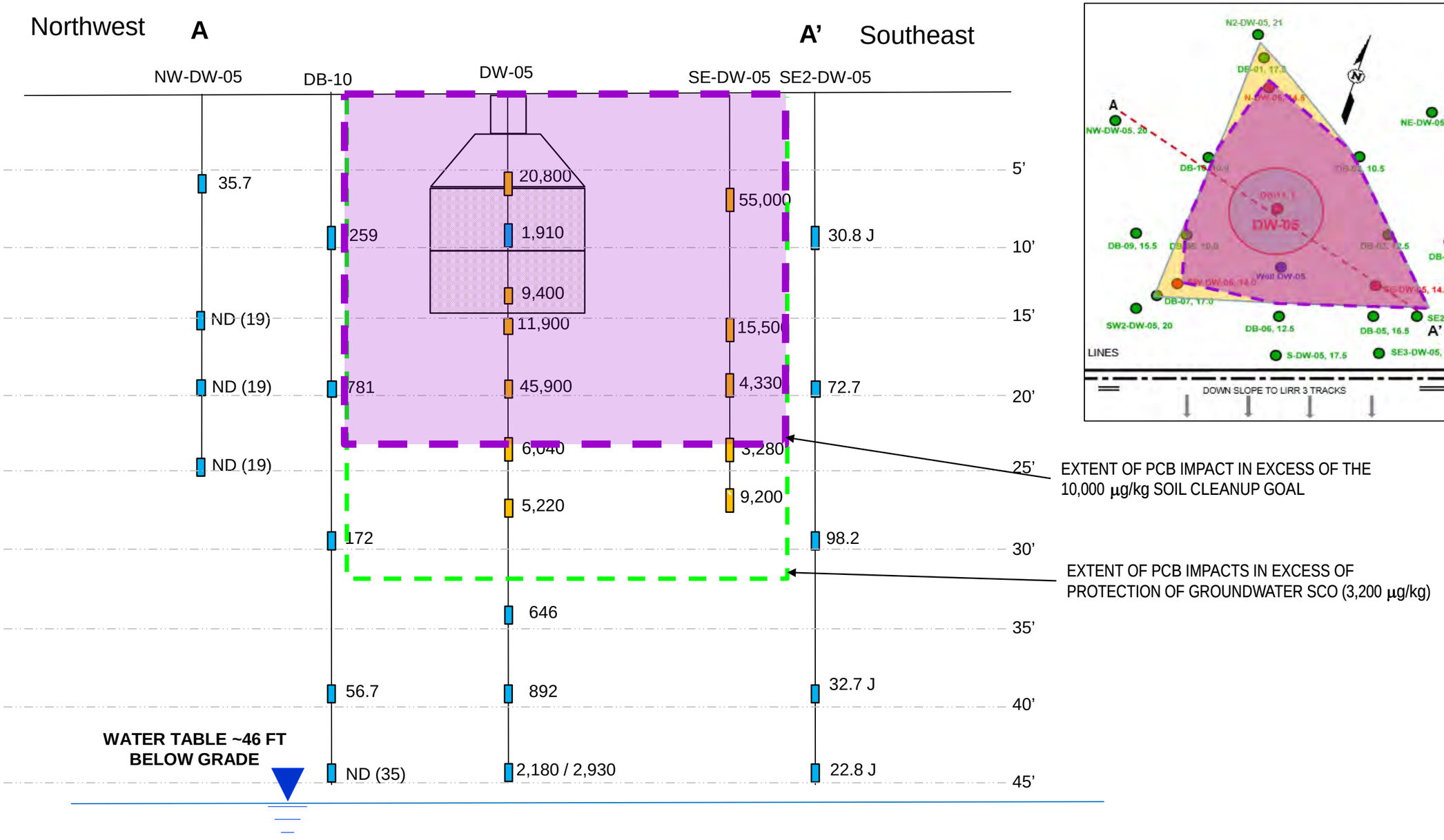
ERM

DW-05 PHASED DELINEATION SAMPLING LOCATIONS, CROSS-SECTION TRACES & REMEDIAL FOOTPRINT

225-255 E 2nd Street, Mineola, New York

Figure

7



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

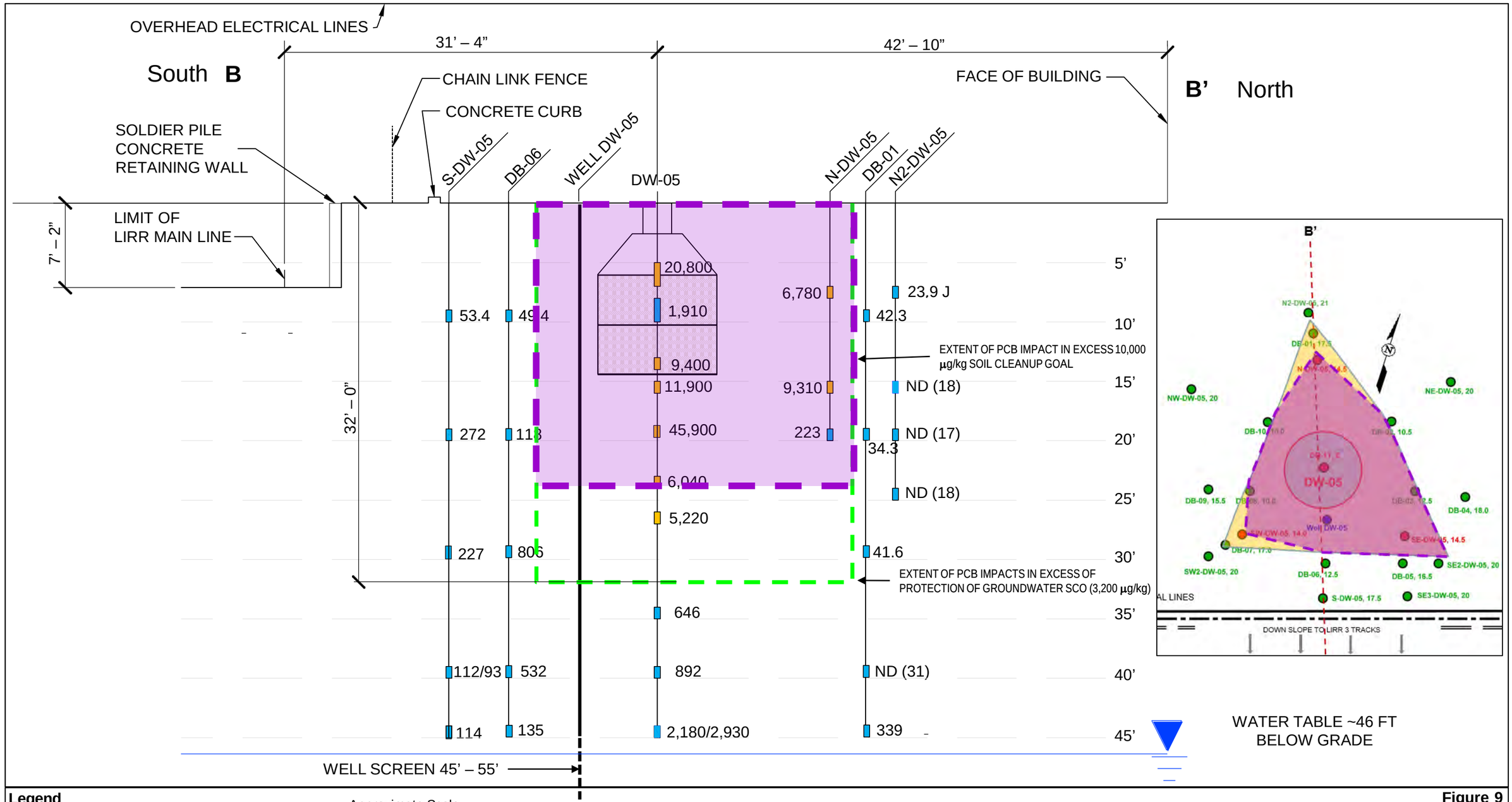
ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 8
Cross-section A - A'
Stormwater Drywell DW-05
PCB Impacts & Remedial Footprint

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

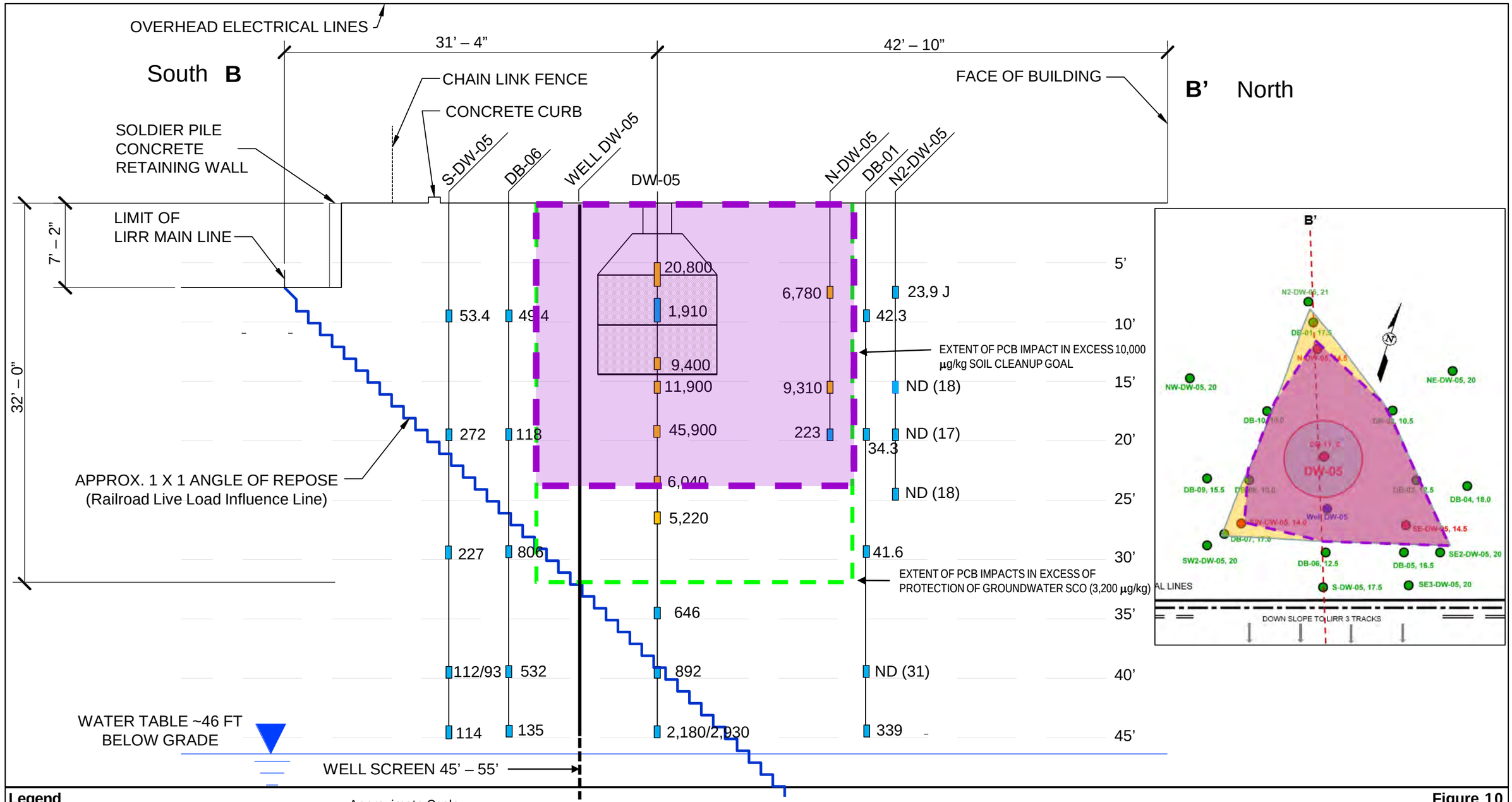
ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 9
Cross-section B - B'
Stormwater Drywell DW-05
PCB Impacts & Remedial Footprint

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 10
Cross-section B - B'
Stormwater Drywell DW-05
Showing LIRR Live Load Influence Line

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com

No PCB Exceedances of GW Protection SCO (3,200 µg/kg)

PCB Exceedance of GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-05)

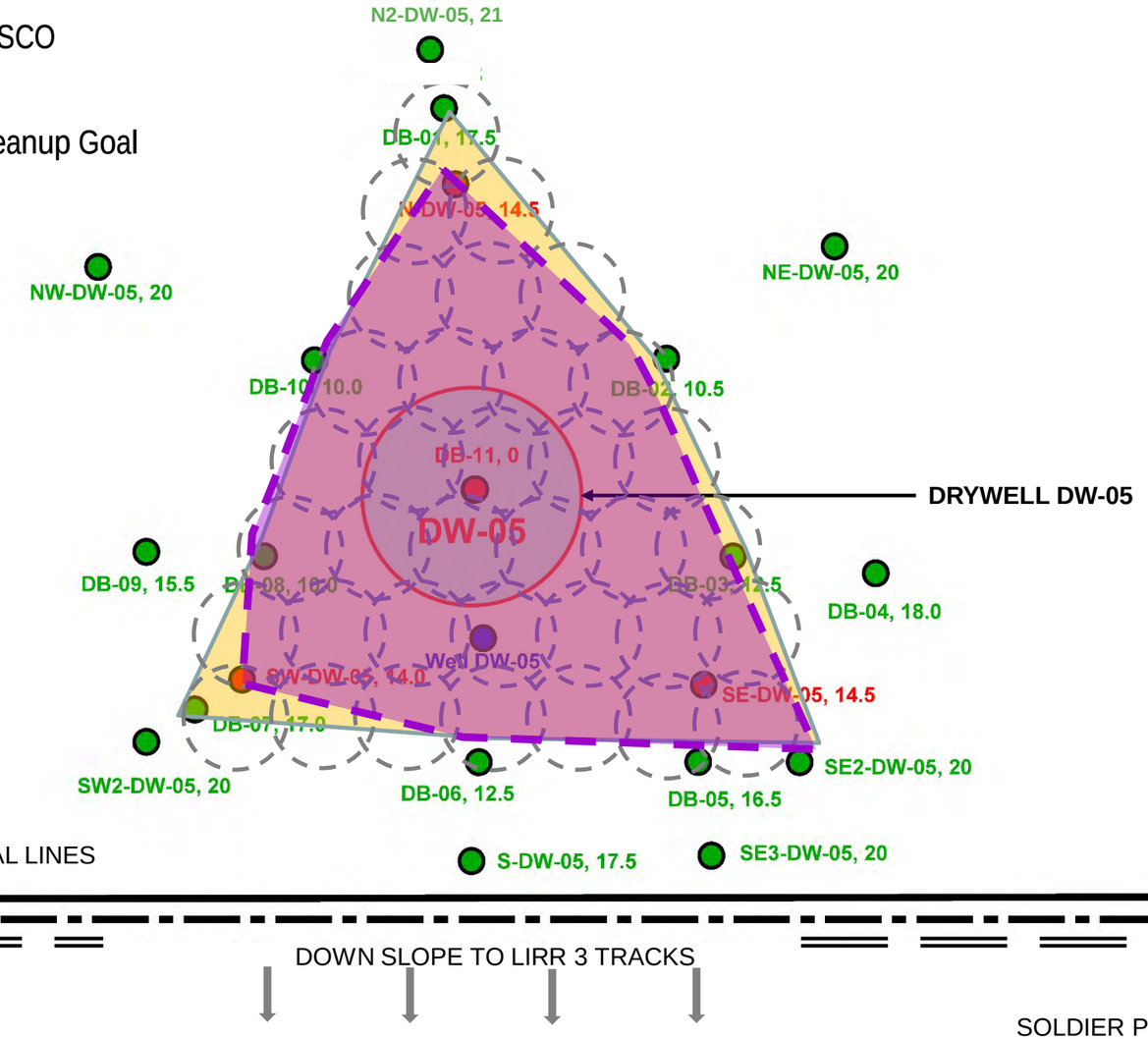
Approximate Scale

20 Feet

Extent of PCB Impact in Excess of Protection of GW SCO

Extent of PCB Impact in Excess 10,000 µg/kg Soil Cleanup Goal

48-Inch Diameter Auger/Caisson Footprint



ERM

SCHEME IN-SITU SOIL STABILIZATION MIXING TECHNOLOGY OR FOR AUGER & CAISSON EXCAVATION

225-255 E 2nd Street, Mineola, New York

Figure **11**

No PCB Exceedances of GW Protection SCO (3,200 µg/kg)

PCB Exceedance of GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-05)

Approximate Scale

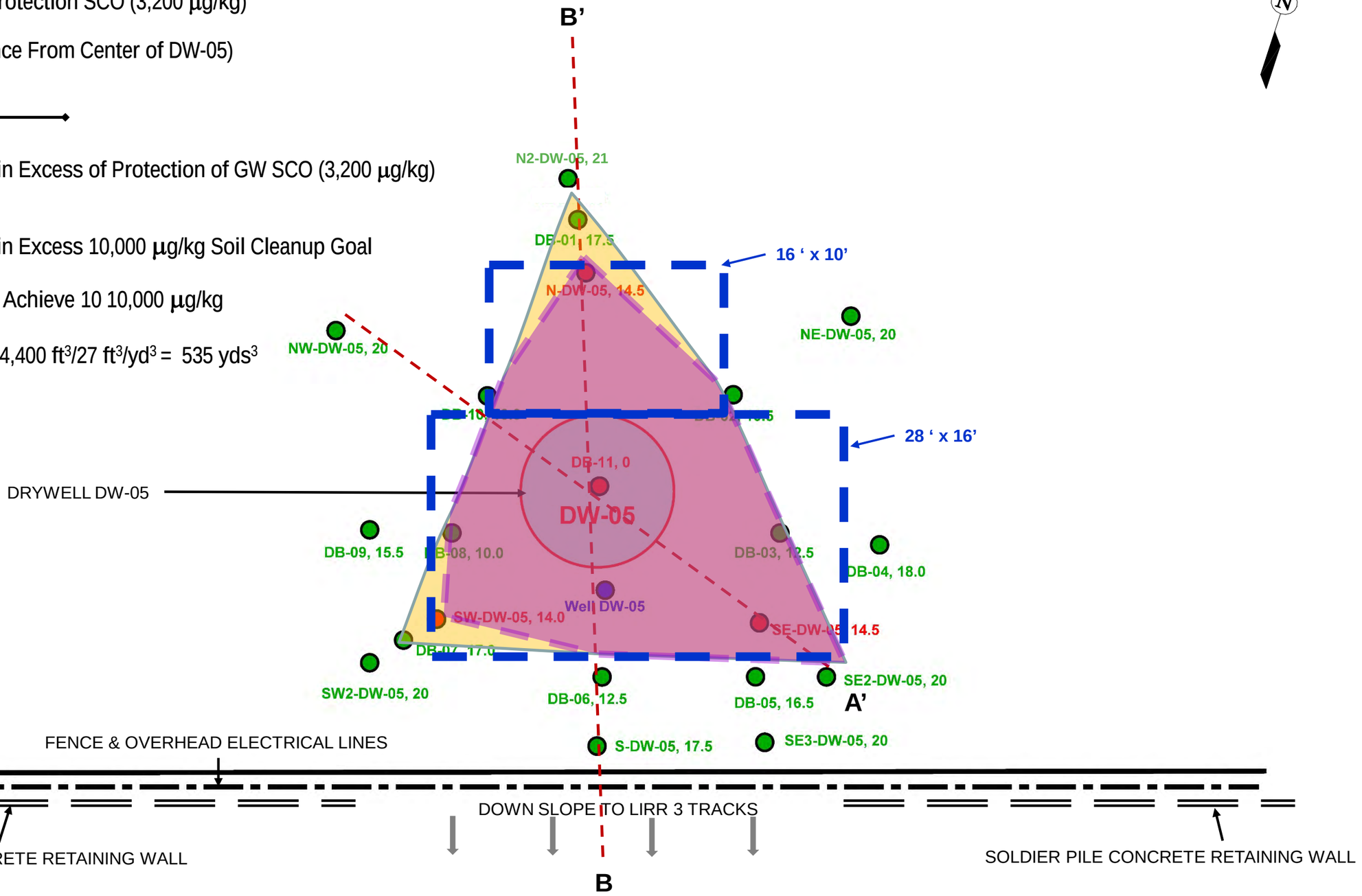
20 Feet

Extent of PCB Impact in Excess of Protection of GW SCO (3,200 µg/kg)

Extent of PCB Impact in Excess 10,000 µg/kg Soil Cleanup Goal

Remedial Footprint to Achieve 10 10,000 µg/kg Soil Cleanup Goal

600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3



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EXCAVATION SCHEME FOR SLIDE RAIL SYSTEM, SHEET PILING OR FREEZE WALL TECHNOLOGY

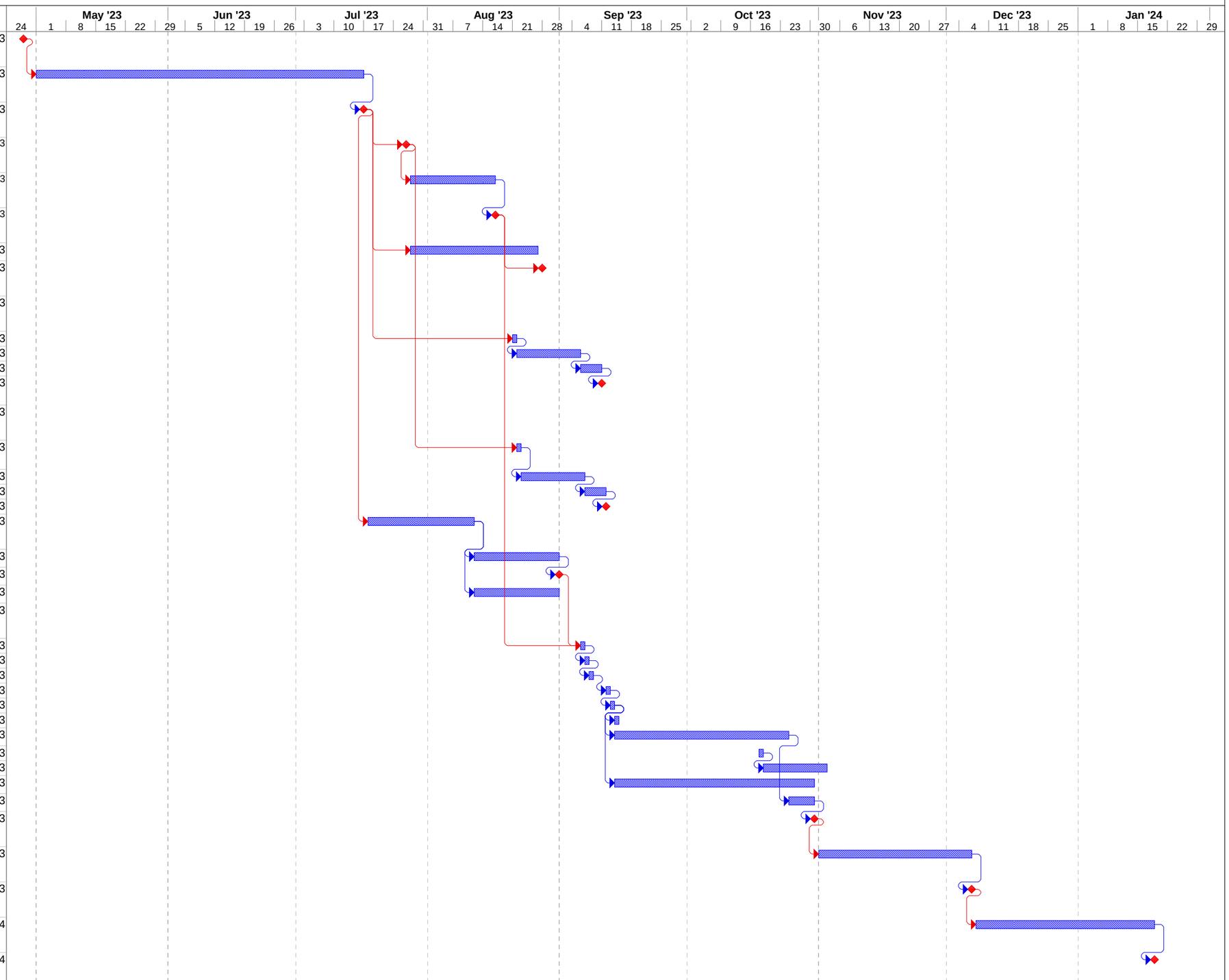
225-255 E 2nd Street, Mineola, New York

Figure

12

Figure 13
Estimated Schedule For Implementation of Site Management Corrective Measures Work Plan for the PCBs near 'DW-05'
AK Allen IHWDS Site No. 1-30-100
255 E 2nd Street, Mineola, NY

ID	Task Name	Duration	Start	Finish
1	**Submittal of DW-05 SIP/Corrective Measures Work Plan to NYSDEC**	1 day	Fri 4/28/23	Fri 4/28/23
2	**NYSDEC Review of DW-05 SIP/Corrective Measures Work Plan**	77 days	Mon 5/1/23	Sun 7/16/23
3	**NYSDEC Approval of DW-05 SIP/Corrective Measures Work Plan**	1 day	Mon 7/17/23	Mon 7/17/23
4	**Submittal of DW-05 SIP/Corrective Measures Work Plan to USEPA**	1 day	Thu 7/27/23	Thu 7/27/23
5	**USEPA Review of DW-05 SIP/Corrective Measures Work Plan**	20 days	Fri 7/28/23	Wed 8/16/23
6	**USEPA Approval of DW-05 SIP/Corrective Measures Work Plan**	1 day	Thu 8/17/23	Thu 8/17/23
7	**Tenant Notification/Coordination**	30 days	Fri 7/28/23	Sat 8/26/23
8	**Register Drywells with USEPA UIC Program**	1 day	Mon 8/28/23	Mon 8/28/23
9	**Pre-Approval for Off-Site Disposal of Remediation Waste**	22 days	Mon 8/21/23	Mon 9/11/23
10	Collect Samples For Waste Characterization	1 day	Mon 8/21/23	Mon 8/21/23
11	Laboratory Analyses	15 days	Tue 8/22/23	Tue 9/5/23
12	Submit Data/Waste Profile Approval Process	5 days	Wed 9/6/23	Sun 9/10/23
13	Obtain Remedial Waste Disposal Facility Approval	1 day	Mon 9/11/23	Mon 9/11/23
14	**Pre-Approval for Clean Backfill/Source Material**	22 days	Tue 8/22/23	Tue 9/12/23
15	Collect Samples of Representative Clean Backfill Material	1 day	Tue 8/22/23	Tue 8/22/23
16	Laboratory Analyses	15 days	Wed 8/23/23	Wed 9/6/23
17	Submit Data/Request NYSDEC Approval	5 days	Thu 9/7/23	Mon 9/11/23
18	NYSDEC Approval of Backfill Source/Materia	1 day	Tue 9/12/23	Tue 9/12/23
19	**Contracting With Remedial Contractor**	25 days	Tue 7/18/23	Fri 8/11/23
20	**Permitting With LIRR/As-Built Survey**	20 days	Sat 8/12/23	Thu 8/31/23
21	**All LIRR Permits Obtained**	1 day	Fri 9/1/23	Fri 9/1/23
22	**Develop Contractor Site Safety Plan**	20 days	Sat 8/12/23	Thu 8/31/23
23	**Prepatory Activities, Planning & Mobilization**	9 days	Wed 9/6/23	Thu 9/14/23
24	Pre-Construction Inspection	1 day	Wed 9/6/23	Wed 9/6/23
25	Work Zone Layout	1 day	Thu 9/7/23	Thu 9/7/23
26	Utility Survey and Protection	1 day	Fri 9/8/23	Fri 9/8/23
27	Erosion and Sediment Control	1 day	Tue 9/12/23	Tue 9/12/23
28	Saw Cut and Dispose of Asphalt	1 day	Wed 9/13/23	Wed 9/13/23
29	Mobilize Remedial Equipment	1 day	Thu 9/14/23	Thu 9/14/23
30	**Conduct Site Excavation Tasks**	41 days	Thu 9/14/23	Tue 10/24/23
31	Collect Post-Excavation Soil Samples	1 day	Wed 10/18/23	Wed 10/18/23
32	Laboratory Analyses/Data Validation	15 days	Thu 10/19/23	Thu 11/2/23
33	**Community Air Monitoring**	47 days	Thu 9/14/23	Mon 10/30/23
34	**Site Restoration Tasks**	6 days	Wed 10/25/23	Mon 10/30/23
35	**Final Site Inspection and Acceptance of Work**	1 day	Tue 10/31/23	Tue 10/31/23
36	**Preparation of Final Engineering Report**	36 days	Wed 11/1/23	Wed 12/6/23
37	**Submit Final Engineering Report to NYSDEC & USEPA**	1 day	Thu 12/7/23	Thu 12/7/23
38	**NYSDEC & USEPA Review of Final Engineering Report**	42 days	Fri 12/8/23	Thu 1/18/24
39	**NYSDEC & USEPA Approval of Final Engineering Report**	1 day	Fri 1/19/24	Fri 1/19/24



No PCB Exceedances of GW Protection SCO (3,200 µg/kg)

PCB Exceedance of GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-05)

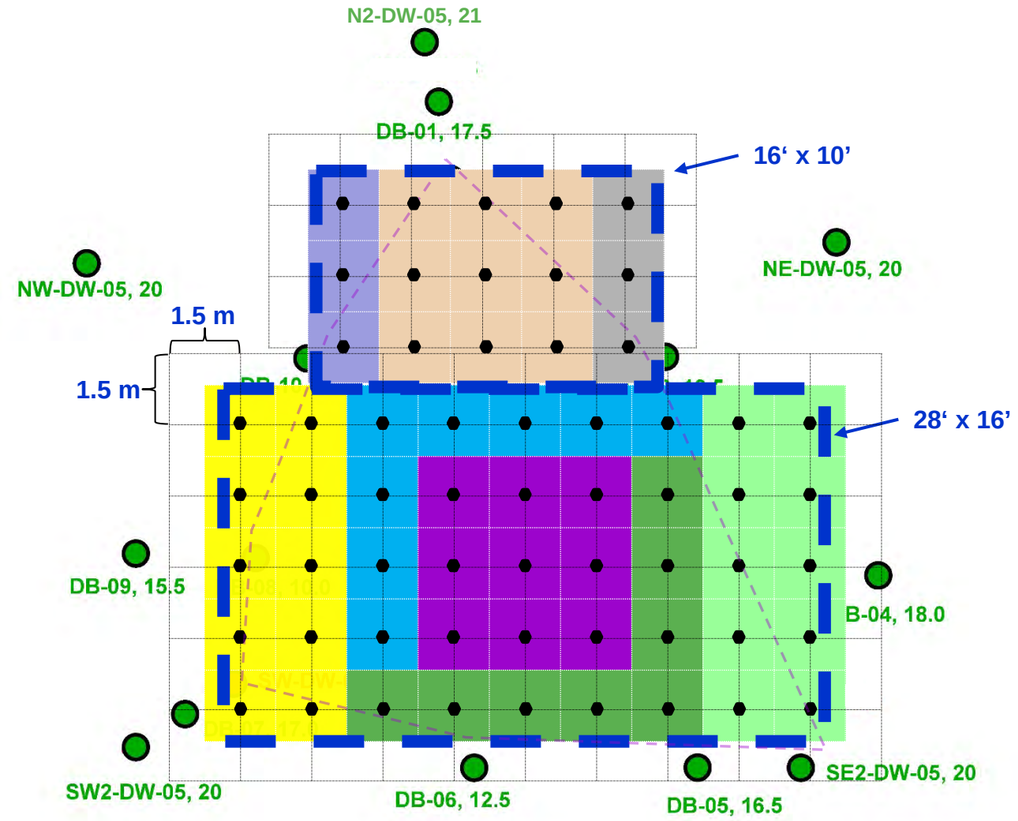
Remedial Footprint to Achieve 10,000 µg/kg Soil Cleanup Goal
600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3

Initial Compositing Areas

Subsequent Compositing Areas

Approximate Scale

20 Feet



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POST-EXCAVATION 1.5 METER GRID COMPOSITE SAMPLING SCHEME FOR SLIDE RAIL SYSTEM EXCAVATIONS
225-255 E 2nd Street, Mineola, New York

Figure **14**

LIST OF TABLES

Table 1
DW-05 Soil Sample Analytical Results
AK Allen, East 2nd Street Mineola, NY

DRAFT

Client Sample ID:	Lab Sample ID:	Date Sampled:	Analyte / Units	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1268	Aroclor 1262	Analyte / Units	Copper	Lead	Nickel
ORIGINAL SAMPLING AND EXTENDED BORING BENEATH DW-5																
NY SCO -Protection of Groundwater SCO[1]				3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	-	1,720	450	130
DW-05(5-7)	JC93487-4	8/19/2019	µg/kg	<40	<40	<40	<40	<40	**20,800**	<40	<40	<40	mg/kg	**1,930**	**1,670**	**480**
DW-05(8-10)	JC96796-1	10/14/2019		<38	<38	<38	<38	<38	1,910	<38	<38	<38		-	-	-
DW-05(13-14)	JC96796-2			<36	<36	<36	<36	<36	**9,400**	<36	<36	<36		-	-	-
DW-05(15-16)	JC96796-3			<34	<34	<34	<34	<34	**11,900**	<34	<34	<34		-	-	-
DW-05(19-20)	JC97636-8	10/29/2019		<36	<36	<36	<36	<36	**45,900**	<36	<36	<36		-	-	-
DW-05(23-24)	JC97636-9			<33	<33	<33	<33	<33	**6,040**	<33	<33	<33		-	-	-
DW-05(26-27)	JC97636-10			<35	<35	<35	<35	<35	**5,220**	<35	<35	<35		-	-	-
DW-05(34-35)	JD13835-3	9/29/2020		<33	<33	<33	<33	<33	646	<33	<33	<33		-	-	-
DW-05(39-40)	JD13835-4			<35	<35	<35	<35	<35	892	<35	<35	<35		-	-	-
DW-05(44-45)	JD13835-5			<35	<35	<35	<35	<35	2,180	<35	<35	<35		-	-	-
DW-05(44-45) Duplicate	JD13835-6			<35	<35	<35	<35	<35	2,930	<35	<35	<35		-	-	-
SECOND PHASE DELINEATION																
N-DW-05(7-8)	JC97636-11	10/29/2019	µg/kg	<35	<35	<35	<35	<35	**6,780**	<35	<35	<35	mg/kg	-	-	-
N-DW-05(15-16)	JC97636-12			<36	<36	<36	<36	<36	**9,310**	<36	<36	<36		-	-	-
N-DW-05(19-20)	JC97636-13			<31	<31	<31	<31	<31	223	<31	<31	<31		-	-	-
SW-DW-05(7-8)	JC97636-23	10/29/2019	µg/kg	<31	<31	<31	<31	<31	**8,330**	<31	<31	<31	mg/kg	-	-	-
SW-DW-05(15-16)	JC97636-24			<36	<36	<36	<36	<36	**8,790**	<36	<36	<36		-	-	-
SW-DW-05(19-20)	JC97636-25			<34	<34	<34	<34	<34	2,010	<34	<34	<34		-	-	-
SE-DW-05(7-8)	JC97636-17	10/29/2019	µg/kg	<32	<32	<32	<32	<32	**55,000**	<32	<32	<32	mg/kg	-	-	-
SE-DW-05(15-16)	JC97636-18			<35	<35	<35	<35	<35	**15,500**	<35	<35	<35		-	-	-
SE-DW-05(19-20)	JC97636-19			<34	<34	<34	<34	<34	**4,330**	<34	<34	<34		-	-	-
SE-DW-05(23-24)	JC97636-20			<34	<34	<34	<34	<34	**3,280**	<34	<34	<34		-	-	-
SE-DW-05(26-27)	JC97636-21			<33	<33	<33	<33	<33	**9,200**	<33	<33	<33		-	-	-
THIRD PHASE DELINEATION																
NW-DW-05(7-8)	JD13993-15	10/1/2020	µg/kg	<34	<34	<34	<34	<34	35.7	<34	<34	<34	mg/kg	-	-	-
NW-DW-05(15-16)	JD13993-16			<36	<36	<36	<36	<36	<36	<36	<36	<36		-	-	-
NW-DW-05(19-20)	JD13993-17			<36	<36	<36	<36	<36	<36	<36	<36	<36		-	-	-
NW-DW-05(24-25)	JD13993-18			<32	<32	<32	<32	<32	<32	<32	<32	<32		-	-	-
N2-DW-05(7-8)	JD13993-11	10/1/2020	µg/kg	<33	<33	<33	<33	<33	23.9 J	<33	<33	<33	mg/kg	-	-	-
N2-DW-05(15-16)	JD13993-12			<33	<33	<33	<33	<33	<33	<33	<33	<33		-	-	-
N2-DW-05(19-20)	JD13993-13			<31	<31	<31	<31	<31	<31	<31	<31	<31		-	-	-
N2-DW-05(24-25)	JD13993-14			<33	<33	<33	<33	<33	<33	<33	<33	<33		-	-	-
NE-DW-05(9-10)	JD13993-7	10/1/2020	µg/kg	<33	<33	<33	<33	<33	<33	<33	<33	<33	mg/kg	-	-	-
NE-DW-05(19-20)	JD13993-8			<32	<32	<32	<32	<32	27.1 J	<32	<32	<32		-	-	-
NE-DW-05(29-30)	JD13993-9			<33	<33	<33	<33	<33	<33	<33	<33	<33		-	-	-
NE-DW-05(39-40)	JD13993-10			<33	<33	<33	<33	<33	<33	<33	<33	<33		-	-	-
SW2-DW-05(7-8)	JD13993-19	10/1/2020	µg/kg	<33	<33	<33	<33	<33	<33	<33	<33	<33	mg/kg	-	-	-
SW2-DW-05(15-16)	JD13993-20			<32	<32	<32	<32	<32	148	<32	<32	<32		-	-	-
SW2-DW-05(19-20)	JD13993-21			<32	<32	<32	<32	<32	172	<32	<32	<32		-	-	-
SW2-DW-05(24-25)	JD13993-22			<33	<33	<33	<33	<33	44.1	<33	<33	<33		-	-	-
S-DW-05(9-10)	JD13993-1	10/1/2020	µg/kg	<32	<32	<32	<32	<32	53.4	<32	<32	<32	mg/kg	-	-	-
S-DW-05(19-20)	JD13993-2			<32	<32	<32	<32	<32	272	<32	<32	<32		-	-	-
S-DW-05(29-30)	JD13993-3			<33	<33	<33	<33	<33	227	<33	<33	<33		-	-	-
S-DW-05(39-40)	JD13993-4			<33	<33	<33	<33	<33	112	<33	<33	<33		-	-	-
S-DW-05(44-45)	JD13993-6			<32	<32	<32	<32	<32	114	<32	<32	<32		-	-	-
SE2-DW-05(9-10)	JD13916-17	9/30/2020	µg/kg	<33	<33	<33	<33	<33	30.8 J	<33	<33	<33	mg/kg	-	-	-
SE2-DW-05(19-20)	JD13916-18			<34	<34	<34	<34	<34	72.7	<34	<34	<34		-	-	-
SE2-DW-05(29-30)	JD13916-19			<33	<33	<33	<33	<33	98.2	<33	<33	<33		-	-	-
SE2-DW-05(39-40)	JD13916-20			<34	<34	<34	<34	<34	32.7 J	<34	<34	<34		-	-	-
SE2-DW-05(44-45)	JD13916-21			<35	<35	<35	<35	<35	22.8 J	<35	<35	<35		-	-	-
SE3-DW-05(7-8)	JD15866-1	11/6/2020	µg/kg	<34	<34	<34	<34	<34	<34	<34	<34	<34	mg/kg	-	-	-
SE3-DW-05(15-16)	JD15866-2			<32	<32	<32	<32	<32	63.3	<32	<32	<32		-	-	-
SE3-DW-05(19-20)	JD15866-3			<33	<33	<33	<33	<33	54	<33	<33	<33		-	-	-
SE3-DW-05(24-25)	JD15866-5			<31	<31	<31	<31	<31	45.5	<31	<31	<31		-	-	-
SE3-DW-05(29-30)	JD15866-6			<35	<35	<35	<35	<35	52.1	<35	<35	<35		-	-	-
SE3-DW-05(34-35)	JD15866-7			<33	<33	<33	<33	<33	173	<33	<33	<33		-	-	-
SE3-DW-05(39-40)	JD15866-8			<32	<32	<32	<32	<32	<32	<32	<32	<32		-	-	-
SE3-DW-05(44-45)	JD15866-9			<35	<35	<35	<35	<35	24.0 J	<35	<35	<35		-	-	-
FOURTH AND FINAL DELINEATION																
DB-01(9-10)-022421	JD20742-3	2/24/2021	µg/kg	<31	<31	<31	<31	<31	42.3	<31	<31	<31	mg/kg	-	-	-
DB-01(19-20)-022421	JD20742-4			<32	<32	<32	<32	<32	34.3	<32	<32	<32		-	-	-
DB-01(29-30)-022421	JD20742-5			<33	<33	<33	<33	<33	41.6	<33	<33	<33		-	-	-
DB-01(39-40)-022421	JD20742-6			<33	<33	<33	<33	<33	<33	<33	<33	<33		-	-	-
DB-01(44-45)-022421	JD20742-7			<33	<33	<33	<33	<33	79.8	<33	<33	<33		-	-	-
DB-02(9-10)-022421	JD20742-9	2/24/2021	µg/kg	<36	<36	<36	<36	<36	189	<36	<36	<36	mg/kg	15.1	4.6	14.1
DB-02(19-20)-022421	JD20742-10			<31	<31	<31	<31	<31	144	<31	<31	<31		5.8	<2.1	<4.1
DB-02(29-30)-022421	JD20742-11			<33	<33	<33	<33	<33	277	<33	<33	<33		<2.6	<2.1	<4.2
DB-02(39-40)-022421	JD20742-13			<31	<31	<31	<31	<31	<31	<31	<31	<31		-	-	-
DB-02(44-45)-022421	JD20742-14			<34	<34	<34	<34	<34	339	<34	<34	<34		-	-	-
DB-03(9-10)-022421	JD20742-20	2/24/2021	µg/kg	<33	<33	<33	<33	<33	79.6	<33	<33	<33	mg/kg	4.4	2.5	<4.3
DB-03(19-20)-022421	JD20742-21			<32	<32	<32	<32	<32	139	<32	<32	<32		3.4	<2.0	<4.0
DB-03(29-30)-022421	JD20742-23			<34	<34	<34	<34	<34	161	<34	<34	<34		2.6	<2.1	<4.1
DB-03(39-40)-022421	JD20742-24			<33	<33	<33	<33	<33	123	<33	<33	<33		-	-	-
DB-03(44-45)-022421	JD20742-25			<34	<34	<34	<34	<34	29.1 J	<34	<34	<34		-	-	-
DB-04(9-10)-022421	JD20742-15	2/24/2021	µg/kg	<34	<34	<34	<34	<34	36.7	<34	<34	<34	mg/kg	-	-	-
DB-04(19-20)-022421	JD20742-16			<33	<33	<33	<33	<33	178	<33	<33	<33		-	-	-
DB-04(29-30)-022421	JD20742-17			<35	<35	<35	<35	<35	70.5	<35	<35	<35		-	-	-
DB-04(39-40)-022421	JD20742-18			<35	<35	<35	<35	<35	25.5 J	<35	<35	<35		-	-	-
DB-04(44-45)-022421	JD20742-19			<34	<34	<34	<34	<34	93.5	<34	<34	<34		-	-	-

Legend:

< #	Not detected at the specifed limit of detection.
Detected	Compound was detected at the indicated concentration
Exceeded	Results flagged as "Exceed" if any of the selected criteria exceeded (most stringent).

Footnotes:

1. New York State Part 375 mg/kg Cleanup Objectives (SCOs) set forth in 6 NYCRR Subpart 375-6, effective 14 December 2006.

- : Not analyzed for this compound.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

Table 1
DW-05 Soil Sample Analytical Results
AK Allen, East 2nd Street Mineola, NY

DRAFT

FOURTH AND FINAL DELINEATION CONTINUED																
NY SCO -Protection of Groundwater SCO[1]				3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200		1,720	450	130
Client Sample ID:	Lab Sample ID:	Date Sampled:	Analyte / Units	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1268	Aroclor 1262	Analyte / Units	Copper	Lead	Nickel
DB-05(9-10)-022421	JD20742-26	2/24/2021	µg/kg	<33	<33	<33	<33	<33	<33	<33	<33	<33	mg/kg	-	-	-
DB-05(19-20)-022421	JD20742-27			<32	<32	<32	<32	<32	225	<32	<32	<32		-	-	-
DB-05(29-30)-022421	JD20742-28			<35	<35	<35	<35	<35	142	<35	<35	<35		-	-	-
DB-05(39-40)-022421	JD20742-29			<35	<35	<35	<35	<35	112	<35	<35	<35		-	-	-
DB-05(44-45)-022421	JD20742-30			<32	<32	<32	<32	<32	<32	<32	<32	<32		-	-	-
DB-06(9-10)-022421	JD20742-31	2/24/2021	µg/kg	<32	<32	<32	<32	<32	49.4	<32	<32	<32	mg/kg	4.3	<2.2	<4.3
DB-06(19-20)-022421	JD20742-32			<34	<34	<34	<34	<34	118	<34	<34	<34		6.2	2.2	6.5
DB-06(29-30)-022421	JD20742-34			<34	<34	<34	<34	<34	806	<34	<34	<34		3.4	2.2	<4.2
DB-06(39-40)-022421	JD20742-35			<39	<39	<39	<39	<39	532	<39	<39	<39		-	-	-
DB-06(44-45)-022421	JD20742-36			<33	<33	<33	<33	<33	135	<33	<33	<33		-	-	-
DB-07(9-10)-022521	JD20895-7	2/25/2021	µg/kg	<34	<34	<34	<34	<34	47.7	<34	<34	<34	mg/kg	-	-	-
DB-07(19-20)-022521	JD20895-8			<33	<33	<33	<33	<33	150	<33	<33	<33		-	-	-
DB-07(29-30)-022521	JD20895-9			<34	<34	<34	<34	<34	83.2	<34	<34	<34		-	-	-
DB-07(39-40)-022521	JD20895-10			<33	<33	<33	<33	<33	96.3	<33	<33	<33		-	-	-
DB-07(44-45)-022521	JD20895-11			<32	<32	<32	<32	<32	71.4	<32	<32	<32		-	-	-
DB-08(9-10)-022521	JD20895-1	2/25/2021	µg/kg	<33	<33	<33	<33	<33	1,170	<33	<33	<33	mg/kg	5.5	<2.1	7.2
DB-08(19-20)-022521	JD20895-2			<33	<33	<33	<33	<33	354	<33	<33	<33		3.9	<2.1	<4.2
DB-08(29-30)-022521	JD20895-3			<33	<33	<33	<33	<33	255	<33	<33	<33		2.8	<2.1	<4.1
DB-08(39-40)-022521	JD20895-4			<34	<34	<34	<34	<34	274	<34	<34	<34		-	-	-
DB-08(44-45)-022521	JD20895-5			<34	<34	<34	<34	<34	693	<34	<34	<34		-	-	-
DB-09(9-10)-022521	JD20895-12	2/25/2021	µg/kg	<34	<34	<34	<34	<34	56.1	<34	<34	<34	mg/kg	-	-	-
DB-09(19-20)-022521	JD20895-13			<33	<33	<33	<33	<33	131	<33	<33	<33		-	-	-
DB-09(29-30)-022521	JD20895-14			<33	<33	<33	<33	<33	2160	<33	<33	<33		-	-	-
DB-09(39-40)-022521	JD20895-15			<34	<34	<34	<34	<34	56.7	<34	<34	<34		-	-	-
DB-09(44-45)-022521	JD20895-16			<35	<35	<35	<35	<35	<35	<35	<35	<35		-	-	-
DB-10(9-10)-022521	JD20895-17	2/25/2021	µg/kg	<32	<32	<32	<32	<32	259	<32	<32	<32	mg/kg	3.9	<2.1	4.4
DB-10(19-20)-022521	JD20895-18			<32	<32	<32	<32	<32	781	<32	<32	<32		3.5	<2.1	<4.2
DB-10(29-30)-022521	JD20895-19			<33	<33	<33	<33	<33	172	<33	<33	<33		6.9	2.4	8.6
DB-10(39-40)-022521	JD20895-20			<33	<33	<33	<33	<33	90	<33	<33	<33		-	-	-
DB-10(44-45)-022521	JD20895-21			<33	<33	<33	<33	<33	85.7	<33	<33	<33		-	-	-
DB-11(30-32)-022521	JD20742-1	2/22/2021	µg/kg	-	-	-	-	-	-	-	-	-	mg/kg	33.8	13.9	12.8

Legend:

< #	Not detected at the specifed limit of detection.
Detected	Compound was detected at the indicated concentration
Exceeded	Results flagged as "Exceed" if any of the selected criteria exceeded (most stringent).

Footnotes:

1. New York State Part 375 mg/kg Cleanup Objectives (SCOs) set forth in 6 NYCRR Subpart 375-6, effective 14 December 2006.

- : Not analyzed for this compound.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

Table 2
Groundwater Monitoring Well DW-05 Sample Analytical Results
225-255 East 2nd Street, Mineola, NY

Client Sample ID:			NY TOGS Class GA GW Standards (NYSDEC 6/2004)[1]	DW-05-RAW-01	DW-05-RAW-01(FILTERED)	DW-05-MN-01(FILTERED)
Lab Sample ID:				JD15697-1	JD15697-1FR	JD18737-3
Date Sampled:				11/4/2020	11/4/2020	1/6/2021
Matrix:	CAS#	Units		Unfiltered Ground Water	Field Filtered Ground Water	Field Filtered Ground Water
GC/LC Semi-volatiles (SW846 8082A)						
Aroclor 1016	12674-11-2	ug/l	0.09	ND (0.098)	ND (0.098)	ND (0.13)
Aroclor 1221	11104-28-2	ug/l	0.09	ND (0.21)	ND (0.21)	ND (0.28)
Aroclor 1232	11141-16-5	ug/l	0.09	ND (0.13)	ND (0.13)	ND (0.17)
Aroclor 1242	53469-21-9	ug/l	0.09	ND (0.11)	ND (0.11)	ND (0.15)
Aroclor 1248	12672-29-6	ug/l	0.09	ND (0.063)	ND (0.063)	ND (0.084)
Aroclor 1254	11097-69-1	ug/l	0.09	**0.98**	ND (0.21)	ND (0.28)
Aroclor 1260	11096-82-5	ug/l	0.09	ND (0.076)	ND (0.076)	ND (0.10)
Aroclor 1268	11100-14-4	ug/l	0.09	ND (0.087)	ND (0.087)	ND (0.12)
Aroclor 1262	37324-23-5	ug/l	0.09	ND (0.097)	ND (0.097)	ND (0.13)

Legend:	< #	Not detected at the specified limit of detection.
	Detected	Compound was detected at the indicated concentration.
	Exceeded	Results flagged as "Exceed" if any of the selected criteria exceeded (most stringent).

Footnotes: 1. AWQS - NYS Ambient Groundwater Quality Standards and Guidance Values for Class GA (potable) ground water as listed in TOGS 1.1.1 (June 1998 and amendments through 2021) and in 6 NYCRR 703.5. https://www.dec.ny.gov/chemical/122803.html

- : Not available for this compound.

B: Analyte detected in associated MB. Unable to re-extract due to expired sample holding time.

