12/6/2019

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79 Elm Street
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Re: Partial Consent Order #COWSPCB 15-001
Parcel A PCB Remedial Action Plan
English Station
510A Grand Avenue
New Haven, Connecticut

Dear Ms. Tisa, Messrs. Trombly and Bobrowiecki:

The United Illuminating Company (UI) is pleased to submit to the Connecticut Department of Energy and Environmental Protection (CTDEEP or "the Department") and the United States Environmental Protection Agency (USEPA) the document entitled the "English Station Parcel A PCB Remedial Action Plan (November 2018, revised December 2019)". This revised submission of the English Station Parcel A PCB Remedial Action Plan is based on additional comments by the EPA which were provided to UI on Tuesday, December 3, 2019.

In accordance with Section B., 13 of the PCO, the undersigned have personally examined and are familiar with the information submitted in this document and all attachments thereto, and do certify, based on reasonable investigation, including their inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of their knowledge and belief. They understand that any false statement made in the submitted information is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.

Should you have any questions or comments regarding this document, or any attachments hereto, please don't hesitate to contact Shawn Crosbie at (860) 904-8551.

UNITED ILLUMINATING COMPANY

Anthony Marone
President and Chief Executive Officer
United Illuminating Company

Shawn Crosbie
Project Manager
United Illuminating Company

ATTACHMENTS

English Station Parcel A PCB Remedial Action Plan November 2018 (Revised December 2019)

Weston & Sampson SM

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REPORT

November 2018
Revised December 2019

United Illuminating

English Station Parcel A PCB Remedial Action Plan

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EXECUTIVE SUMMARY

Weston & Sampson, on behalf of United Illuminating (UI), has prepared this Parcel A PCB Remedial Action Plan (RAP) for Parcel A at the English Station property located at 510A Grand Avenue in New Haven, Connecticut (the Site). UI proposes to remediate environmental media at the Site as required under the Partial Consent Order (PCO - COWSPCB15-001) issued by the Connecticut Department of Energy and Environmental Protection (CT DEEP). This RAP presents the plans and procedures to be implemented for the remediation of environmental media containing polychlorinated biphenyls (PCBs) on Parcel A only. Remediation of PCBs within Parcel B and exterior to the English Station Building is described under a separate remedial plan (English Station Parcel B Partial PCB Remedial Action Plan, Weston & Sampson, November 2018, Revised September 2019). Remediation of other chemicals of concern (COCs) in soil is also being addressed under a separate remedial plan (English Station Partial Soil Remedial Action Plan, Weston & Sampson, September 2018, Revised September 2019). PCB remedial actions as described in the Parcel A and Parcel B PCB remedial plans will be completed prior to the implementation of remediation for other COCs in each remediation area.

This RAP details the measures to be implemented to achieve the remedial goals. This RAP incorporates and modifies the EPA-approved "Parcel A PCB Cleanup Plan," Advanced Environmental Interface, Inc. (AEI), (AEI, 2007) and the remedial goals from the Parcel A PCB Cleanup Plan have been incorporated into this RAP. Modifications include additional remediation areas based upon findings of the Weston & Sampson site investigation performed in 2017 and changes in final site grades resulting from placement of suitable soil fill to render underlying polluted soil inaccessible.

Shown on Figures 6 through 9 is the Remediation Demarcation Line (Demarcation Line) adapted from the EPA-approved "Parcel A PCB Cleanup Plan," (AEI, 2007). North of this line the remedial goal is to remove and transport for off-site disposal all PCB-impacted media with total PCB concentrations greater than 1 mg/kg (>1 mg/kg). South of this line, the remedial goal is to remove PCB-impacted soil with total PCB concentrations >10 mg/kg and to render PCB-impacted materials >1 mg/kg and ≤10 mg/kg inaccessible as described in Regulations of Connecticut State Agencies, Section 22a-1 through -3, the Remediation Standard Regulations or "capped" as described in Chapter 40, Code of Federal Regulations, Part 761.