Table 3
Remedy Selection Evaluation For Drywell DW-05
AK Allen IHWDS Site No. 1-30-100
255 E 2nd Street, Mineola, NY

DRAFT

Remedial Approach / Alternative	Description	Threshold Criteria		Balancing Criteria						Other
		Overall Protectiveness Of The Public Health & The Environment	Meet Standards, Criteria & Guidance (SCG)	Long-Term Effectiveness & Permanence	Reduction Of Toxicity, Mobility or Volume of Contamination Through Treatment	Short-Term Impact & Effectiveness	Implementability	Cost Effectiveness	Land Use	Expected Community Acceptance
No-Action	Self-explanatory, stormwater drywell left to continue to receive runoff, no other actions	No change in protectiveness or exposures to environment or public health. Groundwater samples from a well installed within the impacted soil footprint did not indicate PCBs in groundwater. PCBs and metals are below grade and there is no current human direct contact, ingestion or inhalation health exposure pathway.	Does not meet soil SCGs but does meet the groundwater SCGs.	No long-term effectiveness or permanence	No reduction	No short-term impact or effectiveness	Can be implemented, no hardship to operating tenants	No cost, no effectiveness	Commercial/ Industrial Use	Little Community Interest Expected, If At All
In-situ Soil Stabilization	Excavation of the concrete drywell structure and immediately adjacent soils down to approximately 18 feet using a large track-hoe excavator. Backfill with clean soil and proceed with soil stabilization by injection and mixing of Portland cement with impacted soils using large diameter augers on both the down and up passes from grade to a depth of 24 feet bgs. The treatability study results confirm that soil stabilization using Portland cement mixed in-place would work to effectively remove contaminant mobility. Off-site disposal of all concrete and soil at an appropriately permitted waste disposal facility. To prevent further significant infiltration of stormwater at this location, the former drywell will be replaced with a relocated new drywell in suitable soils or replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west or the surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.	Effective stabilization would render PCBs and metals immobile therefore eliminating potential for groundwater impact.	Rendering PCBs and metals immobile will remove the potential for leaching and impacting groundwater.	Effective, long-term permanent remedial action	Will effectively remove contaminant mobility	Will immediately and effectively remove contaminant mobility	Can be implemented where field program would only last several weeks. Would cause temporary use hardship of area to tenants. "Greener" approach as there is no intensive trucking to transport impacted soils to appropriately permitted waste-disposal facility	$1,000,000-$1,200,000 Concerns: Fouling LIRR, Large amount of equipment, extended time duration over 1 month. Non-permeable monolith left in-place. Future stormwater management requirements.	Commercial/ Industrial Use	Little Community Interest Expected, If At All
Excavation/In-situ Soil Stabilization	Excavation of the concrete drywell structure and adjacent soils out to the horizontal extent of delineation and down to approximately 18 feet using a large track-hoe excavator. Backfill with clean soil and proceed with soil stabilization by injection and mixing Portland cement with impacted soils using large diameter augers, injection of Portland cement, and mixing on both the down and up passes to a depth of 24 feet. Off-site disposal of all concrete and soil at an appropriately permitted waste disposal facility. To prevent further significant infiltration of stormwater at this location, the former drywell will be replaced with a relocated new drywell in suitable soils or replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west or the surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.	Effective stabilization would render PCBs and metals immobile therefore eliminating potential for groundwater impact. Off-site disposal of excavated concrete and soil at an appropriately permitted waste disposal facility will ensure protectiveness of further impacts to environmental media.	Removal of shallow and rendering remaining PCBs and metals immobile will remove the potential for leaching and impacting groundwater.	Effective, long-term permanent remedial action	Will effectively remove contaminant mobility and volume.	Will immediately and effectively remove some of the contaminant volume and immobilize remaining contaminant volume	Can be implemented where field program would only last several weeks. Would cause temporary use hardship of area to tenants. "Greener" approach as there is limited trucking to transport excavated impacted soils to appropriately permitted waste-disposal facility	Not Feasible, soil mixing occurs from grade to target depth.	Commercial/ Industrial Use	Little Community Interest Expected, If At All

Table 3
Remedy Selection Evaluation For Drywell DW-05
AK Allen IHWDS Site No. 1-30-100
255 E 2nd Street, Mineola, NY

DRAFT

Remedial Approach / Alternative	Description	Threshold Criteria		Balancing Criteria						Other
		Overall Protectiveness Of The Public Health & The Environment	Meet Standards, Criteria & Guidance (SCG)	Long-Term Effectiveness & Permanence	Reduction Of Toxicity, Mobility or Volume of Contamination Through Treatment	Short-Term Impact & Effectiveness	Implementability	Cost Effectiveness	Land Use	Expected Community Acceptance
Excavation Using Auger & Caisson	Excavation of the concrete drywell structure and immediately adjacent soils down to approximately 18 feet using a large track-hoe excavator. Backfill with clean soil and proceed with soil excavation from grade to 24-foot bgs using large diameter auger and caisson advancement. backfill each bore with clean soil. Conduct bores in an overlapping configuration. Off-site disposal of all concrete and soil at an appropriately permitted waste disposal facility. To prevent further significant infiltration of stormwater at this location, the former drywell will be replaced with a relocated new drywell in suitable soils or replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west or the surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.	Off-site disposal of excavated concrete and soil at an appropriately permitted waste disposal facility will ensure protectiveness of further impacts to environmental media.	Will meet NYS Soil Cleanup Objectives (SCOs), no known exceedances of groundwater standards for PCBs and metals.	Effective, long-term permanent remedial action	Will effectively remove contaminant mobility, toxicity, and volume.	Will immediately and effectively remove contaminants from subsurface	Can be implemented where field program would only last several weeks but will produce additional volume of material to be disposed of off-site due to the need for overlapping bores containing clean soil from previous bore backfill. Will require ongoing large truck traffic for a "load-and-go" remedial approach as on-site staging/stock-piling is not an option due to available space limitations.	$1,600,000-$1,700,000 Concerns: Fouling LIRR, Large amount of equipment, extended time duration over 2 months. Need to use flowable fill or backfill will not meet compaction. Non-permeable monolith left in-place. Future stormwater management requirements.	Commercial/ Industrial Use	Little Community Interest Expected, If At All
Excavation Using Sheet Piling	Drive sheet piling to appropriate depth with cross bracing to allow excavation to a depth of 24 feet. Excavation of the concrete drywell structure and adjacent soils using track-hoe excavator and/or bucket crane, and backfill the excavation with clean soil. The excavation two cells represent a total footprint of approximately 600 ft^2 or a target estimated volume of 535 yds3, i.e., (600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3). Off-site disposal of all concrete and soil at an appropriately permitted waste disposal facility. To prevent further significant infiltration of stormwater at this location, the former drywell will be replaced with a relocated new drywell in suitable soils or replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west or the surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.	Off-site disposal of excavated concrete and soil at an appropriately permitted waste disposal facility will ensure protectiveness of further impacts to environmental media.	Will meet NYS Soil Cleanup Objectives (SCOs), no known exceedances of groundwater standards for PCBs and metals.	Effective, long-term permanent remedial action	Will effectively remove contaminant mobility, toxicity, and volume.	Will immediately and effectively remove contaminants from subsurface	Least easily implemented due to proximity to LIRR main line, seismic loading on an 8 -foot retaining wall within 10-feet of excavation, vibration issues for both near building foundations as well as railroad tracks. Will require ongoing large truck traffic for a "load-and-go" remedial approach as on-site staging/stock-piling is not an option due to available space limitations.	$1,400,000-$1,800,000 Concerns: Fouling LIRR, Large amount of equipment, extended time duration over 2 month. Internal bracing required. Steel sheeting expensive and price volatility.	Commercial/ Industrial Use	Little Community Interest Expected, If At All
Excavation Using Freeze Wall	Establish stabilized footprint of excavation using a soil freezing system to facilitate excavation to a depth of 24 feet. Excavation of the concrete drywell structure and adjacent soils using a large track-hoe excavator and/or bucket crane. Backfill the excavation with clean soil. The excavation two cells represent a total footprint of approximately 600 ft^2 or a target estimated volume of 535 yds3, i.e., (600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3). Off-site disposal of all concrete and soil at an appropriately permitted waste disposal facility. To prevent further significant infiltration of stormwater at this location, the former drywell will be replaced with a relocated new drywell in suitable soils or replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west or the surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west.	Off-site disposal of excavated concrete and soil at an appropriately permitted waste disposal facility will ensure protectiveness of further impacts to environmental media.	Will meet NYS Soil Cleanup Objectives (SCOs), no known exceedances of groundwater standards for PCBs and metals.	Effective, long-term permanent remedial action	Will effectively remove contaminant mobility, toxicity, and volume.	Will immediately and effectively remove contaminants from subsurface	Can be implemented but longer duration of field program, preparatory ground freezing stage could be 4 - 6 weeks, ground freezing soil expansion could affect the 8-foot retaining wall on the property boundary adjacent to LIRR main line tracks. Will require ongoing large truck traffic for a "load-and-go" remedial approach as on-site staging/stock-piling is not an option.	$1,600,000-$1,800,000 Concerns: Fouling LIRR, Large amount of equipment, extended time duration over 2 month, need at least a month of freezing before excavation. Will need a long reach excavator.	Commercial/ Industrial Use	Little Community Interest Expected, If At All

Table 3
Remedy Selection Evaluation For Drywell DW-05
AK Allen IHWDS Site No. 1-30-100
255 E 2nd Street, Mineola, NY

DRAFT

Remedial Approach / Alternative	Description	Threshold Criteria		Balancing Criteria						Other
		Overall Protectiveness Of The Public Health & The Environment	Meet Standards, Criteria & Guidance (SCG)	Long-Term Effectiveness & Permanence	Reduction Of Toxicity, Mobility or Volume of Contamination Through Treatment	Short-Term Impact & Effectiveness	Implementability	Cost Effectiveness	Land Use	Expected Community Acceptance
Excavation Using Slide Rail	Excavation of the concrete drywell structure and adjacent soils using a large track-hoe excavator and/or bucket crane. Backfill the excavation with clean soil. The excavation two cells represent a total footprint of approximately 600 ft^2 or a target estimated volume of 535 yds3, i.e., (600 ft^2 * 24 ft Deep = 14,400 ft^3/27 ft^3/yd^3 = 535 yds^3). Off-site disposal of all concrete and soil at an appropriately permitted waste disposal facility. To prevent further significant infiltration of stormwater at this location, the former drywell will be replaced with a relocated new drywell in suitable soils or replace DW-05 with a solid-bottom catch basin with pipe connections to the existing drywells located to the east and west or the surface restoration would be regraded with a crown to direct surface flow of precipitation to those existing drywells located to the east and west. This method or straight excavation with trench box or short sheet piles is the recommended remedial alternative. It meets all the evaluation criteria, is the most cost-effective with an anticipated duration of only several weeks causing the least tenant disruption/hardship, and allows for replacement of the drywell.	Off-site disposal of excavated concrete and soil at an appropriately permitted waste disposal facility will ensure protectiveness of further impacts to environmental media.	Will meet NYS Soil Cleanup Objectives (SCOs), no known exceedances of groundwater standards for PCBs and metals.	Effective, long-term permanent remedial action	Will effectively remove contaminant mobility, toxicity, and volume.	Will immediately and effectively remove contaminants from subsurface	Can be implemented where field program would only last several weeks. Would cause temporary use hardship of area to tenants. Will require ongoing large truck traffic for a "load-and-go" remedial approach as on-site staging/stock-piling is not an option.	$900,000-$1,000,000 This method or straight excavation with trench box or short sheet piles is the most cost effective and shortest method. Concerns: Need to know the construction/stability /integrity of soldier pile concrete wall at LIRR property line.	Commercial/ Industrial Use	Little Community Interest Expected, If At All

See DER-10 Chapter 4 Section 4.2 & 4.3 https://www.dec.ny.gov/docs/remediation_hudson_pdf/der10.pdf

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

APPENDIX A NYSDEC CORRESPONDENCE REGARDING CESSATION OF SITE GROUNDWATER MONITORING & PREVIOUS ACCEPTANCE OF SIP/CMWP FOR DW-05

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway, 11th Floor
Albany, New York 12233-7015
Phone: (518) 402-9625 • **Fax:** (518) 402-9020 / (518) 402-9627
Website: www.dec.ny.gov

Alexander B. Grannis
Commissioner

July 7, 2009

Mr. Steve Sobstyl
CA Rich Consultants, Inc.
17 Dupont Street
Plainview, New York 11803

RE: Groundwater sampling
A. K. Allen Company, Inc.
Site # 130100
Mineola, Nassau County

Dear Mr. Sobstyl:

The New York State Department of Environmental Conservation (DEC) and New York State Department of Health (DOH) have reviewed the summary of results from the groundwater sampling for the above-referenced site. Based on our review of the data, both DEC and DOH concur with discontinuing further groundwater sampling at the site.

It should be noted, this does not change the on-going monitoring and sampling that is still required for the SVE system that is operating on the site.

If you have any questions, please feel free to contact me at 518-402-9622 or via email at kamalone@gw.dec.state.ny.us.

Sincerely,

Kerry A. Maloney
Engineering Geologist I

CC: R. Buttner
C. Biblow, Esq

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau A
625 Broadway, 12th Floor, Albany, NY 12233-7015
P: (518) 402-9625 I F: (518) 402-9627
www.dec.ny.gov

July 17, 2023

Chris Wenczel
ERM
105 Maxess Rd.
Melville, NY 11747-3851

RE: Site No. 152200 AK Allen
Revised DW-05 Corrective Measures Work Plan

Dear Mr. Wenczel,

The New York State of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) have reviewed the revised *Site Management Corrective Measures Work Plan for the PCBs near 'DW-05'* dated April 28, 2023, for the AK Allen Site and found it acceptable. If any modification is made to this work plan due to Federal Environmental Protection Agency (EPA) comments and/or involvement, please ensure those changes are communicated to NYSDEC.

If you have any questions, please contact ne at 518-402-9374 or email me at alexander.klein@dec.ny.gov.

Sincerely,

Alexander Klein
Project Manager

Ec: K. Lumpe, Steel Equities
S. Humes, Holland & Knight
J. Nealon/C. Bethony/M. Sergott, NYSDOH
R. Decandia/R. Mustico, NYSDEC

APPENDIX B 30 JUNE 2023 TECHNICAL MEMORANDUM REGARDING SITE DETECTIONS AND REMEDIAL ACTIONS FOR PCBS

ERM

105 Maxess Road, Suite 316
Melville, New York 11747-3851

Tel: +1 (631) 756-8920
Cell +1 (516) 315-8221
chris.wenczel@erm.com
www.erm.com

Technical Memorandum

To	Marlon Ramlogan, United States Environmental Protection Agency Steve Ferreira, United States Environmental Protection Agency
From	Chris W. Wenczel, P.G. (NY), Consulting Director, ERM Consulting & Engineering, Inc.
Date	30 June 2023
Reference	0560708.13
Subject	Detections and Remedial Actions for Polychlorinated Biphenyls AK Allen IHWDS Site No. 1-30-100 225-255 E 2nd Street, Mineola, Nassau County, New York

As requested by the United States Environmental Protection Agency (EPA) this technical memorandum presents for the above-referenced Site a synopsis of the:

- Extent of polychlorinated biphenyl (PCB)-contaminated media found on-Site prior to any past remedial activities, including figures displaying sampling locations, sample types (methods) and results;
- Details of the PCB remediations performed and results, and
- Extent of all PCB-contaminated media above 1 part per million (ppm) currently found onsite.

Background

The Site is the 4.1598-acre property of the former AK Allen Company Incorporated (Allen) facility located on the southern side of E 2nd Street (225-255 E 2nd Street), in Mineola, Nassau County, New York (the "Site"). AK Allen, a manufacturer of precision-machined metal cylinders and valves, began operations at the Site in 1957 and continued through 2017 when Allen ceased operations.

The location of the Site and the physiographic features of the surrounding area are depicted on **Figure 1**. A figure showing the layout and boundaries of this Site is provided in **Figure 2**. The Site is bounded by E 2nd Street to the north, the Long Island Railroad (LIRR) track system to the south, an industrial building/developed property to the east, and an industrial building/developed property to the west.

Since 2000, the Site has been listed as a Class 2 site on the New York State (NYS) Registry of Inactive Hazardous Waste Sites (Site No. 1-30-100) as a result of Site media being impacted by volatile organic compounds VOCs, semi-VOCs (SVOCs), PCBs and metals. Accordingly, the Site has been subject to the requirements of the NYS Inactive Hazardous Waste Disposal Site Remedial Program with active lead-agency management by the New York State Department of Environmental Conservation (NYSDEC), the NYS Department of Health (NYSDOH),and the Nassau County Department of Health (NCDH).

Between 1996 – 2015 the Site went through remedial investigations, feasibility studies, interim remedial measures pursuant to a 2003 Order on Consent between Allen and NYSDEC with a Record of Decision issued by NYSDEC in 2006. That work involved remediation of several areas of concern where PCBs were one of the identified contaminants of concern. The Site is currently in the Site Management phase. There are protective administrative mechanisms currently in effect to manage residual environmental impacts at the Site that include an Environmental Easement which specifies certain institutional and engineering controls be maintained to address residual soil impacts for VOCs, metals, and PCBs, an overall Site Management Plan, and a Soil Management Plan that establishes requirements and protocols for any subsurface disturbance.

In 2019, Alkier Steel, LLC and Steel Mineola Second Street, LLC (collectively "Alkier Steel" acquired the Site from Allair Holdings, Inc. (f/k/a Allenair Corporation), A.L. Allen Co., Inc., and 255 East Second St. Realty Corp (collectively "Allen"). As part of the real estate transaction, Alkier Steel identified 23 areas of concern (AOCs) that had not been previously investigated by Allen under the NYS Inactive Hazardous Waste Disposal Site Remedial Program because it was an active facility.

During 2019 – 2021, Alkier Steel performed an extensive environmental due diligence scope of work to screen/evaluate those AOCs for potential environmental impacts from the historical use of the Site based on review of available relevant documentation and Site reconnaissance. The investigative activities were iterative based on initial and subsequent findings, requiring multiple mobilizations to perform multi-media sampling and delineation of impacts exceeding regulatory cleanup objectives.

Based on the due diligence findings, Alkier Steel undertook and completed remedial activities during 2019 – 2021 to address a number of AOCs where environmental media (soil, soil vapor and/or concrete) were found to be impacted by one or more of VOCs, SVOCs, PCBs and metals at levels exceeding applicable standards, criteria and guidance including NYS Part 375 soil cleanup objectives and NYS Department of Health NYSDOH soil vapor intrusion guidance to prepare the building for occupancy in 2020.

In March 2023, an Order on Consent and Administrative Settlement (2023 Order)[1] was executed between the NYSDEC and Alkier Steel. Requirements of the 2023 Order include preparation and submittal to NYSDEC a Corrective Measures Work Plan to address PCB-impacts to soil within and beneath a parking lot stormwater drywell known as "DW-05". A draft of that work plan is currently under review by NYSDEC.

In May 2023 and on behalf of Alkier Steel, ERM Consulting & Engineering, Inc. (ERM) contacted USEPA seeking advice and concurrence regarding remediation of PCB-impacted soil in and beneath stormwater drywell DW-05. Based on that contact with USEPA and subsequent discussions between NYSDEC and EPA, it is evident that an online meeting between EPA, NYSDEC, Alkier Steel and ERM is necessary to reach a common understanding with respect to the history of PCB detections / investigations / remediations performed by AK Allen between 1996 - 2007, and subsequent detections/removals performed or yet to be performed by Alkier Steel (stormwater drywell DW-05). EPA has indicated that submittal of the information presented in this technical memorandum is a pre-condition for a meeting between Alkier Steel, EPA, NYSDEC and ERM.

Time is of the essence with respect to the work planned to remediate DW-05. Alkier Steel is prepared to move forward and complete the work where a failure to do so in 2023 carries significant contractual and financial consequences. The work also needs to be pre-coordinated with the Metropolitan Transit Authority (MTA)/Long Island Rail Road (LIRR), and Alkier Steel's remedial contractor. Alkier Steel seeks concurrence/approval from both EPA and NYSDEC so that the work can proceed as soon as possible as there are extensive coordination activities required to implement the remedial work.

Part A – PCB Detections

Part A of this memorandum presents a series of figures showing the locations of PCB-contaminated media (soil and concrete) found on-Site prior to any past remedial activities, displaying sampling locations, sample types (methods) and detected PCB concentrations (if present). **Figure 3** shows the locations of the following numbered AOCs identified during due diligence.

1. Boiler Blowdown Pit – Northwest End of Building

1 Order on Consent Index # Index No. CI 1-20220106-6., Site #1-30-100 between the NYSDEC, and AK Steel LLC and Steel Mineola Second Street, LLC (Respondent), effective date 8 April 2023. RSR requirements are set forth in VII. Miscellaneous, Appendix A II. Initial Submittal & Exhibit B.

2. Hard Coating (Plating) Room
3. Potting Room Oily Trench Drain/Adjacent Floor Surfaces
4. Central Boiler Room Floor Drain
5. Central Boiler Room Boiler Blowdown Pit
6. Tumbling Room North Floor Drain
7. Tumbling Room South Floor Drain
8. Floor Drain – Blackening Room
9. Hazardous Waste Storage Area – West End of Building
10. Two Small Fuel Oil USTs– Northwest End of Building
11. Spray Booth
12. Drill Press Area Oily Floor Surfaces
13. Solvent Storage Area – Northeast Corner of Building
14. Broaching Room
15. Eastern Portion of Building Constructed Over Backfilled Former Sand Mine
16. Former Stormwater Drywell DW-18 Beneath Western Portion of Building
17. Former Stormwater Drywell DW-13 Beneath Western Portion of Building
18. Former Stormwater Drywell DW-14 Beneath Central Western Portion of Building
19. Former Stormwater Drywell DW-19 Beneath Central Western Portion of Building
20. 15 Parking Lot Stormwater Drywells DWs 01 through DW-12, DW-15, DW-20 & DW-21
21. Four potential USTs[2]
22. One Large UST of Unknown Former Use (abandoned in-place)
23. Stormwater Drywell DW-05
24. Floor Drain FD-1 In Western End of Building
25. Western Excavation Area - Former Drum Storage
26. Eastern Excavation Area - Former Drum Storage

Figure 4 presents a PCB detection map showing the AOCs the displaying sampling locations, sample types (methods), and detected PCB concentrations (if detected at a given sampling location), supported by referenced additional detail **Figures 5 through 17.** Supporting text is also provided for the **Figures 7 through 13** for PCB-contaminated soil delineation at stormwater drywell DW-05.

Groundwater

A total of five water table monitoring wells were installed at the Site as part of the IRM using the hollow-stem auger method of drilling. On March 27 and 28, 2003, monitoring wells IRM-MW 1, 2 and 3 were installed in the northern front, and eastern and western corners of the property. The elevation of the casings of these wells were surveyed, water levels collected, and a water table elevation map was prepared. Subsequently, on September 15, 2003, wells IRM-MW-4 and 5 were installed on-site in the western excavation area and hydraulically downgradient off-site at the intersection of Albertson Place and Wisteria Avenue. A map illustrating the locations of all five of these wells is included as **Figure 18**.

The upgradient well, MW-1, was installed adjacent to a former sanitary leaching pool that has since been taken out of service. The water from this well did not contain VOCs or SVOCs. The metals detected were below the State standards and guidelines. Low levels of tetrachloroethene, trichloroethane, 1,1-dichloroethane and xylene were detected at concentrations ranging between 2

[2] Reported to have contained kerosene, mineral spirits, 1,1,1-TCA and waste oil but only the location of mineral spirits tanks was found/known.

and 14 ug/L at on-site wells MW-2, 3 and 4. No other VOCs were detected above groundwater standards in these wells. Iron, manganese, and sodium were also detected above NYS standards at well MW-4 but are most likely naturally occurring based upon the geologic formation earth materials encountered by these wells. No VOCs, SVOCs or metals were detected above the NYS standards and guidelines at the off-site well MW-5. **In addition, there were no detections of PCBs in any of the Site wells.**

In July 2009, NYSDEC issued a letter stating that the NYSDEC and the NYSDOH had reviewed the groundwater sampling results and had concluded that groundwater sampling could be discontinued at the Site. Groundwater at the Site is not impacted by PCBs, including at the location of stormwater drywell DW-05 where a monitoring well was installed to verify the absence of PCB impacts to groundwater as a result of the PCB soil contamination at that location.

Part B – PCB Remediations & Residual Impacts

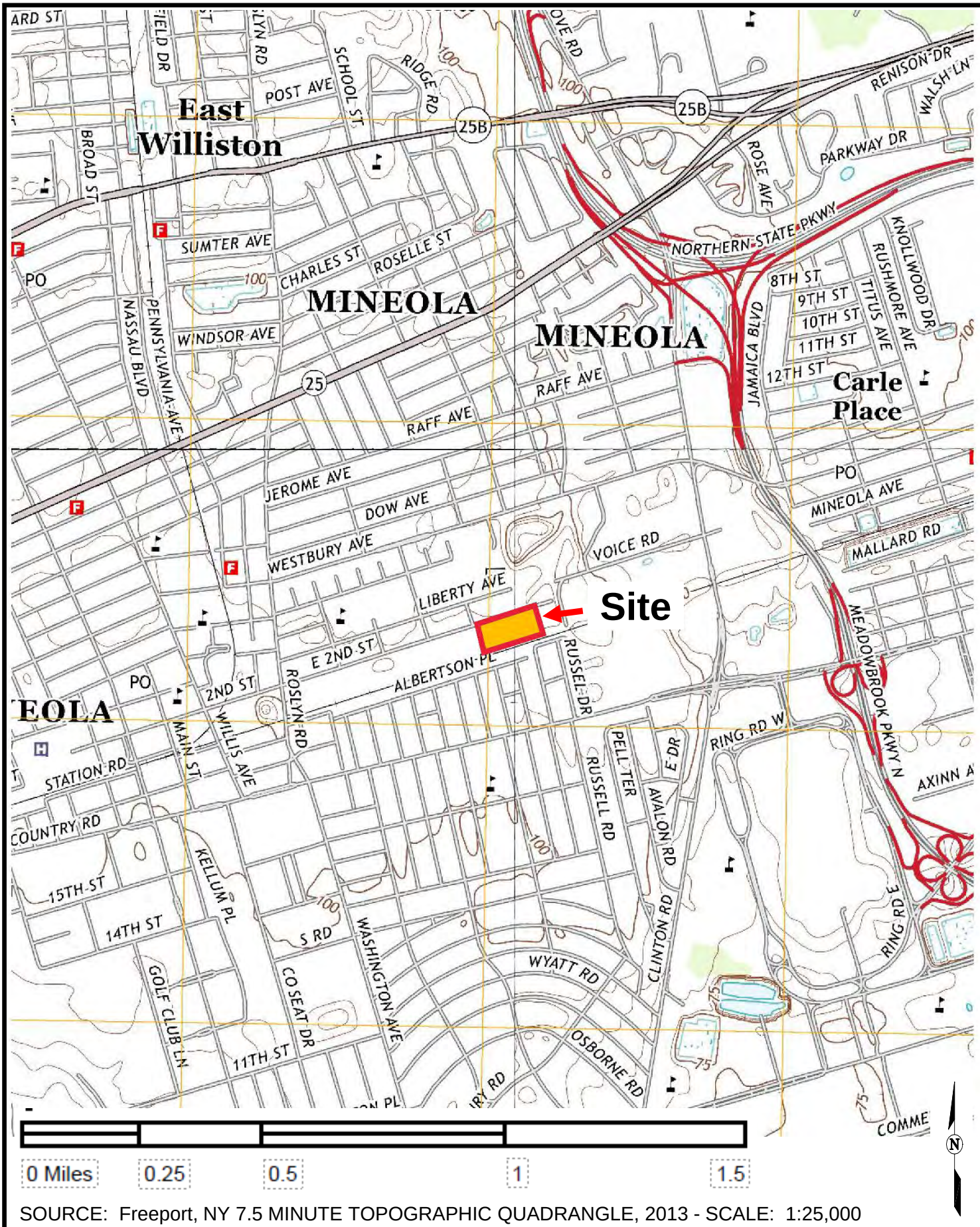
Part B of this memorandum presents figures and text providing the details and results of the PCB remediations performed at the subset of AOCs listed by number below, and a figure showing the locations/extents of all PCB-contaminated media above 1 ppm currently found onsite.

3. Potting Room Oily Trench Drain/Adjacent Floor Surfaces
4. Central Boiler Room Floor Drain
5. Central Boiler Room Boiler Blowdown Pit
6. Tumbling Room North Floor Drain
7. Tumbling Room South Floor Drain
11. Spray Booth
12. Drill Press Area Oily Floor Surfaces
24. Floor Drain FD-1 In Western End of Building
25. Western Excavation Area - Former Drum Storage
26. Eastern Excavation Area - Former Drum Storage

Figure 19 shows the Site areas where PCB remediation has been completed to date supported by subsequent individual figures for each AOC. Remedial activities were completed at most locations in one to three phases of concrete and soil removal with post-excavation sampling for each phase.

Figures 20 through 29 present maps of each AOC displaying post-excavation sampling locations, sample types (methods), and detected PCB concentrations for each phase of soil removal.

Figure 30 presents a map of the Site showing the locations where soil sample results indicate PCB-contaminated soil above 1 ppm currently remains on-Site including the PCBs to be remediated at stormwater drywell DW-05.



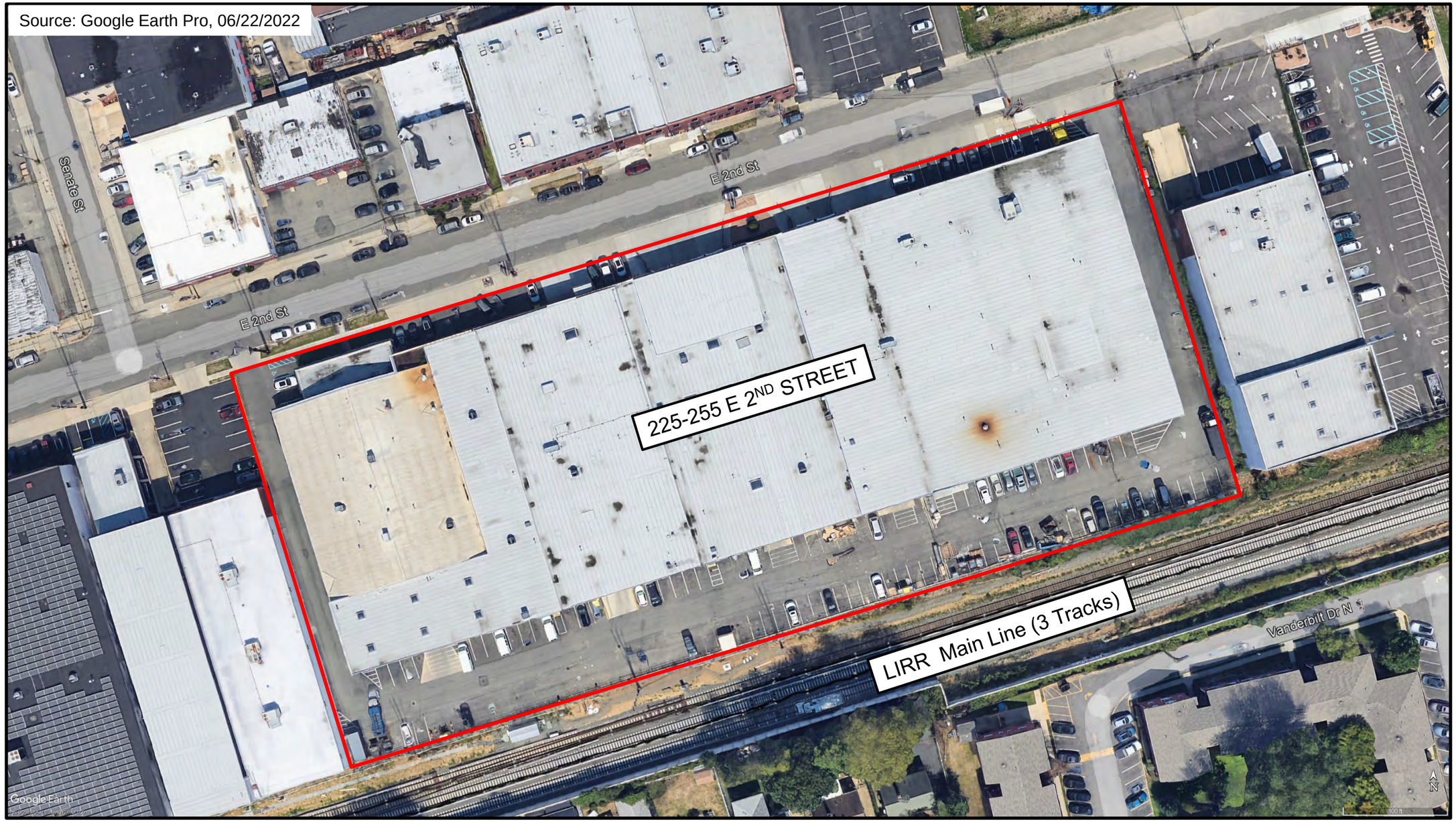
SOURCE: Freeport, NY 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, 2013 - SCALE: 1:25,000

ERM

SITE LOCATION MAP
225-255 E 2nd Street
Mineola, New York

Figure
1

Source: Google Earth Pro, 06/22/2022



Approximate Property Boundary

Approximate Distance In Feet

0 50 100 200

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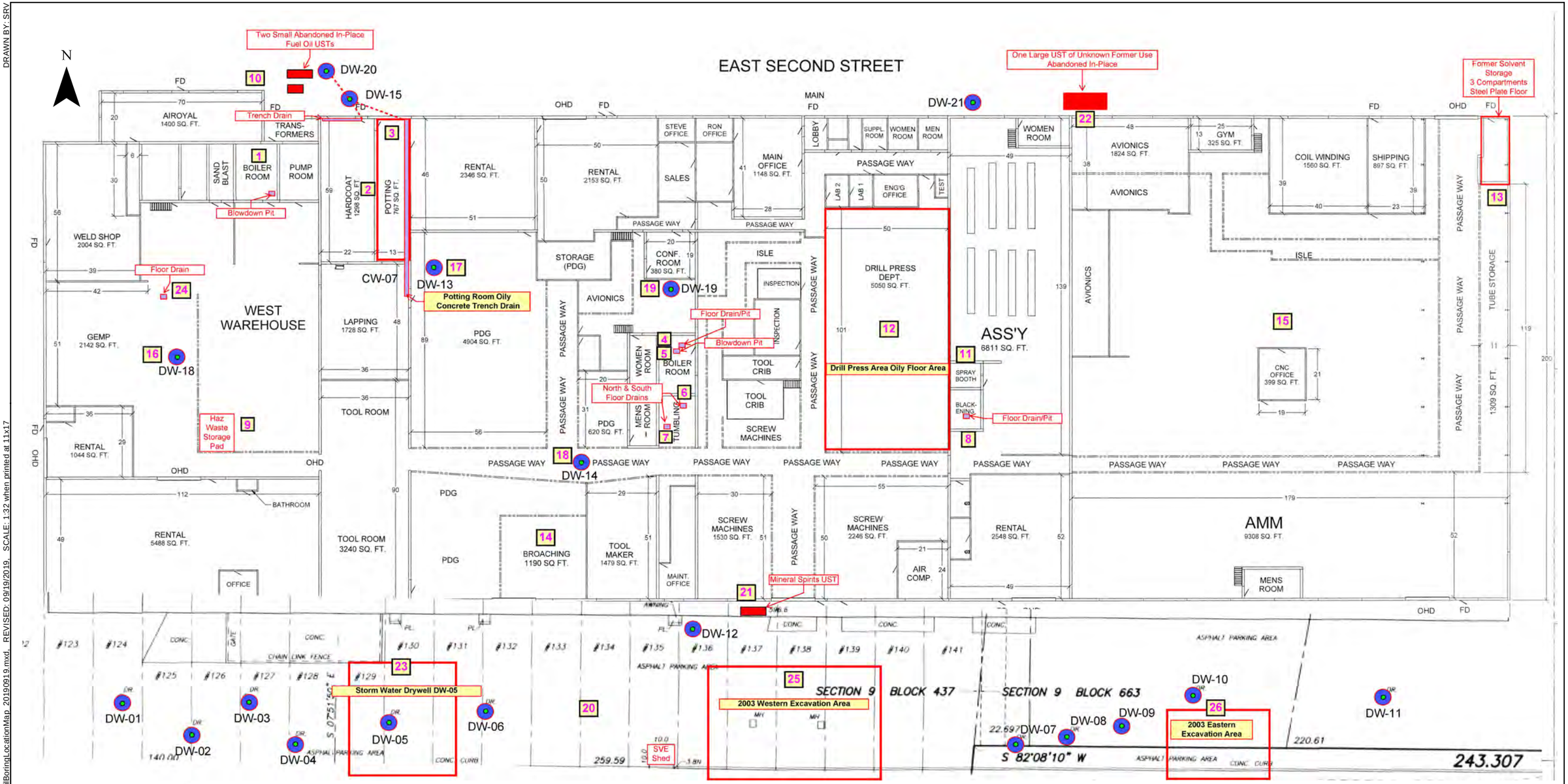
SITE LAYOUT MAP

225-255 E 2nd Street, Mineola, New York

Figure

2



Legend

- Storm Water Drywell

Notes:

1. Not to Scale

Former Areas of Concern

1. Boiler Blowdown Pit – Northwest End of Building
2. Hard Coating (Plating) Room
3. Potting Room Oily Trench Drain/Adjacent Floor Surfaces
4. Central Boiler Room Floor Drain
5. Central Boiler Room Boiler Blowdown Pit
6. Tumbling Room North Floor Drain
7. Tumbling Room South Floor Drain
8. Floor Drain – Blackening Room
9. Hazardous Waste Storage Area – West End of Building
10. Two Small Fuel Oil USTs – Northwest End of Building
11. Spray Booth
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14. Broaching Room
15. Eastern Portion of Building Constructed Over Backfilled Former Sand Mine
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20. 15 Parking Lot Stormwater Drywells DWs 01 through DW-12, DW-15, DW-20 & DW-21
21. Four potential USTs
22. One Large UST of Unknown Former Use
23. Stormwater Drywell DW-05
24. Floor Drain FD-1 In Western End of Building
25. Western Excavation Area - Former Drum Storage
26. Eastern Excavation Area - Former Drum Storage

Figure 3
Areas of Concern Location Map

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com

Part A

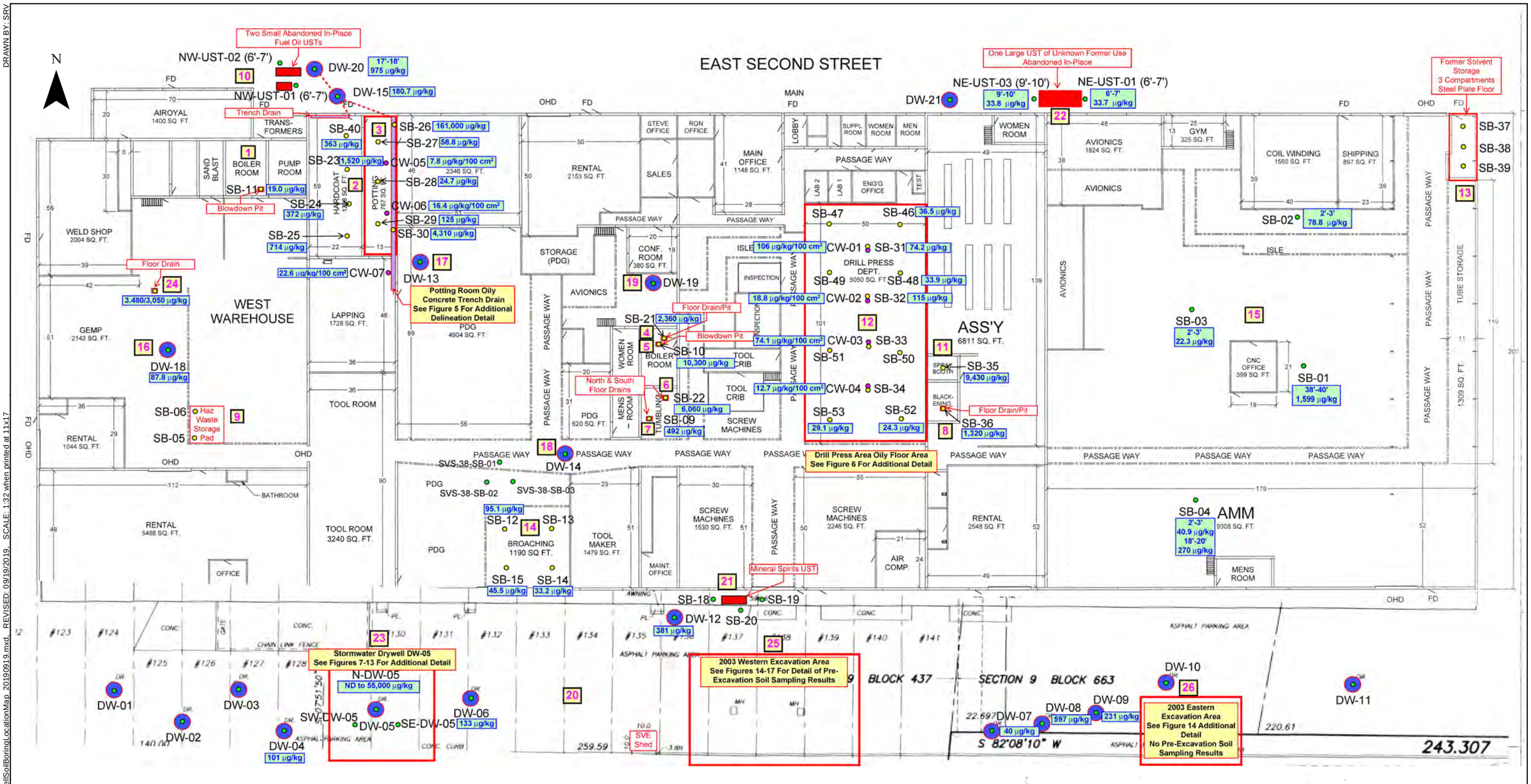
Figures 4 – 17 Showing Extent Of PCB-contaminated Media (Soil & Concrete) Found On-site Prior To Any Past Remedial Activities

Figure 18 Groundwater Monitoring Well Location Map

DRAWN BY: SRV

SCALE: 1:32 when printed at 11x17

J:\Projects\MiscaSteel Equities\ MXD\Figure1-DryWellSoilBoringLocationMap_20190919.mxd, REVISED: 09/19/2019



Legend

- Concrete Wipe Sample
- Shallow Soil Sample (0-12")
- Geoprobe Boring (Depth Varies)
- Storm Water Drywell

Notes:

1. Not to Scale

Former Areas of Concern

1. Boiler Blowdown Pit – Northwest End of Building
2. Hard Coating (Plating) Room
3. Potting Room Oily Trench Drain/Adjacent Floor Surfaces
4. Central Boiler Room Floor Drain
5. Central Boiler Room Boiler Blowdown Pit
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26. Eastern Excavation Area - Former Drum Storage

Figure 4
PCB Detections Map

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
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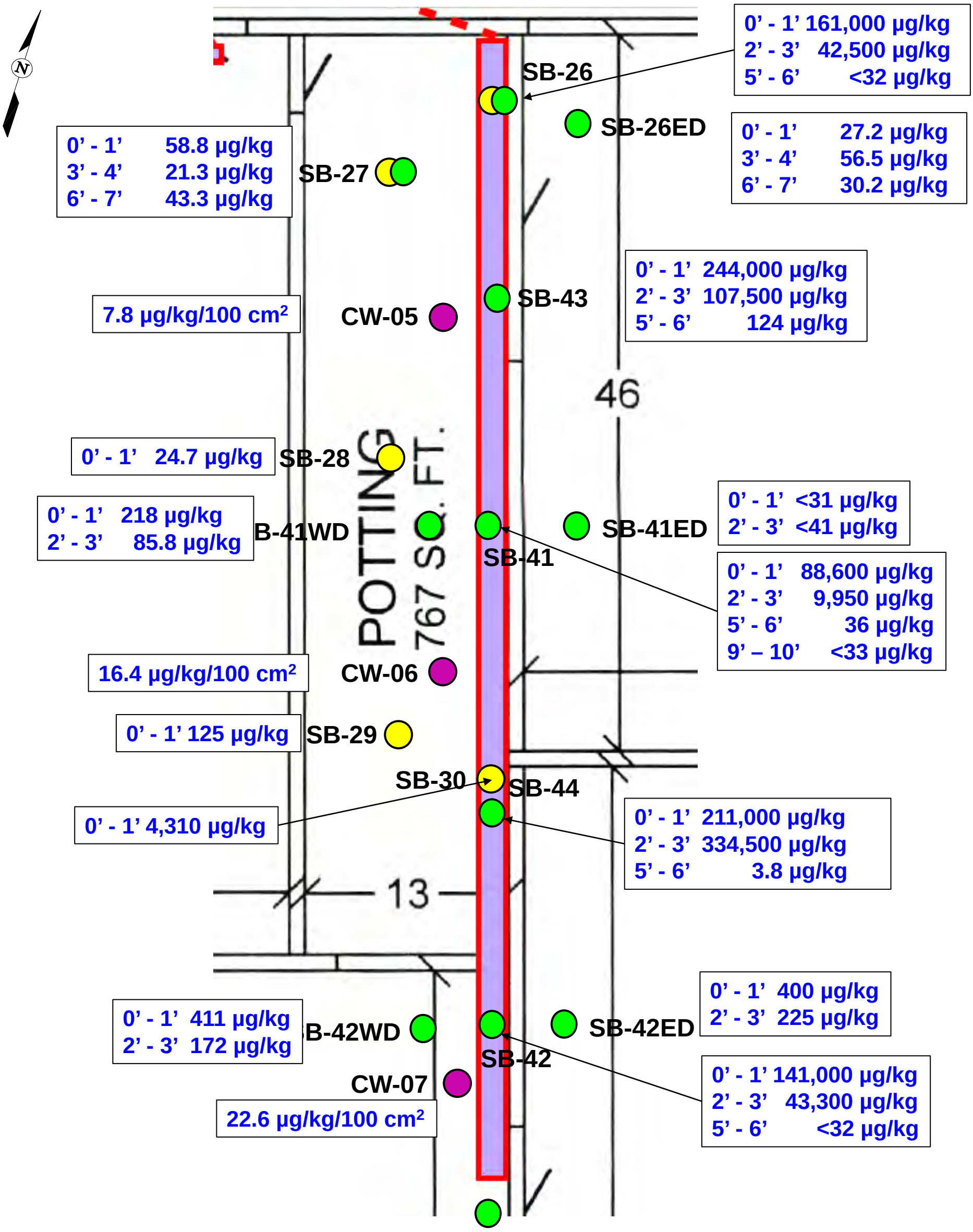
AOC 3
Potting Room Oily Trench Drain/Adjacent Floor Surfaces



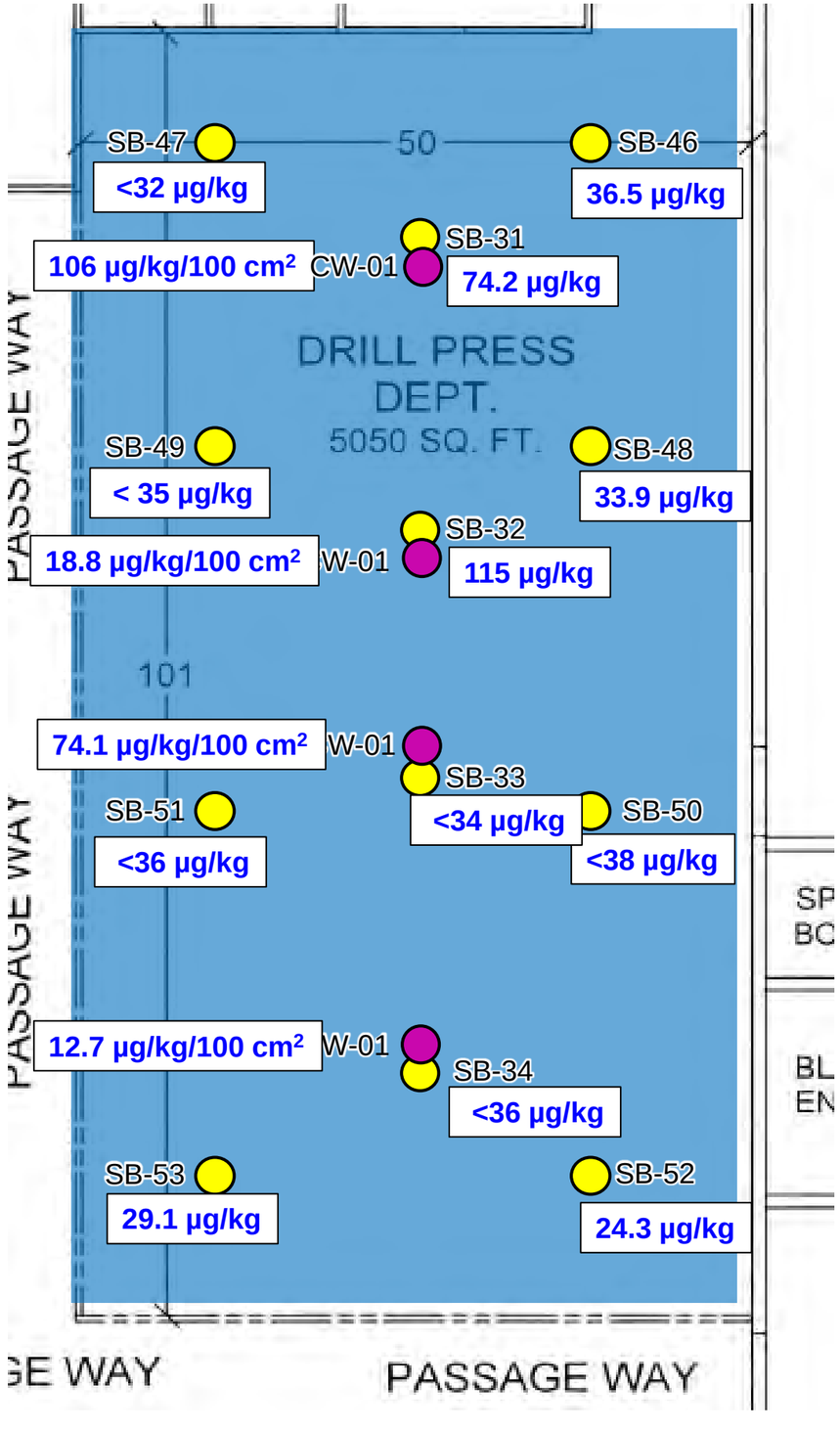
ERM

POTTING ROOM SAMPLING LOCATIONS & PRE-REMEDIAL PCB RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **5**

AOC 12
Drill Press Area Oily Floor Surfaces



Sub-Slab Shallow Soil Sample

Wipe Sample

ERM

DRILL PRESS AREA SHALLOW SOIL AND CONCRETE WIPE SAMPLING RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **6**

AOC 23

Storm Water Drywell DW-05 PCB Soil Delineation Sampling Results

DW-05 Initial & Supplemental PCB Investigations

Initial Screening Sampling

DW-05 is located in the south parking lot between the building and the adjacent LIRR right-of-way (railroad tracks) **(Figure 3)** where prior remedial actions were undertaken between 2004 and 2007 to address VOCs, PCBs (specifically Aroclor 1254) and metals in soil. Storm water drywell DW-05 was inspected and sampled as part of the larger due diligence screening investigations. The depth to soil within DW-05 is only approximately five feet below ground surface (bgs). Based on observations at other drywells on the Site, the structure is assumed to be approximately 10-foot in diameter by 15 feet deep, constructed of two leaching rings, a dome and collar supporting the cast iron grate. The initial soil screening sample was collected from 5-7 feet bgs within DW-05 in August 2019 and analyzed for TCL VOCs, TCL SVOCs, TCL Pesticides, TCL PCBs, TAL Metals, hexavalent chromium, and cyanide.

All detected compounds in the initial sampling results of the soil sample collected from within storm water drywell DW-05 were compared to their respective NYS Part 375 Protection of Groundwater SCOs and exceedances for acetone, PCBs, copper, lead and nickel were observed as summarized in the inset table below.

Sample Identification	Analyte	Detected Concentration	NYS Protection of Groundwater SCOs
DW-05	Acetone	250 µg/kg	50 µg/kg
DW-05	PCBs (Aroclor 1254)	20,800 µg/kg	3,200 µg/kg
DW-05	Copper	1,930 mg/kg	1,720 mg/kg
DW-05	Lead	1,670 mg/kg	450 mg/kg
DW-05	Nickel	480 mg/kg	130 mg/kg

Exceedances for acetone, copper, lead and nickel were modest, and PCBs were deemed to be the contaminant of concern at this AOC. Additional soil sampling was recommended to delineate PCB, copper, lead, and nickel impacts in soil at DW-05. The investigative activities at drywell DW-05 were iterative based on initial and subsequent findings, requiring multiple mobilizations to delineate PCB and metals impacts in soil exceeding the Part 375 Protection of Groundwater SCOs.

Supplemental Delineation Sampling

Between October 2019 and February 2021, four subsequent phases of soil boring mobilizations were performed to delineate the horizontal and vertical extents of PCBs, copper, lead, and nickel in soil exceeding their respective NYS Part 375 Protection of Groundwater SCOs. The first, second and third soil boring phases stepped out horizontally and extended to the water table that occurs at approximately 46 feet bgs. The fourth soil boring phase sought to step back inward to “tighten-up” the delineations and fill any data gaps observed in the results of prior soil boring programs. Soil cores were examined by an ERM geologist and continuously screened with a PID. PID readings above background were not observed. Samples were collected generally at five- or 10-foot intervals depending on location and investigative phase.

A groundwater monitoring well (DW-05) was also installed immediately adjacent to DW-05 with its screen set from 45 – 55 feet bgs intended to straddle the water table surface. In November 2020, both unfiltered and field-filtered groundwater samples were collected for PCB analysis. A confirmatory field filtered groundwater sample was collected in January 2021.

Detected PCBs are limited to only Aroclor 1254, the same PCB species present in the parking lot soils addressed during historical remedial actions by Allen. Soil sample analytical results for PCBs indicate that PCB impacts in soil have been fully delineated. The delineation is illustrated in **Figures 7, 8, 9 and 10** and discussed further below.

DW-05 Initial & Supplemental PCB Investigations

Color-coded symbols in plan-view **Figure 7** show the locations of the four-phase soil boring scheme and the indicate soil boring locations that yielded one or more soil sample containing PCBs at a concentration exceeding the 3,200 μg/kg Part 375 Protection of Groundwater SCO. The location of groundwater monitoring well DW-05 is also shown in **Figure 7.**

Figure 8 shows the plan-view horizontal extent of PCB exceedances in soil and the traces of cross-sections A – A' and B – B'. The plan view footprint of the delineation to the Part 375 Protection of Groundwater SCO occupies an approximate 500 ft^2 triangular-shaped polygon extending down to a depth of approximately 32 feet bgs.

Cross-sections A – A' and B – B' are presented in **Figure 9 and Figure 10**, respectively. Each cross-section depicts color-coded soil sampling intervals that indicate PCB concentrations exceeding the Part 375 Protection of Groundwater SCO (light orange) or below (blue) with corresponding concentrations posted adjacent to sample. A dashed green line shows the horizontal and vertical delineation along each cross section.

The orientation of cross-section B – B' **(Figure 10)** shows critical distances and other features between the building and the LIRR Main Line, including the trace of groundwater monitoring well DW-05.