The Site occupies approximately 9-acres of land located south of Grand Avenue in New Haven and Parcel A occupies approximately 3.6 acres of the northwest corner of the Site (see Figure 2). The Mill River borders the Site to the east, west, and south. UI operated electrical generating facilities on the property between 1929 and 1992. The Site location, surrounding area, significant Site features and Parcels are depicted on Figures 1 and 2.

Numerous environmental investigations were performed at the Site between 1998 and 2015. Weston & Sampson performed investigations to evaluate impacts to soil, on-Site sediment, groundwater, and porous media (concrete, wood, and asphalt) in 2017. Investigation of Station B, the English Station Building interior, and soil beneath both of these structures is being performed and reported by others. The analytical data generated during this Site investigation and other historical investigations has been used to develop the remedial actions described in this plan.

The COCs at the Site being addressed under this Parcel A RAP is solely PCBs. Analytical testing was

done at the Site for other COCs and remediation for these chemicals is also required. As noted above, the design for remediation for other COCs in soil is discussed in a separate RAP. Remedial work at the Site will be phased such that the remediation of PCBs will be completed prior to remediation of other COCs in each area remediated.

This RAP includes the use of Environmental Land Use Restrictions (ELURs) to achieve remedial goals. The current and any future owners are obligated, in accordance with Consent Order COWSPCB 16-001, to comply with any and all ELURs recorded on the land records.

1.0 INTRODUCTION

Weston & Sampson, on behalf of United Illuminating (UI), has prepared this Parcel A PCB Remedial Action Plan (RAP) for the Former English Station facility, a former electric power plant located at 510 and 510A Grand Avenue New Haven, Connecticut (the Site). This RAP presents the plans and procedures to be implemented for the remediation of soil and other environmental media containing polychlorinated biphenyls (PCBs) within Parcel A, 510A Grand Avenue, of the Site. Remediation of PCB-impacted media within Parcel B and other chemicals of concern (COCs) are addressed under separate remedial plans. In each remediation area, PCB remediation will be completed prior to performing remediation for other COCs. UI proposes to remediate Parcel A as required under the Partial Consent Order (PCO COWSPCB15-001) issued by the Connecticut Department of Energy and Environmental Protection (CT DEEP).

1.1 Site Location & Description

The Site consists of 9-acres of land located on a man-made island (Ball Island) situated within the Mill River which Flows north to south into the Long Island Sound. The Site has been split into two parcels (Parcel A and Parcel B), which are owned by two separate entities. The island is retained via steel bulkhead which surrounds the Site to the east, west, and south. The Site location is shown in Figure 1 – Site Locus and the boundaries for Parcels A and B are shown on Figure 2. Geographic coordinates for the Site are:

Latitude/Longitude:	41° 18’ 23" North/72° 54’ 24" West
UTM Coordinates:	Zone 18 675,239.9 meters Northing 4,574,883.6 meters Easting

The figures for this RAP only depict the conditions within Parcel A which consists of an area of approximately 3.6 acres at the northeast of the Site. This portion of the Site is developed with a two-story former electrical generating plant referred to as Station B. In addition to Station B, Parcel A includes former locations of concern including the coal bin storage area, a storm water surge basin, cable houses, and a subsurface cooling water tunnel which formerly discharged water from Station B to the Mill River.

1.2 Site Background

The Site was first occupied by Enos S. Kimberly and Company in the late 1880s and was utilized as a coal and lumber facility. In 1890, New Haven Electric Company purchased the Site and began the construction of Station B. As part of this construction, Ball Island’s footprint was expanded via the filling of the portion of the Mill River south Station B. Station B reportedly operated as a coal-fired power plant until 1903.

UI purchased the property in 1914 and began the construction of the English Station Power Plant in 1924. The initial construction consisted of a coal-fired, low-pressure boiler and turbine areas, which were completed in 1929. Sometime between 1948 and 1952, two additional coal-fired, high-pressure boilers and turbines were constructed at the southern end of English Station. At that time, Ball Island was further expanded to the South and East by the additional filling of the Mill River. The English Station Power plant

operated as a coal-fired power plant until sometime in the mid-1950s when the plant was converted into an oil-fired plant. English Station then operated as an oil-fired plant until 1992 when it was placed on deactivated reserve status. In an attempt to preserve interior building conditions, several gas-fired boilers, temperature and humidity controls were installed.

In 2000, UI transferred the Site to Quinnipiac Energy, LLC (QE). At that time, an escrow of $1,900,000 was established by UI to support environmental investigation and cleanup of the Site. From 2000 through 2008, Advanced Environmental Interface, Inc. (AEI) performed environmental assessment activities on behalf of QE. Assessment activities were ceased in 2008, when the escrow funds were depleted. In 2006, prior to depleting the escrow funds, QE filed for bankruptcy and divided the property into two parcels (Parcel A and Parcel B). Subsequently, QE sold Parcel A to Evergreen Power, LLC (Evergreen) and Parcel B to ASNAT Realty, LLC (ASNAT). Parcel A was recently sold to Haven River Properties, LLC and Parcel B was sold to Paramount View Millennium, LLC.

In 2011, the Site owners at that time (ASNAT and Evergreen), contracted Grant Mackay Company (Grant Mackay) and Classic Environmental Inc. (Classic Environmental) to demolish the existing structures on-Site with the intention of generating enough money through selling scrap-metal steel to fund the future environmental investigation and eventual cleanup of the Site. The initial focus of this project was on the main English Station power plant building. In 2012, CT DEEP conducted an on-Site inspection which concluded that there was potential for tracking and spreading PCB contamination from source areas to other uncontaminated areas of the Site. In February 2012, CT DEEP issued a Cease and Desist Order (CDOWSUST 12-001) which terminated all on-Site activities. The United States Coast Guard (USCG), issued an Administrative Order, 002-14, on September 19, 2012 to the new Site Owners and to UI as the former Site owner. Actions performed by the USCG included placing booms around the southern end of Ball Island and removal of liquid wastes and drummed materials from the Oil Room because of the potential to discharge to a nearby catch basin.

In July 2017, Weston & Sampson was granted Site access to observe current on-Site conditions. The Site is primarily completed with decaying impervious surfaces (asphalt and concrete), as evident by vegetation growth throughout the Site. Brushy vegetation had been allowed to grow in some areas of the Site and was removed from above the ground surface without disturbing underlying soils/roots to allow access to areas of the Site for the purposes of inspection and carrying out an environmental investigation exterior to the buildings.

1.3 Site Geology and Hydrogeology

1.3.1 Geology

According to the "Surficial Materials Map of the Connecticut," (Stone et al., 1992), the Site is in an area underlain by fill. The 1998 Phase II/III report by GEI Consultants, Inc., indicates the fill material encountered during their investigation of the Site ranged in thickness from 9 to 16.5 feet and consisted of a variety of granular materials, including loose, poorly sorted sands and silt with fill materials including brick, ash, cinders, wood, glass metal, and plastic fragments.

Per GEI Consultants, Inc., a slightly plastic silt and fine sand layer was encountered beneath the fill layer and generally ranged in thickness from 5 to 11 feet. Numerous mollusk shells, fine roots, and other

organic materials were observed in this layer. Occasional 1- to 3- inch thick layers of well-sorted and sub-rounded fine to medium sands were observed interbedded with the siltier portions of this strata. Interbedded fine to medium sand and slightly plastic silts were observed beneath the potential confining layer of slightly plastic silts.

According to the "Bedrock Geological Map of the Connecticut," (Rodgers, 1985), the bedrock beneath the Site consists of New Haven Arkose. This bedrock is described as consisting of reddish, poorly-sorted, coarse-grained, sandstone-like sedimentary rock.