Groundwater Analytical Results

Groundwater sample analytical results for PCBs are presented in Table 10. A detected PCB concentration of 0.98 μg/l in the unfiltered sample exceeds the NYS Class GA (potable) Groundwater Quality Standard of 0.09 μg/l. The detected PCBs in the unfiltered sample are attributed to soil sample turbidity and likely PCB-impacted particulates dragged down by the drilling method as PCBs were not detected in corresponding field-filtered sample at a method detection limit of 0.21 μg/l, i.e., a detected lesser concentration would have been reported as estimated value with a "J" qualifier. As such, a confirmatory field-filtered groundwater sample was collected in January 2021 and the result was reported as non-detect at 0.28 μg/l, and again a detected lesser concentration would have been reported as an estimated value with a "J" Consequently, the absence of PCB impacts to groundwater beneath DW-05 was confirmed.

Soil Zones and Volume Requiring Remediation

PCBs, copper, lead, and nickel impacts in soil associated with this structure have been fully vertically and horizontally delineated to the Part 375 Protection of Groundwater SCOs, and the absence of PCB impacts to groundwater beneath DW-05 has been confirmed.

Green remedial approaches should always be considered to reduce carbon footprints associated with excavation, off-site transport, disposal, and landfilling or incineration of contaminated soil. The use of the 10 mg/kg PCB cleanup level allowed by CP-51 will reduce the volume of soil to be removed and thereby reduce the carbon footprint associated with this Site management corrective measure.

The area requiring remediation to the 10 mg/kg PCB cleanup level occupies an approximate 435 ft^2 triangular-shaped polygon extending down to a depth of 24 feet bgs and is illustrated in **Figures 11 through 13**. This equates to 390 cubic yards (yd^3) in unexcavated volume less the volume of the drywell itself. Note that certain remedial approaches, e.g., excavation of rectangular cells, will require excavation of additional soil volume to be managed disposed of along with all other excavated soil.

Remediation of PCBs at DW-05 is the focus of a 2023 Site Management Corrective Measures Work Plan for the PCBs near "DW-5" required by the 2023 Order on Consent.

ORIGINAL SAMPLING AND EXTENDED BORING BENEATH DW-5

NY SCO -Protection of Groundwater SCO[1]				3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200
Client Sample ID:	Lab Sample ID:	Date Sampled:	Analyte Units	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1268	Aroclor 1262
DW-05(5-7)	JC93487-4	8/19/2019	µg/kg	<40	<40	<40	<40	<40	20,800	<40	<40	<40
DW-05(8-10)	JC96796-1	10/14/2019		<38	<38	<38	<38	<38	1,910	<38	<38	<38
DW-05(13-14)	JC96796-2			<36	<36	<36	<36	<36	9,400	<36	<36	<36
DW-05(15-16)	JC96796-3			<34	<34	<34	<34	<34	11,900	<34	<34	<34
DW-05(19-20)	JC97636-8	10/29/2019		<36	<36	<36	<36	<36	45,900	<36	<36	<36
DW-05(23-24)	JC97636-9			<33	<33	<33	<33	<33	6,040	<33	<33	<33
DW-05(26-27)	JC97636-10			<35	<35	<35	<35	<35	5,220	<35	<35	<35
DW-05(34-35)	JD13835-3	9/29/2020		<33	<33	<33	<33	<33	646	<33	<33	<33
DW-05(39-40)	JD13835-4			<35	<35	<35	<35	<35	892	<35	<35	<35
DW-05(44-45)	JD13835-5			<35	<35	<35	<35	<35	2,180	<35	<35	<35
DW-05(44-45) Duplicate	JD13835-6			<35	<35	<35	<35	<35	2,930	<35	<35	<35
SECOND PHASE DELINEATION												
N-DW-05(7-8)	JC97636-11	10/29/2019	µg/kg	<35	<35	<35	<35	<35	6,780	<35	<35	<35
N-DW-05(15-16)	JC97636-12			<36	<36	<36	<36	<36	9,310	<36	<36	<36
N-DW-05(19-20)	JC97636-13			<31	<31	<31	<31	<31	223	<31	<31	<31
SW-DW-05(7-8)	JC97636-23	10/29/2019	µg/kg	<31	<31	<31	<31	<31	8,330	<31	<31	<31
SW-DW-05(15-16)	JC97636-24			<36	<36	<36	<36	<36	8,790	<36	<36	<36
SW-DW-05(19-20)	JC97636-25			<34	<34	<34	<34	<34	2,010	<34	<34	<34
SE-DW-05(7-8)	JC97636-17	10/29/2019	µg/kg	<32	<32	<32	<32	<32	55,000	<32	<32	<32
SE-DW-05(15-16)	JC97636-18			<35	<35	<35	<35	<35	15,500	<35	<35	<35
SE-DW-05(19-20)	JC97636-19			<34	<34	<34	<34	<34	4,330	<34	<34	<34
SE-DW-05(23-24)	JC97636-20			<34	<34	<34	<34	<34	3,280	<34	<34	<34
SE-DW-05(26-27)	JC97636-21			<33	<33	<33	<33	<33	9,200	<33	<33	<33
THIRD PHASE DELINEATION												
NW-DW-05(7-8)	JD13993-15	10/1/2020	µg/kg	<34	<34	<34	<34	<34	35.7	<34	<34	<34
NW-DW-05(15-16)	JD13993-16			<36	<36	<36	<36	<36	<36	<36	<36	<36
NW-DW-05(19-20)	JD13993-17			<36	<36	<36	<36	<36	<36	<36	<36	<36
NW-DW-05(24-25)	JD13993-18			<32	<32	<32	<32	<32	<32	<32	<32	<32
N2-DW-05(7-8)	JD13993-11	10/1/2020	µg/kg	<33	<33	<33	<33	<33	23.9 J	<33	<33	<33
N2-DW-05(15-16)	JD13993-12			<33	<33	<33	<33	<33	<33	<33	<33	<33
N2-DW-05(19-20)	JD13993-13			<31	<31	<31	<31	<31	<31	<31	<31	<31
N2-DW-05(24-25)	JD13993-14			<33	<33	<33	<33	<33	<33	<33	<33	<33
NE-DW-05(9-10)	JD13993-7	10/1/2020	µg/kg	<33	<33	<33	<33	<33	<33	<33	<33	<33
NE-DW-05(19-20)	JD13993-8			<32	<32	<32	<32	<32	27.1 J	<32	<32	<32
NE-DW-05(29-30)	JD13993-9			<33	<33	<33	<33	<33	<33	<33	<33	<33
NE-DW-05(39-40)	JD13993-10			<33	<33	<33	<33	<33	<33	<33	<33	<33
SW2-DW-05(7-8)	JD13993-19	10/1/2020	µg/kg	<33	<33	<33	<33	<33	<33	<33	<33	<33
SW2-DW-05(15-16)	JD13993-20			<32	<32	<32	<32	<32	148	<32	<32	<32
SW2-DW-05(19-20)	JD13993-21			<32	<32	<32	<32	<32	172	<32	<32	<32
SW2-DW-05(24-25)	JD13993-22			<33	<33	<33	<33	<33	44.1	<33	<33	<33
S-DW-05(9-10)	JD13993-1	10/1/2020	µg/kg	<32	<32	<32	<32	<32	53.4	<32	<32	<32
S-DW-05(19-20)	JD13993-2			<32	<32	<32	<32	<32	272	<32	<32	<32
S-DW-05(29-30)	JD13993-3			<33	<33	<33	<33	<33	227	<33	<33	<33
S-DW-05(39-40)	JD13993-4			<33	<33	<33	<33	<33	112	<33	<33	<33
S-DW-05(44-45)	JD13993-6			<32	<32	<32	<32	<32	114	<32	<32	<32
SE2-DW-05(9-10)	JD13916-17	9/30/2020	µg/kg	<33	<33	<33	<33	<33	30.8 J	<33	<33	<33
SE2-DW-05(19-20)	JD13916-18			<34	<34	<34	<34	<34	72.7	<34	<34	<34
SE2-DW-05(29-30)	JD13916-19			<33	<33	<33	<33	<33	98.2	<33	<33	<33
SE2-DW-05(39-40)	JD13916-20			<34	<34	<34	<34	<34	32.7 J	<34	<34	<34
SE2-DW-05(44-45)	JD13916-21			<35	<35	<35	<35	<35	22.8 J	<35	<35	<35
SE3-DW-05(7-8)	JD15866-1	11/6/2020	µg/kg	<34	<34	<34	<34	<34	<34	<34	<34	<34
SE3-DW-05(15-16)	JD15866-2			<32	<32	<32	<32	<32	63.3	<32	<32	<32
SE3-DW-05(19-20)	JD15866-3			<33	<33	<33	<33	<33	54	<33	<33	<33
SE3-DW-05(24-25)	JD15866-5			<31	<31	<31	<31	<31	45.5	<31	<31	<31
SE3-DW-05(29-30)	JD15866-6			<35	<35	<35	<35	<35	52.1	<35	<35	<35
SE3-DW-05(34-35)	JD15866-7			<33	<33	<33	<33	<33	173	<33	<33	<33
SE3-DW-05(39-40)	JD15866-8			<32	<32	<32	<32	<32	<32	<32	<32	<32
SE3-DW-05(44-45)	JD15866-9			<35	<35	<35	<35	<35	24.0 J	<35	<35	<35

FOURTH AND FINAL DELINEATION CONTINUED

NY SCO -Protection of Groundwater SCO[1]				3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200
Client Sample ID:	Lab Sample ID:	Date Sampled:	Analyte Units	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1268	Aroclor 1262
DB-01(9-10)-022421	JD20742-3	2/24/2021	µg/kg	<31	<31	<31	<31	<31	42.3	<31	<31	<31
DB-01(19-20)-022421	JD20742-4			<32	<32	<32	<32	<32	34.3	<32	<32	<32
DB-01(29-30)-022421	JD20742-5			<33	<33	<33	<33	<33	41.6	<33	<33	<33
DB-01(39-40)-022421	JD20742-6			<33	<33	<33	<33	<33	<33	<33	<33	<33
DB-01(44-45)-022421	JD20742-7			<33	<33	<33	<33	<33	79.8	<33	<33	<33
DB-02(9-10)-022421	JD20742-9	2/24/2021	µg/kg	<36	<36	<36	<36	<36	189	<36	<36	<36
DB-02(19-20)-022421	JD20742-10			<31	<31	<31	<31	<31	144	<31	<31	<31
DB-02(29-30)-022421	JD20742-11			<33	<33	<33	<33	<33	277	<33	<33	<33
DB-02(39-40)-022421	JD20742-13			<31	<31	<31	<31	<31	<31	<31	<31	<31
DB-02(44-45)-022421	JD20742-14			<34	<34	<34	<34	<34	339	<34	<34	<34
DB-03(9-10)-022421	JD20742-20	2/24/2021	µg/kg	<33	<33	<33	<33	<33	79.6	<33	<33	<33
DB-03(19-20)-022421	JD20742-21			<32	<32	<32	<32	<32	139	<32	<32	<32
DB-03(29-30)-022421	JD20742-23			<34	<34	<34	<34	<34	161	<34	<34	<34
DB-03(39-40)-022421	JD20742-24			<33	<33	<33	<33	<33	123	<33	<33	<33
DB-03(44-45)-022421	JD20742-25			<34	<34	<34	<34	<34	29.1 J	<34	<34	<34
DB-04(9-10)-022421	JD20742-15	2/24/2021	µg/kg	<34	<34	<34	<34	<34	36.7	<34	<34	<34
DB-04(19-20)-022421	JD20742-16			<33	<33	<33	<33	<33	178	<33	<33	<33
DB-04(29-30)-022421	JD20742-17			<35	<35	<35	<35	<35	70.5	<35	<35	<35
DB-04(39-40)-022421	JD20742-18			<35	<35	<35	<35	<35	25.5 J	<35	<35	<35
DB-04(44-45)-022421	JD20742-19			<34	<34	<34	<34	<34	93.5	<34	<34	<34
DB-05(9-10)-022421	JD20742-26	2/24/2021	µg/kg	<33	<33	<33	<33	<33	<33	<33	<33	<33
DB-05(19-20)-022421	JD20742-27			<32	<32	<32	<32	<32	225	<32	<32	<32
DB-05(29-30)-022421	JD20742-28			<35	<35	<35	<35	<35	142	<35	<35	<35
DB-05(39-40)-022421	JD20742-29			<35	<35	<35	<35	<35	112	<35	<35	<35
DB-05(44-45)-022421	JD20742-30			<32	<32	<32	<32	<32	<32	<32	<32	<32
DB-06(9-10)-022421	JD20742-31	2/24/2021	µg/kg	<32	<32	<32	<32	<32	49.4	<32	<32	<32
DB-06(19-20)-022421	JD20742-32			<34	<34	<34	<34	<34	118	<34	<34	<34
DB-06(29-30)-022421	JD20742-34			<34	<34	<34	<34	<34	806	<34	<34	<34
DB-06(39-40)-022421	JD20742-35			<39	<39	<39	<39	<39	532	<39	<39	<39
DB-06(44-45)-022421	JD20742-36			<33	<33	<33	<33	<33	135	<33	<33	<33
DB-07(9-10)-022521	JD20895-7	2/25/2021	µg/kg	<34	<34	<34	<34	<34	47.7	<34	<34	<34
DB-07(19-20)-022521	JD20895-8			<33	<33	<33	<33	<33	150	<33	<33	<33
DB-07(29-30)-022521	JD20895-9			<34	<34	<34	<34	<34	83.2	<34	<34	<34
DB-07(39-40)-022521	JD20895-10			<33	<33	<33	<33	<33	96.3	<33	<33	<33
DB-07(44-45)-022521	JD20895-11			<32	<32	<32	<32	<32	71.4	<32	<32	<32
DB-08(9-10)-022521	JD20895-1	2/25/2021	µg/kg	<33	<33	<33	<33	<33	1,170	<33	<33	<33
DB-08(19-20)-022521	JD20895-2			<33	<33	<33	<33	<33	354	<33	<33	<33
DB-08(29-30)-022521	JD20895-3			<33	<33	<33	<33	<33	255	<33	<33	<33
DB-08(39-40)-022521	JD20895-4			<34	<34	<34	<34	<34	274	<34	<34	<34
DB-08(44-45)-022521	JD20895-5			<34	<34	<34	<34	<34	693	<34	<34	<34
DB-09(9-10)-022521	JD20895-12	2/25/2021	µg/kg	<34	<34	<34	<34	<34	56.1	<34	<34	<34
DB-09(19-20)-022521	JD20895-13			<33	<33	<33	<33	<33	131	<33	<33	<33
DB-09(29-30)-022521	JD20895-14			<33	<33	<33	<33	<33	2160	<33	<33	<33
DB-09(39-40)-022521	JD20895-15			<34	<34	<34	<34	<34	56.7	<34	<34	<34
DB-09(44-45)-022521	JD20895-16			<35	<35	<35	<35	<35	<35	<35	<35	<35
DB-10(9-10)-022521	JD20895-17	2/25/2021	µg/kg	<32	<32	<32	<32	<32	259	<32	<32	<32
DB-10(19-20)-022521	JD20895-18			<32	<32	<32	<32	<32	781	<32	<32	<32
DB-10(29-30)-022521	JD20895-19			<33	<33	<33	<33	<33	172	<33	<33	<33
DB-10(39-40)-022521	JD20895-20			<33	<33	<33	<33	<33	90	<33	<33	<33
DB-10(44-45)-022521	JD20895-21			<33	<33	<33	<33	<33	85.7	<33	<33	<33
DB-11(30-32)-022521	JD20742-1	2/22/2021	µg/kg	-	-	-	-	-	-	-	-	-

Legend:

< #	Not detected at the specifed limit of detection.
Detected	Compound was detected at the indicated concentration
Exceeded	Results flagged as "Exceed" if any of the selected criteria exceeded (most stringent).

Footnotes:

1. New York State Part 375 mg/kg Cleanup Objectives (SCOs) set forth in 6 NYCRR Subpart 375-6, effective 14 December 2006.

- : Not analyzed for this compound.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

ERM

DW-5 PHASED DELINEATION SAMPLING LOCATIONS

225-255 E 2nd Street, Mineola, New York

Figure

7 -13

Initial Sampling and First Phase Delineation Location

Second Phase Delineation Location

Third Phase Delineation Location

Fourth/Final Phase Delineation Location

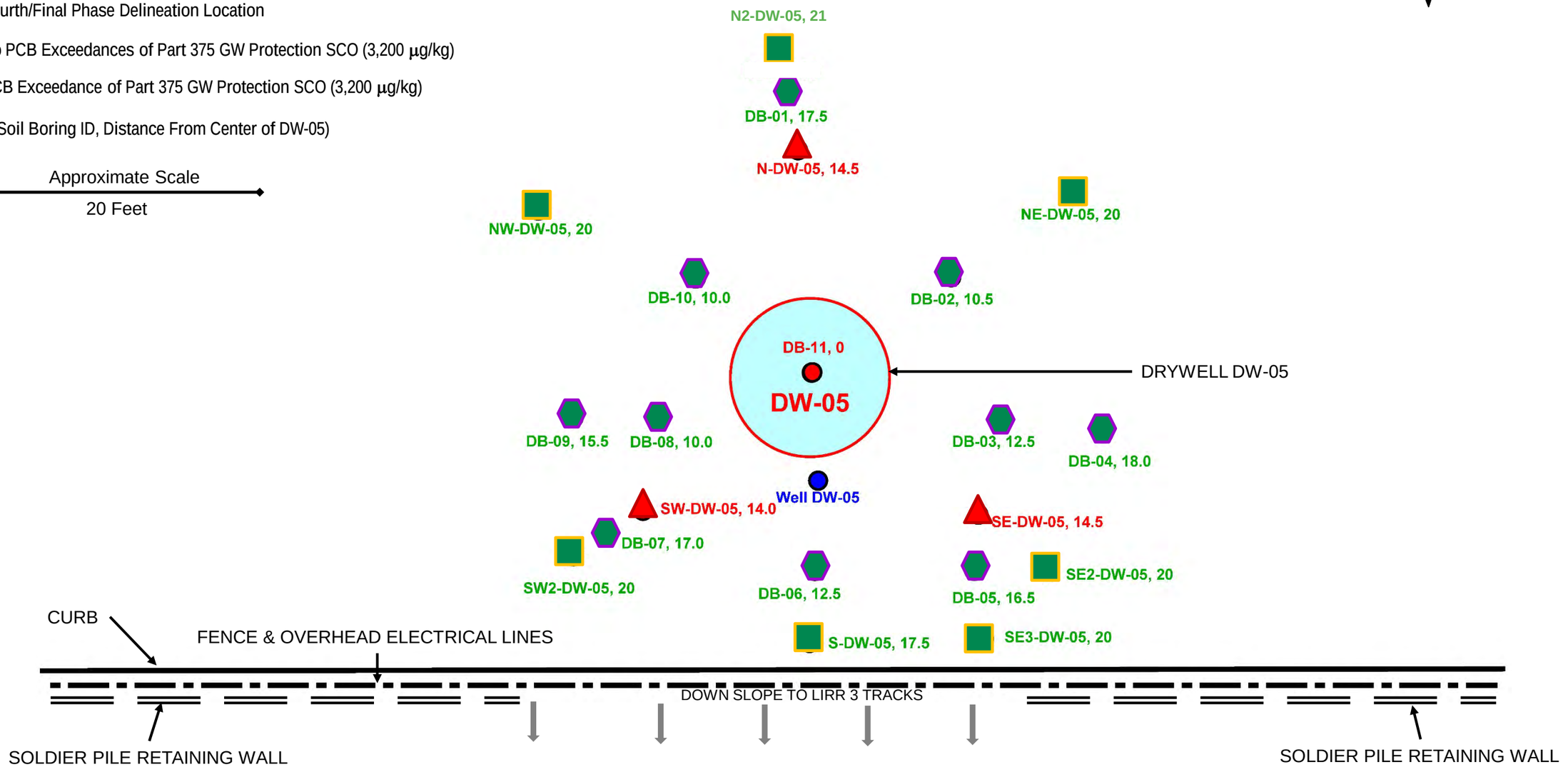
No PCB Exceedances of Part 375 GW Protection SCO (3,200 µg/kg)

PCB Exceedance of Part 375 GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-05)

Approximate Scale

20 Feet



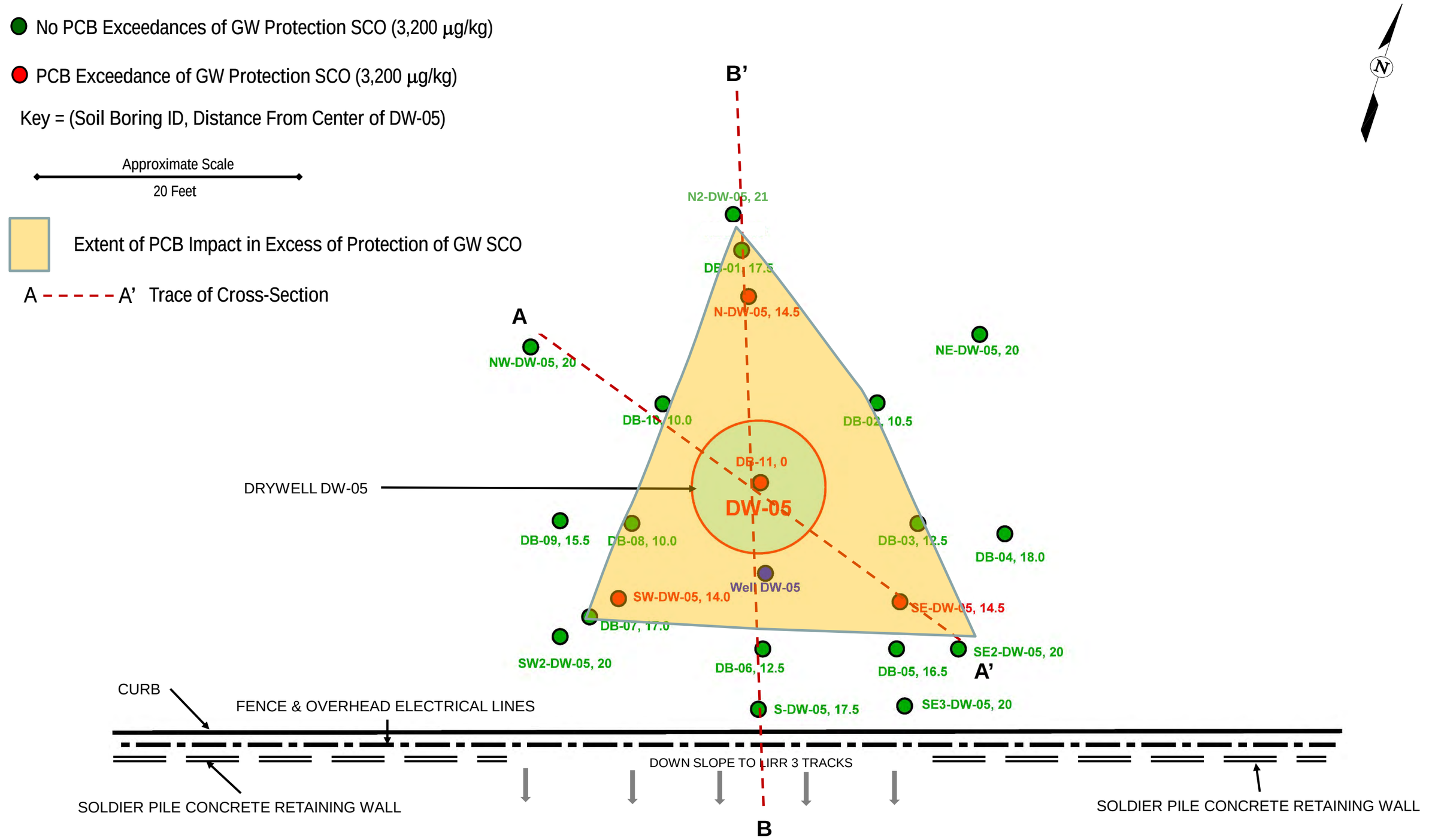
ERM

DW-5 PHASED DELINEATION SAMPLING LOCATIONS

225-255 E 2nd Street, Mineola, New York

Figure

7



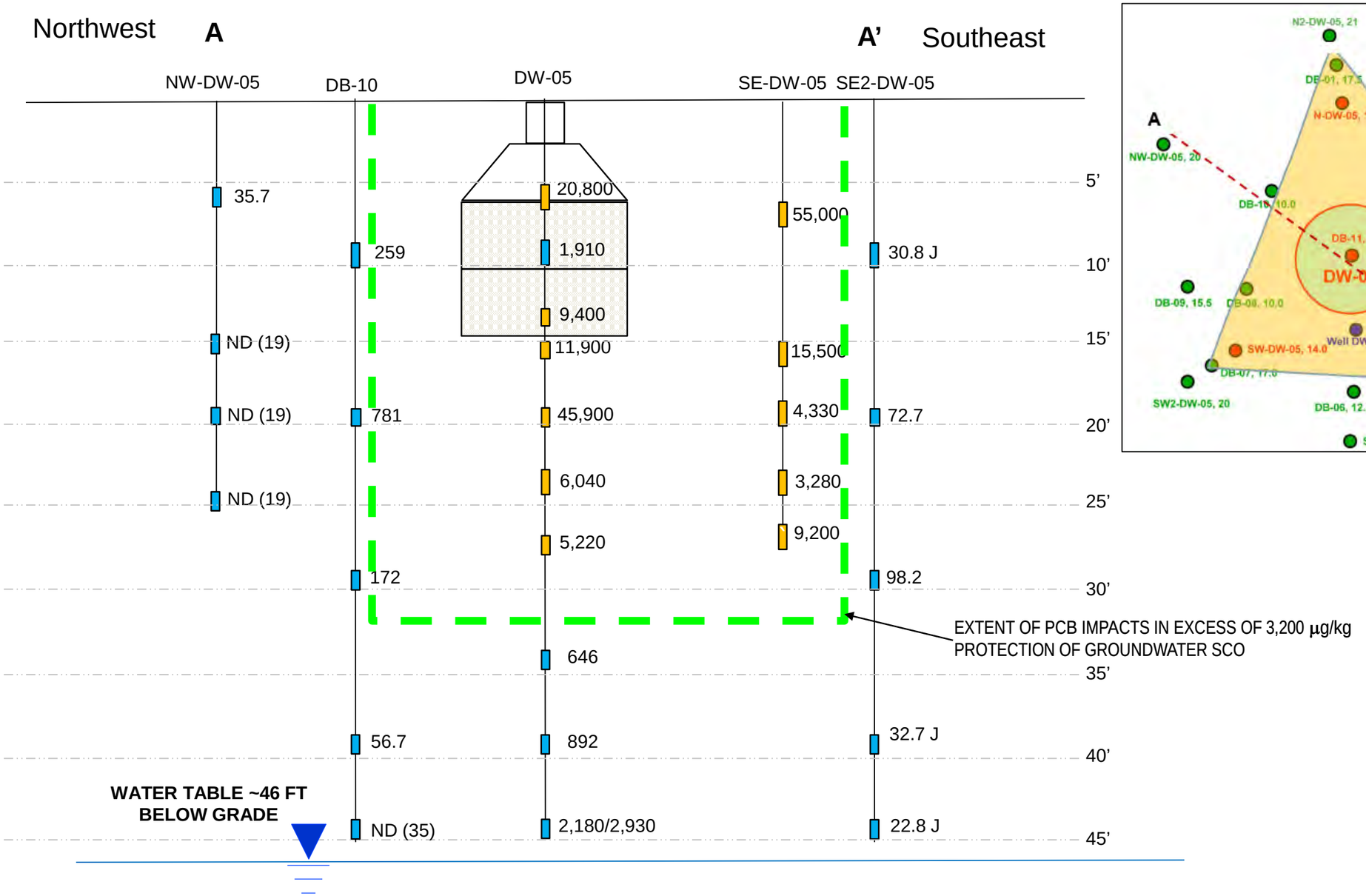
ERM

DW-05 PHASED DELINEATION SAMPLING LOCATIONS & CROSS-SECTION TRACES

225-255 E 2nd Street, Mineola, New York

Figure

8



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

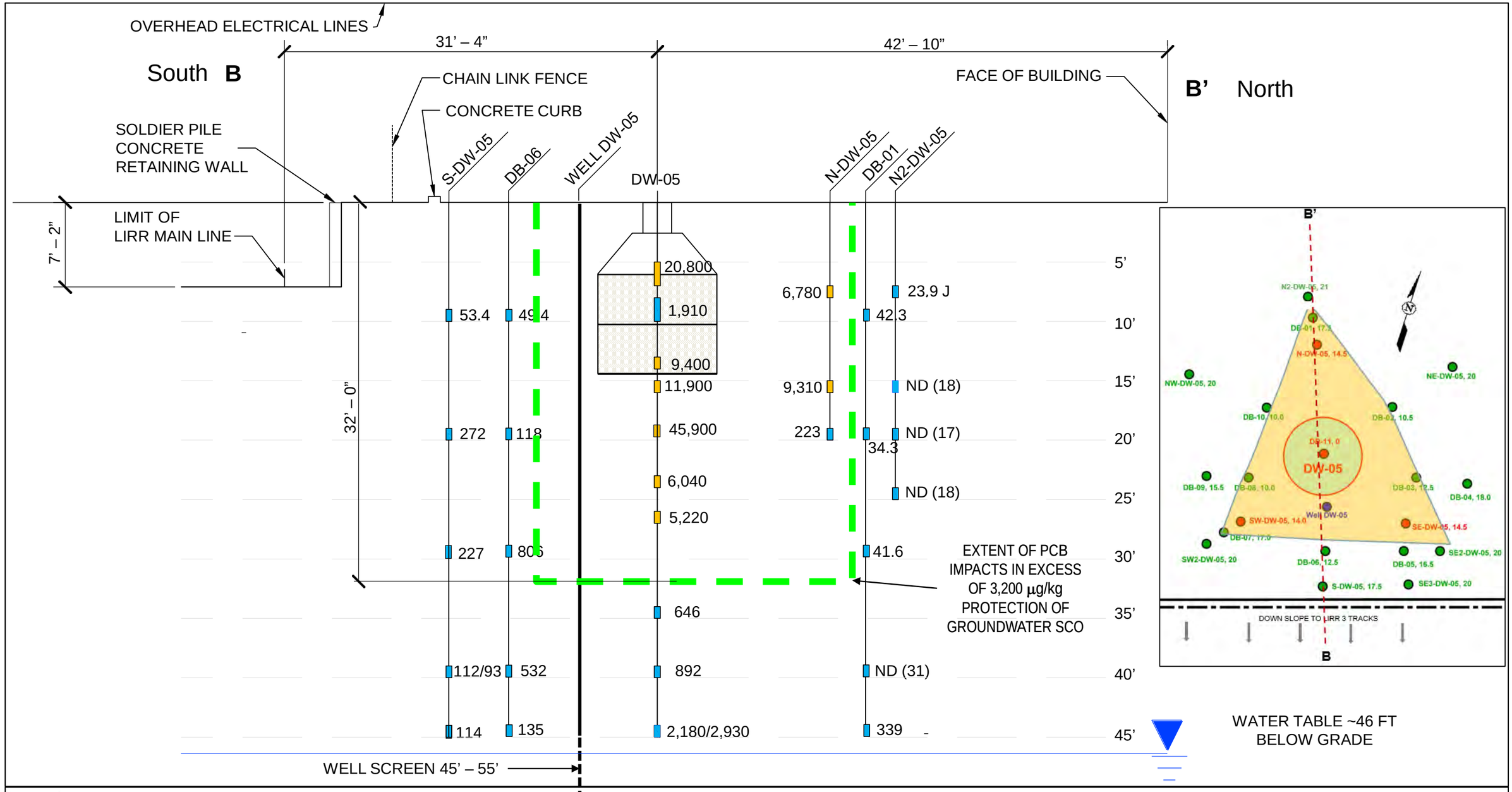
ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 9
Cross-section A - A'
Stormwater Drywell DW-05
PCB Impacts & Delineation Results

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 10
Cross-section B - B'
Stormwater Drywell DW-05
PCB Impacts & Delineation Results

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No PCB Exceedances of GW Protection SCO (3,200 µg/kg)

PCB Exceedance of GW Protection SCO (3,200 µg/kg)

Key = (Soil Boring ID, Distance From Center of DW-5)

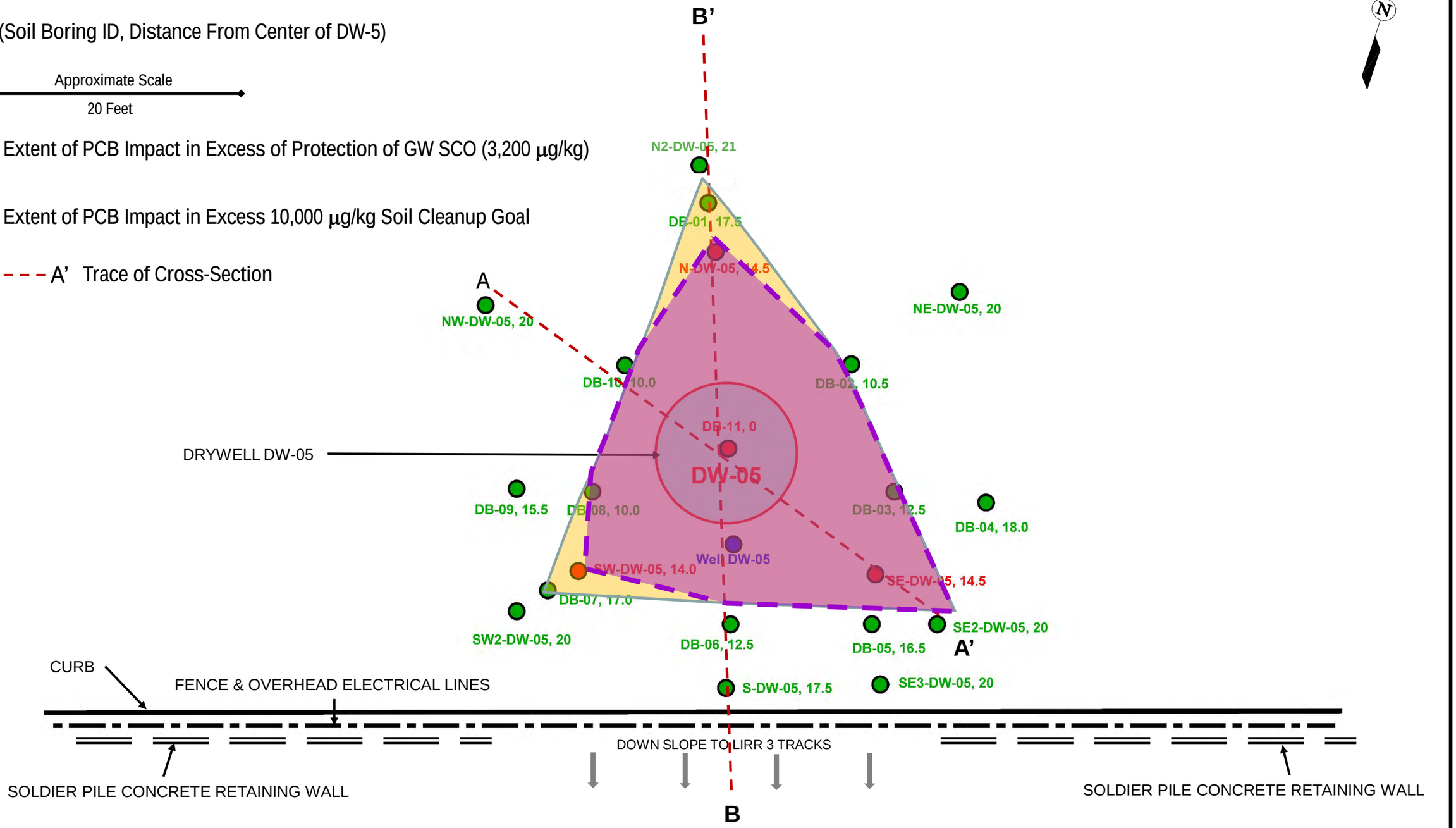
Approximate Scale

20 Feet

Extent of PCB Impact in Excess of Protection of GW SCO (3,200 µg/kg)

Extent of PCB Impact in Excess 10,000 µg/kg Soil Cleanup Goal

A - - - - - A' Trace of Cross-Section



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DW-05 PHASED DELINEATION SAMPLING LOCATIONS, CROSS-SECTION TRACES & REMEDIAL FOOTPRINT

225-255 E 2nd Street, Mineola, New York

Figure

11

Northwest **A** **A'** Southeast

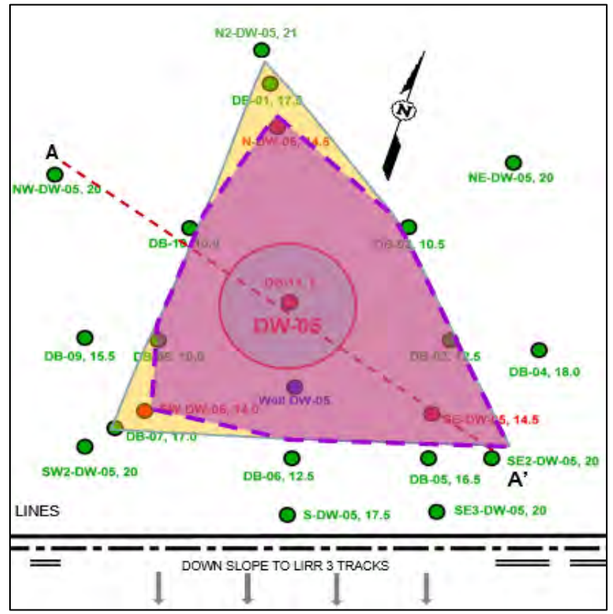
NW-DW-05 | DB-10 | DW-05 | SE-DW-05 | SE2-DW-05

	NW-DW-05	DB-10	DW-05	SE-DW-05	SE2-DW-05
5'	35.7	259	20,800 / 1,910 / 9,400	55,000	30.8 J
10'					
15'	ND (19)		11,900	15,500	
20'	ND (19)	781	45,900	4,330	72.7
25'	ND (19)		6,040	3,280	
			5,220	9,200	
30'		172			98.2
35'			646		
40'		56.7	892		32.7 J
45'		ND (35)	2,180 / 2,930		22.8 J

WATER TABLE ~46 FT BELOW GRADE

EXTENT OF PCB IMPACT IN EXCESS OF THE 10,000 µg/kg SOIL CLEANUP GOAL

EXTENT OF PCB IMPACTS IN EXCESS OF PROTECTION OF GROUNDWATER SCO (3,200 µg/kg)



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 12
Cross-section A - A'
Stormwater Drywell DW-05
PCB Impacts & Remedial Footprint

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Mineola, New York

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OVERHEAD ELECTRICAL LINES

31’ – 4”

42’ – 10”

South **B**

CHAIN LINK FENCE

CONCRETE CURB

FACE OF BUILDING

B’ North

SOLDIER PILE CONCRETE RETAINING WALL

S-DW-05 | DB-06 | WELL DW-05 | DW-05 | N-DW-05 | DB-01 | N2-DW-05

LIMIT OF LIRR MAIN LINE

7’ – 2”

32’ – 0”

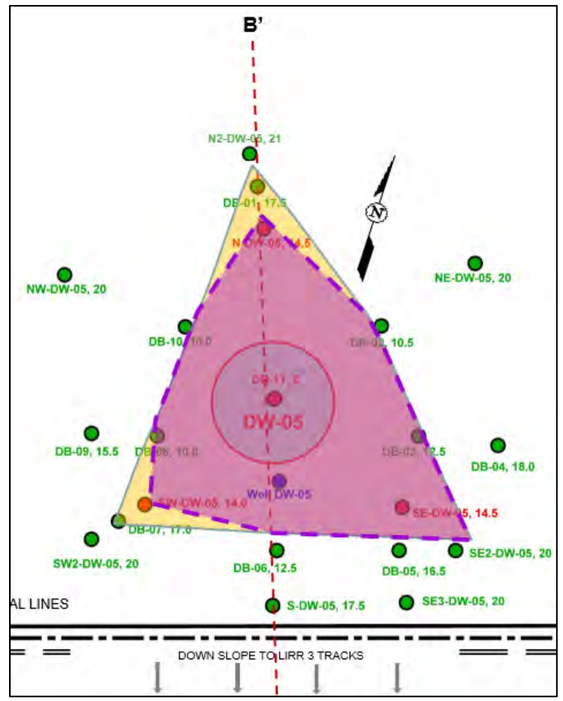
		20,800		6,780	23.9 J	5’
53.4	49.4	1,910			42.3	10’
		9,400				
		11,900		9,310	ND (18)	15’
272	113	45,900		223	ND (17)	20’
				34.3		
		6,040			ND (18)	25’
		5,220				
227	806				41.6	30’
		646				35’
112/93	532	892			ND (31)	40’
114	135	2,180/2,930			339	45’

EXTENT OF PCB IMPACT IN EXCESS 10,000 µg/kg SOIL CLEANUP GOAL

EXTENT OF PCB IMPACTS IN EXCESS OF PROTECTION OF GROUNDWATER SCO (3,200 µg/kg)

WELL SCREEN 45’ – 55’

WATER TABLE ~46 FT BELOW GRADE



Legend

Soil Boring

XX Soil Sample Interval & PCBs Result in µg/kg

Approximate Scale

10 Feet

Note: Stormwater drywell DW-05 assumed to be 10-foot diameter structure consisting of 2 leaching rings, a dome and a collar with an open grate.

ND (#)	Not detected at or above the method detection limit (MDL).
Detected	Compound was detected at the indicated concentration.
[Exceed]	Results flagged as "Exceed" if greater than or equal to the NYSDEC Part 375 Soil Cleanup Objective For Protection of Groundwater for PCBs.

J = Estimated value. The compound was detected at a concentration below the reporting limit (RL), but greater than the MDL.

Figure 13
Cross-section B - B'
Stormwater Drywell DW-05
PCB Impacts & Remedial Footprint

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Mineola, New York

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AOC 25

Western Excavation Area - Former Drum Storage Off-Site Pre-Excavation Soil PCB Sampling Results

Pre-Excavation Soil Borings - Two soil borings were advanced in the rear of the Facility during March 2003 to supplement the subsurface data collected during the 1995 Remedial Investigation. Identified as IRM-B1 and IRM-B2, the locations of these borings are illustrated on **Figure 14**.

IRM-B-1 - Soil samples were collected in boring IRM-B-1 at 2-foot depth intervals (i.e.: continuously) from the ground surface down to the water table. Each of these soil samples was screened using a PID. The two samples with the highest PID reading from each 10-foot interval (i.e.: 0 to 10 feet, 10 to 20 feet, etc.) were submitted for further chemical analysis in a laboratory and tested for total VOCs using EPA method 8260. The sample from the 0 to 10 feet interval were also analyzed for PCBs using EPA method 8082 and for TAL metals. PCBs were not detected in that sample.

IRM-B-2 - Soil samples were collected in boring IRM-B-2 at 10-foot intervals from the ground surface down to the water table. Each of these soil samples were screened using a PID and were submitted for analysis for total VOCs using EPA method 8260. The sample from 10 feet was also analyzed for PCBs using EPA method 8082, and for TAL metals. Test results revealed that VOCs were not encountered in the soil samples collected at depth. The only soil sample that contained VOCs at depth was in IRM-82 at 20 to 22 feet. This detection, however, was below the applicable NYSDEC TAGM. PCBs were detected in the sample from the 4 to 6-foot interval.

PCB results from samples collected in these borings are illustrated on **Figure 14**.

Post-Excavation Soil Borings Performed After the On-Site IRM But Before Off-Site IRM - A series of off-site soil borings were installed after the on-Site excavation program was initiated to determine the lateral and horizontal extent of impacted soil south of the termination point of the western excavation. The locations of these borings are illustrated on **Figure 14**.

SB-2, SB-3, SB-3A and SB-4 - On June 30, 2003, a series of 3 soil borings were advanced manually using a hand auger, only 2 feet from the westbound LIRR railroad ties. Soil samples were collected at 24 to 28 inches in all three borings. An additional soil sample was also collected at 36 to 40 inches in boring SB-3. Elevated levels of PCBs and VOCs were detected in each of the samples collected at the 24 to 28-inch depth horizon. The sample collected from 36 to 40 inches at location SB-3 did not exceed the TAGM for VOCs, SVOCs, or metals, and the PCBs {detected at 10,300 µg/kg) were only slightly above the TAGM. Boring SB-3A was advanced adjacent to the railroad tie. The VOCs and PCBs were below the TAGM in the 24 to 28-inch sample.

SB-6 and SB-7 - These borings were performed using a hand auger in the same locations as end-point samples EP-6 and EP-7 and were analyzed for PCBs. The results indicated that another 6 to 12 inches of soil should be removed. Additional soil was removed on July 21 and 31, 2003.

SB-36 and SB-37 – Also on June 30, 2003, two 12-inch-deep soil borings were installed on the south embankment of the LIRR using a hand auger. Identified as borings SB-36 and SB-37, the purpose of these samples was to establish the ambient or background levels of the Site-related chemical compounds present in this area of the LIRR right-of-way. PCBs were not detected in either of these samples.

PCB results from samples collected in these borings are posted on **Figure 14**.

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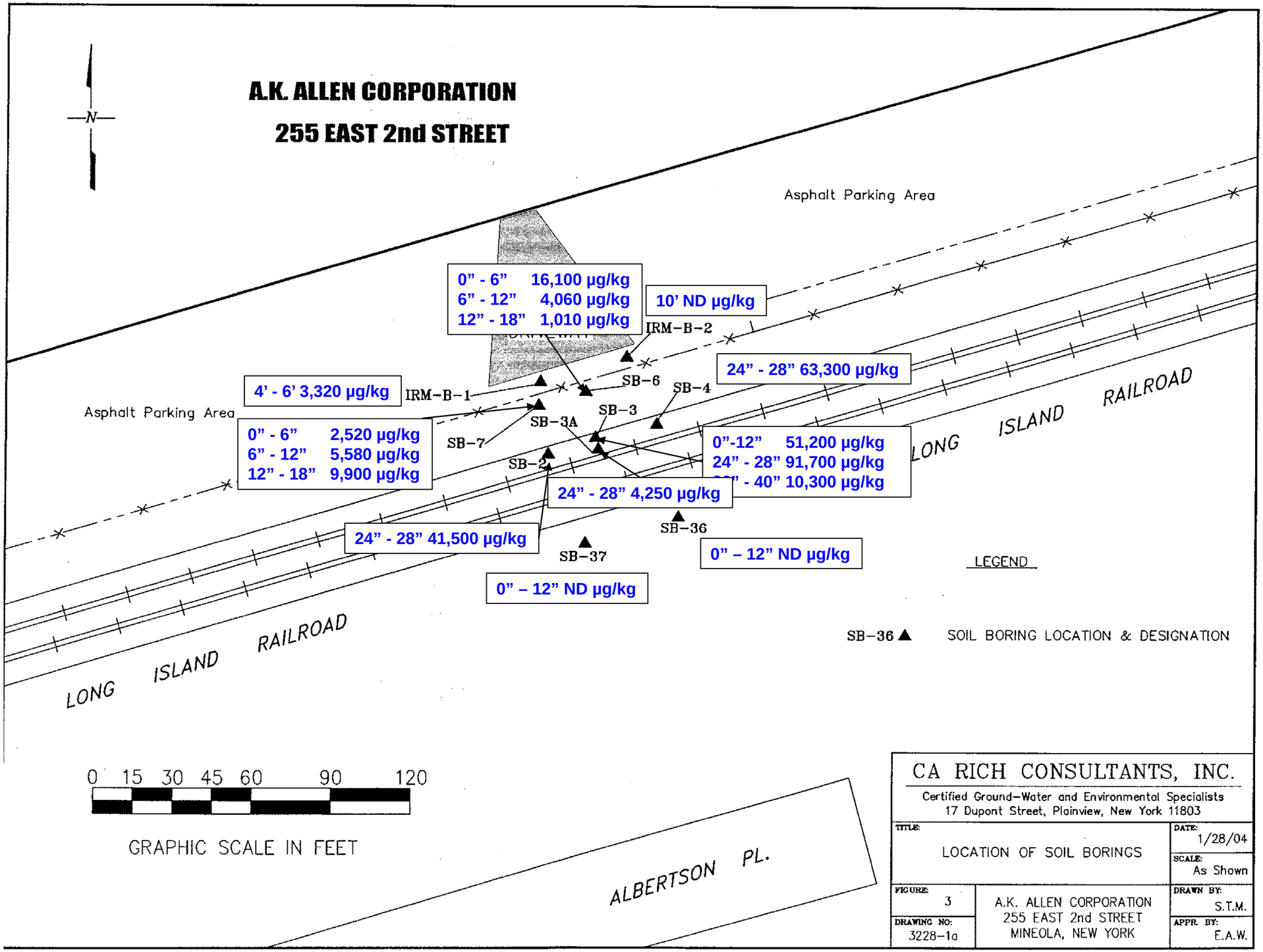
WESTERN EXCAVATION AREA OFF-SITE PRE-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS
225-255 E 2nd Street, Mineola, New York

Figure **14**



CA RICH CONSULTANTS, INC.
Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: LOCATION OF SOIL BORINGS		DATE: 1/28/04
		SCALE: As Shown
FIGURE: 3	A.K. ALLEN CORPORATION 255 EAST 2nd STREET MINEOLA, NEW YORK	DRAWN BY: S.T.M.
DRAWING NO: 3228-1a		APPR. BY: E.A.W.

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WESTERN EXCAVATION AREA OFF-SITE PRE-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS
225-255 E 2nd Street, Mineola, New York

Figure **14**

Additional Post-Excavation Soil Borings Performed After the On-Site IRM But Before Off-Site IRM - The following additional soil borings were performed after the IRM effort was completed.

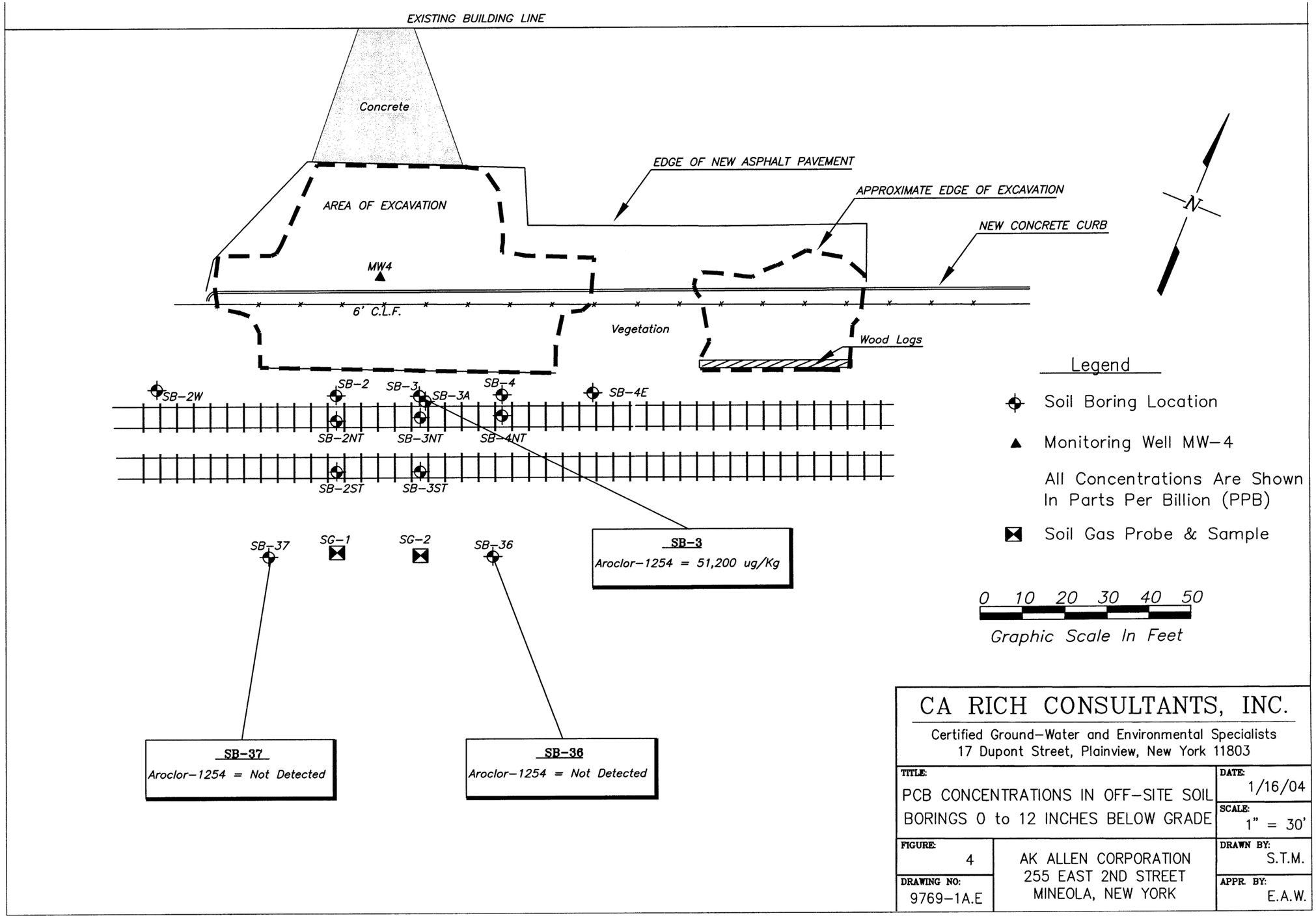
SB-2W, SB-2NT, SB-3NT, SB-3, SB-4NT and SB-4E - On October 14, 2003, three borings were advanced 'inside' the northern westbound track of the LIRR and identified as SB-2NT, SB-3NT and SB-4NT. Additional perimeter test borings were also advanced east and west of the initial western excavation area and were identified as SB-2W and SB-4E. At each location, soil samples were collected at depths of 20 to 26 inches and 36 to 42 inches. Each sample was analyzed for VOCs, SVOCs, RCRA Metals and PCBs. Additional deeper samples were also collected at the 54-to-60-inch depth horizon and held pending results from the upper two samples above this depth. One of these samples, SB-4NT (54-60 inches) was analyzed for SVOC based on the results of the shallower samples.

Two additional samples were also collected at location SB-3. One sample was collected at a depth of 9 inches (2-inches below the bottom of the surficial railroad track ballast layer) and tested for VOCs, SVOCs, RCRA Metals and PCBs. Another deeper sample was collected at a depth of 20 inches in a layer of impacted soil previously tested. This sample was extracted using the SPLP procedure and analyzed for VOCs and PCBs. The results do not indicate that these soils pose a major threat to underlying groundwater quality.

The concentration measured in the 20-to-26-inch depth horizon indicates that the limit of the southern extent of PCBs has been defined. The concentrations of PCBs in the samples from location SB-2W, SB-2NT, SB-3NT, SB-3, SB-4NT and SB-4E were all at or below the TAGM objective. The samples from 36 to 42 inches below grade at these locations were all well below the guidance value for PCBs.

PCB results from samples collected in these borings are illustrated on **Figures 15, 16 & 17**.

SB-2ST and SB-3ST - On December 22, 2003, two shallow soil borings were dug in the south eastbound track of the LIRR. PID readings were measured at 1, 2 and 3 feet below grade. No elevated readings were recorded. Soil samples were collected at 20 to 26 inches below grade and analyzed to complete the off-site delineation of VOCs. These samples were not analyzed for PCBs but are shown on **Figures 15, 16 & 17.**



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17 Dupont Street, Plainview, New York 11803

TITLE: PCB CONCENTRATIONS IN OFF-SITE SOIL BORINGS 0 to 12 INCHES BELOW GRADE	DATE: 1/16/04
	SCALE: 1" = 30'
FIGURE: 4	DRAWN BY: S.T.M.
DRAWING NO: 9769-1A.E	APPR. BY: E.A.W.

AK ALLEN CORPORATION
255 EAST 2ND STREET
MINEOLA, NEW YORK

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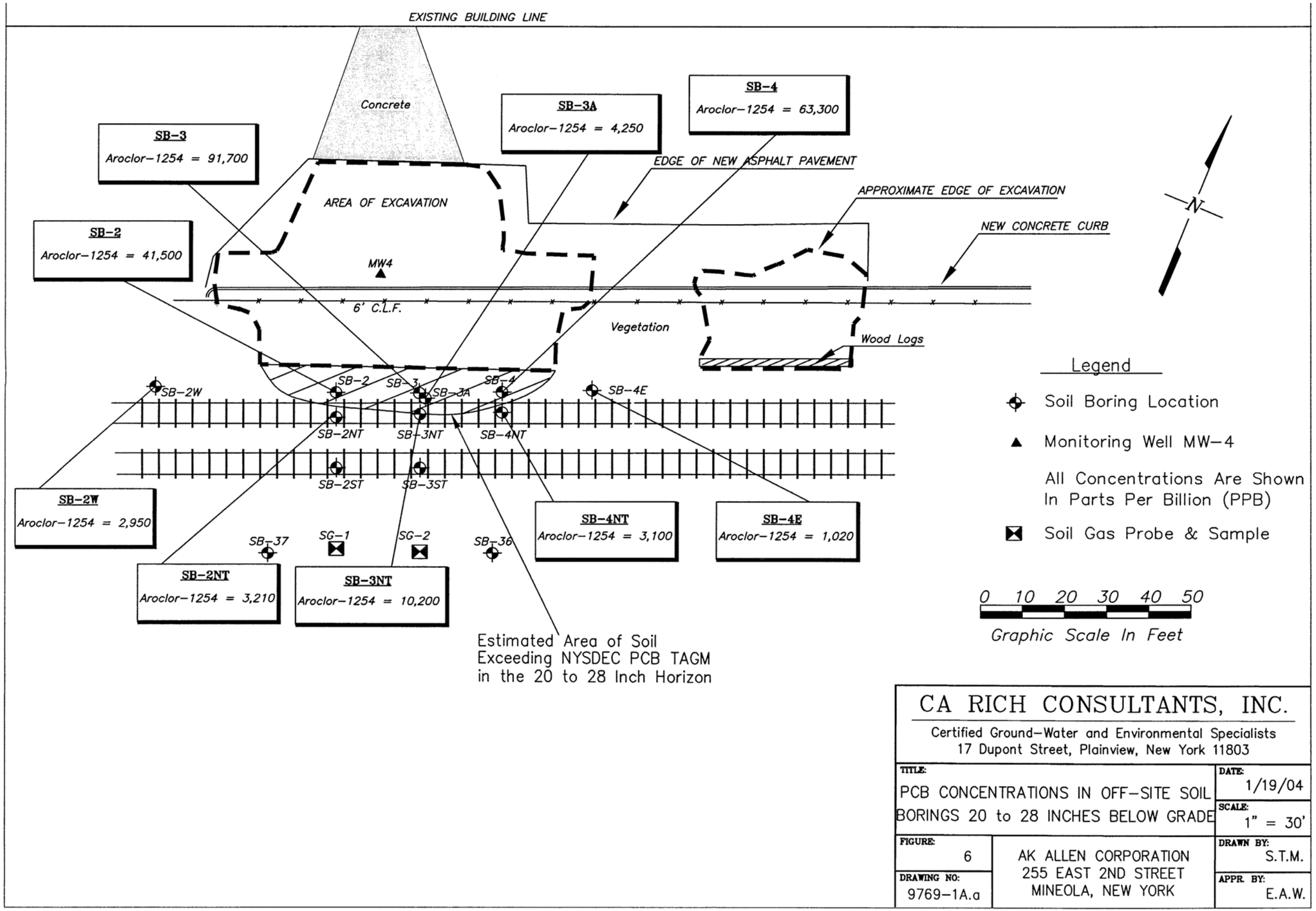
WESTERN EXCAVATION AREA OFF-SITE PRE-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS : 0" - 12"
225-255 E 2nd Street, Mineola, New York

Figure **15**



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TITLE: PCB CONCENTRATIONS IN OFF-SITE SOIL BORINGS 20 to 28 INCHES BELOW GRADE	DATE: 1/19/04
	SCALE: 1" = 30'
FIGURE: 6	DRAWN BY: S.T.M.
DRAWING NO: 9769-1A.a	AK ALLEN CORPORATION 255 EAST 2ND STREET MINEOLA, NEW YORK
	APPR. BY: E.A.W.

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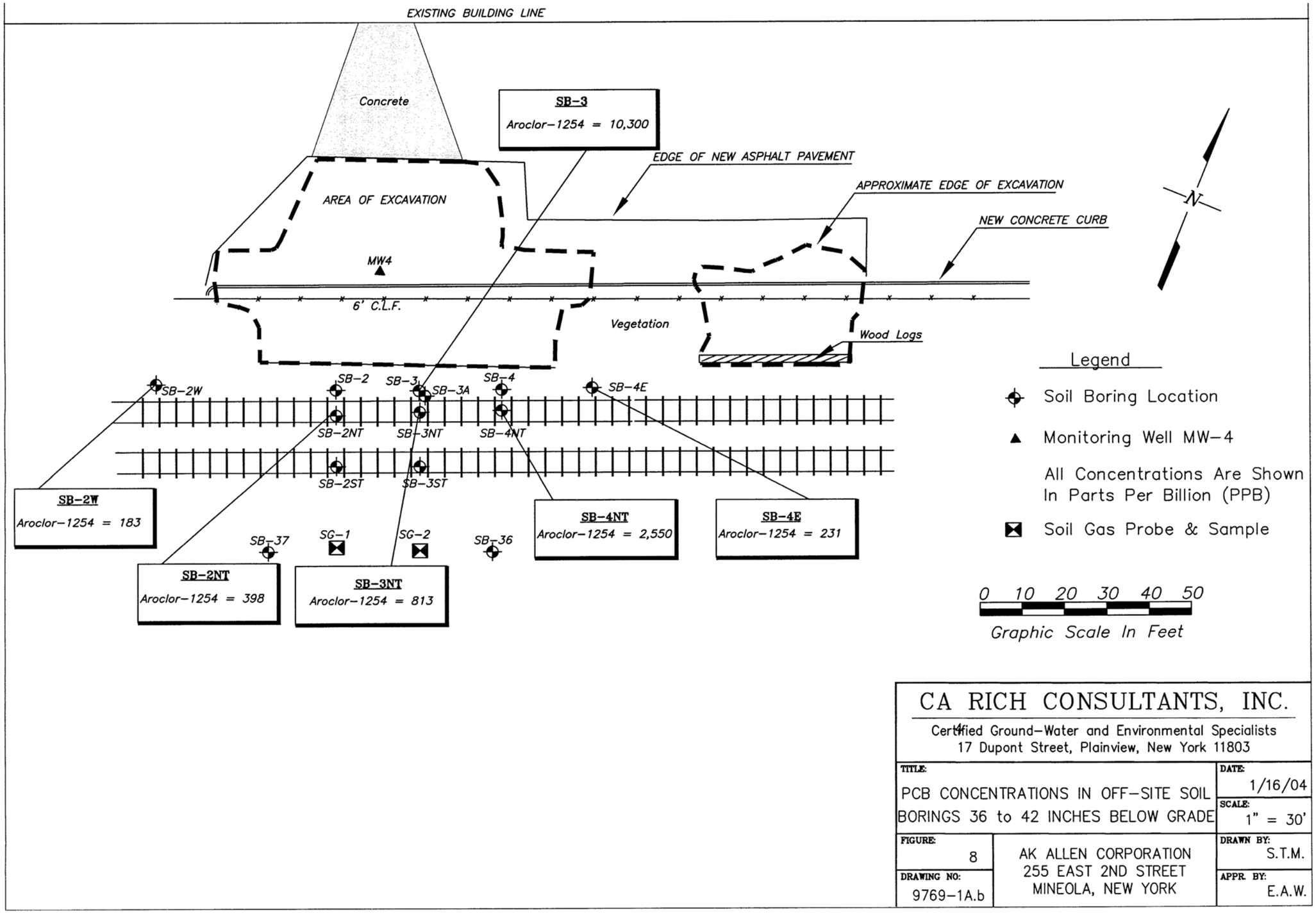
WESTERN EXCAVATION AREA OFF-SITE PRE-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS : 20" - 28"
225-255 E 2nd Street, Mineola, New York

Figure **16**



CA RICH CONSULTANTS, INC.

Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

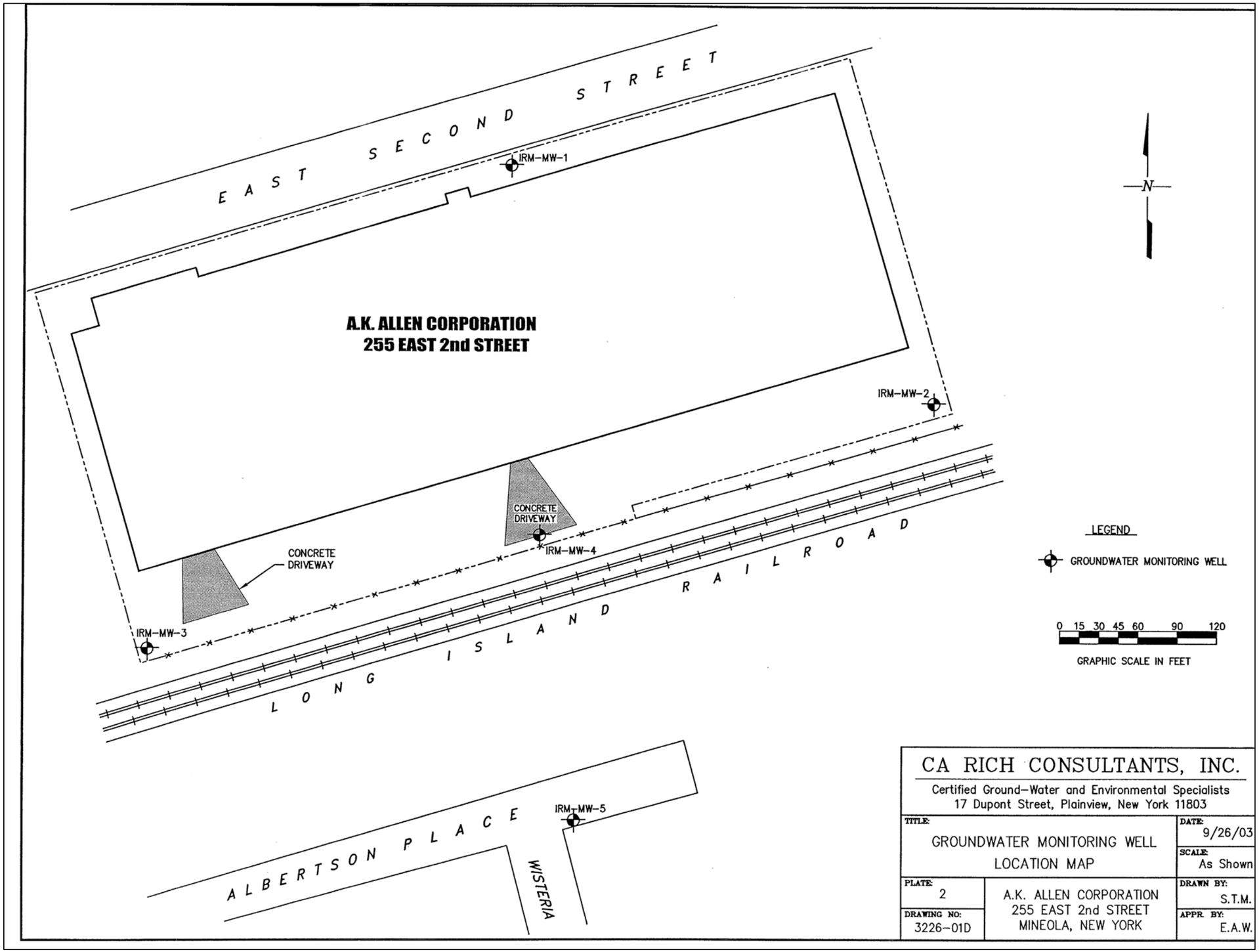
TITLE: PCB CONCENTRATIONS IN OFF-SITE SOIL BORINGS 36 to 42 INCHES BELOW GRADE	DATE: 1/16/04
	SCALE: 1" = 30'
FIGURE: 8	DRAWN BY: S.T.M.
DRAWING NO: 9769-1A.b	AK ALLEN CORPORATION 255 EAST 2ND STREET MINEOLA, NEW YORK
	APPR. BY: E.A.W.

ERM

WESTERN EXCAVATION AREA OFF-SITE PRE-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS : 36" - 42"
225-255 E 2nd Street, Mineola, New York

Figure **17**

Groundwater Monitoring Well Location Map



CA RICH CONSULTANTS, INC.

Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: GROUNDWATER MONITORING WELL LOCATION MAP	DATE: 9/26/03
	SCALE: As Shown
PLATE: 2	DRAWN BY: S.T.M.
DRAWING NO: 3226-01D	A.K. ALLEN CORPORATION 255 EAST 2nd STREET MINEOLA, NEW YORK
	APPR. BY: E.A.W.

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GROUNDWATER MONITORING WELL LOCATION MAP
225-255 E 2nd Street, Mineola, New York

Figure **18**

Part B

Figures 19 – 30
With Text Presenting The Details Of The PCB Remediations Performed At Certain AOCs & Figure Showing The Extent Of All PCB-contaminated Media Above 1 PPM Currently Found Onsite

BUILDING INTERIOR & EXTERIOR AREAS OF CONCRETE REMOVAL/REMEDIAL EXCAVATION

225-255 E 2nd Street, Mineola, New York

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Figure **19**

AOC 3
Potting Room Oily Trench Drain/Adjacent Floor Surfaces

Potting Room Concrete Slab/Trench Drain

Concrete slab surfaces in the Potting Room including the Potting Room Trench Drain were oil-stained/coated or covered with dust, dirt, and grime. PCBs (Aroclor 1254) were detected in the three wipe samples (CWs 05, 06 and 07) collected from the Potting Room concrete floor slab at concentrations that ranged 7.8 µg/100 cm² - 22.6 µg/100 cm² which make these porous (non-impervious) surfaces TSCA-regulated remediation waste requiring cleanup in accordance with 40 CFR § 761.125 - Requirements for PCB Spill Cleanup. The remedial approaches for each area were based on the regulations set forth in 40 CFR § 761 and further guidance and clarifications set forth in the United States Environmental Protection Agency's (USEPA) "November 2005 PCB Site Revitalization Guidance Under Toxic Substances Control Act (TSCA) – OPPT-2004-0123. Future use of this area would likely be considered "high occupancy" and the concrete slab is considered a "non-impervious" solid surface defined in 40 CFR § 761.

Shallow soil screening samples SBs 27, 28 and 29 **(Figure 5)** were collected directly from beneath the concrete floor slab of the Potting Room and indicated PCBs (Aroclor 1254) only at concentrations of 58.8 µg/kg, 24.7 µg/kg and 125 µg/kg, respectively which are far below the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

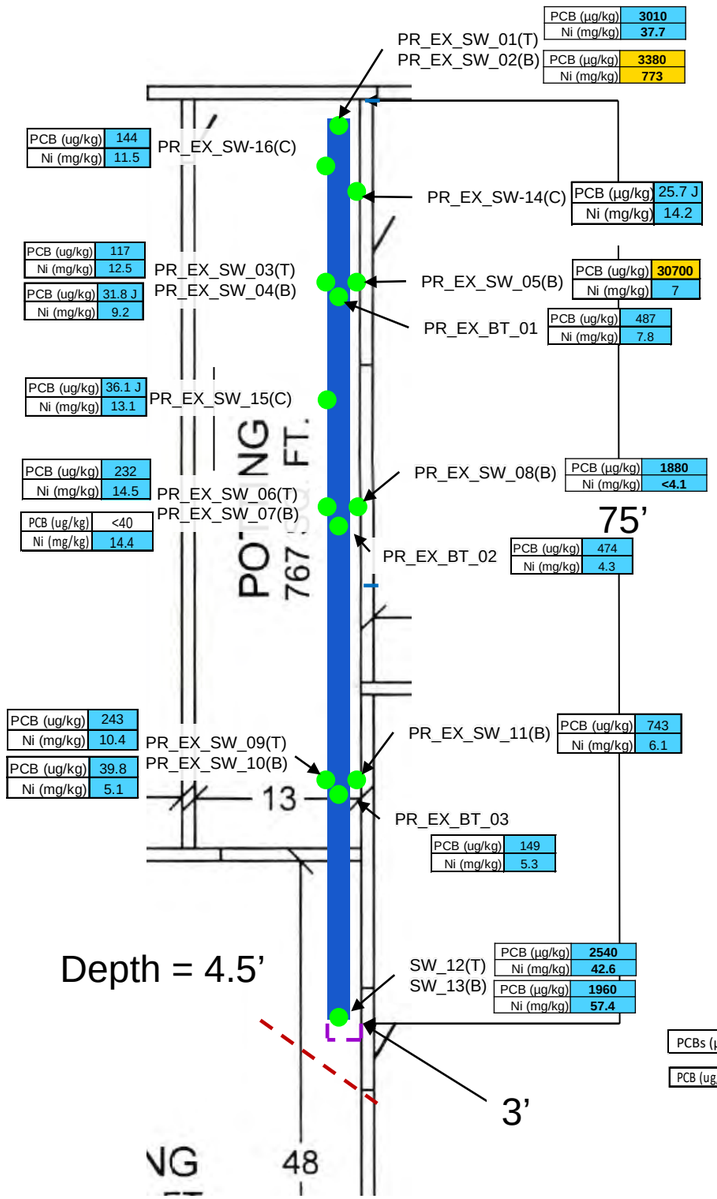
Shallow soil screening samples SB-26 and SB-30 **(Figure 5)** were collected directly beneath the concrete base of the trench drain in the former Potting Room and indicated PCBs (Aroclor 1254) at concentrations of 161,000 µg/kg and 4,310 µg/kg, respectively. Eleven subsequent soil borings/soil sampling successfully delineated PCB impacts in soil at the Potting Room Trench Drain. PCB concentrations in the deepest sample at each delineation soil boring location were below the New York State Part 375-6 Industrial and Protection of Groundwater SCOs for PCBs **(Figure 5)**.

Removal and replacement of the Potting Room concrete floor slab, the concrete trench, and remedial excavation and disposal of PCB-impacted soils beneath the Potting Room Trench Drain were recommended. The work was completed in three phases of excavation and post-excavation sidewall and bottom soil sampling for PCBs and nickel during October – November 2020. An electrical line in conduit was encountered on the south end of the excavation. Care was taken during excavation activities not to significantly undermine the concrete footer for the adjacent east and north concrete block bearing walls or contact the electrical conduit. Soil was removed up to the eastern and northern concrete block wall footers.

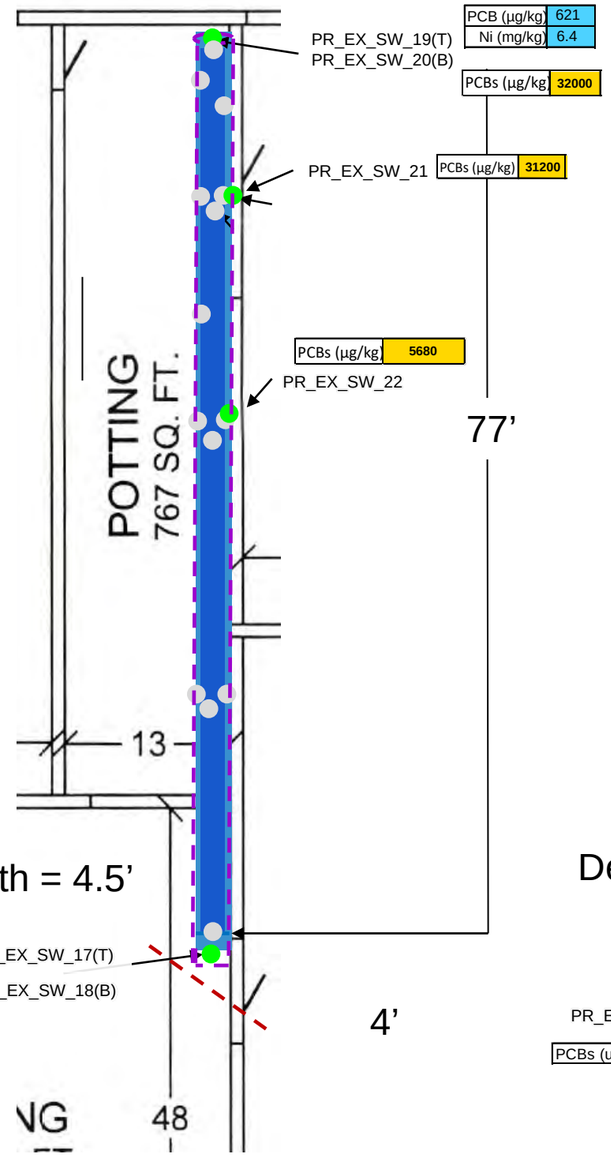
Post-excavation soil sample PCB analytical results are presented in **Figure 20**. Final excavation extent PCB concentrations ranged from <40 µg/kg to 487 µg/kg, all below the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

The excavation was backfilled with clean sand, the remainder of the room concrete floor slab removed, and the floor was subsequently replaced with a new reinforced concrete floor slab. The concrete and excavated soils were disposed of as PCB remediation waste.

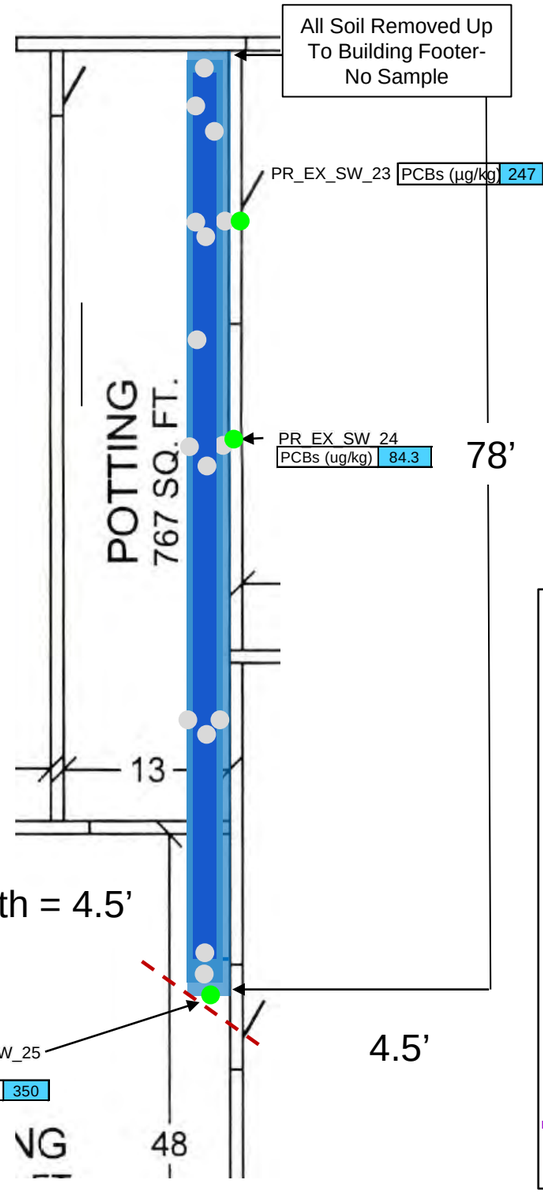
Phase 1
Advance to Phase 2



Phase 2
Advance to Phase 3



Phase 3
No Further Action



Phase 3 Excavation

Phase 2 Excavation

Original Excavation

Endpoint Sample

Previous Endpoint Sample

(T) Top Sample

(B) Bottom Sample

12” Excavation Expansion

Electrical Line/Conduit

Legend:	Hit	Exceed

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POTTING ROOM TRENCH DRAIN REMEDIAL EXCAVATION & RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **20**

AOCs 4 & 5
Central Boiler Room Floor Drain & Boiler Blowdown Pit

Central Boiler Room Boiler Blowdown Pit and Floor Drain

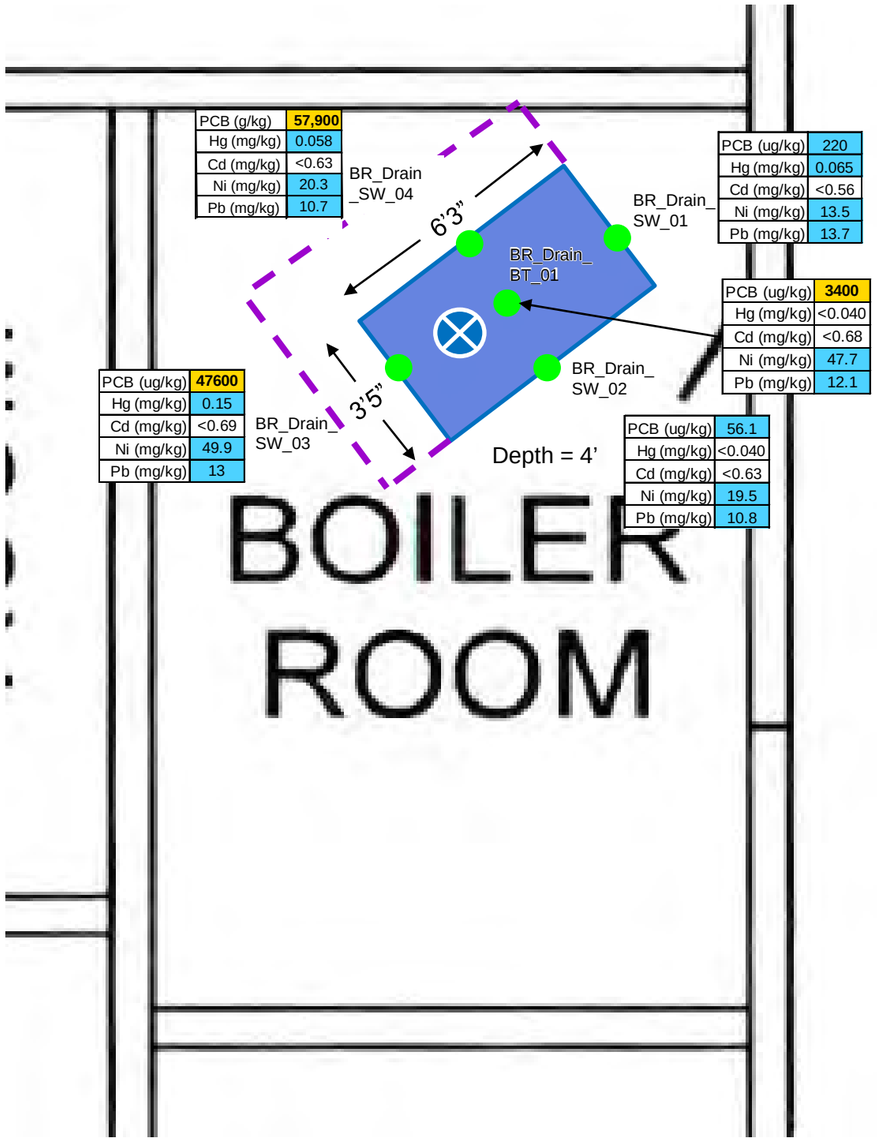
Shallow soil screening samples SB-10 and 21 **(Figure 4)** were collected from the soil in the Central Boiler Room Boiler Blowdown Pit and the Floor Drain, respectively. PCBs were detected in the soil sample collected from Blowdown Pit at concentrations exceeding New York State Part 375-6 Protection of Groundwater SCO of 3,200 µg/kg. Cadmium, lead, mercury, and nickel were detected in the soil sample collected from the Floor Drain at concentrations exceeding their respective New York State Part 375-6 Protection of Groundwater SCOs.

Remedial excavation that included opening the concrete floor slab, excavation and disposal of PCBs and metals-impacted soils was recommended. The work was completed in two phases of excavation and post-excavation sidewall and bottom soil sampling for PCBs and nickel during October 2020. Because the Blowdown Pit and Floor Drain were near one another, the work was addressed with one excavation.

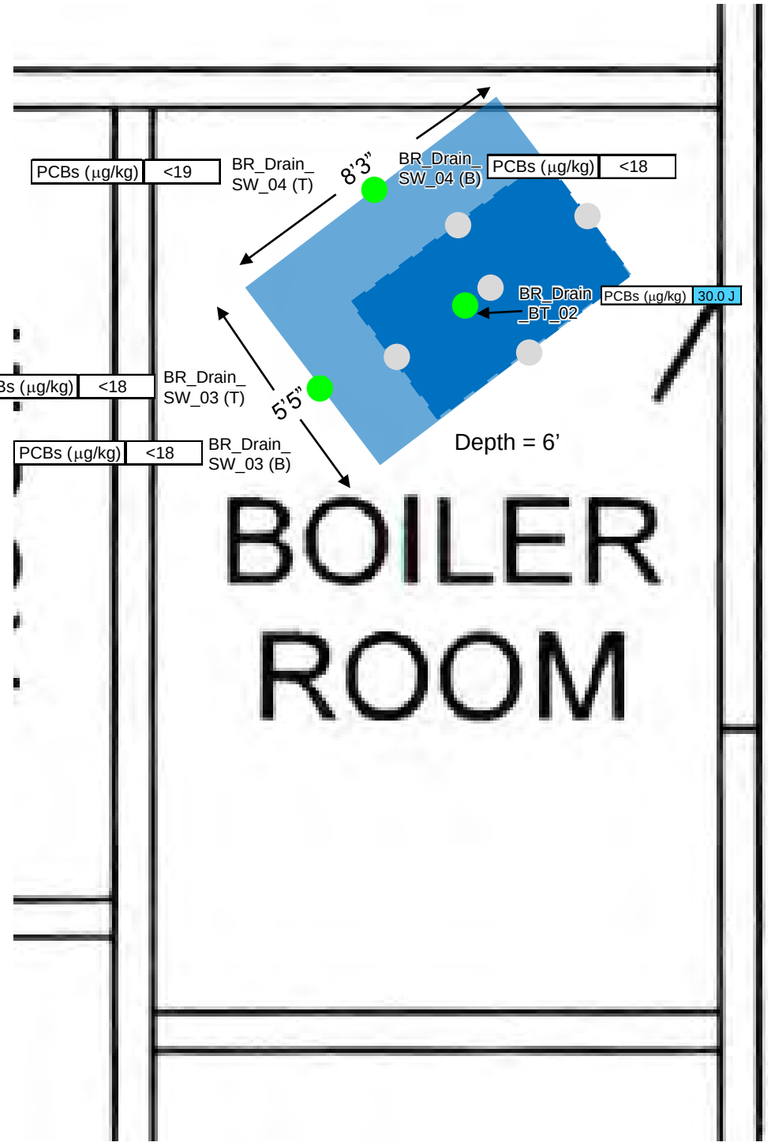
All post-excavation soil sample locations, and PCB and metals (cadmium, lead, mercury, and nickel) concentrations are shown in **Figure 21**. Final post-excavation soil sampling results indicated successful remediation where all analyte concentrations were less than their respective Protection of Groundwater and Industrial SCOs including PCBs concentrations that were far below the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

The excavation was backfilled with clean sand and the floor was subsequently repaired with a new reinforced concrete. The concrete and excavated soils were disposed of as PCB remediation waste.

Phase 1
Advance To Phase 2



Phase 2
No Further Action



- Phase 2 Excavation
- Original Excavation
- Endpoint Sample
- Previous Endpoint Sample
- (T) Top Sample
- (B) Bottom Sample
- 24" Excavation Expansion
- Excavation (24" down)

Legend:	Hit	Exceed

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BOILER ROOM REMEDIAL EXCAVATION & RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **21**

AOC 6
Tumbling Room North Floor Drain

Tumbling Room North Floor Drain

Shallow soil screening sample SB-22 **(Figure 4)** was collected from the soil in the Tumbling Room South Floor Drain and acetone, PCBs, and nickel were detected at concentrations exceeding their respective New York State Part 375-6 Protection of Groundwater SCOs.

Remedial excavation that included opening the concrete floor slab, excavation and disposal of VOC, PCBs and metals-impacted soils was recommended. The work was completed in two phases of excavation and post-excavation sidewall and bottom soil sampling for VOCs, PCBs, mercury, and nickel during October 2020.

All post-excavation soil sample locations, and PCB and metals (cadmium, lead, mercury, and nickel) concentrations are shown in **Figure 22**. Final post-excavation soil sampling results indicated successful remediation where all analyte concentrations were less than their respective Protection of Groundwater and Industrial SCOs including PCBs concentrations that were far below the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

The excavation was backfilled with clean sand and the floor was subsequently repaired with a new reinforced concrete. The concrete and excavated soils were disposed of as PCB remediation waste.

Legend:	Hit	Exceed

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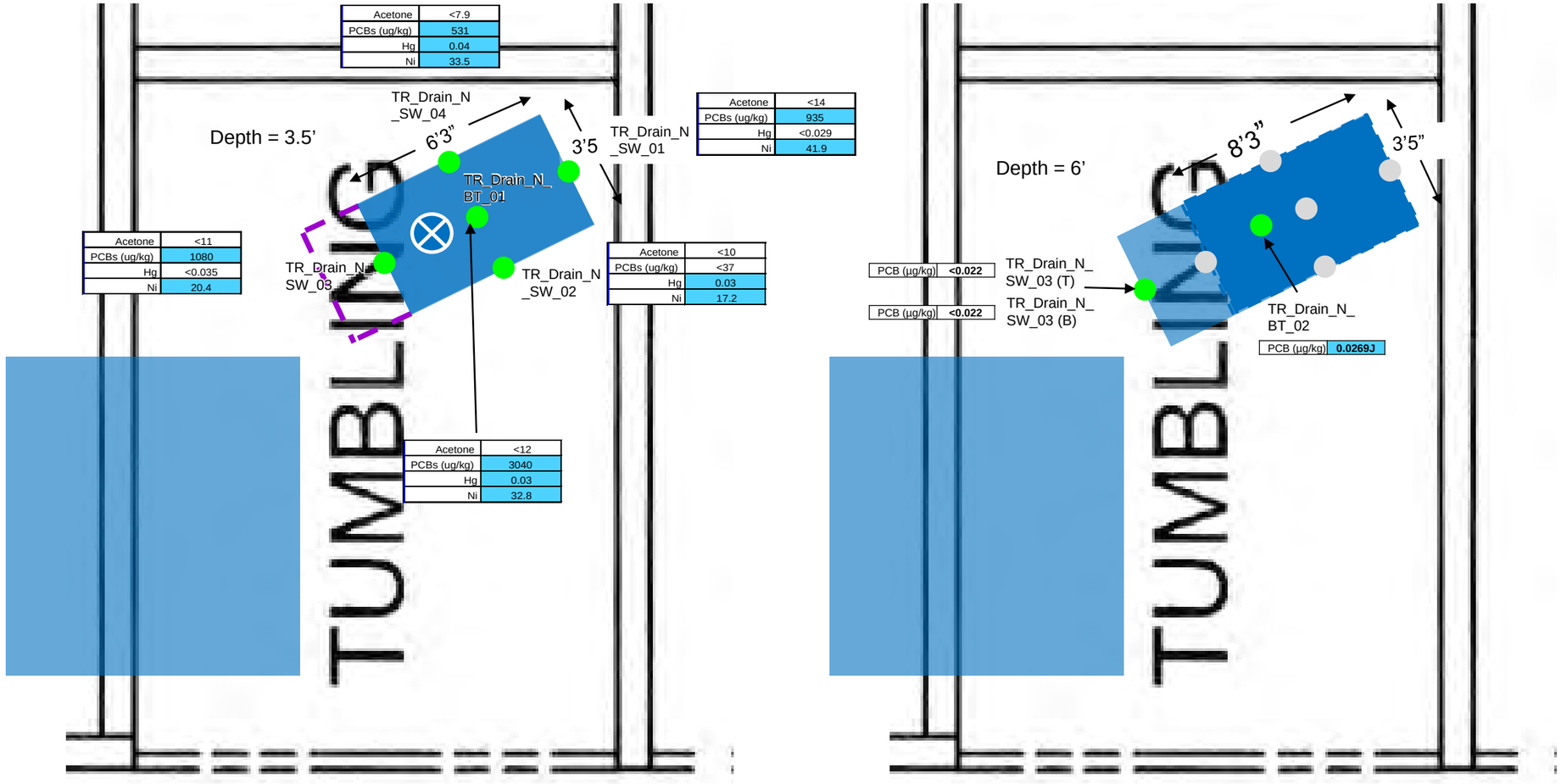
TUMBLING ROOM NORTH DRAIN REMEDIAL EXCAVATION & RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **22**

Phase 1
Advance To Phase 2

Phase 2
No Further Action



- Phase 2 Excavation
- Original Excavation
- Endpoint Sample
- Previous Endpoint Sample
- (T) Top Sample
- (B) Bottom Sample
- Proposed 24” Excavation Expansion
- Proposed Excavation (24’’ down)

ERM

TUMBLING ROOM NORTH DRAIN REMEDIAL EXCAVATION & RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **22**

AOC 7
Tumbling Room South Floor Drain

Tumbling Room South Floor Drain

Shallow soil screening sample SB-09 **(Figure 4)** was collected from the soil in the Tumbling Room South Floor Drain and copper, cadmium, lead, and nickel were detected at concentrations exceeding their respective New York State Part 375-6 Protection of Groundwater SCOs.

Remedial excavation that included opening the concrete floor slab, excavation and disposal of metals-impacted soils was recommended. The work was completed in three phases of excavation and post-excavation sidewall and bottom soil sampling for PCBs and nickel during October 2020. Stained soils with a solvent odor and elevated PID readings were encountered during the initial excavation, and the analytical suite for post-excavation soil samples was expanded from TAL metals to TCL VOCs, TCL SVOCs, TCL Pesticides, TCL PCBs, TAL metals, cyanide, and hexavalent chromium with redox potential. Care was taken during excavation activities not to significantly undermine the concrete footer for the adjacent western concrete block bearing wall, but the excavation was expanded westward to the other side of the wall during the second phase excavation to access and remove all visibly stained and odorous soils.

Analytical results of the first and second phase post-excavation bottom and sidewall samples indicated concentrations of 1,1-dichloroethane (1,1-DCA), 1,1,1-trichloroethane (1,1,1-TCA), SVOCs (PAHs), heptachlor epoxide, PCBs, copper, lead, and nickel at concentrations exceeding their respective New York State Part 375 Protection of Groundwater SCOs, and in two separate samples, for the Industrial SCOs for PCBs and benzo(a) pyrene. A third phase of expanded excavation was required to complete the remediation at this location.

All post-excavation soil sample locations, and concentrations analytes that had been found to exceed their SCOs in one or more sample are shown in **Figure 23**. Final post-excavation soil sampling results indicated successful remediation where all analyte concentrations were less than their respective Protection of Groundwater and Industrial SCOs including PCBs concentrations that were below the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

The excavation was backfilled with clean sand and the floor was subsequently repaired with new reinforced concrete. The concrete and excavated soils were disposed of as PCB remediation waste.

Phase 1 and 2 Advance To Phase 3

Client Sample ID:		TR_DRAIN_S_SW-01	TR_DRAIN_S_BT-01	TR_DRAIN_S_SW-02	TR_DRAIN_S_SW-03	TR_DRAIN_S_SW-04
1,1-Dichloroethane	ug/kg	2.7	ND (0.59)	14.7	6.1	**409**
1,1,1-Trichloroethane	ug/kg	3.2	ND (0.58)	8.3	6.3	**8560**
Heptachlor epoxide	ug/kg	**55.2** [f]	ND (0.46)	18.5 [h]	1.7 [h]	**20.2** [d]
Aroclor 1254	ug/kg	**1500**	396	998	108	334 [h]
Nickel	mg/kg	**141**	6.2	75.4	**458**	**226**

Client Sample ID:		TR_DRAIN_S_SW-01(T)	TR_DRAIN_S_SW-01(B)
1,1-Dichloroethane	µg/kg	ND (0.60)	ND (0.43)
1,1,1-	µg/kg	ND (0.59)	0.77 J
Benzo(a)anthracene	µg/kg	37.8	ND (9.5)
Benzo(a)pyrene	µg/kg	40.9	ND (15)
Benzo(b)fluoranthen	µg/kg	48.9	ND (15)
Chrysene	µg/kg	43.3	ND (11)
Heptachlor epoxide	µg/kg	ND (0.49) [c]	ND (0.43) [c]
Aroclor 1254	µg/kg	**46600**	77.3
Copper	mg/kg	**379**	8.6
Lead	mg/kg	**488**	3.1
Nickel	mg/kg	42.1	19.4

		TR_DRAIN_S_SW-04(T)	TR_DRAIN_S_SW-04(B)
1,1-Dichloroethane	µg/kg	0.63 J	ND (0.56)
1,1,1-	µg/kg	0.62 J	ND (0.55)
Benzo(a)anthracene	µg/kg	**2460**	ND (9.3)
Benzo(a)pyrene	µg/kg	**1880**	ND (15)
Benzo(b)fluoranthen	µg/kg	**2100**	ND (15)
Chrysene	µg/kg	**2210**	ND (10)
Heptachlor epoxide	µg/kg	<0.48	ND (0.47)
Aroclor 1254	µg/kg	**7470**	ND (17)
Copper	mg/kg	98.2	8.4
Lead	mg/kg	110	2.8
Nickel	mg/kg	30.1	10.2

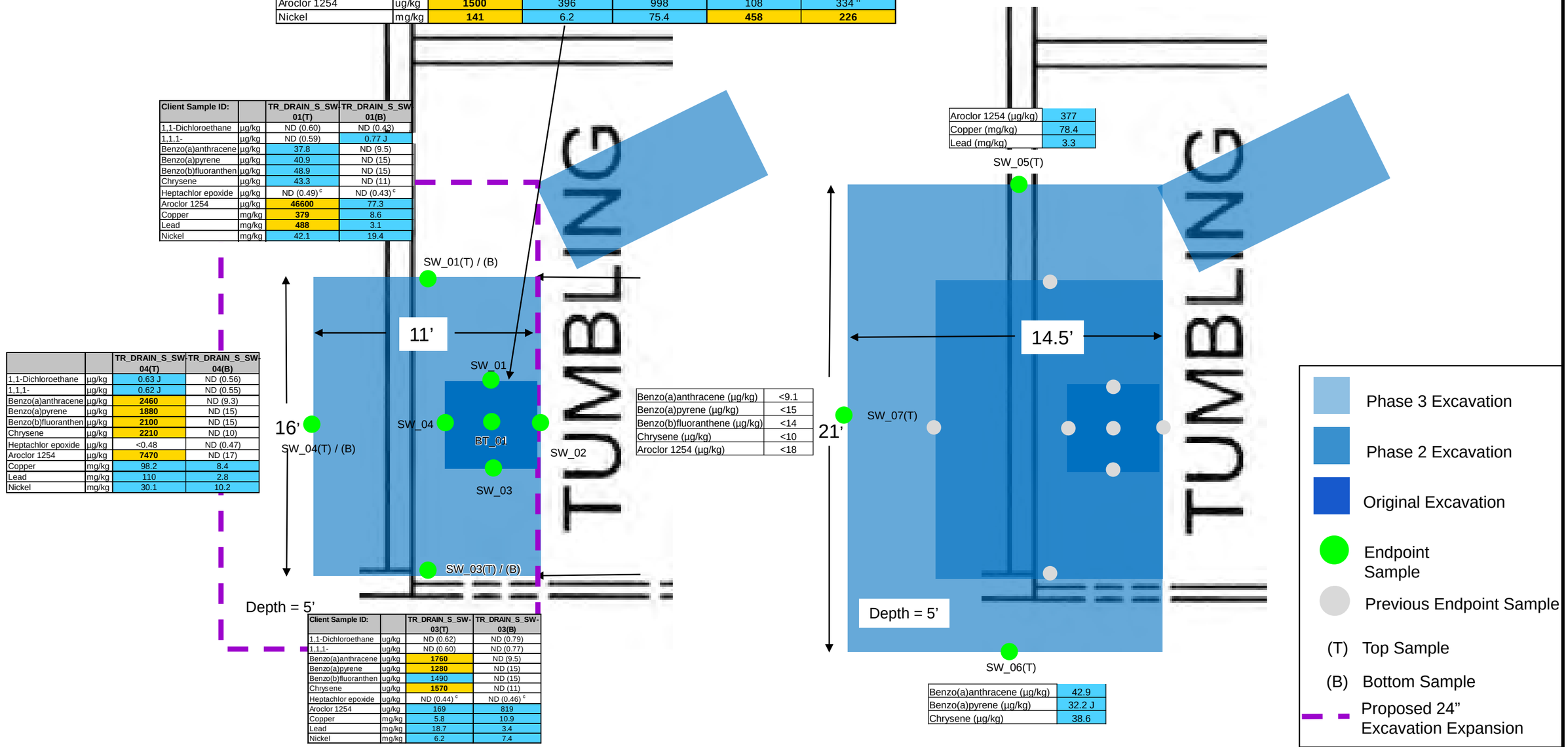
Benzo(a)anthracene (µg/kg)	<9.1
Benzo(a)pyrene (µg/kg)	<15
Benzo(b)fluoranthene (µg/kg)	<14
Chrysene (µg/kg)	<10
Aroclor 1254 (µg/kg)	<18

Client Sample ID:		TR_DRAIN_S_SW-03(T)	TR_DRAIN_S_SW-03(B)
1,1-Dichloroethane	ug/kg	ND (0.62)	ND (0.79)
1,1,1-	ug/kg	ND (0.60)	ND (0.77)
Benzo(a)anthracene	ug/kg	**1760**	ND (9.5)
Benzo(a)pyrene	ug/kg	**1280**	ND (15)
Benzo(b)fluoranthen	ug/kg	1490	ND (15)
Chrysene	ug/kg	**1570**	ND (11)
Heptachlor epoxide	ug/kg	ND (0.44) [c]	ND (0.46) [c]
Aroclor 1254	ug/kg	169	819
Copper	mg/kg	5.8	10.9
Lead	mg/kg	18.7	3.4
Nickel	mg/kg	6.2	7.4

Phase 3 No Further Action

Aroclor 1254 (µg/kg)	377
Copper (mg/kg)	78.4
Lead (mg/kg)	3.3

Benzo(a)anthracene (µg/kg)	42.9
Benzo(a)pyrene (µg/kg)	32.2 J
Chrysene (µg/kg)	38.6



Legend: Hit | Exceed

TUMBLING ROOM SOUTH DRAIN REMEDIAL EXCAVATION & RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **23**

AOC 11
Spray Booth

Spray Booth

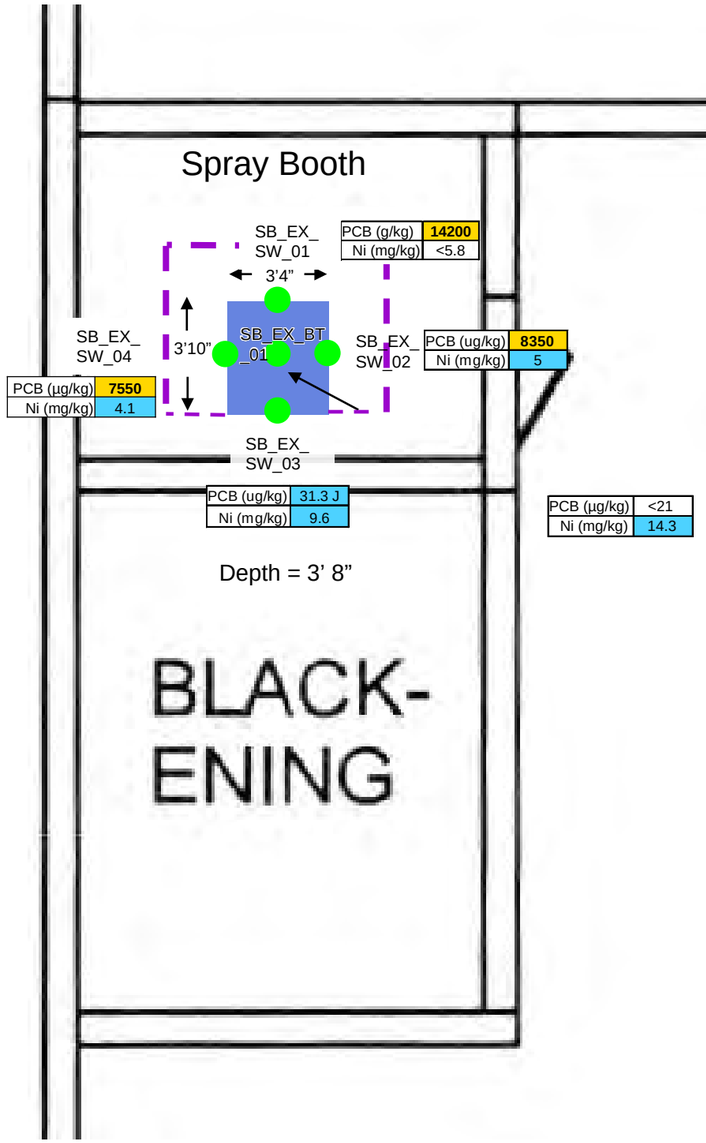
Shallow soil screening sample SB-35 **(Figure 4)** was collected from the soil directly beneath the Spray Booth, and benzo(a)anthracene, PCBs, and nickel were detected at concentrations exceeding their respective New York State Part 375-6 Protection of Groundwater SCOs.

Remedial excavation that included opening the concrete floor slab, excavation, and disposal of SVOC, PCBs and metals-impacted soils was recommended. The work was completed in three phases of excavation and post-excavation sidewall and bottom soil sampling for SVOCs, PCBs, and nickel during October 2020. Care was taken during excavation activities not to significantly undermine the concrete footer for the northern concrete block bearing wall or the adjacent building column footer. Accordingly, the third phase of excavation was terminated at the north wall footer and a post-excavation sample was collected from beneath the footer.