1.3.2 Groundwater

Groundwater at the Site is classified as GB by the CT DEEP indicating that it is not suitable for human consumption without treatment. Based on previous Site investigations, groundwater is generally observed in shallow overburden fill materials between approximately 3 and 5 feet below ground surface.

Water level measurements indicated that groundwater at the Site is tidally influenced with an approximately 0.5 to 1.0-foot fluctuation between high and low tidal cycles. Groundwater flows at low tide are typically towards the bulkhead. Groundwater flow at high tide depends upon the level of groundwater at the site which can be influenced by recent precipitation. Additional study is being performed to determine the influence of tides on groundwater flow.

1.4 Applicable Regulations

Applicable Regulations for the Site include the federal PCB regulations found in Chapter 40 of the Code of Federal Regulations, Part 761 (40 CFR Part 761), the Connecticut Remediation Standard Regulation (RSRs) found in the Regulations of Connecticut State Agencies (RCSA), Section 22a-133k-1 through 3, inclusive, and the Significant Environmental Hazard (SEH) regulations found in Section 22a-6u of the Connecticut General Statutes (CGS).

1.4.1 Federal PCB Regulations

Applicable sections of 40 CFR Part 761 that apply to the procedures and goals as described in this Parcel A RAP include:

- §761.61 – PCB Remediation Waste, section of the regulation applicable to the remediation of PCB Remediation Waste.
    - §761.61(a) – Self-Implementing On-Site Cleanup and Disposal of PCB Remediation Waste – sections that specifies procedures and remedial goals for remedial actions.
    - §761.61(c) – Risk-Based Disposal, if all procedures specified in §761.61(a) are not followed as written, the EPA PCB Coordinator may approve alternative procedures under this section.
    - §761.61(a)(4) – Cleanup Levels, section establishing remedial goals for remediation. This Parcel A RAP described remediation of PCBs to the High Occupancy standard of 10 mg/kg which requires installation of a barrier as per §761.61(a)(7) and recording of land restrictions in accordance with §761.61(a)(8).

- §761.65 – Storage for Disposal, section providing requirements for the storage of PCB Wastes.
- §761.79 – Decontamination Standards and Procedures, section providing procedures to be implemented in the decontamination of materials, equipment, and some environmental media.
- Subpart N – Cleanup Site Characterization Sampling for PCB Remediation Waste in Accordance with §761.61(a)(2).
- Subpart O – Sampling to Verify Completion of Self-Implementing Cleanup and On-Site Disposal of PCB Bulk Remediation Waste and Porous Surfaces in Accordance with §761.61(a)(6).

A Remedial Action Plan submitted by AEI in 2007 on behalf of QE was previously approved by EPA under 40 CFR Part 761. This RAP incorporates and modifies the EPA-approved "Parcel A PCB Cleanup Plan," (AEI, 2007). The remedial goals as stated in the Parcel A PCB Cleanup Plan have been incorporated into this RAP. However, methods, and procedures specified in this RAP will be those utilized in the remediation.

1.4.2 Connecticut RSRs

Remediation of impacts to soil are regulated under the Connecticut RSRs, Section 22a-133k-1 through -3, inclusive. It is anticipated that an industrial/commercial (I/C) Environmental Land Use Restriction (ELUR) and "No-Dig" ELURs will be placed on the property in accordance to the requirements of 22a-133q-1 of the RCSA. North of the Demarcation Line the remedial goal is to remove and transport for off-site disposal all PCB-impacted media with total PCB concentrations greater than 1 mg/kg (>1 mg/kg). South of the Demarcation Line, the remedial goal is to remove PCB-impacted soil with total PCB concentrations >10 mg/kg and to render PCB-impacted materials >1 mg/kg and ≤10 mg/kg inaccessible as described in the Connecticut RSRs. As such, remediation south of the Demarcation Line will be performed to comply with the I/C Direct Exposure Criteria (DEC) of 10 mg/kg. Groundwater in the area is classified as "GB" which means that it is not suitable for drinking without treatment. Remediation will also be performed to comply with the GB Pollutant Mobility Criteria (PMC).

1.5 ELUR Obligations

This RAP includes the use of Environmental Land Use Restrictions (ELURs) to achieve remedial goals. The current and any future owners are obligated, in accordance with Consent Order COWSPCB 16-001, to comply with any and all ELURs recorded on the land records.

2.0 SUMMARY OF SITE INVESTIGATIONS

Several Site investigations have been performed to evaluate the nature and extent of contamination at the Site. This section provides a summary of the investigation activities conducted to characterize the presence of PCBs. Soil containing other COCs has been identified at the Site. Details regarding Site investigation activities and the remedial strategy to address these other COCs are provided in a separate RAP.

2.1 2017 Site Investigation

In 2017, Weston & Sampson performed an environmental site assessment as per the Partial Scope of Study (SOS) written by TRC and dated July 2017. Samples were collected of soil, sediments, porous materials, and groundwater and tested for PCBs. The findings from this investigation relevant to Parcel A PCB remediation for soil, sediments, and porous media are summarized in Figures 3 through 5 and the data are presented in Tables 1 through 6.

2.2 Historical Site Investigations

The following is modified text from the TRC Partial Scope of Study dated July 2017. This summary of environmental work was prepared by TRC and condensed by Weston & Sampson to reflect historical PCB assessments only relevant to this RAP.

2.2.1 1998 Subsurface Investigation and Remediation Plan Report for English Station, The United Illuminating Company. (UI, 1998a)

In a letter addressed to Ms. Lori Saliby of the CT DEEP, UI documented the results of a PCB remediation project that was carried out in advance of a bulkhead repair project. The letter references an earlier remediation plan having been submitted to the CT DEEP in March of 1998, but this plan is no longer available.

According to the report, three areas were remediated through excavation and off-site disposal. Available documentation indicate that 324 tons of PCB-impacted soil were removed from an area to the northwest of English Station in the area of the former Transformer house.

2.2.2 1998 Phase I Environmental Assessment, GEI Consultants. (GEI, 1998b)

In 1998, GEI completed a Phase I Environmental Site Assessment (ESA) on the Site for UI. GEI noted that a 50,000-gallon vertical aboveground storage tank (AST), reportedly used for the storage of No. 6 fuel oil, was observed on the southern portion of the Site, to the south of English Station. In addition to the vertical AST, GEI noted two 5,000-gallon horizontal ASTs, reportedly used for the storage of No. 2 fuel oil, in the same area. All three tanks were located within brick and concrete containment dikes. GEI did not observe stains or leaking associated with the tanks during their Site reconnaissance.

GEI noted the following equipment during their inspection of the Site that may contain PCB oils:

- Exterior Courtyard, Southwest Portion of English Station: Former capacitor bank within a fenced enclosure with a gravel base. No staining of the area was noted by GEI. Two pad-mounted transformers with green labels indicating a PCB content of <1 mg/kg located within a concrete berm. No evidence of a releases was noted.
- Along Western Exterior Wall of English Station: Three pad-mounted transformers reportedly

associated with the low-pressure boiler system. All three transformers had blue labels indicating PCB concentrations <50 mg/kg. Some staining on the exterior of the transformers was noted.

- Northwest Corner of English Station: One large, pad-mounted transformer was affixed with a blue label indicating PCB concentrations <50 mg/kg. No staining or evidence of a release was noted in the GEI report. Two circuit breakers located within a concrete containment dike were present in this area and were affixed with green labels indicating PCB concentrations <1 mg/kg.
- Bulkhead, Western, Southern and Eastern Sides: Three cathodic protection relays were observed along the western, southern, and eastern sides of the bulkhead. Two of the relays were affixed with blue labels indicating PCB concentrations <50 mg/kg and the third had a green label indicating PCB concentrations <1 mg/kg.