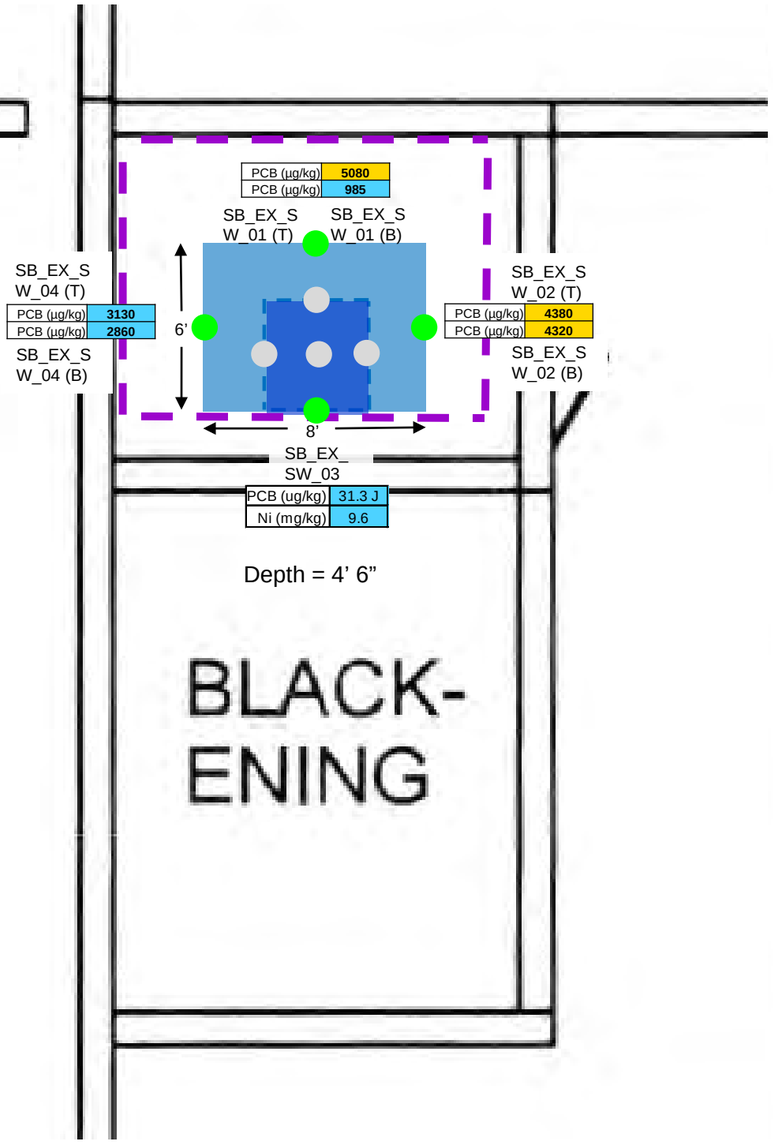
All post-excavation soil sample locations, benzo(a)anthracene, PCBs, mercury, and nickel concentrations are shown in **Figure 24**. Final post-excavation soil sampling results indicated successful horizontal and vertical remediation where all analyte concentrations were less than their respective Protection of Groundwater and Industrial SCOs except for the sidewall sample collected beneath the northern bearing wall footer where PCBs concentrations in that sample were 12,700 µg/kg, and the sidewall sample collected adjacent to the eastern wall where PCBs concentrations in that sample were 1,800 µg/kg.

No further excavation could be attempted due to concerns of undermining the northern concrete block bearing wall and building column footer and the excavation was backfilled with clean sand and the floor was subsequently repaired with a new reinforced concrete. The concrete and excavated soils were disposed of as PCB remediation waste.

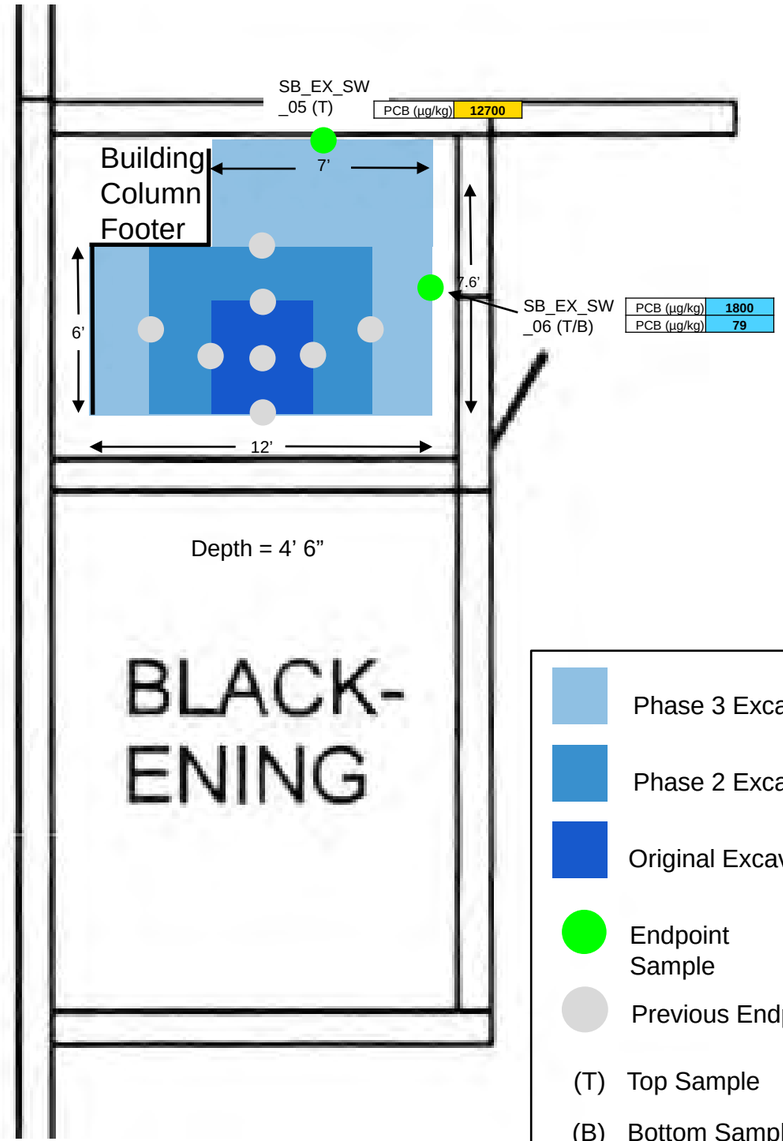
Phase 1
Advance To Phase 2



Phase 2
Advance To Phase 3



Phase 3
No Further Action



Phase 3 Excavation

Phase 2 Excavation

Original Excavation

Endpoint Sample

Previous Endpoint Sample

(T) Top Sample

(B) Bottom Sample

24" Excavation Expansion

Legend:	Hit	Exceed

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SPRAY BOOTH REMEDIAL EXCAVATION & RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **24**

AOC 12

Drill Press Area Oily Floor Surfaces

Drill Press Area

Concrete slab surfaces in the Drill Press Area were oil-stained/coated or covered with dust, dirt, and grime. PCBs (Aroclor 1254) were detected in the four wipe samples (CWs 01, 02, 03 and 04) collected from the Drill Press Area concrete floor slab at concentrations that ranged 12.7 µg/100 cm² - 106 µg/100 cm² **(Figure 6)** which make these porous (non-impervious) surfaces TSCA-regulated remediation waste requiring cleanup in accordance with 40 CFR § 761.125 - Requirements for PCB Spill Cleanup. The remedial approaches for each area were based on the regulations set forth in 40 CFR § 761 and further guidance and clarifications set forth in the United States Environmental Protection Agency's (USEPA) "November 2005 PCB Site Revitalization Guidance Under Toxic Substances Control Act (TSCA) – OPPT-2004-0123. Future use of this area would likely be considered "high occupancy" and the concrete slab is considered a "non-impervious" solid surface defined in 40 CFR § 761.

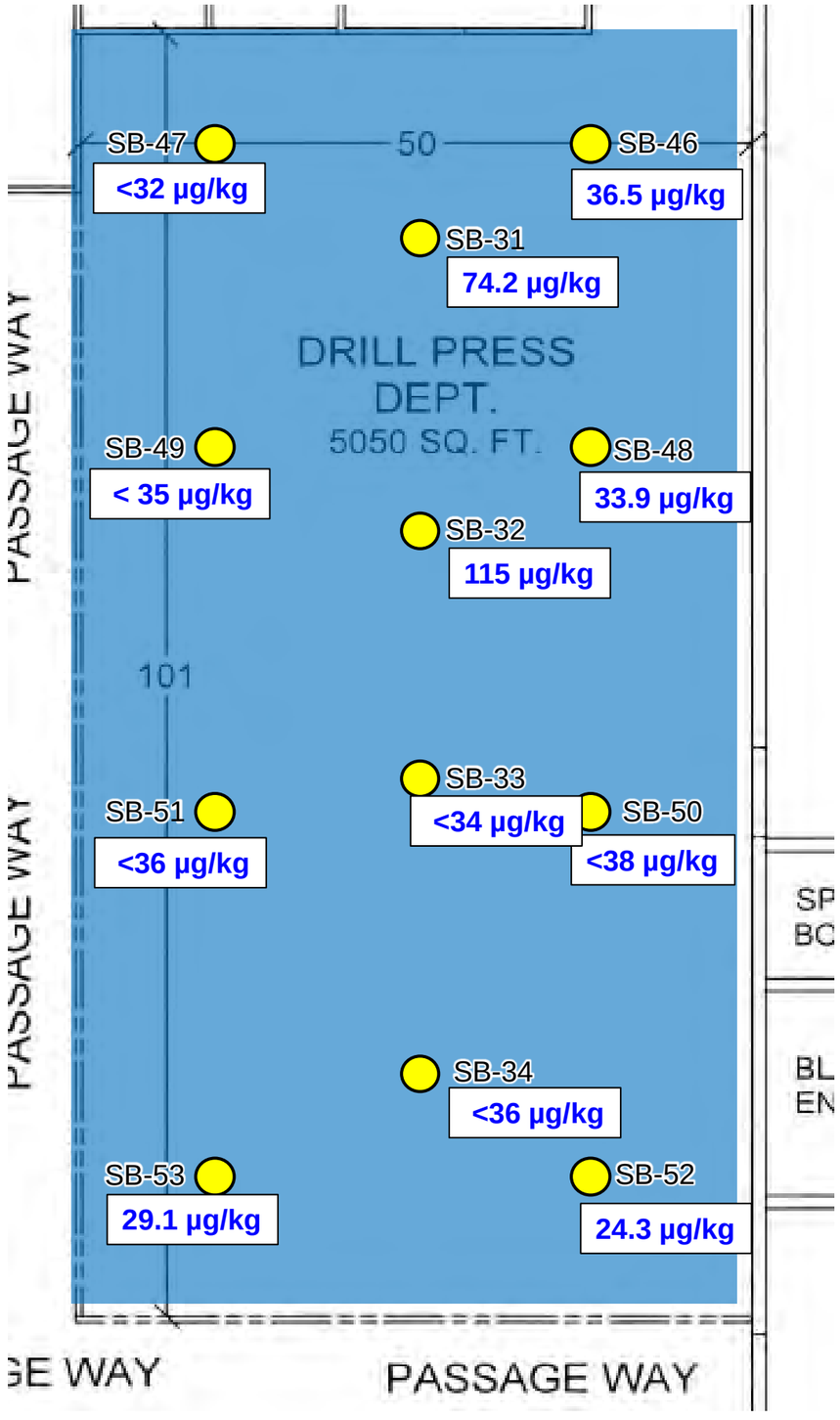
The extents of the affected concrete floor slab area were clearly visible as indicated by dark staining of the floor surface measuring 50 feet by 101 feet (5,050 ft2). Shallow soil screening samples (SBs 31 through 34: **Figure 6**) collected from directly beneath the floor slab in this area indicated PCB concentrations of <34 µg/kg to 115 µg/kg, far below the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

Cleaning/scarification of the concrete surface was considered but rejected due to the uncertainty of its effectiveness, and removal and replacement of the impacted concrete floor slab was the selected remedial approach. The entire 50-foot by 101-foot concrete floor slab area was sawcut and removed for disposal as PCB remediation waste.

An additional eight shallow soil samples (SBs 46 through 53: **Figure 6**) were collected once the floor slab was removed to supplement the initial four (4) soil samples SBs 31 through 34 for a total of 12 soil samples or one sample per 420 ft^2. All 12 soil sample locations and PCB concentrations are shown in **Figure 25**. PCB concentrations ranged from <32 µg/kg to 115 µg/kg with six of the locations being non-detect, and far below even the New York State Part 375-6 Unrestricted Use SCO of 1,000 µg/kg.

Soil excavation and disposal was not warranted nor performed. The floor was subsequently replaced with a new reinforced concrete floor slab. The concrete was disposed of as PCB remediation waste.

Phase 1
No Further Action



Sub-Slab Shallow Soil Sample

Concrete Removal Area

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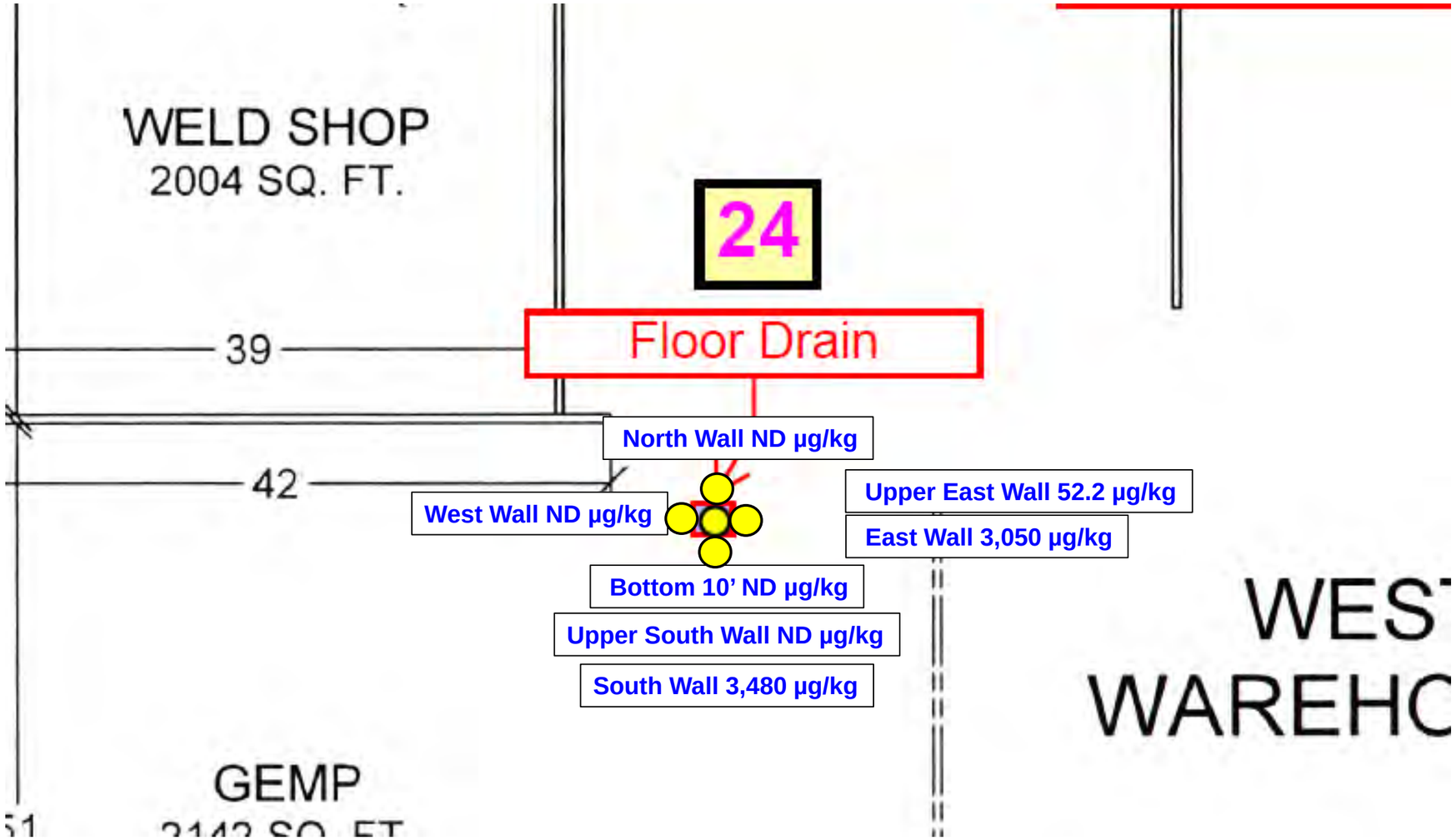
DRILL PRESS AREA CONCRETE REMOVAL & SUB-SLAB SOIL SAMPLING RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **25**

AOC 24

Floor Drain FD-1 In Western End of Building



Post-Excavation Soil Sample

This work completed by Allen, the excavation was completed and backfilled with clean soil and the floor closed with new concrete.

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FLOOR DRAIN FD-1 POST-EXCAVATION SOIL SAMPLING RESULTS

225-255 E 2nd Street, Mineola, New York

Figure **26**

AOCs 25 & 26
Western & Eastern Former Drum Storage Area Excavations

Excavation and Removal of Contaminated Soil in the Drum Storage Areas

There were two former drum storage areas on the Site. One former drum storage area was situated midway along the asphalt-paved rear of the Facility and referred to, herein, as the "western" excavation. The other asphalt-paved former drum storage area was located to the east of the western excavation and is referred to, herein, as the "eastern" excavation. These two areas are illustrated on **Figure 27**.

On May 27, 2003, the remedial excavation and off-site removal of contaminated soil from both the western and eastern excavation areas began and continued in several phases of exploratory work up through July 31, 2003. A series of end-point soil samples were collected at the end of each excavation effort as illustrated on **Figure 27**. The investigative excavations were advanced on the AK Allen property both laterally and vertically until soils appeared visually clean and/or did not have any noticeable odor, or a PID meter detection.

In addition, soil was excavated south of the property boundary along the slope of the railroad embankment up to the gravel ballast bed of the railroad tracks. The excavation (sidewall and bottom) samples were collected as outlined in the NYSDEC-approved Work Plan to confirm the soil quality that would remain on Site.

Western Excavation - The western excavation extended from the southern portion of the AK Allen parking lot down along the embankment of the LIRR. At the direction of the LIRR Flagman, the excavation was terminated at approximately 4 to 5 feet from the railroad ties supporting the active westbound LIRR track.

The PCB concentrations are shown in **Figure 27** where only final PCB concentrations are plotted and ranged from non-detect to 9,420 µg/kg. Those higher concentrations from borings located south of the southern extent of the excavation were addressed by the 2007 off-Site excavations discussed in **Figures 28 and 29.**

Eastern Excavation - The eastern excavation was relatively smaller and extended from the southern portion of the AK Allen parking lot and down along the embankment of the LIRR. The soil in the southern sidewall appeared clean during this excavation and the LIRR Flagman did not require that this excavation be terminated before reaching a clean end-point.

The PCB concentrations are shown in **Figure 27** where only final PCB concentrations are plotted and ranged from non-detect to 3,720 µg/kg.

The Western and Eastern excavations were backfilled with Recycled Crushed Aggregate (RCA) base course material. The parking lots were then covered with asphalt.

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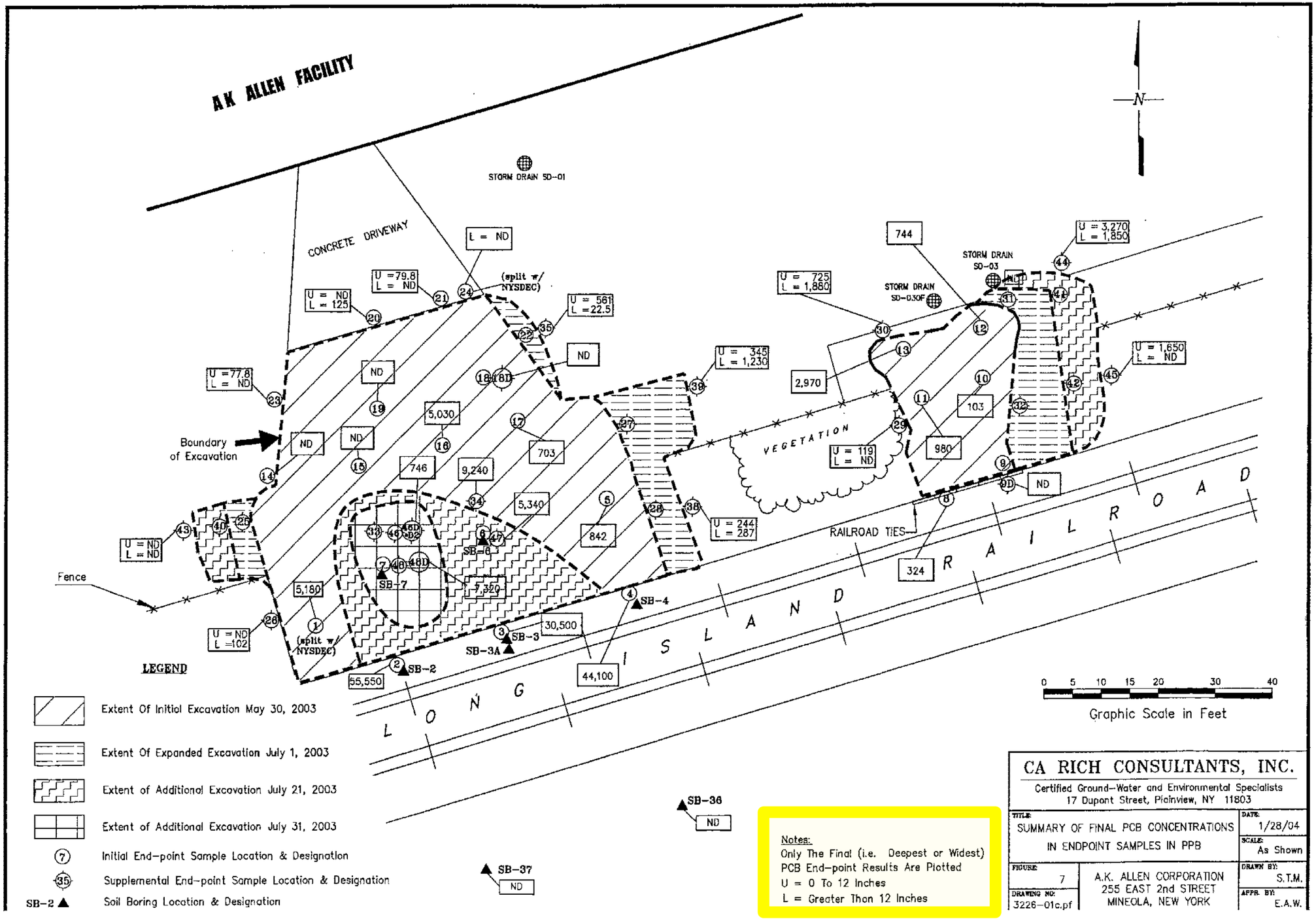
WESTERN & EASTERN EXCAVATION AREA OFF-SITE POST-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS
225-255 E 2nd Street, Mineola, New York

Figure **27**



Notes:
Only The Final (i.e. Deepest or Widest) PCB End-point Results Are Plotted
U = 0 To 12 Inches
L = Greater Thon 12 Inches

CA RICH CONSULTANTS, INC.
Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, NY 11803

TITLE: SUMMARY OF FINAL PCB CONCENTRATIONS IN ENDPOINT SAMPLES IN PPB	DATE: 1/28/04
	SCALE: As Shown
FIGURE: 7	DRAWN BY: S.T.M.
DRAWING NO: 3226-01c.pf	APPR. BY: E.A.W.

A.K. ALLEN CORPORATION
255 EAST 2nd STREET
MINEOLA, NEW YORK

ERM

WESTERN & EASTERN EXCAVATION AREA OFF-SITE POST-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS
225-255 E 2nd Street, Mineola, New York

Figure **27**

Off-Site Excavation On LIRR Tracks

At the completion of the IRM and Supplemental RI, it was determined that the excavation endpoint soil samples collected along the southern sidewalls of the western excavation area, down along the embankment of the LIRR right-of-way, contained elevated levels of VOCs, SVOCs, PCBs and some select metals. Based on the results of the Supplemental RI, the impacted soil within the railroad right-of-way was delineated and consisted of an area of approximately 70 feet by 15 feet with a thickness of approximately 4 feet deep **(see Figure 28)**. This soil existed within LIRR property and was covered with one foot or more of soil and crushed-rock gravel material referred to as "ballast".

Based upon the findings of the Off-Site Feasibility Study, selected SVOCs and the metals arsenic, cadmium and chromium that were detected at concentrations slightly above the NYSDEC TAGM criteria were at levels typical of urban areas and railroad right-of-ways. Therefore, the contaminants of concern that were targeted for remediation included only VOCs and PCBs.

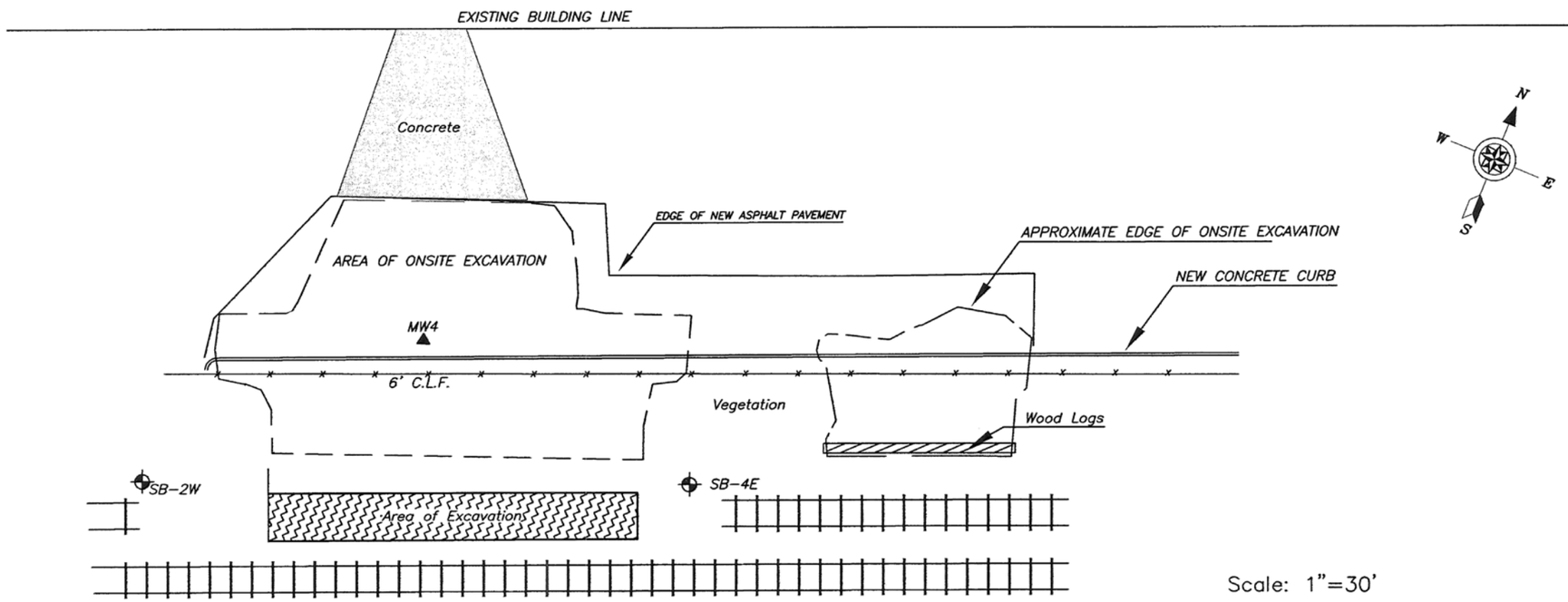
The remedial action completed for the off-Site portion of this Site included the excavation and removal of contaminated soil from the approximately 70 ft. x 15 ft. x 3 ft. beneath one of the LIRR tracks. The remedial action occurred on August 25-26, 2007, at a time when the LIRR had a scheduled 48-hour temporary track outage. The excavation of impacted soil commenced immediately following LIRR’s temporary removal of the affected section of the northern railroad track and ties adjoining the rear of the AK. Allen Site.

The area delineated for excavation is illustrated in **Figure 29** and consists of a section of LIRR property that is approximately 70 feet by 15 feet with a thickness of approximately 3-4 feet deep. Prior to excavating the area, an underground utility mark-out was completed by the LIRR and the One Call Center for public utilities. The underground utility mark-out identified that there is an active high voltage electric cable owned by the Long Island Power Authority (LIPA) that is buried within the northern boundary of the area delineated to be excavated. The existence of an active high-voltage electric cable owned by LIPA was found to be buried within the northern boundary of the area delineated to be excavated. At the insistence of LIPA and with the concurrence of the NYSDEC, the width of the excavation was changed from 15 feet to approximately 10 feet to avoid LIPA's cable.

Once the excavation was advanced to the desired configuration,16 discrete soil samples were collected across the bottom and sidewalls of the excavation. The soil profile within the excavation consisted of a ballast surface down to approximately two feet followed by an approximate 20-inch-thick layer of dark, discolored soil/fill containing a mix of ash and cinder before a clearly definable transition to light tan-brown, coarse sand occurred at approximately 3-4 feet.

The reported concentrations of certain PCBs in the excavation endpoint soil samples are shown in the inset tables in **Figure 29** and ranged from non-detect to 3,021µg/kg.

AK ALLEN FACILITY



Scale: 1"=30'

Notes: Excavation Dimensions
70 ½' x 9 ¼' x 4' to 5' Deep

Sample Collection Depths (Below Ballast Grade)

Sample ID	Depth (Feet)
SWEP-01	4
BEP-02	4-5
BEP-03	4-5
BEP-04	4-5
BEP-05	4-5
SWEP-06	4
SWEP-07	4
SWEP-08	4
SWEP-09 (4')	4
SWEP-10	4
SWEP-11	3
SWEP-12	3
SWEP-13	4
SWEP-14	4
SWEP-15 (2')	2
BEP-16	4-5 (Duplicate of BEP-05)

Legend

- Soil Sample Collected At an Earlier Date
- Monitoring Well Location
- Area of Offsite Excavation of August 25, 2007

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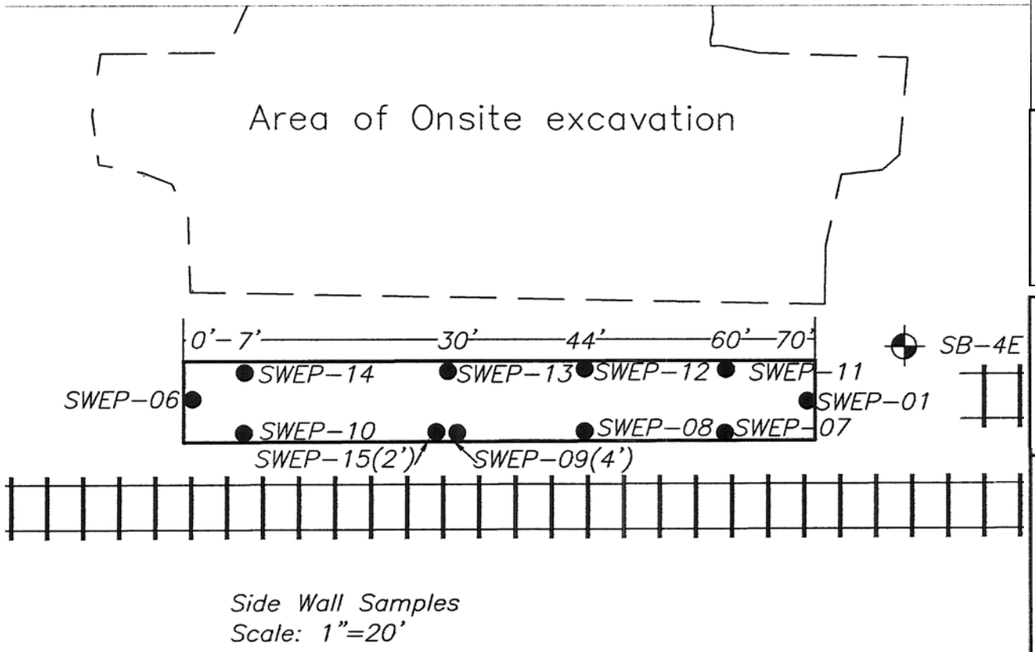
Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: AREA OF OFFSITE EXCAVATION AUGUST 25, 2007	DATE: 12/6/2007
	SCALE: AS SHOWN
FIGURE: 2	AK ALLEN CORPORATION 255 EAST 2ND STREET MINEOLA, NY
	DRAWN BY: J.T.C.
DRAWING NO: 2007-37A	APPR. BY: S.T.S.

ERM

WESTERN EXCAVATION AREA OFF-SITE POST-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS : 36" - 42"
225-255 E 2nd Street, Mineola, New York

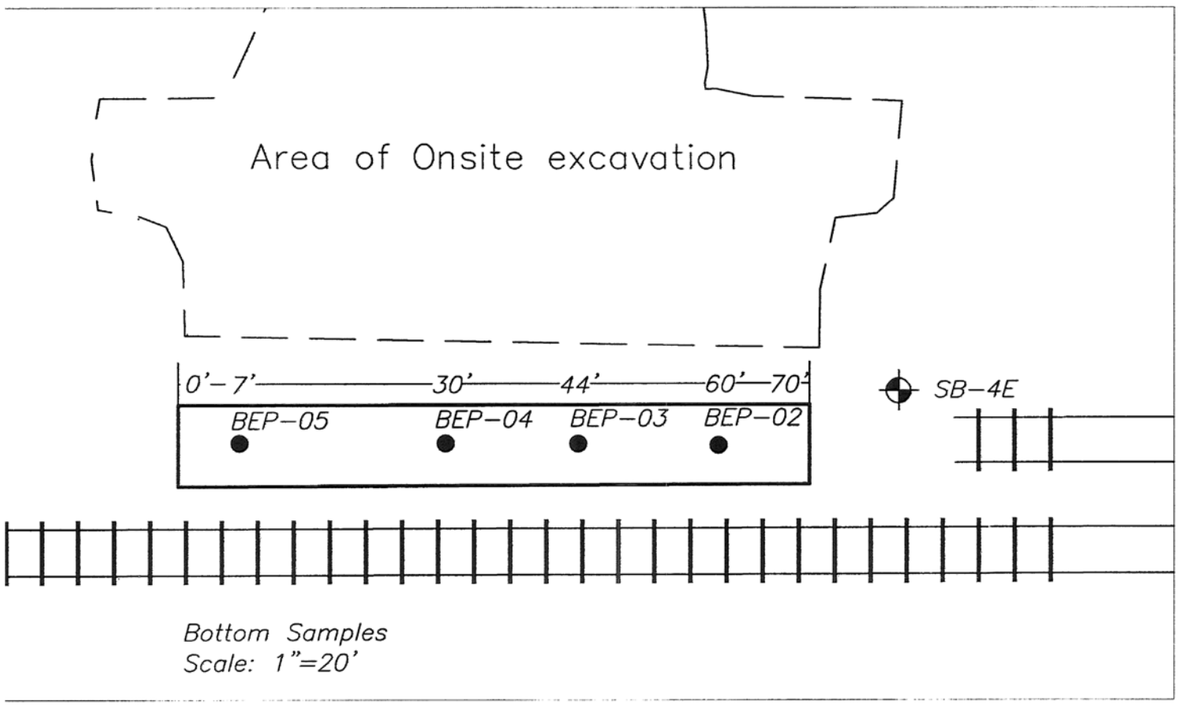
Figure **28**



Side Wall Samples
Scale: 1"=20'

Sample ID	SWEP-01	BEP-02	BEP-03	BEP-04	BEP-05	BEP-16	SWEP-06	SWEP-07	SWEP-08
Matrix	Soil	Soil	Soil	Soil	Soil	Duplicate BEP-05	Soil	Soil	Soil
Date Sampled	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007
Location	Sidewall	Bottom	Bottom	Bottom	Bottom	Bottom	Sidewall	Sidewall	Sidewall
Depth in Feet	4 ft.	4-5 ft.	4-5 ft.	4-5 ft.	4-5 ft.	4-5 ft.	4 ft.	4 ft.	4 ft.
PCBs (USEPA Method 8082)									
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Aroclor 1254	341	1070	519	ND	ND	ND	ND	92.3	362
Aroclor 1260	ND	ND	81.3	ND	ND	ND	76.0	54.7	74.5

Sample ID	SWEP-09(4')	SWEP-10	SWEP-11	SWEP-12	SWEP-13	SWEP-14	SWEP-15(2')
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date Sampled	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007	8/25/2007
Location	Sidewall	Sidewall	Sidewall	Sidewall	Bottom	Sidewall	Sidewall
Depth in Feet	4 ft.	4 ft.	3 ft.	3 ft.	4 ft.	4 ft.	2 ft.
PCBs (USEPA Method 8082)							
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Aroclor 1254	ND	ND	637	200	887 J	ND	2440
Aroclor 1260	ND	ND	95.2	40.9	ND UJ	ND	581.0



Bottom Samples
Scale: 1"=20'

Legend

- Soil Sample Collected At an Earlier Date
- Offsite Excavation Endpoint Soil Sample Location

CA RICH CONSULTANTS, INC.
Certified Ground–Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: EXCAVATION ENDPOINT SAMPLE LOCATION AUGUST 25, 2007	DATE: 12/6/2007
	SCALE: AS SHOWN
FIGURE: 3	DRAWN BY: J.T.C.
DRAWING NO: 2007–37	APPR. BY: S.T.S.

AK ALLEN CORPORATION
255 EAST 2ND STREET
MINEOLA, NY

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WESTERN EXCAVATION AREA OFF-SITE POST-EXCAVATION SOIL BORING/SAMPLE PCB RESULTS
225-255 E 2nd Street, Mineola, New York

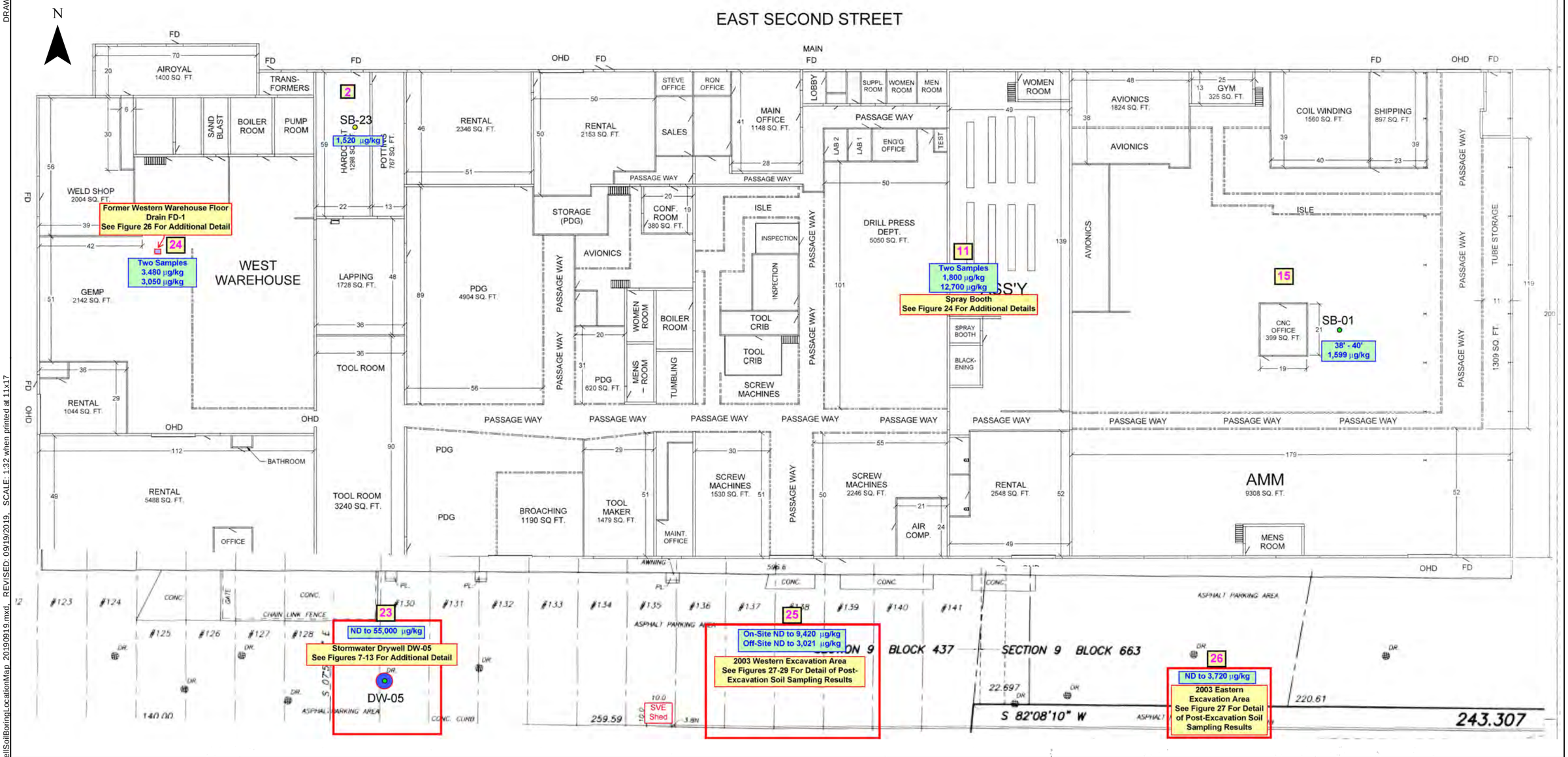
Figure **29**

Figure 30

Locations Where Soil Sample Results Indicate PCB-Contaminated Soil Above 1 PPM Is Currently Remains On-Site

DRAWN BY: SRV

J:\Projects\Misc\Steel Equities\ MXD\Figure1-DryWellSoilBoringLocationMap_20190919.mxd, REVISED: 09/19/2019, SCALE: 1:32 when printed at 11x17



Legend

- Shallow Soil Sample (0-12")
- Geoprobe Boring (Depth Varies)
- Storm Water Drywell

Former Areas of Concern

2. Hard Coating (Plating) Room
11. Spray Booths
15. Eastern Portion of Building Constructed Over Backfilled Former Sand Mine
23. Storm Water Drywell DW-05
24. Floor Drain FD-1 In Western End of Building
25. Western Excavation Area - Former Drum Storage
26. Eastern Excavation Area - Former Drum Storage

Notes:

1. Not to Scale

Figure 30
Locations Where PCB Concentrations >1PPM Currently Remain On-Site

225-255 E 2nd St
Mineola, New York

Environmental Resources Management
www.erm.com
ERM

APPENDIX C DATA USABILITY SUMMARY REPORTS

ENVIRONMENTAL
Data Services, Inc.

DATA USABILITY SUMMARY REPORT (DUSR)

Site: Steel Equities, 224 East Second Street, Mineola, New York

Laboratory: SGS North America Inc., Dayton, New Jersey

Sample Delivery Groups (SDGs): JC93487 to JC98657 (2019 Data)

Date: January 14, 2022 rev March 4, 2022

Note (s): The laboratory reports positively identified results between the reporting limit (RL) and the method detection limit (MDL) with a J. These results are considered estimated, however still valid and useable for project objectives.

The laboratory reports non-detects as ND on the Form 1s. Any qualification that requires non-detects to be qualified as estimated, UJ, will be presented as UJ in final data tables.

This DUSR applies to the 14 SDGs noted above.

VOLATILE ORGANIC COMPOUNDS
USEPA SW-846 8260C

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

Holding Times (HT) - All HT criteria were met.

Method Blank (MB) - No target analytes were observed in the MBs except those listed below.

MB ID	Analyte (Concentration ppb)	Qualifier
V3C6920-MB	Methylene chloride (1.4)	None – All ND

Blank Spike Sample (BSS) – All percent recovery (%R) met QC criteria except those listed below.

Analytical Batch	Analyte(s)	Bias	Qualifier
V1C7298	Bromomethane	High	None – All ND
VC8477	Styrene	High	None – All ND
V1C7302	Bromomethane	High	None – All ND
V1C7303	Bromomethane	High	None – All ND
V1C7312	Bromomethane	High	None – All ND
V1C7313	Bromomethane	High	None – All ND
V1C7316	Bromomethane	High	None – All ND

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - MS/MSDs were not collected with this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and relative percent difference (RPD) met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JC93733-3	Carbon disulfide 1,1-Dichloroethene Freon 113	OK / OK / Out OK / High / Out OK / OK / Out	NA NA NA
JC93835-1	Bromomethane Methyl Acetate	High High	None – ND None – ND
JC94220-1	Bromomethane	High	None – ND
JC94343-2	1,1-Dichloroethene, Trichlorofluoromethane	High High	None – ND None – ND

NA – Not Applicable. Qualification not performed unless both MS & MSD have deficient %R or when only RPD is deficient.

Matrix Duplicate (MD) – MD were not collected with this data set, however the lab analyzed MDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All RPD met criteria except those listed below. Qualification is limited to the sample the MD was performed on.

Lab ID	Analyte(s)	Qualifier
JC93487-4	Acetone 2-Butanone Methylene chloride	J J J
JC93548-2	Methylene chloride	NA
JC93733-6	Acetone	NA
JC93835-8	Acetone Methylene chloride	NA NA
JC94343-2	Methylene chloride	NA

NA – Qualification not performed when detections are less than five times the RL.

GC/MS Tuning - All of the instrument tunes met QC criteria.

Internal Standard (IS) Area Performance - All internal standards met area response and retention time (RT) criteria except those I the table below.

Lab ID	IS	Area	Qualifier
JC93660-3 *	1,4-Dichlorobenzene-d4	Low	J/UJ

* - Sample reanalyzed as medium level with similar concentrations and acceptable IS area. Results reported from initial analysis.

Surrogates - All surrogate %R met QC criteria except those in the table below.

Lab ID	Surrogate	%R	Qualifier
JC93660-3 *	4-Bromofluorobenzene	High	J/None

* - Sample reanalyzed as medium level with similar concentrations and acceptable %R. Results reported from initial analysis.

Initial Calibration (ICAL) - The ICAL exhibited %RSD and mean relative response factor (RRF) values that did not require data to be rejected. Qualification for minor exceedances is not part of the project DQO.

Continuing Calibration (CCV) – The CCVs exhibited percent deviation (%D) and RRF values that did not require data to be rejected. The laboratory has noted analytes not meeting CCV criteria in the narratives, however the %D met validation criteria in most instances. Qualification for minor exceedances is not part of the project DQO.

Blind Field Duplicate – No blind field duplicates were collected with this data set. No qualification of the sample data is required due to this.

Sample Analysis – Several samples were analyzed at dilutions in an effort to obtain target analyte concentrations within the calibration range. The dilutions were justified. The end user should be aware of elevated RLs. No qualification required.

Samples were also reanalyzed, for confirmation purposes, using soil from a jar as no encores were available. No qualification as this was for confirmation only.

No other issues were observed.

SEMIVOLATILE ORGANIC COMPOUNDS
USEPA SW-846 8270D

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

MB - The MBs exhibited no target analytes.

BSS – All %R met QC criteria.

MS/MSD - MS/MSDs were not collected with this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JC93487-1	2,4-Dinitrophenol	Low/Low/NC	UJ
	4,6-Dinitro-o-cresol	Low/Low/NC	UJ
	Hexachlorocyclopentadiene	Low/Low/Out	UJ
JC93733-2	2,4-Dinitrophenol	<10%	R
	3,3'-Dichlorobenzidine	<10%	R
	4,6-Dinitro-o-cresol	<10%	R
JC94559-1	2,4-Dinitrophenol	<10%	R
	4,6-Dinitro-o-cresol	<10%	R

NA – Not Applicable. Qualification not performed unless both MS & MSD have deficient %R.

GC/MS Tuning - All of the instrument tunes met QC criteria.

IS Area Performance - All IS met QC criteria.

Surrogates - All surrogate %R met QC criteria except those in the table below.

Lab ID	Surrogate	%R	Qualifier
JC93660-2 *	2-Fluorobiphenyl	Low	NA

* - Sample re-extracted; confirms %R. Results reported from initial analysis.
NA - No qualification as only one %R per fraction was outside criteria; qualification not performed unless two or more out.

ICAL - The ICAL exhibited %RSD and mean RRF values that did not require data to be rejected.

CCV – The CCVs exhibited %D and RRF values that did not require data to be rejected. The lab noted analytes not meeting CCV criteria in the narratives, however the %D met validation criteria in most instances. The lab also indicated low-level verification was performed in some instances to demonstrate system suitability to detect all analytes. Qualification for minor exceedances is not part of the project DQO.

Blind Field Duplicate – No blind field duplicates were collected with this data set. No qualification of the sample data is required due to this.

Sample Analysis – Several samples were analyzed at dilutions in an effort to obtain target analyte concentrations within the calibration range and other samples due to the sample matrix. The dilutions were justified. The end user should be aware of elevated RLs. The lab has reported the final result only on the Form 1s. No qualification required.

No other issues were observed.

PESTICIDES/POLYCHLORINATED BIPHENYLS (PCBs)/HERBICIDES

USEPA SW-846 8081B / USEPA SW-846 8082A /USEPA SW-846 8151A

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

MB - No target analytes were observed in the MBs except those listed below. B qualifiers have been removed.

MB ID	Analyte (Concentration ppb)	Associated Samples	Qualifier	Qualified Samples
OP23712-MB1	Aroclor 1254 (59.4)	JC97566-1, JC97566-2, JC97566-5, JC97566-6, JC97566-14, JC97566-15, JC97566-24	U	None – All > 5 x blank

BSS – All %R met QC criteria except those listed below.

Preparation Batch	Analyte(s)	Bias	Qualifier
OP22287	Most Pesticides	High	None – All ND

MS/MSD - MS/MSDs were not collected with this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JC93487-3	alpha-Chlordane gamma-Chlordane Heptachlor epoxide	High/High/OK High/High/OK OK/High/OK	None – ND None – ND NA
JC93548-1	Most Pesticides	High	None – for ND J for detects
JC93835-9	Methoxychlor Endrin ketone	High / OK / OK High / High / OK	NA None – ND
JC94343-8	Aroclor 1260	High / High / OK	J/UJ – all Aroclors
JC97636-31	Most Herbicides	Low	UJ *
JC97636-12	Aroclor 1260	High / High / OK	J/UJ – all Aroclors
JC98657-3	Most Pesticides	Low/OK/Out	UJ

NA – Not Applicable. Qualification not performed unless both MS & MSD have deficient %R.
* - Not rejected per project DQO. All samples from data set qualified conservatively.

IS Area Performance - All IS met QC criteria.

Breakdown Check – All criteria were met.

Surrogates - All surrogate %R met QC criteria except those in the table below. No qualification is required for %R that were out due to sample dilution or in the confirmation column only and are not included in the table.

Lab ID	Surrogate	%R Bias	Qualifier
JC93487-6 (Pest)	Decachlorobiphenyl	High	J detects only
JC93487-6 (PCB)	Decachlorobiphenyl	High	None – All ND
JC93548-1 (Pest) *	Tetrachloro-m-xylene Decachlorobiphenyl	High/OK Low/Low	None – All ND UJ non-detects
JC93733-3 (Pest/PCB)	Tetrachloro-m-xylene	High	J detects only
JC94220-7 (Pest/PCB)	Tetrachloro-m-xylene	High/High	J detects only

Lab ID	Surrogate	%R Bias	Qualifier
JC94220-1 (PCB)	Decachlorobiphenyl	OK/High	None – All ND
JC94343-4 (Pest)	Tetrachloro-m-xylene	High/High	None – All ND
JC94343-4 (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	High/High	None - DL
JC94343-14 (PCB)	Tetrachloro-m-xylene	High/OK	J detects only
JC94343-18 (PCB)	Decachlorobiphenyl	High/OK	J detects only
JC94343-20 (PCB)	Decachlorobiphenyl	OK/High	J detects only
JC96796-13, 15-17 (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – Diluted out
JC97636-8, 17 (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – Diluted out
JC97636-35 (PCB)	Decachlorobiphenyl	High	None – All ND
JC98657-3 (Pest)	Tetrachloro-m-xylene Decachlorobiphenyl	Low/Low Low/OK	None – see MS

* - sample reanalyzed; %R confirmed.

ICAL - The ICAL exhibited %RSD and mean RRF values that did not require data to be rejected.

CCV – The CCVs exhibited %D values that did not require data to be rejected.

Blind Field Duplicate – No blind field duplicates were collected with this data set. No qualification of the sample data is required due to this.

Sample Analysis – Several samples were analyzed at dilutions in an effort to obtain target analyte concentrations within the calibration range and other samples due to the sample matrix. The dilutions were justified. The end user should be aware of elevated RLs. The lab has reported the final result only on the Form 1s. No qualification required.

Analytes positively identified with an RPD between the two GC columns >40% are possibly biased and have been qualified J.

Some analytes were reported from the second analytical column due to minor QC issues on the first analytical column. This is acceptable. No qualification is required unless there is a QC issue from the second analytical column.

No other issues were observed.

INORGANICS
USEPA SW-846 6010D/7471B/9012B

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

Blanks - The initial calibration, continuing calibration, preparation, and method blanks exhibited no target analytes that required qualification of the sample data.

ICAL/CCV - The calibrations applicable to the samples exhibited %R values that did not require data to be rejected.

Interference Check Sample – All %R were within QC criteria.

MS/MSD - MS/MSDs were not collected with this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JC93548-3	Aluminum	High/High/OK	J
	Iron	High/OK/OK	NA
	Calcium	OK/OK/Out	NA
	Magnesium	OK/OK/Out	NA
	Cadmium	OK/OK/Out	NA
	Selenium	OK/OK/Out	NA
	Silver	OK/OK/Out	NA
	Mercury	OK/Low/OK	NA
JC93835-3	Mercury	OK/Low/OK	NA
JC93835-4	Aluminum	OK/High/OK	NA
	Iron	OK/High/OK	NA
	Manganese	OK/High/OK	NA
JC94343-5	Aluminum	High/OK/OK	NA
	Iron	High/OK/OK	NA
JC94559-1	Mercury	Low/Low/OK	J

NA – Qualification not performed unless both MS & MSD have deficient %R or when only RPD is deficient.

LCS - All %R met QC criteria.

Serial Dilution (SD) – The SDs exhibited acceptable %D except those in the table below. Qualification is limited to the sample the SD was performed on with positive detections qualified J. Several case narratives document analytes with %D above QC limits in the SD, however the initial sample concentrations were not greater than 50 times the instrument detection limit (IDL). No qualification of the sample data is required as the QC limit does not apply in these instances. These are not included in the table below.

Lab ID	Analyte	Qualifier
JC93548-3	Chromium	J
	Sodium	None - ND
JC93835-4	Calcium	NA
	Chromium	NA
	Cobalt	NA
	Iron	NA
	Lead	NA
	Magnesium	NA
	Manganese	NA
JC94343-5	Calcium	NA
	Zinc	NA

NA – Qualification not performed for soil samples unless %D > 25%.

Blind Field Duplicate – No blind field duplicates were collected with this data set. No qualification of the sample data is required due to this.

Sample Analysis – Several analytes were analyzed at dilutions in an effort to obtain concentrations within the calibration range, due to the sample matrix, and due to high interfering elements. The dilutions were justified. The lab has reported the final result only on the Form 1s. No qualification required. The end user should be aware of elevated RLs.

No other issues were observed.

GENERAL CHEMISTRY

SW9012B, SW7196A, SW9045D, SW9034

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

The lab notes in the narratives they are not certified for Redox Potential vs H2, Oxidation-Reduction Potential (ORP) by ASTM D1498-76M as certification is not

supported by their certifying agency. This is acceptable to meet the DQO for this project therefore no ORP data requires qualification.

MB - The MBs exhibited no target analytes that required qualification of the sample data.

BSS – All %R met QC criteria except those listed below.

Preparation Batch	Analyte(s)	Bias	Qualifier
GP25144/ GN2699	Cyanide	High	J detects only

MD – MD were not collected with this data set, however the lab analyzed MDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All RPD met criteria except those listed below. Analytes with concentrations < 5x RL are not listed and do not require qualification. Qualification is limited to the sample the MD was performed on.

Lab ID	Analyte(s)	Qualifier
JC93660-4	Chromium, Hexavalent	UJ

MS/MSD - MS/MSDs were not collected with this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on unless the entire batch was reanalyzed.

Lab ID	Analyte(s)	MS %R	Qualifier	Associated Samples
JC93548-1	Chromium, Hexavalent	Low	UJ	1
JC93733-2	Cyanide	Low	J	2
JC94220-1	Chromium, Hexavalent	Low	J/UJ	1, 2, 6
JC94220-1R	Chromium, Hexavalent	Low	J/UJ	7R
JC94343-1	Chromium, Hexavalent	Low	J/UJ	1,6,7,9,10,12,13,15-17, JC94559-1,2
JC94343-1R	Chromium, Hexavalent	Low	J/UJ	2,-5,8,11,14R
JC97636-31	Chromium, Hexavalent	Low	J	31, 32
JC98657-1	Chromium, Hexavalent	Low	J/UJ	1-4

Blind Field Duplicate – No blind field duplicates were collected with this data set. No qualification of the sample data is required due to this.

Sample Analysis – Several samples were reanalyzed due to poor MS %R for Hexavalent Chromium. Data are qualified as above. Conservatively the higher concentration has been reported when multiple analyses are reported.

No other issues were observed.

Data Qualifier	Definition
None	The analyte was positively identified at the associated numerical value which is the concentration of the analyte in the sample.
U (ND)	Non-Detect. The analyte was analyzed for, but not detected. The associated numerical value is the RL. The value is usable as a non-detect at the RL.
J	Estimated value. The analyte was detected at a concentration below the RL but greater than the MDL or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ (ND J)	The analyte was analyzed for, but not detected. The associated numerical value is the RL. The value is an estimated quantity due to a QC exceedance. The value is usable as a non-detect at the estimated RL.

ENVIRONMENTAL
Data Services, Inc.

DATA USABILITY SUMMARY REPORT (DUSR)

Site: Steel Equities, 224 East Second Street, Mineola, New York

Laboratory: SGS North America Inc., Dayton, New Jersey

Sample Delivery Groups (SDGs): JD13834 to JD15866 (2020 Data)

Date: January 14, 2022 rev March 14, 2022

Note (s): The laboratory reports positively identified results between the reporting limit (RL) and the method detection limit (MDL) with a J. These results are considered estimated, however still valid and useable for project objectives.

The laboratory reports non-detects as ND on the Form 1s. Any qualification that requires non-detects to be qualified as estimated, UJ, will be presented as UJ in final data tables.

This DUSR applies to the 23 SDGs noted above. Two samples in JD13835 are a waste characterization samples and not part of this review. Several samples in JD14140 were put on HOLD and analysis was never requested.

VOLATILE ORGANIC COMPOUNDS
USEPA SW-846 8260D

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

Holding Times (HT) - All HT criteria were met.

Method Blank (MB) - No target analytes were observed in the MBs.

Blank Spike Sample (BSS) – All percent recovery (%R) met QC criteria except those listed below.

Analytical Batch	Analyte(s)	Bias	Qualifier
V1C7621	Bromomethane	High	None – All ND
V1C7626	Bromomethane	High	None – All ND

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - MS/MSDs were not collected with every SDG in this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and relative percent difference (RPD) met criteria.

Matrix Duplicate (MD) – MD were not collected with every SDG in this data set, however the lab analyzed MDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All RPD met criteria except those listed below. Qualification is limited to the sample the MD was performed on.

Lab ID	Analyte(s)	Qualifier
JD14140-12	Tetrachloroethene 1,1,1-Trichloroethane	NA NA
JD14978-2	Acetone	NA

NA – Qualification not performed when detections are less than five times the RL.

GC/MS Tuning - All of the instrument tunes met QC criteria.

Internal Standard (IS) Area Performance - All internal standards met area response and retention time (RT) criteria.

Surrogates - All surrogate %R met QC criteria except those in the table below.

Lab ID	Surrogate	%R	Qualifier
JD14495-1 *	4-Bromofluorobenzene	High	J/None
JD14495-4 *	4-Bromofluorobenzene	High	J/None

* - Sample reanalyzed as medium level with similar concentrations and acceptable %R. Results reported from initial analysis.

Initial Calibration (ICAL) - The ICAL exhibited %RSD and mean relative response factor (RRF) values that did not require data to be rejected. Qualification for minor exceedances is not part of the project data quality objectives (DQO).

Continuing Calibration (CCV) – The CCVs exhibited percent deviation (%D) and RRF values that did not require data to be rejected. The laboratory has noted analytes not meeting CCV criteria in the narratives, however the %D met validation criteria in most instances. Qualification for minor exceedances is not part of the project DQO.

Blind Field Duplicate – Two blind field duplicates were collected for VOCs with this data set. All results matched well.

Sample Analysis – A limited number of samples were analyzed at dilutions in an effort to obtain target analyte concentrations within the calibration range. The dilutions were justified. The end user should be aware of elevated RLs. No qualification required.

No other issues were observed.

SEMIVOLATILE ORGANIC COMPOUNDS
USEPA SW-846 8270E

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

MB - No target analytes were observed in the MBs except those listed below.

MB ID	Analyte (Concentration ppb)	Associated Samples	Qualifier
OP30242-MB1	bis(2-Ethylhexyl)phthalate (12.7)	JD15053-1,2	U

BSS/Blank Spike Duplicate Sample (BSDS) – All %R and RPD met criteria except those listed below.

Preparation Batch	Analyte(s)	Bias	Qualifier
OP29985	2,4-Dinitrophenol	RPD Out	UJ
E5P3398	2,4-Dinitrophenol, 2,6-Dinitrotoluene, p-Nitroaniline 4-Bromophenyl phenyl ether, Acenaphthylene, Atrazine, Benzo(a)anthracene, Carbazole, Chrysene, Hexachlorobenzene, Indeno(1,2,3-cd)pyrene, n-Nitrosodiphenylamine, Phenanthrene	RPD Out	J/UJ
E2P4333	Benzo(b)fluoranthene Benzo(g,h,i)perylene	RPD Out	J/UJ

MS/MSD - MS/MSDs were not collected with every SDG in this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria.

GC/MS Tuning - All of the instrument tunes met QC criteria.

IS Area Performance - All IS met QC criteria.

Surrogates - All surrogate %R met QC criteria.

ICAL - The ICAL exhibited %RSD and mean RRF values that did not require data to be rejected.

CCV – The CCVs exhibited %D and RRF values that did not require data to be rejected. The lab noted analytes not meeting CCV criteria in the narratives, however the %D met validation criteria in most instances. The lab also indicated low-level verification was performed in some instances to demonstrate system suitability to detect all analytes. Qualification for minor exceedances is not part of the project DQO.

Blind Field Duplicate – Three blind field duplicates were collected for SVOCs with this data set. All results matched well except those listed in the table.

Sample / DUP	Analyte (s)	Qualifier
TR_DRAIN_S_SW-03(T) (JD14611-3)/ DUPP101220 (JD14611-5)	2-Methylnaphthalene Acenaphthene, Anthracene Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Benzo(g,h,i)perylene Benzo(k)fluoranthene, Biphenyl Carbazole, Chrysene Dibenzo(a,h)anthracene, Dibenzofuran Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene Phenanthrene, Pyrene	J/UJ

Sample Analysis – Several samples were analyzed at dilutions in an effort to obtain target analyte concentrations within the calibration range and other samples due to the sample matrix. The dilutions were justified. The end user should be aware of elevated RLs. The lab has reported the final result only on the Form 1s. No qualification required.

SDGs JD14050 and JD15197R were analyzed for 1,4-Dioxane only.

No other issues were observed.

PESTICIDES/POLYCHLORINATED BIPHENYLS (PCBs)

USEPA SW-846 8081B / USEPA SW-846 8082A

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

MB - No target analytes were observed in the MBs.

BSS/BSDS – All %R and RPD met criteria except those listed below.

Preparation Batch	Analyte(s)	Bias	Qualifier
G5G2489	Aroclor 1016 & 1260	RPD Out	J - detects only
GXX7190	Aroclor 1016	RPD Out	J - detects only
G6G2602	All Pesticides	RPD Out	J - detects only
G5G2514	Aroclor 1016 & 1260	RPD Out	J - detects only
G6G2606	Most Pesticides	%R High / RPD Out	None – All ND
G8G1361	alpha-BHC	OK/High/OK	None – All ND

MS/MSD - MS/MSDs were not collected with every SDG in this data set, however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JD14201-4	Aroclor 1016 Aroclor 1260	High / OK / Out High / High / Out	None – out due to presence of other Aroclor
JD14495-2	alpha-BHC 4,4'-DDT Endrin	High/High/OK OK/Low/Out OK/Low/Out	None – ND NA NA
JD14495-1	Aroclor 1016 Aroclor 1260	High / High / OK High / High / OK	None – out due to presence of other Aroclor
JD14611-7	Dieldrin	High / OK / OK	NA
JD14611-7 RE	Several Pesticides	OK/High/OK OK/High/Out	NA NA
JD15416-1	Aroclor 1260	High / High / OK	None – out due to presence of other Aroclor

NA – Not Applicable. Qualification not performed unless both MS & MSD have deficient %R.

IS Area Performance - All IS met QC criteria.

Breakdown Check – All criteria were met.

Surrogates - All surrogate %R met QC criteria except those in the table below. No qualification is required for %R that were out due to sample dilution (DL) or out only in the confirmation/secondary column (2°).

Lab ID	Surrogate	%R Bias	Qualifier
JD13835-6 (PCB)	Decachlorobiphenyl	High/High	None - Detect reported from DL
JD14049-9 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14049-16 (PCB)	Decachlorobiphenyl	OK/High	None – 2°column
JD14049-17 (PCB)	Decachlorobiphenyl	OK/High	None – 2°column
JD14049-18 (PCB)	Decachlorobiphenyl	OK/High	None – 2°column
JD14140-3 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14140-4 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14140-11 (PCB)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14140-11 DL (PCB)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14140-14 (PCB)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14201-4 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14495-1 (Pest)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14495-1 DL (Pest)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14495-1 (PCB)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14495-3 (Pest)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14495-3 (PCB)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14495-5 (Pest)	Tetrachloro-m-xylene	High/OK	None – 2°column
JD14495-5 DL (Pest)	Tetrachloro-m-xylene	High/High	J detects only
JD14495-5 (PCB)	Tetrachloro-m-xylene	High/Low	J/UJ

Lab ID	Surrogate	%R Bias	Qualifier
JD14611-1 (Pest)	Decachlorobiphenyl	OK/High	None – 2°column
JD14611-1 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14856-11 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14856-13 (PCB)	Tetrachloro-m-xylene	High/High	None - Detect reported from DL
JD14856-13 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14856-14 DL (PCB)	Tetrachloro-m-xylene Decachlorobiphenyl	All 0	None – DL
JD14856-15 (PCB)	Decachlorobiphenyl	OK/High	None – 2°column

ICAL - The ICAL exhibited %RSD and mean RRF values that did not require data to be rejected.

CCV – The CCVs exhibited %D values that did not require data to be rejected.

Blind Field Duplicate – Eight blind field duplicates were collected for SVOCs with this data set. All results matched well except those listed in the table.

Sample / DUP	Analyte (s)	Qualifier
PR_EX_BT_03 (JD14049-3) DUP100220 (JD14049-4)	Aroclor 1254	J/J
TR_DRAIN_S_SW-03(T) (JD14611-3)/ DUPP101220 (JD14611-5)	Aroclor 1254	J/J

Sample Analysis – Several samples were analyzed at dilutions in an effort to obtain target analyte concentrations within the calibration range and other samples due to the sample matrix. The dilutions were justified. The end user should be aware of elevated RLs. The lab has reported the final result only on the Form 1s. No qualification required.

Analytes positively identified with an RPD between the two GC columns >40% are possibly biased and have been qualified J.

Some analytes were reported from the second analytical column (2°) due to minor QC issues on the first analytical column (1°). This is acceptable. No qualification is required unless there is a QC issue from the second analytical column.

No other issues were observed.

INORGANICS
USEPA SW-846 6010D/7471B

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

Blanks - The initial calibration, continuing calibration, preparation, and method blanks exhibited no target analytes that required qualification of the sample data.

ICAL/CCV - The calibrations applicable to the samples exhibited %R values that did not require data to be rejected.

Interference Check Sample – All %R were within QC criteria.

MS/MSD - MS/MSDs were not collected with every SDG in this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JD14611-7	Iron Magnesium	Low/Low/OK OK/OK/Out	None - < 4x NA
JD15053-3	Aluminum Iron	OK/High/OK OK/High/Out	NA NA
JD15416-4	Aluminum	High/OK/OK	NA

<4x – No qualification required when spike concentration less than 4x the RL.
NA – Qualification not performed unless both MS & MSD have deficient %R or when only RPD is deficient.

LCS - All %R met QC criteria.

Serial Dilution (SD) – The SDs exhibited acceptable %D except those in the table below. Qualification is limited to the sample the SD was performed on with positive detections qualified J. Several case narratives document analytes with %D above QC limits in the SD, however the initial sample concentrations were not greater than 50 times the

instrument detection limit (IDL). No qualification of the sample data is required as the QC limit does not apply in these instances. These are not included in the table below.

Lab ID	Analyte	Qualifier
JD14978-1	Calcium Nickel Zinc	NA NA NA
JD15053-3	Calcium Zinc	NA NA

NA – Qualification not performed for soil samples unless %D > 25%.

Blind Field Duplicate – Four blind field duplicates were collected with this data set. All results matched well.

Sample Analysis – Many samples were only analyzed for a single or reduced list of metals. Several analytes were analyzed at dilutions in an effort to obtain concentrations within the calibration range, due to the sample matrix, and due to high interfering elements. The dilutions were justified. The lab has reported the final result only on the Form 1s. No qualification required. The end user should be aware of elevated RLs.

No other issues were observed.

GENERAL CHEMISTRY

SW9012B, SW7196A, SW9045D

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

The lab notes in the narratives they are not certified for Redox Potential vs H2, Oxidation-Reduction Potential (ORP) by ASTM D1498-76M as certification is not supported by their certifying agency. This is acceptable to meet the DQO for this project therefore no ORP data requires qualification.

MB - The MBs exhibited no target analytes.

BSS – All %R met QC criteria.

MD – MD were not collected with every SDG in this data set, however the lab analyzed MDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All RPD met criteria except those listed below. Analytes with concentrations < 5x RL are not listed and do not require qualification. Qualification is limited to the sample the MD was performed on.

Lab ID	Analyte(s)	Qualifier
JD14495-1	Chromium, Hexavalent	J

MS/MSD - MS/MSDs were not collected with every SDG in this data set, however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on unless the entire batch was reanalyzed.

Lab ID	Analyte(s)	MS %R	Qualifier	Associated Samples
JD14495-1	Chromium, Hexavalent	Low	J	2
JD14495-1R	Chromium, Hexavalent	Low	J	1R, 3-5R
JD14495-1	Cyanide	Low	UJ	1-5
JD14611-7	Chromium, Hexavalent	Low	J/UJ	1-7

Blind Field Duplicate – Four blind field duplicates were collected with this data set. All results matched well.

Sample Analysis – Several samples were reanalyzed due to poor MS %R for Hexavalent Chromium. Data are qualified as above. Conservatively the higher concentration has been reported when multiple analyses are reported.

No other issues were observed.

PER- AND POLYFLUORINATED ALKYL SUBSTANCES (PFAS)

USEPA 537 Modified

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

Analysis was performed at SGS Orlando, Florida.

HT - All HT criteria were met.

MB - The MB exhibited no target analytes.

Instrument Blank (IB) - The IB exhibited no target analytes.

BSS – All %R met criteria.

MS/MSD - All %R and RPD met criteria.

Isotope Dilution Standard - All %R met QC criteria.

ICAL - The ICAL exhibited %RSD and mean RRF values that did not require data to be rejected.

CCV – The CCVs exhibited %D that did not require data to be rejected.

Blind Field Duplicate – No blind field duplicate was collected for PFAS with this data set.

Sample Analysis – No issues were observed.

Data Qualifier	Definition
None	The analyte was positively identified at the associated numerical value which is the concentration of the analyte in the sample.
U (ND)	Non-Detect. The analyte was analyzed for, but not detected. The associated numerical value is the RL. The value is usable as a non-detect at the RL.
J	Estimated value. The analyte was detected at a concentration below the RL but greater than the MDL or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ (ND J)	The analyte was analyzed for, but not detected. The associated numerical value is the RL. The value is an estimated quantity due to a QC exceedance. The value is usable as a non-detect at the estimated RL.

ENVIRONMENTAL
Data Services, Inc.

DATA USABILITY SUMMARY REPORT (DUSR)

Site: Steel Equities, 224 East Second Street, Mineola, New York

Laboratory: SGS North America Inc., Dayton, New Jersey

Sample Delivery Groups (SDGs): JD18737 to JD20895 (2021 Data)

Date: January 21, 2022 rev March 11, 2022

Note (s): The laboratory reports positively identified results between the reporting limit (RL) and the method detection limit (MDL) with a J. These results are considered estimated, however still valid and useable for project objectives.

The laboratory reports non-detects as ND on the Form 1s. Any qualification that requires non-detects to be qualified as estimated, UJ, will be presented as UJ in final data tables.

This DUSR applies to the three SDGs noted above. Sample STOCKPILE-13 in JD18737 is a waste characterization sample and not part of this review.

POLYCHLORINATED BIPHENYLS (PCBs)
USEPA SW-846 8082A

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Organic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

Holding Times (HT) - All HT criteria were met.

Method Blank (MB) - No target analytes were observed in the MBs.

Blank Spike Sample/Blank Spike Duplicate Sample (BSS/BSDS) – All percent recovery (%R) and relative percent difference (RPD) met criteria.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - MS/MSDs were not collected with every SDG in this data set however the lab analyzed MS/MSDs on samples from this data set and also

provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria except those listed below. Qualification is limited to the sample the MS/MSD was performed on.

Lab ID	Analyte(s)	MS / MSD / RPD	Qualifier
JD20895-1	Aroclor 1260	High / High / OK	J/UJ – all Aroclors

Internal Standard (IS) Area Performance - All internal standards met area response and retention time (RT) criteria.

Breakdown Check – All criteria were met.

Surrogates - All surrogate %R met QC criteria except those in the table below.

Lab ID	Surrogate	%R Bias	Qualifier
JD20742-16 (PCB)	Tetrachloro-m-xylene	High/High	J detects only

ICAL - The ICAL exhibited %RSD and mean RRF values that did not require data to be rejected.

CCV – The CCVs exhibited %D values that did not require data to be rejected.

Field Blank (FB) – The FBs exhibited no target analytes.

Blind Field Duplicate – Three blind field duplicates were collected with this data set. All results match well.

Sample Analysis – Sample DB-09(29-30) was reanalyzed at a dilution in an effort to obtain target analyte concentrations within the calibration range. The dilution was justified. The lab has reported the final result only on the Form 1. No qualification required.

Analytes positively identified exhibited an RPD between the two GC columns <40%. No qualification is therefore required.

Some analytes were reported from the second analytical column due to minor QC issues on the first analytical column. This is acceptable. No qualification is required unless there is a QC issue from the second analytical column.

No other issues were observed.

INORGANICS
USEPA SW-846 6010D

The analytical method, the NYSDEC ASP, the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review (November 2020) and the reviewer's professional judgment were used in evaluating the data in this summary report.

HT - All HT criteria were met.

Blanks - The initial calibration, continuing calibration, preparation, and method blanks exhibited no target analytes that required qualification of the sample data.

ICAL/CCV - The calibrations applicable to the samples exhibited %R values that did not require data to be rejected.

Interference Check Sample – All %R were within QC criteria.

MS/MSD - MS/MSDs were not collected with every SDG in this data set however the lab analyzed MS/MSDs on samples from this data set and also provided batch QC from samples not from this data set when necessary to meet method requirements. Qualification of sample data is not performed based on batch QC. All %R and RPD met criteria.

LCS - All %R met QC criteria.

Serial Dilution (SD) – The SDs exhibited acceptable %D except those in the table below. Qualification is limited to the sample the SD was performed on with positive detections qualified J. Several case narratives document analytes with %D above QC limits in the SD, however the initial sample concentrations were not greater than 50 times the instrument detection limit (IDL). No qualification of the sample data is required as the QC limit does not apply in these instances. These are not included in the table below.

Lab ID	Analyte	Qualifier
JD20742-34	Nickel	NA

NA – Qualification not performed for soil samples unless %D > 25%.

Field Blank (FB) – The FBs exhibited no target analytes.

Blind Field Duplicate – Three blind field duplicates were collected with this data set. All results match well except Copper in samples DB-06(19-20) and DUP-3. The result for Copper in these two samples only is possibly estimated and has been qualified J.

Sample Analysis – Only Copper, Nickel and Lead were analyzed.

No other issues were observed.

Data Qualifier	Definition
None	The analyte was positively identified at the associated numerical value which is the concentration of the analyte in the sample.
U (ND)	Non-Detect. The analyte was analyzed for, but not detected. The associated numerical value is the RL. The value is usable as a non-detect at the RL.
J	Estimated value. The analyte was detected at a concentration below the RL but greater than the MDL or, the value was designated as estimated as a result of the data validation criteria. The value is usable as an estimated result.
UJ (ND J)	The analyte was analyzed for, but not detected. The associated numerical value is the RL. The value is an estimated quantity due to a QC exceedance. The value is usable as a non-detect at the estimated RL.

APPENDIX D NEW YORK ANALYTICAL SERVICES PROTOCOL (ASP) CATEGORY B ANALYTICAL DATA DELIVERABLE PACKAGES (ELECTRONIC COMPRESSED FILE FORMAT)

APPENDIX E PCB SOLIDIFICATION/STABILIZATION TREATABILITYSTUDY REPORT

A.K. Allen Co., Inc.
225-255 E 2nd Street
Mineola, New York

PCB Solidification/Stabilization Treatability Study Report

DRAFT

PREPARED FOR:

Steel Equities
999 S. Oyster Bay Road, Suite 200
Bethpage, NY 11714

PREPARED BY:

Lockwood, Kessler & Bartlett, Inc.
1 Aerial Way
Syosset, NY

PHONE 516-938-0600

LKB PROJECT NO. 10001

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PCB Solidification/Stabilization Treatability Study Report

A.K. Allen Co., Inc.
225-255 E 2nd Street
Mineola, New York
LKB Project No. 10001

1.0 INTRODUCTION

1.1 Executive Summary

Lockwood Kessler & Bartlett, Inc. (LKB) a subsidiary of The Vertex Companies, LLC (VERTEX) was tasked to develop and perform a solidification/stabilization (S/S) bench-scale treatability study based on recommendations for the remediation of polychlorinated biphenyl (PCB) impacted soils at the former A.K. Allen Co., Inc commercial site located in Mineola, NY. S/S was recommended based on site conditions, including the location of the impacted area, depth to contamination, type of contamination, distance of the targeted remediation area to the railroad, soil type, site use, and other factors and features.

LKB subcontracted Prima Environmental (Prima), of El Dorado Hills, California to conduct the bench-scale treatability study. The objective of the treatability study was to evaluate potential readily available reagents and addition rates capable of achieving the necessary performance criteria for S/S. The following key performance criteria were targeted:

- Unconfined Compressive Strength: >50 psi and >surrounding soils
- Permeability: <surrounding soils and two orders of magnitude reduction, from an estimated 10^{-3} - 10^{-4} reduced to 10^{-5} - 10^{-6}
- Leachability: >90% reduction

Representative samples of PCB-impacted site soils at dry well DW-05 were collected by representatives of ERM of Melville, NY during an additional delineation sampling event.

The soils were sent for treatability study along with a scope of work outline for the S/S study. The soils were homogenized and screened to remove larger gravel. Aliquots were pulled of the homogenized and screened soils and analyzed for PCBs and the three metals of concern (Cu, Pb, Ni). Based on the as-received concentrations of PCBs and metals, only Bucket 2 was deemed viable for the treatability study.

S/S study samples were mixed with Portland cement to both physically and chemically bind with the contaminants of concern. A 6%, 9%, and 12% Portland cement to soil addition was utilized for the study. To test the S/S properties of the resulting treatability mixtures, synthetic precipitation leaching procedure (SPLP), toxicity characteristic leaching procedure (TCLP), and unconfined compressive strength (UCS) testing were utilized to assess the resulting strength and chemical leachability of the solidified material and forms. Water was added to the soil/additive mixtures to sufficiently hydrate the Portland cement and to produce a flowable slurry. Study samples were allowed to air dry at room temperature for a minimum of 14 days prior to testing.

Resulting UCSs were considered good for all three (3) samples with results ranging from ~100 psi to ~850 psi. All three post S/S SPLP PCB results were reduced from 16 ug/L to non-detect (3 orders of magnitude). SPLP lead and SPLP copper showed significant (2 orders of magnitude) to moderate (<1 order of magnitude) reduction in their leachability, respectively. Nickel showed an increase in leachability. All three post TCLP PCB results were reduced from 2.7 mg/L to non-detect (1 order of magnitude). TCLP copper, lead and zinc showed significant (1 order of magnitude) reduction in their leachability.

Based on the favorable result of the study, S/S is considered a viable alternative for the remediation of the PCB and metal impacted soils. Although a 6% Portland cement mixture (wet basis) was effective in the S/S testing performed, a 7% Portland cement to soil addition (~15% increase) is recommended to account for what may be less than ideal field conditions versus ideal laboratory conditions.

Some form of deep soil mixing, preferably performed with an auger style rig, should be utilized to mix (homogenize) the soil column with the cement slurry. Overlapping of vertical mixing columns shall occur to ensure that the entire targeted area is properly solidified/stabilized. Samples should be collected of the solidified material during the S/S process to monitor the effectiveness of the remediation.

1.2 Introduction

Based on site conditions, including the location of the impacted area, depth to contamination, type of contamination, distance of the targeted remediation area to the railroad, soil type, site use, and other factors and features, LKB recommended S/S of the PCB- and metal-impacted soils as a site remedy. To verify if S/S is a viable treatment alternative for the site, a bench-scale treatability study was performed on soils sampled from the site. This report provides the methodology and protocols used, as well as the results of testing performed on the untreated and treated site materials.

1.3 Study Background

S/S refers to a group of cleanup methods that prevent or slow the release of harmful chemicals from wastes, such as contaminated soil. These methods typically do not destroy the contaminants, instead, they keep them from leaching above safe levels into the surrounding environment. Leaching occurs when water from rain or other sources flows through the contaminated matrix, dissolves contaminants, and carries them into groundwater. Solidification binds and traps the contaminants and matrix in a block of material. This final matrix is less permeable to water than the surrounding soils. Stabilization is not solely a physical reaction but also is a chemical reaction that makes contaminants less likely to be leached into the environment. Solidification involves mixing a waste with a binding agent, which is a substance that makes loose materials stick together. Common binding agents include cement, asphalt, and fly ash. Water must be added to most mixtures for binding to occur; then the mixture is allowed to harden to form a solid block/monolith. Similar to solidification, stabilization also involves mixing wastes with binding agents. However, the binding agents may also cause a chemical

reaction with contaminants to make them less likely to be released into the environment or they may be adsorbed by the additive. For example, an additive may change the chemical state of a metal making it less soluble. Additives can be mixed into the waste while still in the ground (often referred to as "in-situ"). This usually involves drilling vertical borings using cranes with large augers to mix the soils while injecting the additives underground. When the waste to undergo S/S is sufficiently shallow, the contaminated soil or waste matrix is typically mixed using long reach excavators.

The objective of the treatability study was to evaluate potential readily available reagents and addition rates capable of achieving the necessary performance criteria for S/S and for the reduction of the leachability of contaminants of concern (COCs) from the site soils. The following key performance criteria were targeted (ITRC):

- Unconfined Compressive Strength: >50 psi & >surrounding soils
- Permeability: <surrounding soils and two orders of magnitude reduction, from an estimated 10^{-3} - 10^{-4} reduced to 10^{-5} - 10^{-6}
- Leachability: >90% reduction

The above Key Performance Parameters for S/S-treated materials were targeted to determine the successfulness of the treatability study. This section describes relevant performance criteria that was used as an indicator of the performance and long-term permanence of studied S/S application. The following sections are paraphrased from the ITRC guidance document.

1.3.1 Strength

The strength of a material represents the ability of the material structure to withstand an applied physical stress without incurring structural deformation leading to structural failure. Compressive strength, which relates to the capacity of a material to withstand axially directed pushing forces, typically measured as UCS, is the most common strength parameter for S/S materials.

Compressive strength is typically monitored as an S/S performance parameter to ensure that a chemical reaction of binder and water has occurred. Criteria for minimum compressive strength are established such that the S/S material will have at least as much bearing strength as the surrounding soil to support the loads imposed by the equipment used in implementation. A secondary purpose for testing strength during the S/S treatment process is as an indirect indicator of durability. As a rule of thumb, materials with higher initial compressive strength are typically considered to be more resistant to aging. Thus, strength may be used as an indicator during treatability studies for selecting appropriate S/S treatment additives to maximize durability as well as a monitor of performance during S/S application.

The UCS measurements are performed on soil-cement material molded into cylindrical test specimens. UCS is expressed as the load per unit area in units of pounds per square inch (psi) at structural failure of the material. The UCS of an S/S treated material is likely to increase with curing time until setting is complete.

1.3.2 Hydraulic Conductivity

Hydraulic conductivity is a measurable material property related to the ease of movement of water through a porous medium under groundwater flow conditions governed by Darcy's Law. However, the parameter that controls the mode of water contact is not simply the hydraulic conductivity of the S/S material, but the relative hydraulic conductivities of the S/S material (KS/S) and the surrounding soil (Ksoil). Hydraulic conductivity is often used interchangeably with the more general term permeability relating to the ease with which a fluid will pass through a porous medium. Although similar, permeability depends on the properties of both the material and the penetrating fluid, whereas hydraulic conductivity depends on only the properties of the material structure. Hydraulic conductivity is recommended as more appropriate as the S/S performance parameter, as it is more easily measured independent of fluid properties.

In the subsurface, groundwater flows along the path of least resistance and, thus, is diverted around lower–hydraulic conductivity materials and through material with high hydraulic conductivity. Ideally the hydraulic conductivity of the S/S material is significantly less than that of

the surrounding soil. Thus, groundwater is diverted around the compacted granular or monolithic materials of low hydraulic conductivity such that the majority of contacting water flows around the solid matrix. In such "flow-around" water contact scenarios, the material surface area exposed to leaching is greatly reduced and minimized to the outer surface of the material, and the rate of contaminant mass transport (i.e., diffusion plus associated physical and chemical retention) through the pore structure of the low–hydraulic conductivity material limits the release into the groundwater.

The impact of water contact mode on S/S-treated material performance is linked to leaching concentrations. Since contaminant concentrations are significantly higher for partitioning between solid and liquid phases than typical concentrations resulting from mass transport release, the mode of water contact is extremely important, and relative hydraulic conductivity of the S/S material is recommended as a key performance parameter. The table below presents the typical hydraulic conductivity values for several material types. Permeability is used to empirically relate the hydraulic conductivity of one material to another. The hydraulic conductivity value can range from approximately 10–2 centimeters per second (cm/s) for sandy soils to 10–9 cm/s for rocks and clays. The smaller the number the less permeable the material. In many cases, S/S-treated materials with hydraulic conductivity values similar to silty clay (e.g., on the order of 10–7 cm/s) are desirable to reduce the potential for contaminant migration.

Table 3-2. Hydraulic conductivity of select porous media (*Source:* Dagan 1989)

Soil type	Hydraulic conductivity, K (cm/s)	Degree of permeability
Gravel	$>10^{-1}$	Very high
Sandy gravel, clean sand, fine sand	10^{-1}–10^{-3}	High to medium
Sand, dirty sand, silty sand	10^{-3}–10^{-5}	Low
Silt, silty clay	10^{-5}–10^{-7}	Very low
Clay, limestone, dolomite	10^{-7}–10^{-9}	Virtually impermeable

In general, hydraulic conductivity tests measure the rate at which water passes through a sample relative to an applied hydraulic head. The hydraulic conductivity of the material is calculated from the test results using formulas based on Darcy's Law and is expressed in units of cm/s.

1.3.3 Leachability

Since a principal objective of S/S treatment is to reduce contaminant mobility, leaching is a key performance parameter for S/S materials. Leachability "Leaching" is defined as the release process of a constituent (contaminant) from a solid into a contacting liquid. Leachability may be used to describe either the extent of leaching (e.g., percentage of total content that has leached) or rate of release (e.g., the time-dependent release) from materials. The mechanisms controlling the extent and rate of leaching include a combination of chemical reactions at the material surface and mass transport through the material pore structure. Chemical reactions determine the partitioning between the solid and liquid phases (e.g., using the local equilibrium assumption) whereas the mass transport (i.e., the summation of diffusion, hindered diffusion, tortuosity effects, effective surface area, etc.) describes the movement of a contaminant through the pore structure of the material to the environment. Depending on material specific factors and release scenario conditions, equilibrium and/or mass transfer may control the leaching process in S/S-treated materials.

Leaching of contaminants into groundwater or infiltrating precipitation may be considered the principal pathway for the release of nonvolatile contaminants into the environment. The leachability of a material is most often characterized from the results of one or more leaching tests. Current EPA regulatory leaching tests are intended to provide a leachate that is representative of field leachates found either in a municipal solid waste landfill in the case of the TCLP (Method 1311) or after contact with acid rain in the case of SPLP. SPLP (EPA Method 1312) is a leaching procedure used to determine the potential for soil contamination to leach into groundwater. A SPLP test helps determine acceptable in-situ soil concentrations and utilizes a lower pH extraction fluid for eastern states versus western states. SPLP uses a blend of nitric acid and sulfuric acid for the extraction. SPLP utilizes a crushed sample to be tested such that it passes through a 9.5 mm sieve, as such, the result from this testing is also considered to be conservative as the resulting in-situ S/S will produce a monolith with significantly reduced permeability and surface area.

1.3.4 Soils

Soils in the area are of upper Pleistocene deposits of two sequences of till and outwash which comprise the Ronkonkoma and Harbor hill Drifts. Deposits of clay and till with highly permeable beds of sand, medium to very coarse, brown and gravel.

Representative samples of PCB-impacted site soils at dry well DW-05 were collected by ERM personnel during an additional delineation sampling event that took place in late February 2021. Soils were obtained from borings installed during delineation activities. Two 5-gallon buckets of soil were collected as part of the delineation and retained for the purposes of performing a S/S bench-scale treatability study. The plastic buckets were sealed and maintained in a conditioned environment until needed for the study.

2.0 TREATABILITY STUDY

The two buckets of soil were sent at the end of April 2022 to Prima of El Dorado Hills, California for treatability study. LKB along with Prima developed the scope of work outline for the S/S study. The buckets of soils were received by the laboratory, homogenized, and screened. Screening was performed on the as-received soils to remove pebbles/gravel. Only soils passing through a #4 mesh screen (4.76 mm, 3/16 inch) were utilized for analysis and study. This represented approximately 80% of the overall sample. The removal of the larger particle size gravel provides a more consistent and homogeneous sample when working with small quantities for study in the laboratory. The removal of the gravel results in what would be considered a "worst case" sample and should also bias the data in a conservative manner as the larger particle size gravel will have a smaller surface area to weight ratio. Aliquots were pulled of the homogenized and screened soils and analyzed for PCBs (EPA Method 8082) and the three metals of concern (Cu, Pb, Ni) (EPA Method 6010/6020). Based on the as-received concentrations of PCBs and metals, only Bucket 2 was deemed viable for the treatability study as contaminant concentrations of Bucket 1 were too low. Bulk density, total solids, and grain size analysis was also run on the bulk sample (Table 1). Sieve analysis resulted in 100% of the sample passing through a ¾ inch screen. Approximately 95% of the sample was sand/gravel (rounded). Based on ASTM D2487 classification, the soils at the site are considered a well graded sand with gravel, Group SW (Table 2). Bulk density of the soil is estimated to be 1.6 g/cm^3 (100 lbs/cu ft). The total solids content was 91%. The following laboratories were utilized for the analysis of the samples, Prima, Enthalpy Analytical of Orange, CA and Gulf Shore Construction Services of Rancho Cordova, CA.

Bucket 2 Soil – As Received

Bucket 2: +4 mesh

Bucket 2: -4 mesh

Although contaminant concentrations were lower than maximum concentrations detected at the site, the concentration of the contaminants is on par with the average and lower concentrations, such as this tested, will result during in-situ vertical mixing of the entire soil column during the S/S process.

Based on the initial analytical results, Prima was provided with the authorization to proceed with the study.

S/S study samples were mixed with Portland cement only and a Portland cement/bentonite clay mixture if Portland cement solely was not able to stabilize the contaminants on its own. The use of Portland cement for S/S is not only a physical process but also a chemical process that raises the pH and binds and encapsulates the contaminants. Bentonite clay was utilized as it is an adsorbent for the contaminants of concern. The starting soil sample was mostly sand and pebbles with 100% passing through a 3/16-inch screen. The starting concentration of PCBs in Bucket 2 was 4,900 micrograms per kilogram (ug/kg) (4.9 milligrams per kilogram [mg/kg]) based on a dry weight basis. Comparative wet weight basis concentration is approximately 5,400 ug/kg (5.4 mg/kg). Dry weight basis concentrations of copper, lead, and nickel were 29, 17, and 12 mg/kg, respectively.

Based on the soil type and previous S/S experience at other sites, a 6%, 9%, and 12% Portland cement to soil addition was utilized for the study. Portland Cement Type II/V was utilized which provides a higher early strength. Typical concrete contains approximately 15% Portland cement. To test the S/S properties of the resulting treatability mixtures, SPLP and UCS testing were initially utilized to assess the resulting strength and chemical leachability of the solidified material and forms. Water was added to the soil/additive mixtures to sufficiently hydrate the Portland cement and to produce a flowable slurry. Study samples were allowed to air dry at room temperature for a minimum of 14 days prior to testing. Resulting UCSs (Method D2166) were considered very good for all three (3) samples with results of 102, 425, and 853 psi for the 6%, 9%, and 12% cement samples, respectively. As expected, there was a direct relationship between the quantity of Portland cement and the measured strength of the S/S mixtures. All samples solidified and the measured UCS range covers that of compacted gravel, with a UCS of around 100 psi and flowable fill that typically has a UCS of less than 1,200 psi. Very stiff clay has a USC of around 50 psi. Flowable fill is a highly viscous, grout-like, cementitious blend commonly composed of Portland cement, fine aggregate, and water. Flowable fill is commonly used as a substitute for traditional soil or aggregate in backfilling operations. Flowable fill flows under gravity and is self-leveling and self-compacting. Note that the reported UCSs are likely lower than what will be the ultimate result as tests were performed on samples that had only cured for 14 days. As concrete typically

takes 28 days to reach >98% of its overall strength, UCS was measured around what is estimated to be ~85% of the overall strength of the material.

All three post S/S SPLP PCB results were reduced from 16 ug/L to non-detect (3 orders of magnitude). SPLP lead and SPLP copper showed significant (2 orders of magnitude) to moderate (<1 order of magnitude) reduction in their leachability, respectively. Nickel showed an increase in leachability. All three post TCLP PCB results were reduced from 2.7 mg/L to non-detect (1 order of magnitude). TCLP copper, lead and zinc showed significant (1 order of magnitude) reduction in their leachability. (Table 3)

Hydraulic conductivity (permeability) testing was performed on sample cylinders after 13 days of curing. Hydraulic conductivities for 6%, 9% and 12% cement were 1.25E-06, 1.65 E-07, and 7.57 E-08, respectively. These hydraulic conductivities are very low and are comparable to silt and clay soils.

As the results of the initial testing were extremely promising, hydraulic conductivity (permeability) were run on the same three Portland cement samples to provide additional information and understanding of the S/S material. Testing of the Portland cement/clay samples was not performed.

3.0 CONCLUSIONS

The results of the bench-scale S/S were very favorable for the Portland cement only mixture as the strength, permeability, and leaching objectives were all exceeded. Based on these results, S/S is considered a viable alternative for the remediation of the PCB and metal impacted soils.

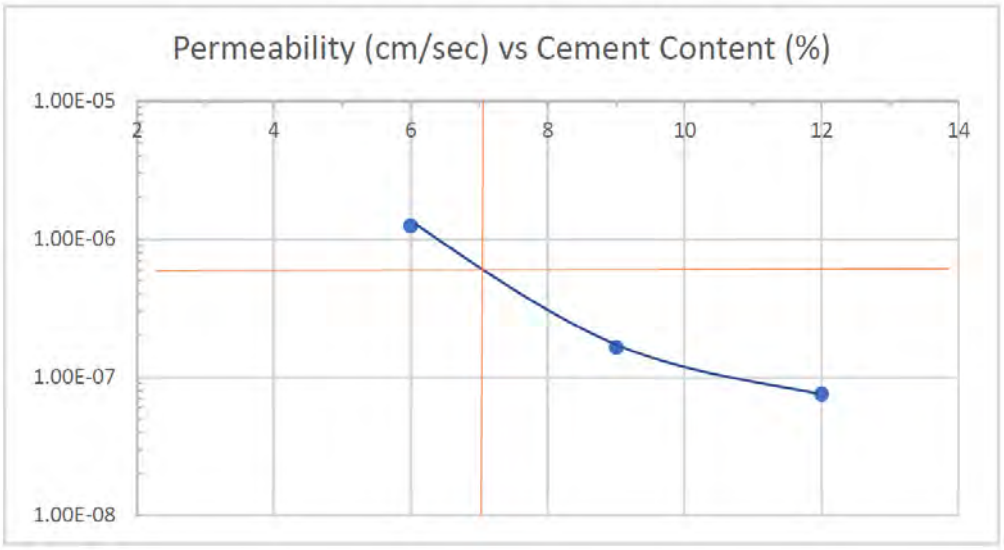
- The site soils are considered a well graded sand with gravel and are well suited for S/S.
- Site soils contain <5% fines (silt/clay) and ~50% sand and 45% rounded gravel (pebbles).
- As received concentrations of PCBs were 4.9 mg/kg Arochlor 1254 (dry weight basis) and should be representative of the concentrations that will result from the post in-situ soil column mixing during the S/S process.
- As received TCLP and SPLP concentrations of Arochlor 1254 were 2.7 and 16 ug/L, respectively.
- SPLP testing resulted in greater leaching concentrations of PCBs than TCLP.
- All three mixtures of Portland cement 6%, 9% and 12% were effective in reducing the leachability of the contaminants of concern (PCBs and metals); therefore, the inclusion of bentonite clay as an added absorbent is not necessary.
- All three mixtures were effective in producing a solidified mass with UCS properties greater than the surrounding soils and equivalent to that of compacted gravel and/or flowable fill.
- UCS and leachability is expected to improve over that of the bench-scale testing with the added curing time and addition of the lower surface area to weigh ratio gravel present in-situ.
- TCLP leachability of the three metals (Cu, Pb, Ni) and PCB Aroclor 1254 decreased by one order of magnitude for the S/S samples.
- Hydraulic conductivity (permeability) decreased with increasing cement. Hydraulic conductivities ranged from 1.25 E-6 to 7.57 E-8 and are supportive of S/S as a remedial

alternative and are estimated to be at least 2 orders of magnitude lower than the surrounding soils.

4.0 RECOMMENDATIONS

LKB offers the following recommendations based on the study findings.

- Although a 6% Portland cement mixture (wet basis) was effective in the S/S testing performed, a 7% Portland cement to soil addition (~15% increase) is recommended to account for what may be less than ideal field conditions versus ideal laboratory conditions. A 7% Portland cement should produce a monolith with a permeability of around 6.0 E-7 (see graph below).
- Portland cement Type I/II shall be added as a slurry to the in-situ soils. The slurry shall be added at a 1:15:1.1 Portland cement:soil:water ratio.
- Some form of deep soil mixing, preferably performed with an auger style rig, shall be utilized to mix (homogenize) the soil column with the cement slurry.
- Overlapping of vertical mixing columns shall occur to ensure that the entire targeted area is properly solidified/stabilized.
- As in-situ expansion may occur, sufficient freeboard shall be provided for this expansion.
- Quality assurance/quality control (QA/QC) Samples should be collected of the solidified material during the S/S process to monitor the effectiveness of the S/S remediation.


Permeability (cm/sec) vs Cement Content (%)
1.00E-05
1.00E-06
1.00E-07
1.00E-08
2
4
6
8
10
12
14

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Tri-Service Pavements Working Group (TSPWG) Manual, TSPWG 3-270-01.11-15, USDOD, September 2019.

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Prohibition on the Placement of Bulk Liquid Hazardous Waste in Landfills -Statutory Interpretive Guidance, OSWER Policy Directive No.: 9487.00-2A EPA/530-SW-86-016, USEPA, June 11, 1986.

Geology and Hydrology of Northeastern Nassau County, Long Island, NY, US Dept of the Interior, 1966.

TABLES

Table 2
Analytical Results
Untreated Raw Sample

Analyte	Units	Bucket 1	Bucket 2
*PCBs **			
Arochlor -1254	µg/kg-dry	170 J	4,900
*Metals (total) **			
Copper	mg/kg-dry	6.6	29
Lead	mg/kg-dry	2.8	17
Nickel	mg/kg-dry	8.0	12
*SPLP Leachate**			
Copper	µg/L	n.m.	68
Lead	µg/L	n.m.	53
Nickel	µg/L	n.m.	19 J
Arochlor -1254	µg/L	n.m.	16
*TCLP Leachate**			
Copper	mg/L	n.m.	0.30
Lead	mg/L	n.m.	0.042
Nickel	mg/L	n.m.	0.056 J
Arochlor -1254	µg/L	n.m.	2.7

* Analysis performed on < 4 mesh fraction

Note the units differ between analytical methods.

Table 1
Grain Size Results
Untreated Raw Sample

Analyte				Units	Bucket 1	Bucket 2
Moisture *				%	4	9
Bulk Density^				g/cm3		2
Particle Size**						
< 4 mesh				kg	15	20
> 4mesh				kg	4.8	5.1
Particle Size ^	**mm**	**inch**	**Aggregate**			
< 3/4 inch	19.05	0.7500	coarse pebble	% finer	not measured	100
< 1/2 inch	12.7	0.5000	medium pebble	% finer		95
< 3/8 inch	9.525	0.0375	medium pebble	% finer		92
< #4	4.76	0.1870	fine pebble	% finer		83
< #8	2.38	0.0937	very fine pebble	% finer		72
< #16	1.19	0.0469	very coarse sand	% finer		56
< #30	0.590	0.0234	coarse sand	% finer		35
< #50	0.297	0.0117	medium sand	% finer		16
< #100	0.149	0.0059	fine sand	% finer		7
< #200	0.074	0.0029	silt/clay	% finer		5.3
Visual description^					Sample is orange brown sand and gravel.	Sample is brown sand and gravel. Prior to homogenization, some gray/black material present.

* Analysis performed on < 4 mesh fraction

** "As received" soil sieved by hand by PRIMA

^ Analysis performed on bulk "as received" fraction.

Table 2
Analytical Results
Treated Sample

Analyte	Units	Control (DI Only)	Portland Cement		
			6%	9%	12%
SPLP Leachate					
Copper	µg/L	53	18 J	15 J	12 J
Lead	µg/L	42 J	< 0.44	< 0.44	< 0.44
Nickel	µg/L	17 J	24 J	33 J	36 J
Aroclor 1254	µg/L	19	< 0.27	< 0.27	< 0.27
TCLP Leachate					
Copper	mg/L	--	0.068	0.043	0.031
Lead	mg/L	--	0.0039 J	0.0024 J	0.0021 J
Nickel	mg/L	--	0.0098 B,J	0.0090 B,J	0.0079 B,J
Aroclor 1254	µg/L	--	< 0.27	< 0.54	< 0.54
Permeability	cm/sec	--	1.25 E-06	1.65 e-07	7.57 E-08
Unconfined Compressive Strength	psi	n.m.	102.7	425.5	854.0

J = estimated value - analyte detected below the RL but above the MDL

B = contamination found in associated method blank.

APPENDIX A

Prima Treatability Study Report

August 5, 2022

Richard Tobia, PE
Vertex
3322 U.S. Route 22 W., Suite 907
Branchburg, NJ 08876

RE: Report of Findings "Bench-scale Evaluation of Amendments for Solidification / Stabilization of PCBs and Metals in Soil"
PRIMA ID: Vert-PCBs

Dear Mr. Tobia:

Enclosed is the Report of Findings entitled "Bench-scale Evaluation of Amendments for Solidification / Stabilization of PCBs and Metals in Soil" that describes bench testing conducted on site soil. If you have any questions, I can be reached at cschreier@primaenvironmental.com or 916-939-7300. Thank you for the opportunity to be of service.

Sincerely,
PRIMA Environmental, Inc.

Cindy G. Schreier, Ph.D.
President and Chief Scientist

5070 Robert J. Mathews Parkway, Suite 300, El Dorado Hills, CA 95762
Ph (916) 939-7300 • Fax (916) 939-7398
www.primaenvironmental.com

Report of Findings

Bench-Scale Evaluation of Amendments for Solidification / Stabilization of PCBs and Metals in Soil

August 5, 2022

Submitted to
Richard Tobia, PE
Vertex
3322 U.S. Route 22 W., Suite 907
Branchburg, NJ 08876

Submitted by

5070 Robert J Mathews Parkway, Suite 300
El Dorado Hills, CA 95762

Cindy G. Schreier, Ph.D., President

August 5, 2022
Date

EXECUTIVE SUMMARY

Bench-scale treatability testing was conducted on soil to evaluate the ability of Portland cement to solidify and stabilize polychlorinated biphenyls (PCBs) and metals (copper, nickel and lead) in soil.

Laboratory testing demonstrated treatment of site soil with up to 12% Portland cement could solidify soil, eliminate leaching of PCBs (Aroclor 1254), and reduce leachability of most metals. Leaching results were similar for all three doses of Portland cement tested (6%, 9%, and 12%), but UCS increased by a factor of 8 and permeability decreased by a factor of about 100 as the amount of Portland cement increased from 6% to 12%.

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ACRONYMS and ABBREVIATIONS

g	grams
kg	kilograms
L	liters
mg	milligrams
mL	milliliters
µg	micrograms
SPLP	synthetic precipitation leaching procedure
TCLP	toxicity characteristic leaching procedure
UCS	unconfined compressive strength

1.0 INTRODUCTION

Bench-scale treatability testing was conducted on soil to evaluate the ability of Portland cement to solidify and stabilize polychlorinated biphenyls (PCBs) and metals (copper, nickel and lead) in soil. Specific goals were to

- Determine the amount of Portland cement needed to solidify soil
- Determine whether solidified soil, could reduce leachability of PCBs and metals

The specific tests conducted to achieve these goals are described in **Section 2.0** of this report. Results and Summary/Conclusions are presented in **Sections 3.0 and 4.0**, respectively.

2.0 MATERIALS and METHODS

2.1 Materials

Portland Cement, Type II-V. Basalite brand Portland Cement Type II-V, obtained from a local hardware store, was used in this study.

2.2 Preparation and Characterization of Soil

Two unlabeled buckets of soil were received on April 29, 2022. The buckets were randomly labeled "Bucket 1" and "Bucket 2" and were treated as separate samples. For each sample, the soil was homogenized and an aliquot removed for possible size fractionation. The remaining soil was sieved to remove particles greater than 4 mesh (3/16 inches), then homogenized. The less than 4 mesh sample was analyzed for PCBs and metals (copper, lead, and nickel). Based on the results of testing (see **Section 3.1**), soil from Bucket 2, which had higher PCBs concentrations, was also analyzed for SPLP (PCBs, Cu, Pb, Ni) and TCLP (PCBs, Cu, Pb, Ni); the reserved aliquot was analyzed for particle size distribution. **Figures 1** and **2** show each soil before and after sieving.