In addition to the equipment noted above, GEI observed two tank trucks in the central portion of the former coal handling area that UI personnel reportedly noted contained transformer fluid from the large "G" transformer located at the northwest corner of English Station.

GEI made the following conclusions and identified the following areas of concern at the completion of the Phase I ESA (GEI, 1998a):

- Four underground storage tanks (USTs) were formerly located in an area adjacent to the west side of Station B. According to information obtained from CT DEEP files, two older, 2,000-gallon gasoline USTs were installed at this location and removed in June 1991, when they were both replaced by 1,000-gallon USTs. A CT DEEP spill report noted that a nominal petroleum sheen was observed on the water table during the tank removal, although groundwater samples did not exhibit contamination. The 1,000-gallon USTs were reportedly removed in October 1996 and limited soil and groundwater sampling conducted at that time did not reveal the presence of contaminants.
- A 1967 CT DEEP inspection report (P-5) indicated that the Site was served by six separate septic tanks and associated leaching fields. The report notes that one of the septic systems was noted on a UI Site plan, to the north of the coal conveyor system. The locations of the other septic systems were not indicated by GEI in their report.
- Spill reports on file with CT DEEP identified nineteen separate spills in connection with the Site. Of these spills, roughly half were releases to the Mill River. Several others involved spills or releases of PCB-containing oils to soil or other areas on-Site, but generally did not identify specific locations.
- A waste oil AST was formerly located adjacent to the southeastern corner of English Station.
- One 50,000-gallon No. 6 fuel oil and two 5,000-gallon No. 2 fuel oil ASTs were noted on the southern portion of the Site, adjacent to English Station.
- Several station transformers, large circuit breakers, capacitor banks, and cathodic protection relays were observed across the Site.
- Three former chemical storage areas were identified within English Station, though their exact locations were not described by GEI.
- A former industrial wastewater treatment system was located southeast of English Station. At the time of the 1998 Phase I, the system was no longer present, although GEI noted remnants of the former wastewater treatment system (concrete pads, etc.) present adjacent to the north of the high-pressure discharge point for boiler #13.
- GEI noted that based on their review of historic maps, aerial photographs and other documentation,

the majority of the Site appears to be underlain primarily by fill material of an unknown quality and origin.

- Coal storage operations at the Site, south of Station B, were conducted over an extended period.
- The Site was identified as a Large Quantity Generator (LQG) of hazardous wastes. GEI noted that the Site may be considered an "Establishment" under the Connecticut Property Transfer Act. A 1992 CT DEEP Hazardous Waste Generation Report indicates 13,315 pounds and 966 gallons of hazardous waste were generated during deactivation of the Plant in 1991/1992.

2.2.3 1998 Phase II/III Field Investigation, GEI Consultants, Inc. (GEI, 1998b)

In July 1998, GEI returned to the Site to perform a Phase II and partial Phase III investigation. The purpose of the investigation was to assess soil and groundwater conditions in the AOCs identified in their earlier (May 1998) Phase I. GEI identified the following AOCs for the Site related to PCB impacts:

- AOC 1: Station B. Station B was identified as an AOC by GEI due to former chemical and petroleum storage and its status as an "Annex 3" PCB storage facility.
- AOC 3: Former Septic Systems. CT DEEP documentation indicated as many as six septic systems were previously in use at the Site. Only one septic tank was identified by GEI during their review of plans for the Site. The report indicates that no evidence of a release to or from the Septic System were detected in soil and groundwater sampling.
- AOC 4: Past Spills. Several spill reports reviewed by GEI indicated sheens and releases to the Mill River occurred via the storm sewer system on-Site.
- AOC 5: PCB Remediation Area. An area of PCB-contaminated soil along the wester/central portion of the Site, in the vicinity of the bulkhead was undergoing active remediation by UI under a CT DEEP-approved plan.
- AOC 6: Capacitor Release. Documentation reviewed identified a 1984 spill reporting indicating that a capacitor "blew up". The release reportedly occurred in an area identified as Capacitor Bank No. 1, located north of English Station and adjacent to the coal conveyor system. Cleanup of the area was reportedly continued until all samples were non-detect for PCBs. However, PCB samples collected during the investigation found PCBs exceeding 1 mg/kg in two concrete and one soil samples.
- AOC 9. Transformers. Several transformers, large circuit breakers, capacitor banks, and cathodic relays were identified in various locations across the Site and were primarily associated with English Station. Sampling of environmental media during the investigation found PCB concentrations >1 mg/kg and it was concluded that releases had occurred within this AOC.
- AOC 11: On-Site Fill Material. Historic information reviewed by GEI indicated that the majority of the Site is underlain by fill material of an unknown origin and quality.
- AOC 12: Coal Storage. The central portion of the Site, south of Station B and north of English Station, housed coal storage and handling operations for an estimated 40-year duration.
- AOC 13: Former Wastewater Treatment Facility. According to GEI, a former wastewater treatment system was in the southeastern corner of the Site. Remnants of the treatment system, including concrete pads and a below grade pumping station, were observed by GEI during the Phase I.

With respect to the documentation of past spills on the Site, AOC-4, GEI noted that many of the spill

reports were for evidence of discharges to the Mill River (e.g., sheens, floating product) due mainly to unknown sources. Additionally, several other spill reports were for discreet events or areas of the Site evaluated during the investigation of other AOCs. GEI reasoned that the evaluation of historic spills on-Site would be accomplished through sampling of groundwater monitoring wells across the Site and sediment samples collected from Site drainage structures. As such, no specific discussion was presented relative to an evaluation of AOC-4.

The report indicates that GEI evaluated AOC-10 (Former Interior Chemical Storage Areas), located inside of English Station, using monitoring wells and soil borings at exterior locations around the building. Based on the results of their investigation, GEI concluded that the detection of contaminants in the exterior sample locations, particularly TB-108, were likely attributable to releases outside the building or the presence of fill.

GEI addressed AOCs 11 (On-Site Fill Material) and AOC-12 (Coal Storage) together in their Phase II/III report. GEI reported that analytical data for samples collected within the former coal storage area consistently contained contaminants including arsenic, PAHs, and TPH but not PCBs.

In addition to providing the results of their investigation, GEI's report summarizes options with respect to each of the evaluated AOCs. A notable, general conclusion made in the report is that non-aqueous phase liquids (NAPLs) were not observed or encountered at the Site during investigation activities. With respect to AOCs 3 and 4, GEI did not recommend any further work, as no impacts associated with the former septic systems (AOC-3) were identified and contamination attributable to past spills (AOC-4) was addressed by other AOCs.

2.2.4 1999 Preliminary Report #20210: Regarding Supplemental Environmental Investigation at the UI English Station, Enviroshield, Inc. (Enviroshield, 1999)

The Enviroshield 1999 Preliminary Report documented that a continuous oil film and strong petroleum odor was observed on the water table at GP-20A. Small globules of oil and a light petroleum odor were also noted in wells GP-30 through GP-32, GP-38 and GP-39. Sampling was performed for PCBs, but no analytical data reports or data tables are available from this report. This area was subsequently remediated following the failure of the bulkhead surrounding Ball Island at this location.

2.2.5 2000 Supplemental Field Investigation, GEI Consultants, Inc. (GEI, 2000b)

In May 2000, GEI completed a supplemental field investigation to further define previously identified areas of contamination on the Site for use in preparation of a RAP. The supplemental field investigation was based on the results of GEI's earlier Phase II/III investigation of the Site completed in 1998. The supplemental investigation was performed based on the premise that a Site-wide environmental land use restriction (ELUR) would be implemented, restricting land use to non-residential and restricting the disturbance of soil greater than 4 feet below existing grade.