2.3 Solidification / Stabilization

Soil, Portland cement, and deionized (DI) water were combined and shown in **Table 1**. Portland cement was added to soil in a plastic container, then the container was sealed and the contents mixed by inverting and rotating the container in an *xyz* motion for 1 minute. Water was then stirred in as needed to obtain a thick slurry. The slurry was transferred to plastic 2 inch by 4 inch molds. The molds were loosely capped and allowed to stand undisturbed on the bench top at room temperature (approximately 20°C). At 14 days, all treatments had an unconfined compressive strength (UCS) greater than 4.5 kg/cm^2 as measured with a pocket penetrometer. One mold from each treatment (except the control) was crushed to less than 4 mesh then analyzed for SPLP (PCBs, Cu, Pb, Ni), TCLP (PCBs, Cu, Pb, Ni), and pH; the Control was also analyzed for SPLP (PCBs, Cu, Pb, Ni) and pH. Molds from each of the Portland Cement tests were submitted for UCS and hydraulic conductivity.

Figure 1. Bucket 1 Soil As Received (top), +4 Mesh (bottom left) and -4 Mesh (bottom right).

Figure 2. Bucket 2 Soil As Received (top), +4 Mesh (bottom left) and -4 Mesh (bottom right).

Table 1. Amendment Additions for Solidification / Stabilization Tests.

Test	Soil Mass	Target Dose		Amendment Added	
		Cement	Water	Cement	Water
	g	%		g	mL
Control	1500	0	sufficient to make a thick slurry	0	124
PC-Low	1500	6		90	99
PC-Med	1500	9		135	118
PC-High	1500	12		180	117

2.4 Analytical Methods

The methods for each analysis and the laboratory that performed the analyses are summarized in **Table 2**.

Table 2. Analytical Methods.

Analyte	Method	Laboratory*
Bulk density	mass/volume	PRIMA
Hydraulic conductivity	D5084	Gulf Shore
Metals	EPA 6010/6020	Enthalpy
Moisture	gravimetric	PRIMA
Particle size distribution (3/4" to #200)	C136, D6913, T27	Gulf Shore
PCBs	EPA 8082	Enthalpy
pH	probe	PRIMA
SPLP	EPA 1312	Enthalpy
TCLP	EPA 1311	Enthalpy
UCS	D2166	Gulf Shore

*Enthalpy Analytical (Orange, CA). Gulf Shore Construction Services (Rancho Cordova, CA)

3.0 RESULTS and DISCUSSION

Tables in this section contain data from subcontracted analytical laboratories. Only detected PCBs are included in the tables. Complete analytical data packages are provided in Appendix B.

3.1 Untreated Soil

The concentrations of PCBs, metals and other parameters are shown in **Table 3**. Soil in Bucket 1 contained approximately 170 µg/kg-dry Aroclor 1254, 2.8 mg/kg-dry copper, 2.8 mg/kg-dry lead, and 8.0 mg/kg-dry nickel. In contrast, soil in Bucket 2 contained 4,900 µg/kg-dry Aroclor 1254, 29 mg/kg-dry copper, 17 mg/kg-dry lead, and 12 mg/kg-dry nickel. All further testing was conducted only on soil from Bucket 2 because it had the higher concentrations of PCB and metals.

PCBs, copper, lead and nickel were detected in both SPLP and TCLP extracts, but concentrations were low 70 µg/L for each analyte.

3.2 Soil Solidification / Stabilization

The results of the soil solidification / stabilization tests are shown in Table 4. UCS increased with increasing cement (from 102.71 psi in the 6% test to 853.99 in the 12% test), while permeability decreased with increased cement (from 1.25E-06 cm/sec in the 6% test to 7.57E-08 cm/sec in the 12% test). PCBs (Aroclor 1254) were not detected in SPLP or TCLP leachate for any treatment. Copper and lead concentrations in SPLP leachate of treated soil decreased compared to the Control, while nickel concentration increased slightly (from about 17 µg/L to up to 36 µg/L). Concentrations of all three metals in TCLP leachates were lower for treated soil than for untreated soil (compare **Tables 3** and **4**.)

Table 3. PCBs, Metals and Other Parameters in Untreated Soil.

Analyte	Units	Bucket 1	Bucket 2
*PCBs **			
Arochlor -1254	µg/kg-dry	170 J	4,900
*Metals (total) **			
Copper	mg/kg-dry	6.6	29
Lead	mg/kg-dry	2.8	17
Nickel	mg/kg-dry	8.0	12
*SPLP Leachate**			
Copper	µg/L	n.m.	68
Lead	µg/L	n.m.	53
Nickel	µg/L	n.m.	19 J
Arochlor -1254	µg/L	n.m.	16
*TCLP Leachate**			
Copper	mg/L	n.m.	0.30
Lead	mg/L	n.m.	0.042
Nickel	mg/L	n.m.	0.056 J
Arochlor -1254	µg/L	n.m.	2.7
Other Parameters			
Bulk density ^	g/cm^3	n.m.	1.6 (approximate)
Moisture *	%	4.0	9.0
Particle Size**			
< 4 mesh	kg	15	20
> 4mesh	kg	4.8	5.1
Particle Size ^			
< 3/4 inch	% finer	not measured	100
< 1/2 inch	% finer		95
< 3/8 inch	% finer		92
< #4	% finer		83
< #8	% finer		72
< #16	% finer		56
< #30	% finer		35
< #50	% finer		16
< #100	% finer		7
< #200	% finer		5.3
Visual description^		sample is orange brown sand and gravel.	Sample is brown sand and gravel. Prior to homogenization, some gray/black material present.

* Analysis performed on < 4 mesh fraction

** "As received" soil sieved by hand by PRIMA

^ Analysis performed on bulk "as received" fraction.

J = estimated value

n.m. = not measured

Table 4. Post-Treatment Analyses.

Analyte	Units	Control (DI Only)	Portland Cement		
			6%	9%	12%
SPLP Leachate					
Copper	µg/L	53	18 J	15 J	12 J
Lead	µg/L	42 J	< 0.44	< 0.44	< 0.44
Nickel	µg/L	17 J	24 J	33 J	36 J
Aroclor 1254	µg/L	19	< 0.27	< 0.27	< 0.27
TCLP Leachate					
Copper	mg/L	n.m.	0.068	0.043	0.031
Lead	mg/L	n.m.	0.0039 J	0.0024 J	0.0021 J
Nickel	mg/L	n.m.	0.0098 B,J	0.0090 B,J	0.0079 B,J
Aroclor 1254	µg/L	n.m.	< 0.27	< 0.54	< 0.54
Permeability	cm/sec	n.m.	1.25 E-06	1.65 E-07	7.57 E-08
pH	--	7.2	12.0	12.2	12.2
Unconfined Compressive Strength	psi	n.m.	102.71	425.54	853.99

n.m. = not measured

J = estimated value - analyte was detected below the reporting limit, but above the method detection limit.

B = contamination found in associated method blank.

4.0 SUMMARY and CONCLUSIONS

Laboratory testing demonstrated treatment of site soil with up to 12% Portland cement could solidify soil, eliminate leaching of PCBs (Aroclor 1254), and reduce leachability of most metals. Leaching results were similar for all three doses of Portland cement tested (6%, 9%, and 12%), but UCS increased by a factor of 8 and permeability decreased by a factor of about 100 as the amount of Portland cement increased from 6% to 12%.

APPENDIX A
(Chains of Custody)

PRIMA ENVIRONMENTAL INC.
Questions Answered.

5070 Robert J Mathews Parkway, Suite 300
El Dorado Hills, CA 95762
916-939-7300
www.primaenvironmental.com

Sample Receipt Summary

Date/Time: 04.29.2022 0940

Client/Company: Vertex

Project: PCB

	Yes	No	N/A
Custody seals intact?	☐	☐	☒
Chain of custody Present?	☐	☒	☐
If no, list number of samples and Sample ID			
Ice present?	☐	☒	☐
If no, what is temperature? ____			
Samples in good condition?	☒	☐	☐
If no, explain:			
Do sample IDs on containers match IDs on COC?	☐	☐	☒
If no, explain:			

Client confirmed sample by email

Other Comments:

APPENDIX B
(Subcontracted Analytical Reports)

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

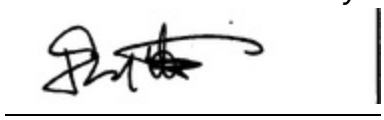
Lab Job Number: 462781
Report Level: II
Report Date: 05/17/2022

Analytical Report *prepared for:*

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Location: Vert-PCBs

Authorized for release by:



John Goyette, Service Center Manager
(510) 204-2233 Ext 13112
john.goyette@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Lab Job #: 462781
Location: Vert-PCBs
Date Received: 05/13/22

Sample ID	Lab ID	Collected	Matrix
VERT-BUCKET 1	462781-001	05/12/22 16:00	Soil
VERT-BUCKET 2	462781-002	05/12/22 17:00	Soil

ENTHALPY ANALYTICAL

Case Narrative

Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762
Cindy Schreier

Lab Job Number: 462781
Location: Vert-PCBs
Date Received: 05/13/22

This data package contains sample and QC results for two soil samples, requested for the above referenced project on 05/13/22. The samples were received cold and intact.

PCBs (EPA 8082):

- VERT-BUCKET 1 (lab # 462781-001) and VERT-BUCKET 2 (lab # 462781-002) were diluted due to the color of the sample extracts.
- No other analytical problems were encountered.

Metals (EPA 6020):
No analytical problems were encountered.

Moisture (ASTM D2216):
No analytical problems were encountered.

Enthalpy Analytical LLC
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900 Phone

CHAIN OF CUSTODY

Chain of Custody # : _____

C&T LOGIN # 462781

Project No:
Project Name: Vert-PCBs
EDD Format: _____ Rpt Level: ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH **24hr TAT** ☐

Sampler: Cindy Schreier
Report To: Cindy Schreier
Company : PRIMA Environmental, Inc.
Telephone: 916-939-7300
Email: data@primaenvironmental.com

Lab No.	Sample ID.	Sampling		Matrix				# of Containers	Chemical Preservative					Analytical Request		
		Date	Time	Water	Soil				HCl	H_2SO_4	HNO_3	NaOH	None	PCBs - EPA 8082	Metals (Cu, Pb, Ni) - EPA 6010/6020	Moisture
	Vert-Bucket 1	05/12/22	16:00		x			1						x	x	x
	Vert-Bucket 2	05/12/22	17:00		x			1						x	x	x

Notes:

Please hold any remaining soil for possible analysis of TCLP and SPLP (metals and PCBs)

SAMPLE RECEIPT
☐ Intact ☐ Cold
☐ On Ice ☐ Ambient

RELINQUISHED BY:
PRIMA 5/12/22 1830 — DATE/TIME
DATE/TIME
DATE/TIME

RECEIVED BY:
FedEx — DATE/TIME
5/13/22 0935 — DATE/TIME
DATE/TIME

4.2/6.0

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: PRIMA Environmental Project: Vert-PCBs

Date Received: 05/13/22 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 6.0 #2: _____ #3: _____ #4: _____

(Acceptance range Is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: FedEx

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 4.2 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✔		
Are sample IDs present?	✔		
Are sampling dates & times present?	✔		
Is a relinquished signature present?	✔		
Are the tests required clearly indicated on the COC?	✔		
Are custody seals present?		✔	
If custody seals are present, were they intact?			✔
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			✔
Did all samples arrive intact? If no, indicate in Section 4 below.	✔		
Did all bottle labels agree with COC? (ID, dates and times)	✔		
Were the samples collected in the correct containers for the required tests?	✔		
Are the containers labeled with the correct preservatives?			✔
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✔
Was a sufficient amount of sample submitted for the requested tests?	✔		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 5/13/22

ORIGIN ID:MHRA (916) 939-7300
CINDY SCHREIER
PRIMA ENVIRONMENTAL, INC.
5070 ROBERT J. MATHEWS PKWY
SUITE 300
EL DORADO HILLS, CA 95762
UNITED STATES US

SHIP DATE: 12MAY22
ACTWGT: 10.00 LB
CAD: 469237/INET4490
DIMS: 12x12x14 IN

BILL SENDER

TO **SAMPLE RECEIVING**
ENTHALPY ANALYTICAL
931 W BARKLEY AVE

ORANGE CA 92868
(714) 771-6900 REF: VERT-PCBS
INV:
PO: DEPT:

577J5/1BD6/FE4A

FedEx Express

J222022041201uv

FRI - 13 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7768 4925 3955

92 APVA

92868
CA-US **SNA**

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: IMPORTANT: TRANSMIT YOUR SHIPPING DATA AND PRINT A MANIFEST:
At the end of each shipping day, you should perform the FedEx Ground End of Day Close procedure to transmit your shipping data to FedEx. To do so, click on the Ground End of Day Close Button. If required, print the pickup manifest that appears. A printed manifest is required to be tendered along with your packages if they are being picked up by FedEx Ground. If you are dropping your packages off at a FedEx drop off location, the manifest is not required.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide and applicable tariff, available upon request. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations, including limitations on our liability, can be found in the current FedEx Service Guide and applicable tariff apply. In no event shall FedEx Ground be liable for any special, incidental, or consequential damages, including, without limitation, loss of profit, loss to the intrinsic value of the package, loss of sale, interest income or attorney's fees. Recovery cannot exceed actual documented loss. Items of extraordinary value are subject to separate limitations of liability set forth in the Service Guide and tariff. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ENTHALPY ANALYTICAL

Analysis Results for 462781

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Lab Job #: 462781
Location: Vert-PCBs
Date Received: 05/13/22

Sample ID: VERT-BUCKET 1 | **Lab ID: 462781-001** | **Collected: 05/12/22 16:00**
Matrix: Soil | **Basis: Dry**

462781-001 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: ASTM D2216 Prep Method: METHOD										
Moisture, Percent	**4**		%	1		1	289511	05/16/22	05/17/22	DNA
Method: EPA 6020 Prep Method: EPA 3050B										
Copper	**6.6**		mg/Kg	1.0	0.19	1	289389	05/13/22	05/13/22	SBW
Lead	**2.8**		mg/Kg	0.52	0.21	1	289389	05/13/22	05/13/22	SBW
Nickel	**8.0**		mg/Kg	1.0	0.40	1	289389	05/13/22	05/13/22	SBW
Method: EPA 8082 Prep Method: EPA 3546										
Aroclor-1016	ND		ug/Kg	260	55	5	289395	05/13/22	05/14/22	TJW
Aroclor-1221	ND		ug/Kg	260	170	5	289395	05/13/22	05/14/22	TJW
Aroclor-1232	ND		ug/Kg	260	43	5	289395	05/13/22	05/14/22	TJW
Aroclor-1242	ND		ug/Kg	260	170	5	289395	05/13/22	05/14/22	TJW
Aroclor-1248	ND		ug/Kg	260	190	5	289395	05/13/22	05/14/22	TJW
Aroclor-1254	**170**	J	ug/Kg	260	90	5	289395	05/13/22	05/14/22	TJW
Aroclor-1260	ND		ug/Kg	260	51	5	289395	05/13/22	05/14/22	TJW
Aroclor-1262	ND		ug/Kg	260	24	5	289395	05/13/22	05/14/22	TJW
Aroclor-1268	ND		ug/Kg	260	95	5	289395	05/13/22	05/14/22	TJW
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	93%		%REC	19-121	54	5	289395	05/13/22	05/14/22	TJW

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 462781

Sample ID: VERT-BUCKET 2	Lab ID: 462781-002	Collected: 05/12/22 17:00
	Matrix: Soil	Basis: Dry

462781-002 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: ASTM D2216 Prep Method: METHOD										
Moisture, Percent	**9**		%	1		1	289511	05/16/22	05/17/22	DNA
Method: EPA 6020 Prep Method: EPA 3050B										
Copper	**29**		mg/Kg	1.1	0.19	0.96	289389	05/13/22	05/13/22	SBW
Lead	**17**		mg/Kg	0.53	0.21	0.96	289389	05/13/22	05/13/22	SBW
Nickel	**12**		mg/Kg	1.1	0.40	0.96	289389	05/13/22	05/13/22	SBW
Method: EPA 8082 Prep Method: EPA 3546										
Aroclor-1016	ND		ug/Kg	270	58	5	289395	05/13/22	05/14/22	TJW
Aroclor-1221	ND		ug/Kg	270	180	5	289395	05/13/22	05/14/22	TJW
Aroclor-1232	ND		ug/Kg	270	45	5	289395	05/13/22	05/14/22	TJW
Aroclor-1242	ND		ug/Kg	270	180	5	289395	05/13/22	05/14/22	TJW
Aroclor-1248	ND		ug/Kg	270	200	5	289395	05/13/22	05/14/22	TJW
Aroclor-1254	**4,900**		ug/Kg	270	95	5	289395	05/13/22	05/14/22	TJW
Aroclor-1260	ND		ug/Kg	270	54	5	289395	05/13/22	05/14/22	TJW
Aroclor-1262	ND		ug/Kg	270	25	5	289395	05/13/22	05/14/22	TJW
Aroclor-1268	ND		ug/Kg	270	100	5	289395	05/13/22	05/14/22	TJW
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	111%		%REC	19-121	57	5	289395	05/13/22	05/14/22	TJW

J Estimated value
ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type:	Sample Duplicate	Lab ID:	QC989758	Batch:	289511
Matrix (Source ID):	Soil (462592-001)	Method:	ASTM D2216	Prep Method:	METHOD

QC989758 Analyte	Result	Source Sample Result	Units	Qual	RPD	RPD Lim	Basis	DF
Moisture, Percent	10.14	9.647	%		5	26		1

Type:	Blank	Lab ID:	QC989393	Batch:	289389
Matrix:	Soil	Method:	EPA 6020	Prep Method:	EPA 3050B

QC989393 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Copper	ND		mg/Kg	1.0	0.18	05/13/22	05/13/22
Lead	ND		mg/Kg	0.50	0.20	05/13/22	05/13/22
Nickel	ND		mg/Kg	1.0	0.38	05/13/22	05/13/22

Type:	Lab Control Sample	Lab ID:	QC989394	Batch:	289389
Matrix:	Soil	Method:	EPA 6020	Prep Method:	EPA 3050B

QC989394 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Copper	54.69	50.00	mg/Kg	109%		80-120
Lead	51.55	50.00	mg/Kg	103%		80-120
Nickel	54.52	50.00	mg/Kg	109%		80-120

Type:	Matrix Spike	Lab ID:	QC989397	Batch:	289389
Matrix (Source ID):	Soil (462825-001)	Method:	EPA 6020	Prep Method:	EPA 3050B

QC989397 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Copper	59.41	14.03	52.63	mg/Kg	86%		75-125	1.1
Lead	60.09	13.18	52.63	mg/Kg	89%		75-125	1.1
Nickel	69.93	20.32	52.63	mg/Kg	94%		75-125	1.1

Type:	Matrix Spike Duplicate	Lab ID:	QC989398	Batch:	289389
Matrix (Source ID):	Soil (462825-001)	Method:	EPA 6020	Prep Method:	EPA 3050B

QC989398 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Copper	63.62	14.03	52.63	mg/Kg	94%		75-125	7	20	1.1
Lead	65.09	13.18	52.63	mg/Kg	99%		75-125	8	20	1.1
Nickel	72.06	20.32	52.63	mg/Kg	98%		75-125	3	20	1.1

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC989409**	**Batch: 289395**
Matrix: Soil	**Method: EPA 8082**	**Prep Method: EPA 3546**

QC989409 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Aroclor-1016	ND		ug/Kg	50	11	05/13/22	05/14/22
Aroclor-1221	ND		ug/Kg	50	32	05/13/22	05/14/22
Aroclor-1232	ND		ug/Kg	50	8.3	05/13/22	05/14/22
Aroclor-1242	ND		ug/Kg	50	33	05/13/22	05/14/22
Aroclor-1248	ND		ug/Kg	50	37	05/13/22	05/14/22
Aroclor-1254	ND		ug/Kg	50	17	05/13/22	05/14/22
Aroclor-1260	ND		ug/Kg	50	9.8	05/13/22	05/14/22
Aroclor-1262	ND		ug/Kg	50	4.6	05/13/22	05/14/22
Aroclor-1268	ND		ug/Kg	50	18	05/13/22	05/14/22
Surrogates				**Limits**			
Decachlorobiphenyl (PCB)	86%		%REC	19-121	10	05/13/22	05/14/22

Type: Lab Control Sample	**Lab ID: QC989410**	**Batch: 289395**
Matrix: Soil	**Method: EPA 8082**	**Prep Method: EPA 3546**

QC989410 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Aroclor-1016	413.2	500.0	ug/Kg	83%		14-150
Aroclor-1260	436.3	500.0	ug/Kg	87%		10-150
Surrogates						
Decachlorobiphenyl (PCB)	45.39	50.00	ug/Kg	91%		19-121

Type: Matrix Spike	**Lab ID: QC989411**	**Batch: 289395**
Matrix (Source ID): Soil (462596-001)	**Method: EPA 8082**	**Prep Method: EPA 3546**

QC989411 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Aroclor-1016	403.4	ND	500.0	ug/Kg	81%		42-127	5
Aroclor-1260	403.9	ND	500.0	ug/Kg	81%		38-130	5
Surrogates								
Decachlorobiphenyl (PCB)	41.33		50.00	ug/Kg	83%		19-121	5

ENTHALPY ANALYTICAL

Batch QC

Type:	**Matrix Spike Duplicate**	**Lab ID:**	**QC989412**	**Batch:**	**289395**
Matrix (Source ID):	**Soil (462596-001)**	**Method:**	**EPA 8082**	**Prep Method:**	**EPA 3546**

QC989412 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Aroclor-1016	420.8	ND	500.0	ug/Kg	84%		42-127	4	30	5
Aroclor-1260	395.1	ND	500.0	ug/Kg	79%		38-130	2	30	5
Surrogates										
Decachlorobiphenyl (PCB)	39.29		50.00	ug/Kg	79%		19-121			5

ND Not Detected

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

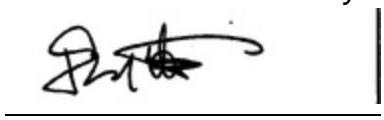
Lab Job Number: 463759
Report Level: II
Report Date: 06/27/2022

Analytical Report *prepared for:*

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Location: Vert-PCBs

Authorized for release by:



John Goyette, Service Center Manager
(510) 204-2233 Ext 13112
john.goyette@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Lab Job #: 463759
Location: Vert-PCBs
Date Received: 06/03/22

Sample ID	Lab ID	Collected	Matrix
VERT CONTROL	463759-001	06/02/22 17:00	Soil
VERT PC LOW	463759-002	06/02/22 16:30	Soil
VERT PC MED	463759-003	06/02/22 16:30	Soil
VERT PC HIGH	463759-004	06/02/22 16:30	Soil
VERT PC+CLAY LOW	463759-005	06/02/22 16:45	Soil
VERT PC+CLAY HIGH	463759-006	06/02/22 16:45	Soil
VERT BUCKET #2	463759-007	06/02/22 18:00	Soil

ENTHALPY ANALYTICAL

Case Narrative

Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762
Cindy Schreier

Lab Job Number: 463759
Location: Vert-PCBs
Date Received: 06/03/22

This data package contains sample and QC results for five soil samples, requested for the above referenced project on 06/03/22. The samples were received cold and intact.

PCBs (EPA 8082) TCLP Leachate:
No analytical problems were encountered.

PCBs (EPA 8082) SPLP Leachate:
No analytical problems were encountered.

Metals (EPA 6020) TCLP Leachate:

- Low recoveries were observed for nickel and lead in the MS/MSD of VERT BUCKET #2 (lab # 463759-007); the LCS was within limits, and the associated RPDs were within limits.
- Copper was detected between the MDL and the RL in the method blank for batch 291517; this analyte was detected in the sample at a level at least 10 times that of the blank.
- No other analytical problems were encountered.

Metals (EPA 6020) SPLP Leachate:
No analytical problems were encountered.

Enthalpy Analytical LLC
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900 Phone

CHAIN OF CUSTODY

Page 1 of 1
Chain of Custody # : _____

463759
C&T LOGIN # ~~463361~~

Project No:
Project Name: Vert-PCBs
EDD Format: _____ Rpt Level: ☐ II ☐ III ☐ IV
Turnaround Time: ☐ RUSH **std TAT** ☐ Standard

Sampler: Cindy Schreier
Report To: Cindy Schreier
Company : PRIMA Environmental, Inc.
Telephone: 916-939-7300
Email: data@primaenvironmental.com

Lab No.	Sample ID.	Sampling		Matrix				Chemical Preservative					Analytical Request																	
		Date	Time	Water	Soil		# of Containers	HCl	H_2SO_4	HNO_3	NaOH	None	SPLP	SPLP - PCBs - EPA 8082	SPLP- Metals (Cu, Pb, Ni) - EPA 6010/6020	TCLP (PCBs, Cu, Pb, Ni)														
	Vert Control	06/02/22	17:00		x		1						x	x	x															
	Vert PC Low	06/02/22	16:30		x		1						x	x	x															
	Vert PC Med	06/02/22	16:30		x		1						x	x	x															
	Vert PC High	06/02/22	16:30		x		1						x	x	x															
	Vert PC+Clay Low	06/02/22	16:45		x		1						x	for these two samples, please extract SPLP with other samples, but hold extracts for possible analysis																
	Vert PC+Clay High	06/02/22	16:45		x		1						x																	
	Vert Bucket #2	06/02/22	18:00										x	x	x	x														

Notes:

Please extract all samples for SPLP **at the same time**. Hold SPLP extracts for the two PC+Clay samples; they be be analyzed for

SAMPLE RECEIPT
☐ Intact ☐ Cold
☐ On Ice ☐ Ambient

RELINQUISHED BY:

PRIMA 6/2/22 1830 DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY:

FedEx DATE/TIME

1050 6/3/22 DATE/TIME

DATE/TIME

58/50

ENTHALPY ANALYTICAL

SAMPLE ACCEPTANCE CHECKLIST

Section 1

Client: Prima Environmental Project: Vert PCB

Date Received: 6/2/22 Sampler's Name Present: ☑ Yes ☐ No

Section 2

Sample(s) received in a cooler? ☑ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 5.8 #2: _____ #3: _____ #4: _____

(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)

Shipping Information: _____

Section 3

Was the cooler packed with: ☑ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 5.0 #2: _____ #3: _____ #4: _____

Section 4	YES	NO	N/A
Was a COC received?	✔		
Are sample IDs present?	✔		
Are sampling dates & times present?	✔		
Is a relinquished signature present?	✔		
Are the tests required clearly indicated on the COC?	✔		
Are custody seals present?		✔	
If custody seals are present, were they intact?			✔
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)	✔		
Did all samples arrive intact? If no, indicate in Section 4 below.	✔		
Did all bottle labels agree with COC? (ID, dates and times)	✔		
Were the samples collected in the correct containers for the required tests?	✔		
Are the containers labeled with the correct preservatives?			✔
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			✔
Was a sufficient amount of sample submitted for the requested tests?	✔		

Section 5 Explanations/Comments

Section 6

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 6/3/22

Enthalpy Analytical, a subsidiary of Montrose Environmental Group ,Inc.
931 W. Barkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209
www.enthalpy.com/socal

ORIGIN ID:MHRA (916) 939-7300
CINDY SCHREIER
PRIMA ENVIRONMENTAL, INC.
5070 ROBERT J. MATHEWS PKWY
SUITE 300
EL DORADO HILLS, CA 95762
UNITED STATES US

SHIP DATE: 02JUN22
ACTWGT: 20.00 LB
CAD: 4692371/INET4490
DIMS: 18x14x14 IN

BILL SENDER

TO **SAMPLE RECEIVING**
ENTHALPY ANALYTICAL
931 W BARKLEY AVE

ORANGE CA 92868
(714) 771-6900 REF: VERT-PCB
INV:
PO: DEPT:

577J2/274F/FE4A

FedEx Express

E

J222022041201uv

FRI - 03 JUN 4:30P
STANDARD OVERNIGHT

TRK# 0201 **7770 3059 4857**

92868
CA-US **SNA**

92 APVA

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At the end of each shipping day, you should perform the FedEx Ground End of Day Close procedure to transmit your shipping data to FedEx. To do so, click on the Ground End of Day Close Button. If required, print the pickup manifest that appears. A printed manifest is required to be tendered along with your packages if they are being picked up by FedEx Ground. If you are dropping your packages off at a FedEx drop off location, the manifest is not required.

ENTHALPY ANALYTICAL

Analysis Results for 463759

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Lab Job #: 463759
Location: Vert-PCBs
Date Received: 06/03/22

Sample ID: VERT CONTROL **Lab ID: 463759-001** **Collected: 06/02/22 17:00**
Matrix: SPLP Leachate

463759-001 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6020 Prep Method: EPA 200.8										
Copper	**53**		ug/L	30	0.50	10	290938	06/09/22	06/21/22	BQH
Lead	**42**	J	ug/L	50	0.44	10	290938	06/09/22	06/21/22	BQH
Nickel	**17**	J	ug/L	50	2.0	10	290938	06/09/22	06/21/22	BQH
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	0.50	0.15	1	291176	06/11/22	06/25/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1232	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	1	291176	06/11/22	06/25/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1254	**19**		ug/L	0.50	0.31	1	291176	06/11/22	06/25/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.20	1	291176	06/11/22	06/25/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.12	1	291176	06/11/22	06/25/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	92%		%REC	18-126		1	291176	06/11/22	06/25/22	TRN

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 463759

Sample ID: VERT PC LOW **Lab ID: 463759-002** **Collected: 06/02/22 16:30**
Matrix: SPLP Leachate

463759-002 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6020 Prep Method: EPA 200.8										
Copper	**18**	J	ug/L	30	0.50	10	290938	06/09/22	06/21/22	BQH
Lead	ND		ug/L	50	0.44	10	290938	06/09/22	06/21/22	BQH
Nickel	**24**	J	ug/L	50	2.0	10	290938	06/09/22	06/21/22	BQH
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	0.50	0.15	1	291176	06/11/22	06/25/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1232	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	1	291176	06/11/22	06/25/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1254	ND		ug/L	0.50	0.27	1	291176	06/11/22	06/25/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.20	1	291176	06/11/22	06/25/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.12	1	291176	06/11/22	06/25/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	96%		%REC	18-126		1	291176	06/11/22	06/25/22	TRN

Sample ID: VERT PC MED **Lab ID: 463759-003** **Collected: 06/02/22 16:30**
Matrix: SPLP Leachate

463759-003 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6020 Prep Method: EPA 200.8										
Copper	**15**	J	ug/L	30	0.50	10	290938	06/09/22	06/21/22	BQH
Lead	ND		ug/L	50	0.44	10	290938	06/09/22	06/21/22	BQH
Nickel	**33**	J	ug/L	50	2.0	10	290938	06/09/22	06/21/22	BQH
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	0.50	0.15	1	291176	06/11/22	06/25/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1232	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	1	291176	06/11/22	06/25/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1254	ND		ug/L	0.50	0.27	1	291176	06/11/22	06/25/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.20	1	291176	06/11/22	06/25/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.12	1	291176	06/11/22	06/25/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	76%		%REC	18-126		1	291176	06/11/22	06/25/22	TRN

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 463759

Sample ID: VERT PC HIGH **Lab ID: 463759-004** **Collected: 06/02/22 16:30**
Matrix: SPLP Leachate

463759-004 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6020 Prep Method: EPA 200.8										
Copper	**12**	J	ug/L	30	0.50	10	290938	06/09/22	06/21/22	BQH
Lead	ND		ug/L	50	0.44	10	290938	06/09/22	06/21/22	BQH
Nickel	**36**	J	ug/L	50	2.0	10	290938	06/09/22	06/21/22	BQH
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	0.50	0.15	1	291176	06/11/22	06/25/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1232	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	1	291176	06/11/22	06/25/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1254	ND		ug/L	0.50	0.27	1	291176	06/11/22	06/25/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.20	1	291176	06/11/22	06/25/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.50	1	291176	06/11/22	06/25/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.12	1	291176	06/11/22	06/25/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	71%		%REC	18-126		1	291176	06/11/22	06/25/22	TRN

Sample ID: VERT BUCKET #2 **Lab ID: 463759-007** **Collected: 06/02/22 18:00**

463759-007 Analyte	Result	Qual	Units	RL	MDL	Matrix	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6020 Prep Method: EPA 200.8											
Copper	**0.30**		mg/L	0.10	0.00050	TCLP Leachate	2	291517	06/20/22	06/21/22	SBW
Lead	**0.042**		mg/L	0.030	0.00073	TCLP Leachate	2	291517	06/20/22	06/21/22	SBW
Nickel	**0.056**	J	mg/L	0.20	0.0020	TCLP Leachate	2	291517	06/20/22	06/21/22	SBW
Copper	**68**		ug/L	30	0.50	SPLP Leachate	10	290938	06/09/22	06/21/22	BQH
Lead	**53**		ug/L	50	0.44	SPLP Leachate	10	290938	06/09/22	06/21/22	BQH
Nickel	**19**	J	ug/L	50	2.0	SPLP Leachate	10	290938	06/09/22	06/21/22	BQH
Method: EPA 8082 Prep Method: EPA 3510C											
Aroclor-1016	ND		ug/L	0.50	0.34	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.25	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 463759

463759-007 Analyte	Result	Qual	Units	RL	MDL	Matrix	DF	Batch	Prepared	Analyzed	Chemist
Aroclor-1232	ND		ug/L	0.50	0.20	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.10	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1254	**2.7**		ug/L	0.50	0.054	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.18	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.045	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.062	TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Aroclor-1016	ND		ug/L	0.50	0.15	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.50	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1232	ND		ug/L	0.50	0.50	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.50	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1254	**16**		ug/L	0.50	0.31	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.20	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.50	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.12	SPLP Leachate	1	291176	06/11/22	06/25/22	TRN
Surrogates				**Limits**							
Decachlorobiphenyl (PCB)	40%		%REC	18-126		TCLP Leachate	1	291177	06/11/22	06/18/22	TRN
Decachlorobiphenyl (PCB)	67%		%REC	18-126		SPLP Leachate	1	291176	06/11/22	06/25/22	TRN

J Estimated value
ND Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID:** QC995930	**Batch:** 291517
Matrix: TCLP Leachate	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC995930 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Copper	0.0091	J	mg/L	0.10	0.0028	06/20/22	06/21/22
Lead	ND		mg/L	0.030	0.00073	06/20/22	06/21/22
Nickel	ND		mg/L	0.20	0.0015	06/20/22	06/21/22

Type: Lab Control Sample	**Lab ID:** QC995931	**Batch:** 291517
Matrix: TCLP Leachate	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC995931 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Copper	0.05660	0.05000	mg/L	113%		80-120
Lead	0.05159	0.05000	mg/L	103%		80-120
Nickel	0.04514	0.05000	mg/L	90%		80-120

Type: Matrix Spike	**Lab ID:** QC995932	**Batch:** 291517
Matrix (Source ID): TCLP Leachate (463759-007)	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC995932 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Copper	0.1985	0.3000	0.05000	mg/L	-203%	NM	75-125	2
Lead	0.05115	0.04247	0.05000	mg/L	17%	*	75-125	2
Nickel	0.05910	0.05589	0.05000	mg/L	6%	*	75-125	2

Type: Matrix Spike Duplicate	**Lab ID:** QC995933	**Batch:** 291517
Matrix (Source ID): TCLP Leachate (463759-007)	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC995933 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Copper	0.1854	0.3000	0.05000	mg/L	-229%	NM	75-125	7	29	2
Lead	0.05025	0.04247	0.05000	mg/L	16%	*	75-125	2	20	2
Nickel	0.05545	0.05589	0.05000	mg/L	-1%	*	75-125	6	30	2

Type: Blank	**Lab ID:** QC994243	**Batch:** 290938
Matrix: SPLP Leachate	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC994243 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Copper	ND		ug/L	30	0.50	06/09/22	06/21/22
Lead	ND		ug/L	50	0.44	06/09/22	06/21/22
Nickel	ND		ug/L	50	2.0	06/09/22	06/21/22

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID:** QC994244	**Batch:** 290938
Matrix: SPLP Leachate	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC994244 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Copper	97.89	100.0	ug/L	98%		80-120
Lead	97.18	100.0	ug/L	97%		80-120
Nickel	97.61	100.0	ug/L	98%		80-120

Type: Matrix Spike	**Lab ID:** QC994890	**Batch:** 290938
Matrix (Source ID): SPLP Leachate (463759-002)	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC994890 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Copper	114.1	18.44	100.0	ug/L	96%		75-125	10
Lead	97.97	ND	100.0	ug/L	98%		75-125	10
Nickel	123.5	24.03	100.0	ug/L	99%		75-125	10

Type: Matrix Spike Duplicate	**Lab ID:** QC994891	**Batch:** 290938
Matrix (Source ID): SPLP Leachate (463759-002)	**Method:** EPA 6020	**Prep Method:** EPA 200.8

QC994891 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Copper	114.3	18.44	100.0	ug/L	96%		75-125	0	29	10
Lead	98.60	ND	100.0	ug/L	99%		75-125	1	20	10
Nickel	122.7	24.03	100.0	ug/L	99%		75-125	1	30	10

Type: Blank	**Lab ID:** QC994946	**Batch:** 291177
Matrix: TCLP Leachate	**Method:** EPA 8082	**Prep Method:** EPA 3510C

QC994946 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Aroclor-1016	ND		ug/L	0.50	0.34	06/11/22	06/18/22
Aroclor-1221	ND		ug/L	0.50	0.25	06/11/22	06/18/22
Aroclor-1232	ND		ug/L	0.50	0.20	06/11/22	06/18/22
Aroclor-1242	ND		ug/L	0.50	0.17	06/11/22	06/18/22
Aroclor-1248	ND		ug/L	0.50	0.10	06/11/22	06/18/22
Aroclor-1254	ND		ug/L	0.50	0.054	06/11/22	06/18/22
Aroclor-1260	ND		ug/L	0.50	0.18	06/11/22	06/18/22
Aroclor-1262	ND		ug/L	0.50	0.045	06/11/22	06/18/22
Aroclor-1268	ND		ug/L	0.50	0.062	06/11/22	06/18/22
Surrogates				**Limits**			
Decachlorobiphenyl (PCB)	42%		%REC	18-126		06/11/22	06/18/22

ENTHALPY ANALYTICAL

Batch QC

Type: Lab Control Sample	**Lab ID: QC994947**	**Batch: 291177**
Matrix: TCLP Leachate	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC994947 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Aroclor-1016	3.419	5.000	ug/L	68%		36-143
Aroclor-1260	3.262	5.000	ug/L	65%		31-153
Surrogates						
Decachlorobiphenyl (PCB)	0.2720	0.5000	ug/L	54%		18-126

Type: Lab Control Sample Duplicate	**Lab ID: QC994948**	**Batch: 291177**
Matrix: TCLP Leachate	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC994948 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Aroclor-1016	2.960	5.000	ug/L	59%		36-143	14	39
Aroclor-1260	2.922	5.000	ug/L	58%		31-153	11	20
Surrogates								
Decachlorobiphenyl (PCB)	0.2539	0.5000	ug/L	51%		18-126		

Type: Blank	**Lab ID: QC994942**	**Batch: 291176**
Matrix: SPLP Leachate	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC994942 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Aroclor-1016	ND		ug/L	0.50	0.15	06/11/22	06/25/22
Aroclor-1221	ND		ug/L	0.50	0.50	06/11/22	06/25/22
Aroclor-1232	ND		ug/L	0.50	0.50	06/11/22	06/25/22
Aroclor-1242	ND		ug/L	0.50	0.17	06/11/22	06/25/22
Aroclor-1248	ND		ug/L	0.50	0.50	06/11/22	06/25/22
Aroclor-1254	ND		ug/L	0.50	0.27	06/11/22	06/25/22
Aroclor-1260	ND		ug/L	0.50	0.20	06/11/22	06/25/22
Aroclor-1262	ND		ug/L	0.50	0.50	06/11/22	06/25/22
Aroclor-1268	ND		ug/L	0.50	0.12	06/11/22	06/25/22
Surrogates				**Limits**			
Decachlorobiphenyl (PCB)	77%		%REC	18-126		06/11/22	06/25/22

Type: Lab Control Sample	**Lab ID: QC994944**	**Batch: 291176**
Matrix: SPLP Leachate	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC994944 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Aroclor-1016	2.983	5.000	ug/L	60%		36-143
Aroclor-1260	3.797	5.000	ug/L	76%		31-153
Surrogates						
Decachlorobiphenyl (PCB)	0.3455	0.5000	ug/L	69%		18-126

ENTHALPY ANALYTICAL

Batch QC

Type:	**Lab Control Sample Duplicate**	**Lab ID:**	**QC994945**	**Batch:**	**291176**
Matrix:	**SPLP Leachate**	**Method:**	**EPA 8082**	**Prep Method:**	**EPA 3510C**

QC994945 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Aroclor-1016	2.915	5.000	ug/L	58%		36-143	2	39
Aroclor-1260	3.641	5.000	ug/L	73%		31-153	4	20
Surrogates								
Decachlorobiphenyl (PCB)	0.3408	0.5000	ug/L	68%		18-126		

* Value is outside QC limits
J Estimated value
ND Not Detected
NM Not Meaningful

Enthalpy Analytical
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Orange, CA 92868
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enthalpy.com

Lab Job Number: 465324
Report Level: II
Report Date: 08/05/2022

Analytical Report *prepared for:*

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Location: Vert-PCBs

Authorized for release by:

Sophia Baughman, Project Manager
sophia.baughman@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

Sample Summary

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Lab Job #: 465324
Location: Vert-PCBs
Date Received: 06/03/22

Sample ID	Lab ID	Collected	Matrix
VERT PC LOW	465324-001	06/02/22 16:30	Soil
VERT PC MED	465324-002	06/02/22 16:30	Soil
VERT PC HIGH	465324-003	06/02/22 16:30	Soil

Case Narrative

Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762
Cindy Schreier

Lab Job Number: 465324
Location: Vert-PCBs
Date Received: 06/03/22

This data package contains sample and QC results for three soil samples, requested for the above referenced project on 07/06/22. This report was revised and reissued on 08/05/22 to report the requested metals list.

PCBs (EPA 8082):
No analytical problems were encountered.

Metals (EPA 6010B):

- Nickel was detected between the MDL and the RL in the method blank for batch 293077; this analyte was not detected in samples at or above the RL.
- No other analytical problems were encountered.

MONTROSE ENVIRONMENTAL

John Goyette <jgoyette@montrose-env.com>

[EXTERNAL] Vert - PCBs WO 463759 - sample remaining?

Cindy Schreier <cschreier@primaenvironmental.com> Tue, Jul 5, 2022 at 1:54 PM
To: John Goyette <john.goyette@enthalpy.com>
Cc: chris brooks <cbrooks@primaenvironmental.com>, cschreier@primaenvironmental.com

Yes. Please proceed with TCLP (PCB, Metals) for the -002, -003- and -004 samples.

Thank you.

Cindy

Cindy G. Schreier, Ph.D. (she/her) *President and Chief Scientist*; 5070 Robert J. Mathews Pkwy, Suite 300

El Dorado Hills, CA 95762; T: 916.939.7300; F: 916.939.7398; *www.primaenvironmental.com*

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ENTHALPY ANALYTICAL

Analysis Results for 465324

Cindy Schreier
Prima Environmental, Inc.
5070 Robert J. Mathews Pkwy
Suite 300
El Dorado Hills, CA 95762

Lab Job #: 465324
Location: Vert-PCBs
Date Received: 06/03/22

Sample ID: VERT PC LOW **Lab ID: 465324-001** **Collected: 06/02/22 16:30**
Matrix: TCLP Leachate

465324-001 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3010A										
Copper	**0.068**		mg/L	0.030	0.0021	1	293077	07/15/22	07/16/22	SBW
Lead	**0.0039**	J	mg/L	0.015	0.0011	1	293077	07/15/22	07/16/22	SBW
Nickel	**0.0098**	B,J	mg/L	0.060	0.0011	1	293077	07/15/22	07/16/22	SBW
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	0.50	0.15	1	292697	07/12/22	07/13/22	TRN
Aroclor-1221	ND		ug/L	0.50	0.50	1	292697	07/12/22	07/13/22	TRN
Aroclor-1232	ND		ug/L	0.50	0.50	1	292697	07/12/22	07/13/22	TRN
Aroclor-1242	ND		ug/L	0.50	0.17	1	292697	07/12/22	07/13/22	TRN
Aroclor-1248	ND		ug/L	0.50	0.50	1	292697	07/12/22	07/13/22	TRN
Aroclor-1254	ND		ug/L	0.50	0.27	1	292697	07/12/22	07/13/22	TRN
Aroclor-1260	ND		ug/L	0.50	0.20	1	292697	07/12/22	07/13/22	TRN
Aroclor-1262	ND		ug/L	0.50	0.50	1	292697	07/12/22	07/13/22	TRN
Aroclor-1268	ND		ug/L	0.50	0.12	1	292697	07/12/22	07/13/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	78%		%REC	18-126		1	292697	07/12/22	07/13/22	TRN

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Analysis Results for 465324

Sample ID: VERT PC MED **Lab ID: 465324-002** **Collected: 06/02/22 16:30**
Matrix: TCLP Leachate

465324-002 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3010A										
Copper	**0.043**		mg/L	0.030	0.0021	1	293077	07/15/22	07/16/22	SBW
Lead	**0.0024**	J	mg/L	0.015	0.0011	1	293077	07/15/22	07/16/22	SBW
Nickel	**0.0090**	B,J	mg/L	0.060	0.0011	1	293077	07/15/22	07/16/22	SBW
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	1.0	0.30	2	292697	07/12/22	07/13/22	TRN
Aroclor-1221	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1232	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1242	ND		ug/L	1.0	0.33	2	292697	07/12/22	07/13/22	TRN
Aroclor-1248	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1254	ND		ug/L	1.0	0.54	2	292697	07/12/22	07/13/22	TRN
Aroclor-1260	ND		ug/L	1.0	0.41	2	292697	07/12/22	07/13/22	TRN
Aroclor-1262	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1268	ND		ug/L	1.0	0.25	2	292697	07/12/22	07/13/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	77%		%REC	18-126		2	292697	07/12/22	07/13/22	TRN

Sample ID: VERT PC HIGH **Lab ID: 465324-003** **Collected: 06/02/22 16:30**
Matrix: TCLP Leachate

465324-003 Analyte	Result	Qual	Units	RL	MDL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA 6010B Prep Method: EPA 3010A										
Copper	**0.031**		mg/L	0.030	0.0021	1	293077	07/15/22	07/16/22	SBW
Lead	**0.0021**	J	mg/L	0.015	0.0011	1	293077	07/15/22	07/16/22	SBW
Nickel	**0.0079**	B,J	mg/L	0.060	0.0011	1	293077	07/15/22	07/16/22	SBW
Method: EPA 8082 Prep Method: EPA 3510C										
Aroclor-1016	ND		ug/L	1.0	0.30	2	292697	07/12/22	07/13/22	TRN
Aroclor-1221	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1232	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1242	ND		ug/L	1.0	0.33	2	292697	07/12/22	07/13/22	TRN
Aroclor-1248	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1254	ND		ug/L	1.0	0.54	2	292697	07/12/22	07/13/22	TRN
Aroclor-1260	ND		ug/L	1.0	0.41	2	292697	07/12/22	07/13/22	TRN
Aroclor-1262	ND		ug/L	1.0	1.0	2	292697	07/12/22	07/13/22	TRN
Aroclor-1268	ND		ug/L	1.0	0.25	2	292697	07/12/22	07/13/22	TRN
Surrogates				**Limits**						
Decachlorobiphenyl (PCB)	81%		%REC	18-126		2	292697	07/12/22	07/13/22	TRN

Results for any subcontracted analyses are not included in this section.

Analysis Results for 465324

B	Contamination found in associated Method Blank
J	Estimated value
ND	Not Detected

Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	Lab ID: QC1000733	Batch: 293077
Matrix: TCLP Leachate	Method: EPA 6010B	Prep Method: EPA 3010A

QC1000733 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Copper	ND		mg/L	0.030	0.0021	07/15/22	07/16/22
Lead	ND		mg/L	0.015	0.0011	07/15/22	07/16/22
Nickel	0.0013	J	mg/L	0.060	0.0011	07/15/22	07/16/22

Type: Lab Control Sample	Lab ID: QC1000734	Batch: 293077
Matrix: TCLP Leachate	Method: EPA 6010B	Prep Method: EPA 3010A

QC1000734 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Copper	2.070	2.000	mg/L	104%		80-120
Lead	1.994	2.000	mg/L	100%		80-120
Nickel	1.943	2.000	mg/L	97%		80-120

Type: Matrix Spike	Lab ID: QC1000743	Batch: 293077
Matrix (Source ID): TCLP Leachate (465205-029)	Method: EPA 6010B	Prep Method: EPA 3010A

QC1000743 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	DF
Copper	2.226	0.06796	2.000	mg/L	108%		75-125	1
Lead	2.081	0.03701	2.000	mg/L	102%		75-125	1
Nickel	2.017	0.04292	2.000	mg/L	99%		75-125	1

Type: Matrix Spike Duplicate	Lab ID: QC1000744	Batch: 293077
Matrix (Source ID): TCLP Leachate (465205-029)	Method: EPA 6010B	Prep Method: EPA 3010A

QC1000744 Analyte	Result	Source Sample Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim	DF
Copper	2.185	0.06796	2.000	mg/L	106%		75-125	2	20	1
Lead	2.054	0.03701	2.000	mg/L	101%		75-125	1	20	1
Nickel	1.979	0.04292	2.000	mg/L	97%		75-125	2	20	1

ENTHALPY ANALYTICAL

Batch QC

Type: Blank	**Lab ID: QC999630**	**Batch: 292697**
Matrix: Water	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC999630 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Aroclor-1016	ND		ug/L	0.50	0.15	07/11/22	07/13/22
Aroclor-1221	ND		ug/L	0.50	0.50	07/11/22	07/13/22
Aroclor-1232	ND		ug/L	0.50	0.50	07/11/22	07/13/22
Aroclor-1242	ND		ug/L	0.50	0.17	07/11/22	07/13/22
Aroclor-1248	ND		ug/L	0.50	0.50	07/11/22	07/13/22
Aroclor-1254	ND		ug/L	0.50	0.27	07/11/22	07/13/22
Aroclor-1260	ND		ug/L	0.50	0.20	07/11/22	07/13/22
Aroclor-1262	ND		ug/L	0.50	0.50	07/11/22	07/13/22
Aroclor-1268	ND		ug/L	0.50	0.12	07/11/22	07/13/22
Surrogates				**Limits**			
Decachlorobiphenyl (PCB)	78%		%REC	18-126		07/11/22	07/13/22

Type: Lab Control Sample	**Lab ID: QC999633**	**Batch: 292697**
Matrix: Water	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC999633 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Aroclor-1016	3.065	5.000	ug/L	61%		36-143
Aroclor-1260	3.791	5.000	ug/L	76%		31-153
Surrogates						
Decachlorobiphenyl (PCB)	0.3519	0.5000	ug/L	70%		18-126

Type: Lab Control Sample Duplicate	**Lab ID: QC999634**	**Batch: 292697**
Matrix: Water	**Method: EPA 8082**	**Prep Method: EPA 3510C**

QC999634 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Aroclor-1016	3.423	5.000	ug/L	68%		36-143	11	39
Aroclor-1260	4.003	5.000	ug/L	80%		31-153	5	20
Surrogates								
Decachlorobiphenyl (PCB)	0.3584	0.5000	ug/L	72%		18-126		

ENTHALPY ANALYTICAL

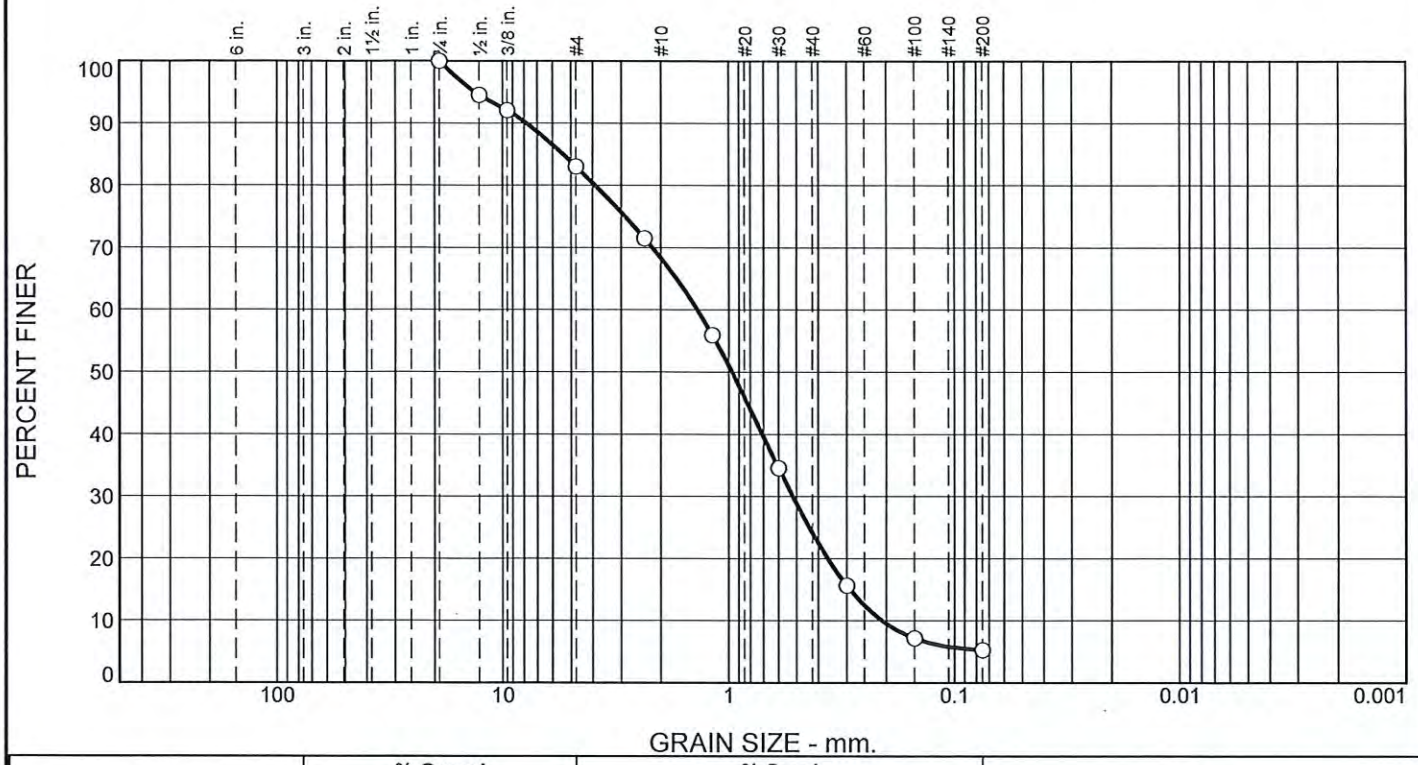
Batch QC

Type:	**Blank**	**Lab ID:**	**QC999810**	**Batch:**	**292697**
Matrix:	**TCLP Leachate**	**Method:**	**EPA 8082**	**Prep Method:**	**EPA 3510C**

QC999810 Analyte	Result	Qual	Units	RL	MDL	Prepared	Analyzed
Aroclor-1016	ND		ug/L	1.0	0.68	07/11/22	07/14/22
Aroclor-1221	ND		ug/L	1.0	0.51	07/11/22	07/14/22
Aroclor-1232	ND		ug/L	1.0	0.39	07/11/22	07/14/22
Aroclor-1242	ND		ug/L	1.0	0.34	07/11/22	07/14/22
Aroclor-1248	ND		ug/L	1.0	0.20	07/11/22	07/14/22
Aroclor-1254	ND		ug/L	1.0	0.11	07/11/22	07/14/22
Aroclor-1260	ND		ug/L	1.0	0.36	07/11/22	07/14/22
Aroclor-1262	ND		ug/L	1.0	0.090	07/11/22	07/14/22
Aroclor-1268	ND		ug/L	1.0	0.12	07/11/22	07/14/22
Surrogates				**Limits**			
Decachlorobiphenyl (PCB)	65%		%REC	18-126		07/11/22	07/14/22

J Estimated value
ND Not Detected

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0	0	17	15	44	19	5

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4 Inch	100		
1/2 Inch	95		
3/8 Inch	92		
#4	83		
#8	72		
#16	56		
#30	35		
#50	16		
#100	7		
#200	5.3		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 7.8200 D_{85}= 5.4195 D_{60}= 1.3754
D_{50}= 0.9663 D_{30}= 0.5193 D_{15}= 0.2899
D_{10}= 0.2086 C_u= 6.59 C_c= 0.94

Remarks

F.M.=3.40

Date Received: 6/3/22 **Date Tested:** 6/13/22

Tested By: SH

Checked By: JML

Title: PM

Location: Vert - Bucket 2 Bulk
Sample Number: 79219 **Depth:** -

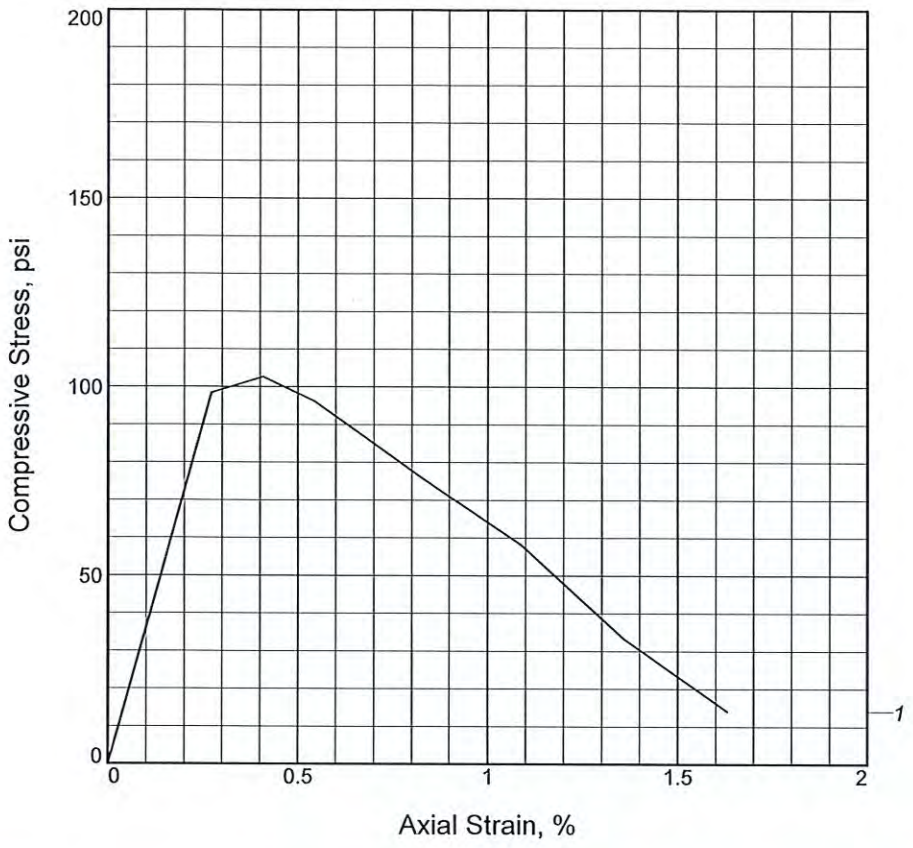
Date Sampled: 6/2/22

GULF SHORE EXPLORATION AND TESTING

Client: Prima Environmental
Project: Vert - PCB

Project No: 22-174 **Figure**

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	102.71			
Undrained shear strength, psi	51.36			
Failure strain, %	0.4			
Strain rate, in./min.	0.050			
Water content, %	11.8			
Wet density, pcf	120.1			
Dry density, pcf	107.4			
Saturation, %	55.8			
Void ratio	0.5689			
Specimen diameter, in.	2.00			
Specimen height, in.	3.68			
Height/diameter ratio	1.84			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.7	**Type:** Cast Cylinder

Project No.: 22-174
Date Sampled: 6/2/22
Remarks:

Figure _____

Client: Prima Environmental

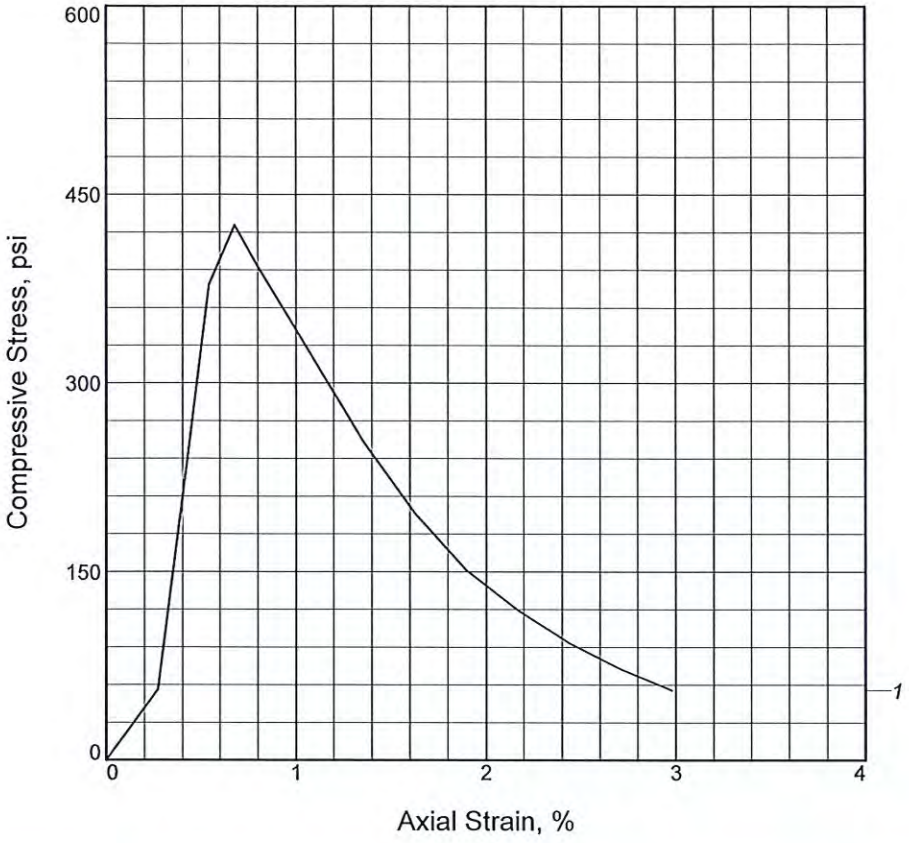
Project: Vert - PCB

Location: Vert PC Low
Sample Number: 79220 **Depth:** -

GS GULF SHORE EXPLORATION AND TESTING

Tested By: TL **Checked By:** JML

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	425.54			
Undrained shear strength, psi	212.77			
Failure strain, %	0.7			
Strain rate, in./min.	0.050			
Water content, %	12.7			
Wet density, pcf	126.1			
Dry density, pcf	111.8			
Saturation, %	67.8			
Void ratio	0.5070			
Specimen diameter, in.	2.00			
Specimen height, in.	3.69			
Height/diameter ratio	1.84			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.7	**Type:** Cast Cylinder

Project No.: 22-174
Date Sampled: 6/2/22
Remarks:

Figure _____

Client: Prima Environmental

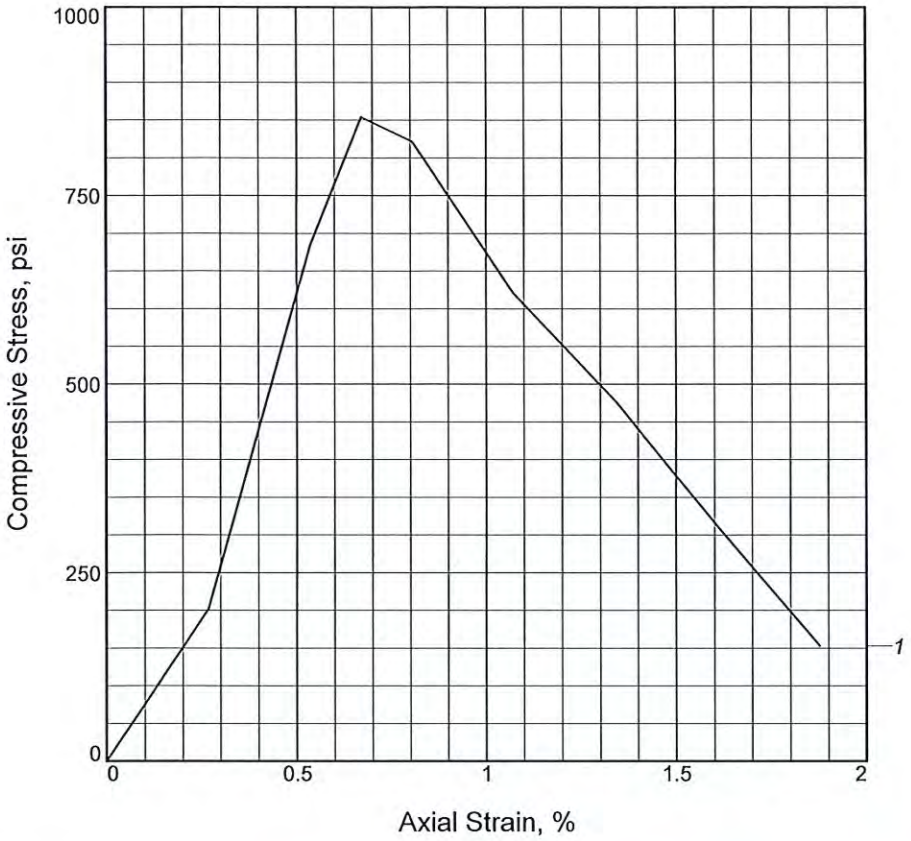
Project: Vert - PCB

Location: Vert PC Med
Sample Number: 79221 **Depth:** -

GS GULF SHORE EXPLORATION AND TESTING

Tested By: TL **Checked By:** JML

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, psi	853.99			
Undrained shear strength, psi	427.00			
Failure strain, %	0.7			
Strain rate, in./min.	0.050			
Water content, %	12.6			
Wet density, pcf	129.3			
Dry density, pcf	114.8			
Saturation, %	72.7			
Void ratio	0.4681			
Specimen diameter, in.	2.00			
Specimen height, in.	3.73			
Height/diameter ratio	1.86			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.7	**Type:** Cast Cylinder

Project No.: 22-174
Date Sampled: 6/2/22
Remarks:

Figure _____

Client: Prima Environmental

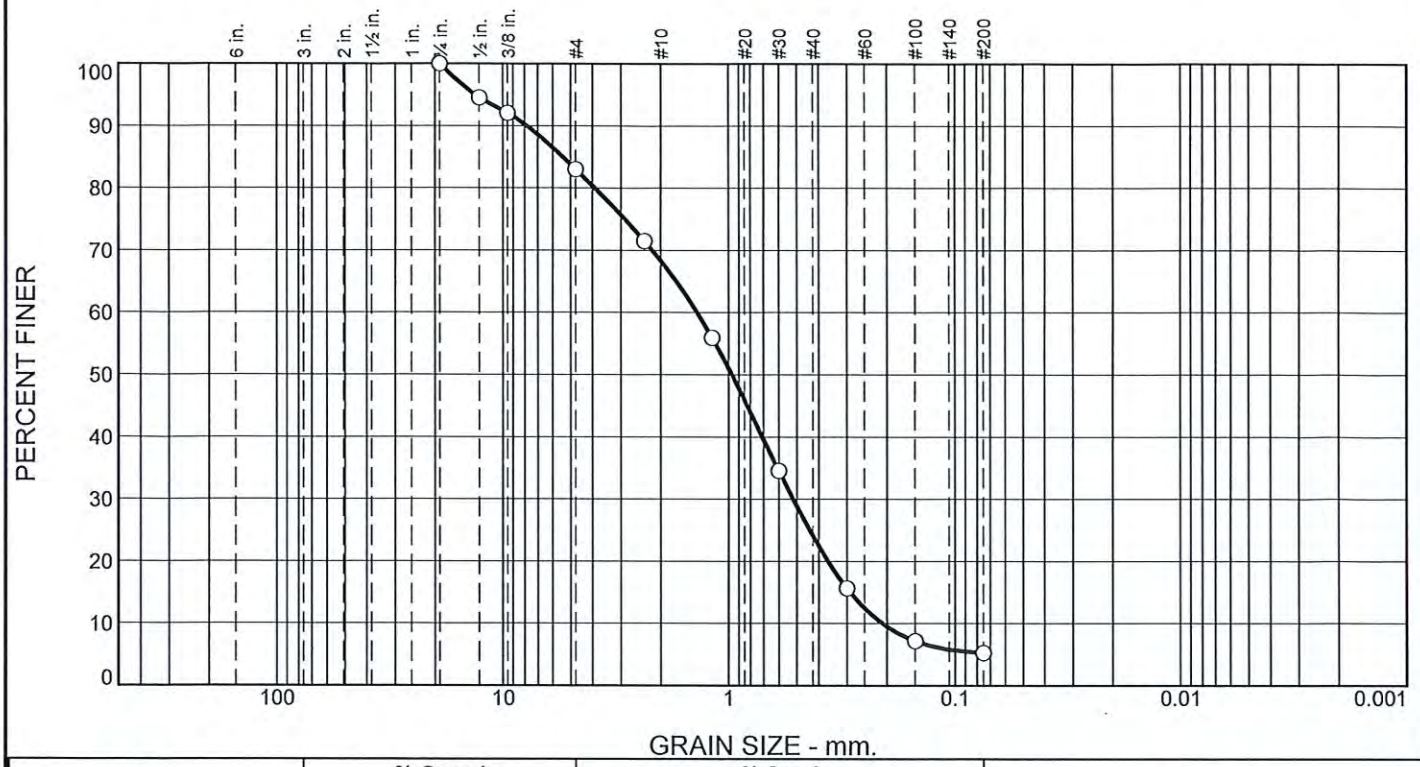
Project: Vert - PCB

Location: Vert PC High
Sample Number: 79222 **Depth:** -

GS GULF SHORE EXPLORATION AND TESTING

Tested By: TL **Checked By:** JML

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0	0	17	15	44	19	5

Test Results (ASTM D6913 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3/4 Inch	100		
1/2 Inch	95		
3/8 Inch	92		
#4	83		
#8	72		
#16	56		
#30	35		
#50	16		
#100	7		
#200	5.3		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 7.8200 D_{85}= 5.4195 D_{60}= 1.3754
D_{50}= 0.9663 D_{30}= 0.5193 D_{15}= 0.2899
D_{10}= 0.2086 C_u= 6.59 C_c= 0.94

Remarks

F.M.=3.40

Date Received: 6/3/22 **Date Tested:** 6/13/22

Tested By: SH

Checked By: JML

Title: PM

Location: Vert - Bucket 2 Bulk **Date Sampled:** 6/2/22
Sample Number: 79219 **Depth:** -

GULF SHORE EXPLORATION AND TESTING

Client: Prima Environmental
Project: Vert - PCB

Project No: 22-174 **Figure**

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: PC-Low C
Visual Description:
Date Cast: 7/8/22
Remarks:

Sample Depth, ft.: N/A *Lab No.:* 80928
Sample Type: Cast Cylinder
Age, days: 13

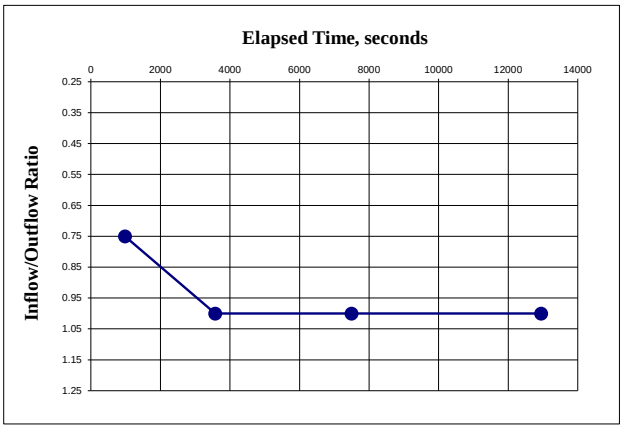
TEST RESULTS

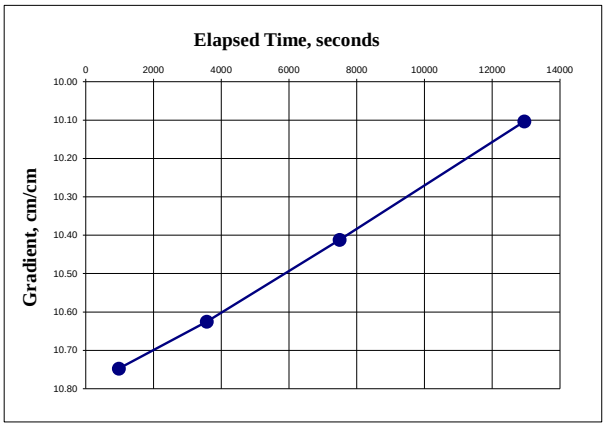
Permeability, cm/sec.: 1.25E-06
Chamber Pressure, psi: 110.0
Back Pressure, psi: 100.0
Consolidation Pressure: 10.0
"B" Coefficient: 98.0%

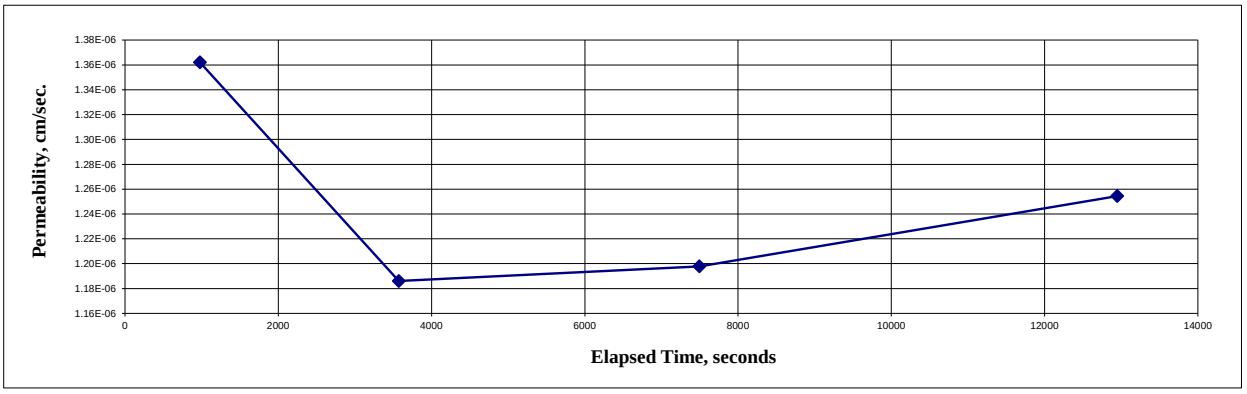
Average Hydraulic Gradient: 10.47
Initial Hydraulic Gradient: 10.75
Final Hydraulic Gradient: 10.10
Burrett Area (cm^2): 0.85
Permeant Liquid Used: Tap Water

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	9.40	*Specimen Height, cm:*	9.40
Specimen Diameter, cm:	5.08	*Specimen Diameter, cm:*	5.08
Dry Unit Weight, pcf:	103.8	*Dry Unit Weight, pcf:*	103.8
Moisture Content, %:	19.4	*Moisture Content, %:*	23.0
Specific Gravity (assumed):	2.69	*Specific Gravity (assumed):*	2.69
Initial Saturation, %:	84.3	*Final Saturation, %:*	99.9







Test Method: ASTM D5084 Method C

PROJECT NUMBER:	22-174	July 21, 2022

GULF SHORE EXPLORATION AND TESTING
3362 Fitzgerald Road
Rancho Cordova, CA 95742
Phone: (916) 939-4117
Fax: (916) 635-4315

Vert-PCB

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: PC-Med C
Visual Description:
Date Cast: 7/8/22
Remarks:

Sample Depth, ft.: N/A *Lab No.:* 80929
Sample Type: Cast Cylinder
Age, days: 13

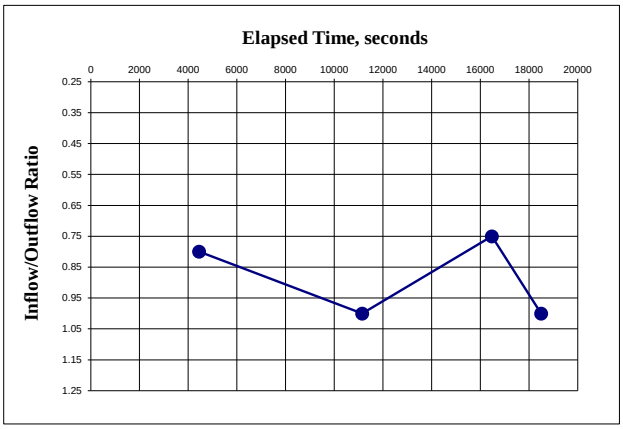
TEST RESULTS

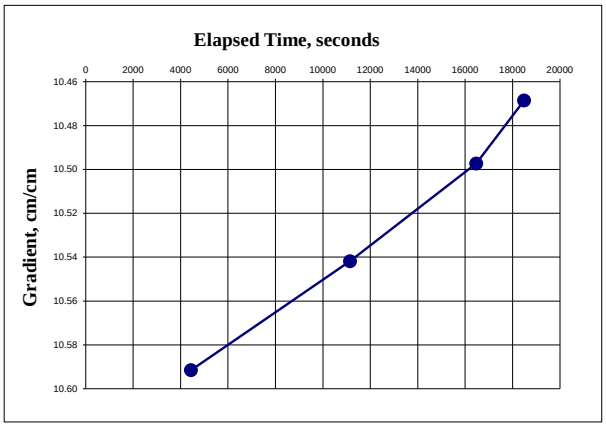
Permeability, cm/sec.: 1.65E-07
Chamber Pressure, psi: 80.0
Back Pressure, psi: 70.0
Consolidation Pressure: 10.0
"B" Coefficient: 95.0%

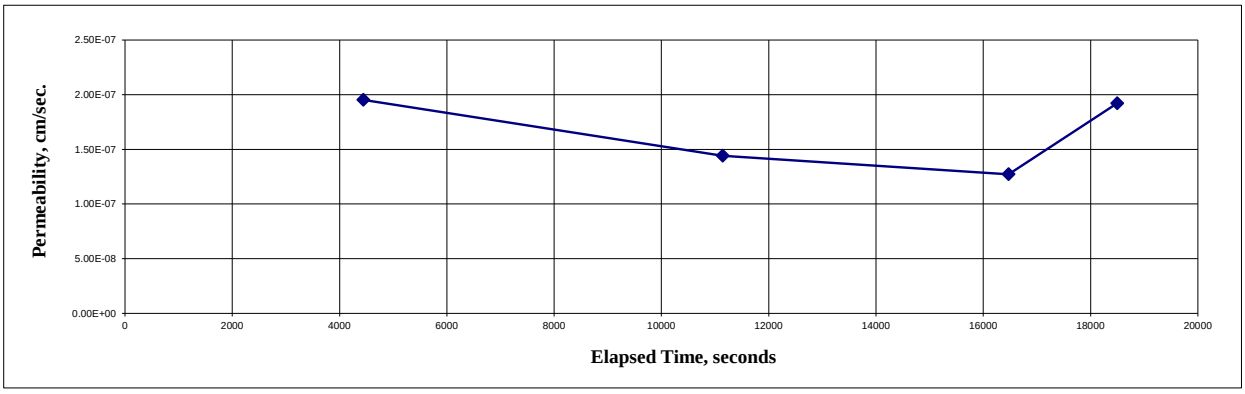
Average Hydraulic Gradient: 10.52
Initial Hydraulic Gradient: 10.59
Final Hydraulic Gradient: 10.47
Burrett Area (cm^2): 0.85
Permeant Liquid Used: Tap Water

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	9.55	*Specimen Height, cm:*	9.55
Specimen Diameter, cm:	5.08	*Specimen Diameter, cm:*	5.08
Dry Unit Weight, pcf:	106.7	*Dry Unit Weight, pcf:*	106.7
Moisture Content, %:	18.2	*Moisture Content, %:*	21.1
Specific Gravity (assumed):	2.68	*Specific Gravity (assumed):*	2.68
Initial Saturation, %:	86.0	*Final Saturation, %:*	99.7







Test Method: ASTM D5084 Method C

PROJECT NUMBER:	22-174	July 21, 2022

GULF SHORE EXPLORATION AND TESTING
3362 Fitzgerald Road
Rancho Cordova, CA 95742
Phone: (916) 939-4117
Fax: (916) 635-4315

Vert-PCB

HYDRAULIC CONDUCTIVITY TEST REPORT

SAMPLE DATA

Sample Identification: PC-High C
Visual Description:
Date Cast: 7/8/22
Remarks:

Sample Depth, ft.: N/A *Lab No.:* 80930
Sample Type: Cast Cylinder
Age, days: 13

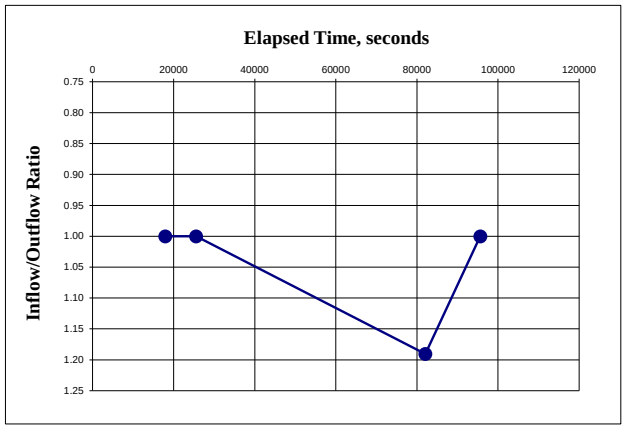
TEST RESULTS

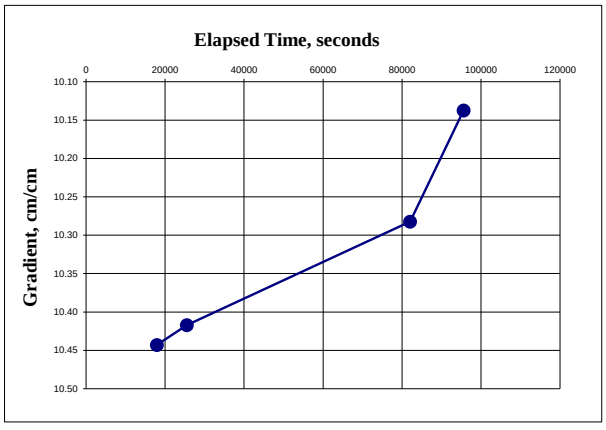
Permeability, cm/sec.: 7.57E-08
Chamber Pressure, psi: 90.0
Back Pressure, psi: 80.0
Consolidation Pressure: 10.0
"B" Coefficient: 93.0%

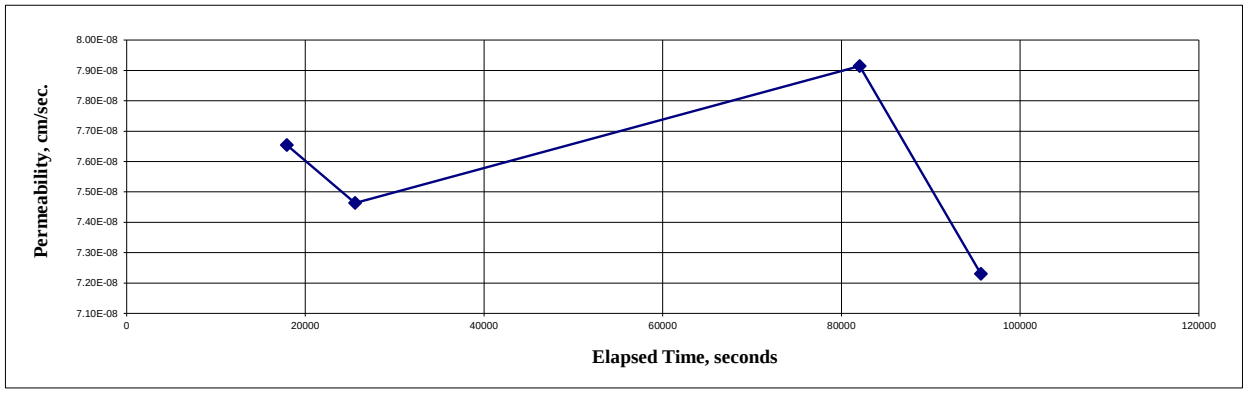
Average Hydraulic Gradient: 10.32
Initial Hydraulic Gradient: 10.48
Final Hydraulic Gradient: 10.14
Burrett Area (cm^2): 0.85
Permeant Liquid Used: Tap Water

TEST SAMPLE DATA

Before Test		After Test	
Specimen Height, cm:	9.65	*Specimen Height, cm:*	9.65
Specimen Diameter, cm:	5.13	*Specimen Diameter, cm:*	5.13
Dry Unit Weight, pcf:	105.4	*Dry Unit Weight, pcf:*	105.4
Moisture Content, %:	19.2	*Moisture Content, %:*	22.3
Specific Gravity (assumed):	2.70	*Specific Gravity (assumed):*	2.70
Initial Saturation, %:	86.7	*Final Saturation, %:*	100.4







Test Method: ASTM D5084 Method C

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APPENDIX F PRO-TEC EXAMPLE SLIDE RAIL SYSTEM BROCHURE

PRO-TEC EQUIPMENT

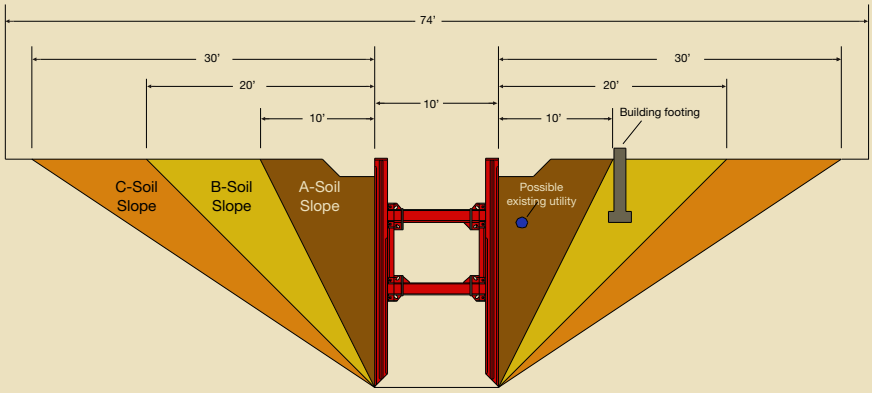
SLIDE RAIL SHORING SYSTEMS

THE LEADING PRODUCER & DISTRIBUTOR OF TRENCH SHIELDING & SHORING EQUIPMENT SINCE 1995

Pro-Tec Equipment
Slide Rail Shoring Systems

What is Pro-Tec Equipment's Slide Rail?

The Pro-Tec Equipment Slide Rail System is a dig and push style system. With its modular, flexible design the system can comply with a wide variety of shapes and sizes. The Pro-Tec Slide Rail Shoring System is installed from the top down and removed from the bottom up, minimizing size of excavations, soil disturbances and restoration time and cost. The installation is done with low vibration, providing soil support for excavations, adjacent structures and existing utilities.



When to use slide rail

- **Bad soil conditions**
- **Lift/pump station installations**
- **Tight quarters**
- **Fuel tank installations**
- **C.I.P. foundations and footings**
- **Boring and receiving pits**
- **Soil remediations**
- **And many other uses**

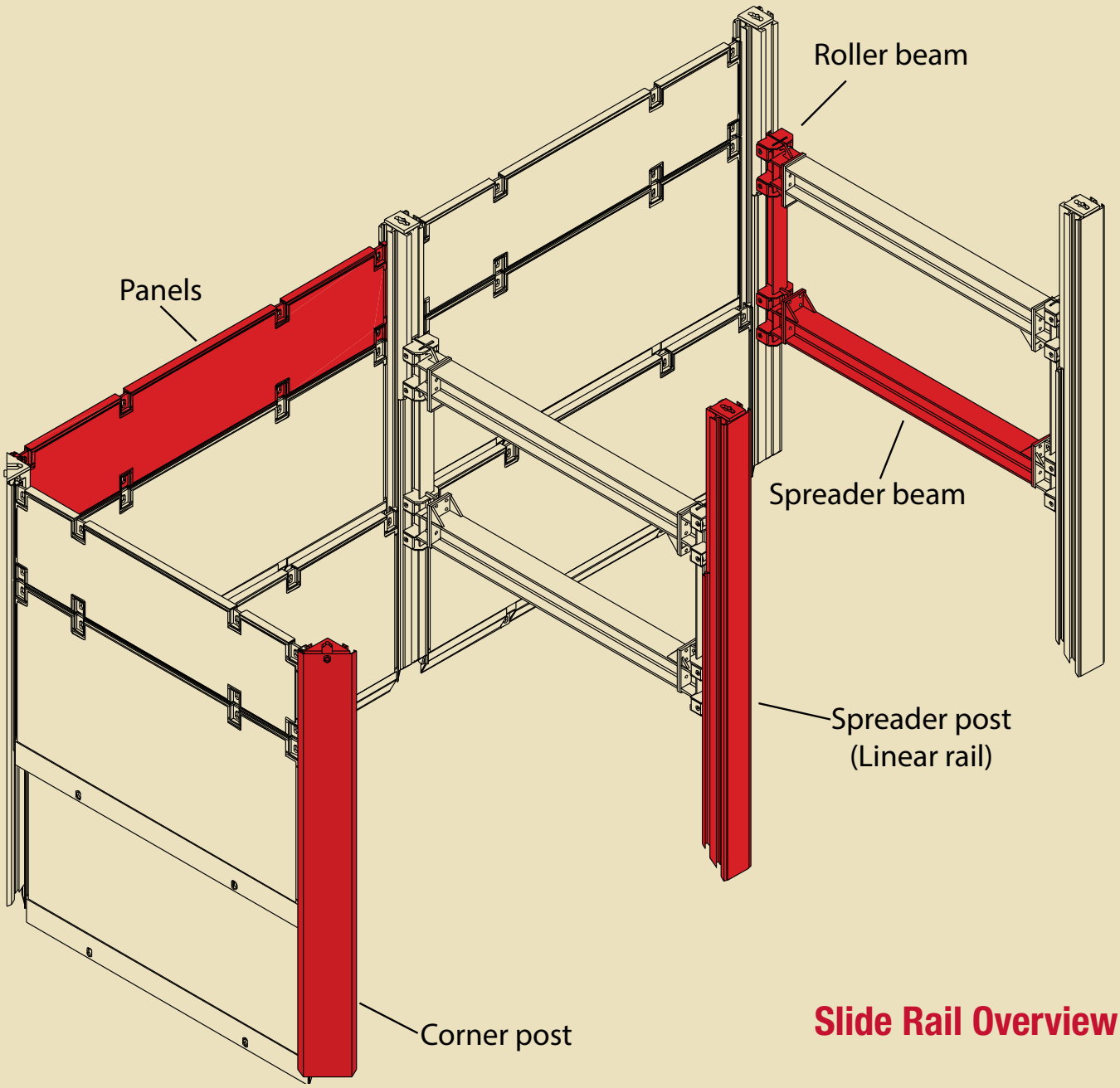
Why use a slide rail?

The illustration above shows the use of slide rail vs. sloping, based on a project 20' deep, 10' wide x 30' long, with C-soils.

Using the slide rail system, the project will require an overall width of 14' at the top of the excavation (including the OSHA-required 2' set-back on each side for equipment and spoil pile), requiring approximately 223 cubic yards of soil to be removed/replaced. Using the sloping method for the same project, in accordance with the slope of 1½:1 (H:V) required for C-soils, would result in a total excavation width of 74' at the top–or 890 cubic yards of soil to be removed/replaced!

Based on a conservative figure of $15/cubic yard for fill (not including hauling or machine time), the estimated cost to replace the 223 cubic yards of fill removed when using the slide rail system is $3,375. With the sloping method, the estimated cost to replace the 890 cubic yards of material removed would be $13,350. That is almost $10,000 more in fill dirt costs alone (not including hauling or machine time) when using the sloping method!

Simply put, the slide rail system, when used in the proper situation, can save the user significant time and money!



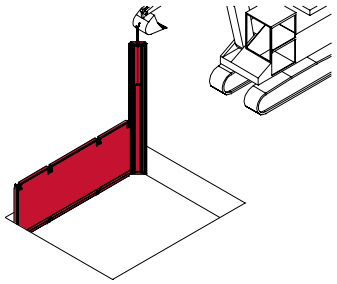
Slide Rail Overview

GENERAL INSTALLATION AND REMOVAL

INSTALLATION

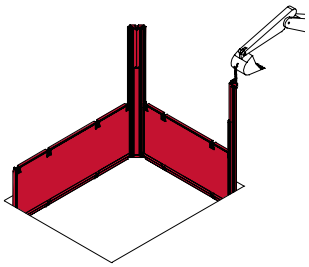
1

After initial pilot cut, first outer panel and corner post are put into place.



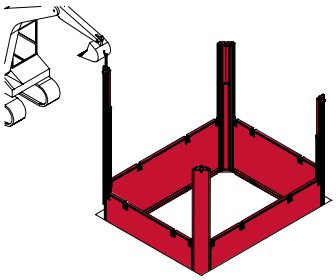
2

Second panel and corner post forms a right angle.



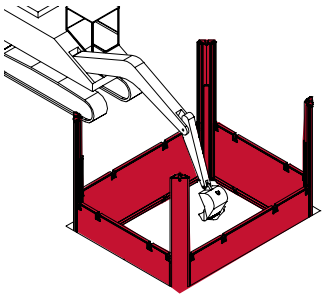
3

With outer panels and posts in position…



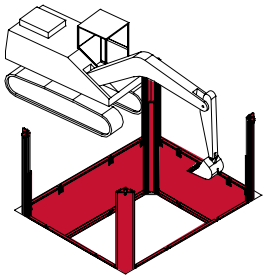
4

excavation continues…



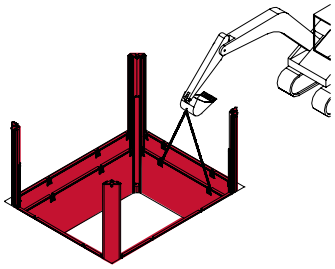
5

while outer panels and corner posts are pushed to proper depth with excavator.



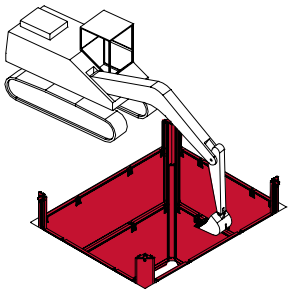
6

Excavation is deepened and panels are lowered into inside tracks.



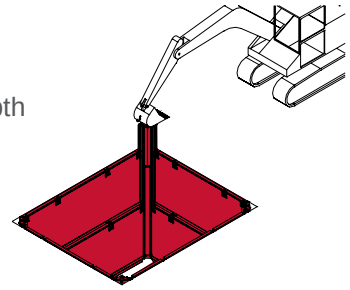
7

Excavator continues to dig and push the inside panels and corner posts...



8

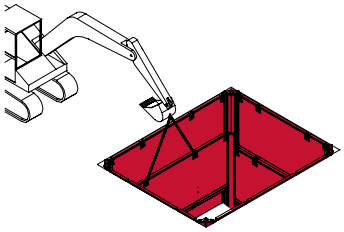
until desired depth is reached.



REMOVAL

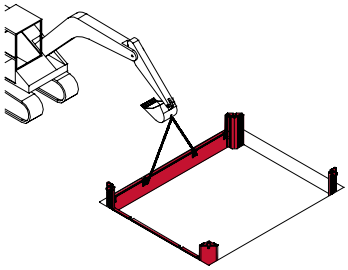
9

Extract inner panels as back filling and compaction is started.



10

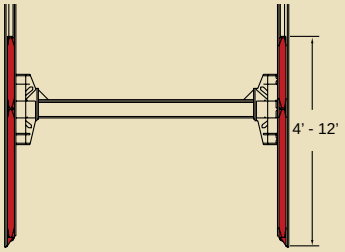
Outer panels and corner posts are extracted as back filling and compaction is completed.



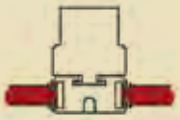
SLIDE RAIL SYSTEMS

SINGLE TRACK

Designed to be used for smaller, shallow excavations, such as fuel tanks, building footing and linear pipeline work, the single slide rail system provides protection at a depth range of 4’ t o 12’. All panels sit in a single track, enabling the removal of panels in a single lift, making it an ideal system for 60,000 to 80,000 lb. machines.



ROLLER BEAM

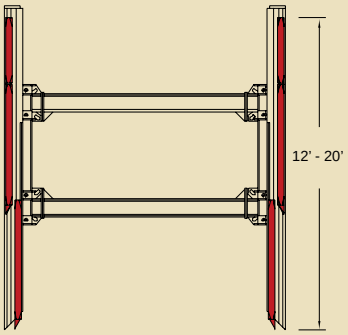


SINGLE SPREADER POST
(LINEAR RAIL)

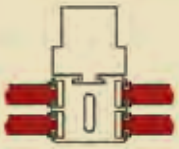
SINGLE CORNER POST

DOUBLE TRACK

The most popular of the slide rail systems, the double slide rail system provides protection at a depth range of 12’ to 20’. This system is designed to be used with 80,000 to 100,000 lb. machines, on jobs ranging from manhole installations, lift stations, soil remediations and anything in between.



ROLLER BEAM

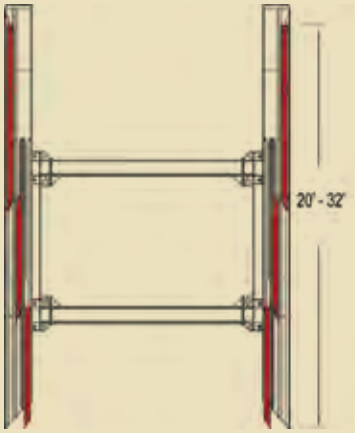


DOUBLE SPREADER POST
(LINEAR RAIL)

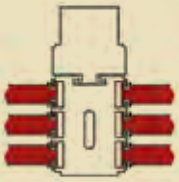
DOUBLE CORNER POST

TRIPLE TRACK

The triple slide rail system, providing protection at a depth range of 20’ to 32’, is ideal for any application requiring a deep cut. Designed to be used with 100,000-plus lb. machines, the triple slide rail system is able to be used on any job on which a slide rail system can be used.



ROLLER BEAM

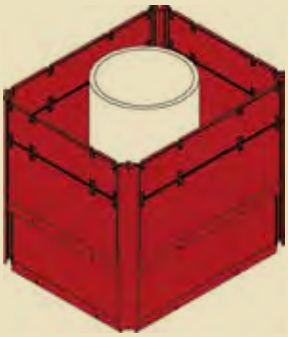


TRIPLE SPREADER POST
(LINEAR RAIL)

TRIPLE CORNER POST

MODULAR DESIGN

permits installation of a wide variety of shapes and sizes

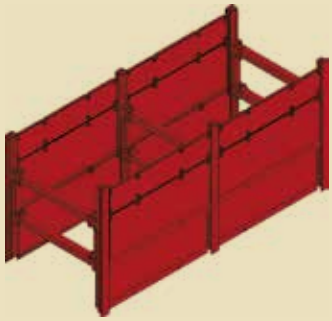


SQUARE AND RECTANGULAR PITS

TOP: Less than 6’ from an active railroad track, this 8’ deep x 10’wide x 12’ long single slide rail system proved through practice and engineering that it could handle the load.

CENTER: With a Komatsu PC 300, this double slide rail system, measuring 20’ deep x 10’ wide x 18’ long was installed in the middle of an active parking lot, allowing the crew to install an 8.5’ O.D. lift station.

BOTTOM: Using two Hitachi EX 700 machines, this 24’deep, 20’ wide x 20’ long triple slide rail system was used to install a large, 14’ O.D. lift station.



LINEAR AND MULTIPLE BAYS

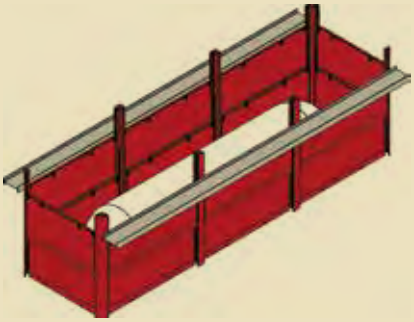
TOP: At 12’ in depth, this single slide rail system was used to provide protection for a crew while they were installing pipe. With the slide rail system being a low vibration alternative to tight sheeting, this project was able to be completed while being next to a building with sensitive computer equipment.

CENTER: With an active lift station, a road and a river a stone’s throw away, this 12’ deep, 16’ wide x 50’ long linear system was used to install three pressure reduction valves for a new light rail system.

BOTTOM: With over 600,000 pounds of slide rail equipment on this job, this 24’ deep x 18’ wide x 146’ long system was used to find and repair pipe line in the Louisiana wetlands.

FLEXIBLE COMPONENTS

makes installation easier, faster and more economical

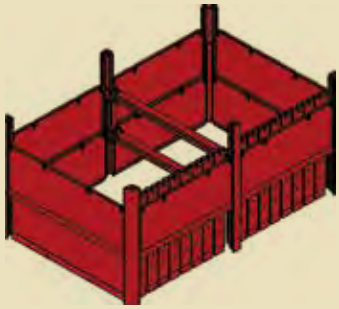


CLEAR SPAN TANK INSTALLATIONS

TOP: Measuring 12’ deep x 12’ wide x 69’ long (using 4 bays of 16’ panels), multiple fuel tanks are installed at Detroit Metro Airport with the aid of a PC 600 Komatsu excavator.

CENTER: Using a CAT 330 machine this 16’ deep x 18’ wide x 65’ long system was installed at a hospital to provide them with an external fuel tank. Being outside a hospital, it was a necessity that this fuel tank be installed with a low vibration system, while providing workers with a safe workzone.

BOTTOM: With a Hitachi 450 and a CAT 345 excavator, this very large C.I.P. project measured in at 24’ deep x 30’ wide x 50’ long.



CUSTOM DESIGNS TO MEET UNIQUE NEEDS

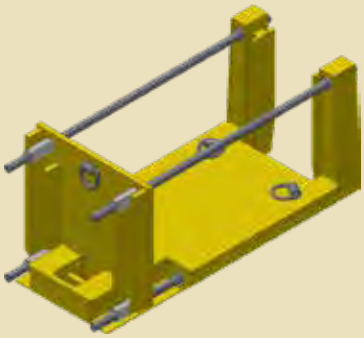
TOP: 11’ deep x 14’ wide x over 100’ long, this green corn receiving pit was done by “leap-frogging” the system as the crew poured the walls. Requiring no less than 10’ of vertical clearance for the walls, the system was able to brace off the cured concrete floor, while itself acting as the forms for the walls.

CENTER: This double slide rail system shows the versatility of slide rail. With a mixture of a clearspan system (to allow the installation of three fuel tanks) and a multiple bay system while displaying the Pro-Tec Equipment box beam roller system (which allows an additional 27” of vertical clearance).

BOTTOM: With side-by-side utility panel guides, this 28’ deep x 42’ long x 20’ wide system was used to search for a problem area on active pipe adjacent to a busy highway.

SYSTEM ACCESSORIES

Helpful items for use on the jobsite

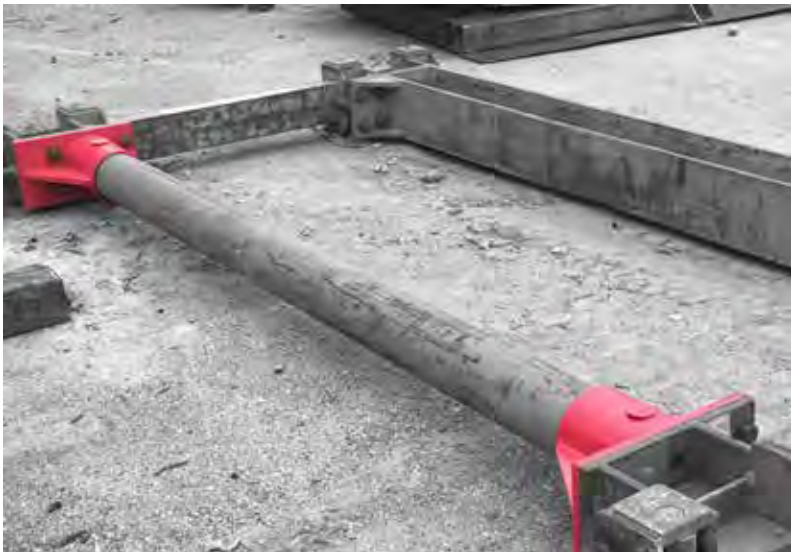


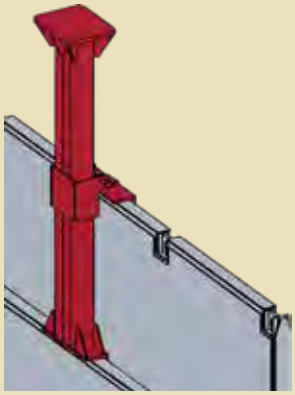
ACCESSORIES

TOP: The Pro-Tec Equipment Tie Back Bracket. Designed with jobsite safety in mind, the Tie Back Bracket is able to accept multiple sizes of external waler beams and aids in the completion of clearspan applications.

CENTER: How you start determines how you finish. That is why Pro-Tec Equipment has the squaring and alignment tools. The squaring tool allows end users to check and make sure the starting panels are all square, allowing the pit to be installed and removed with minimal or zero binding.

BOTTOM: The alignment tools (for the corner post and the spreader post) assure that the panels are in the proper position prior to placing the required post





CUSTOM DESIGNS TO MEET UNIQUE NEEDS

TOP: The Pro-Tec Equipment P.I.T. Boss is a patented slide rail panel installation tool that dramatically increases the speed of placement of the entire system.

It solves the problem of having limited access to panel push points, thereby increasing both the speed and effectiveness of installation. At the same time, the tool reduces wear and tear on the panels and on the excavator bucket used during placement.

CENTER: The DRB-8A is a pipe adapter that enables the use of 8" sch. 80 spreader pipes as spreader beams on Double Slide Rail Systems. The DRB-8A is designed to allow the use of standard size 8" sch. 80 spreader pipes. When using the new system, the spreader pipe used needs to be 2' shorter than the panel size.

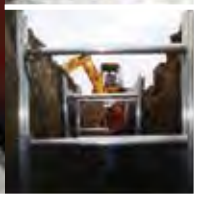
BOTTOM: Pro-Tec Equipment's railing post system serves as an extra precautionary measure, providing temporary railing around excavations that involve trench shoring and shielding.

Certified by a Registered Professional Engineer to meet or exceed O.S.H.A. handrail standards, the railing post systems are two-piece, lightweight systems that can be adapted to work with steel and aluminum trench shoring and shielding systems.










PRO-TEC EQUIPMENT

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