At AOC-7, PCB impacts were noted and considered to be adequately defined to design remediation in the area.

At AOC-8, shallow soil PCB impacts were found adjacent to the east of the former No. 6 fuel oil AST and containment dike during the Phase II/III.

2.2.6 2000 Draft Remedial Action Plan, GEI Consultants, Inc. (GEI, 2000a)

The 2000 GEI Draft RAP summarizes environmental investigative work completed up to that point, provides an evaluation of RSR compliance, and presents remedial actions and objectives for several areas of the Site. The RAP presents actions GEI determined were required to bring the Site into compliance with the industrial standards of the RSRs. Remedial actions proposed by GEI in their Draft RAP were based primarily on their earlier Phase I ESA (1998), Phase II/III (1998), and Supplemental Environmental Investigation (2000), summarized previously.

To address contaminants in soil at concentrations above the Residential (RES) Direct Exposure Criteria (DEC), GEI indicated that a Site-wide ELUR would be recorded, allowing compliance with the Industrial/Commercial (I/C) DEC and the groundwater Class GB Pollutant Mobility Criteria (PMC). At those AOCs where contaminants in soil exceeded the GB PMC, excavation to the seasonal high-water table and off-Site disposal was the remedial method specified. Contaminants detected in soil at concentrations above the I/C DEC only would be rendered inaccessible through the placement of 2 feet of clean fill and finishing with three inches of asphalt.

2.2.7 2001 Remedial Action Plan for Former Coal Yard Area, Advanced Environmental Interface, Inc. (AEI, 2001)

Shortly after the Site was sold to QE, AEI was retained to prepare and implement a RAP for the former coal yard (AOC-12). According to the plan, the former coal yard was being considered for remediation ahead of planned construction activities associated with the potential re-powering of the Site.

AEI's RAP was based solely on previous Site investigations and relied heavily on the early work completed by GEI and Enviroshield. Based on AEI's review of the existing data for the former coal yard, they determined that soil within the former coal yard generally contained concentrations of arsenic above the I/C DEC. Groundwater that contained lead and PAHs above the SWPC was also identified in monitoring wells along the eastern property boundary.

AEI described and area in the south portion of the former coal yard, north of the Plant, that had concentrations of PCBs requiring remediation. Based on the figures included in the plan, this area appears to correspond with former Capacitor Bank 1.

In order to achieve compliance with the RSRs, AEI proposed to use planned construction activities to render soils inaccessible (e.g., covered with 2 feet of fill with asphalt barrier or four feet of fill with no barrier) and environmentally isolated (e.g. concrete building floors and pads), record an ELUR to prevent future disturbance of soil, and where necessary, excavate and dispose of contaminated soil. AEI also planned additional sampling across the former coal yard and surrounding area (23 soil borings) and the area around former Capacitor Bank 1 (8 shallow soil samples with hand tools).

2.2.8 2002 Site-Wide PCB Characterization and Cleanup Plan, AEI (AEI, 2002)

In 2002, AEI produced a Site-wide PCB Characterization and Cleanup plan to document the status of characterization and planned cleanup of site soils and porous and non-porous surfaces impacted with PCBs at the Site. The plan identifies five PCB Areas associated with the Site that were known of suspected to be impacted with PCBs and include the following:

- PCB Area 1 – Station B Building

- PCB Area 2 – Former Coal Yard Area
- PCB Area 3 – Excavation Area/Electrical Infrastructure Area
- PCB Area 4 – Southwest Area
- PCB Area 5: Southeast Area

The plan summarized investigation completed, proposed supplemental characterization activities, and remedial measures to be employed.

2.2.9 2005 Interim PCB Report for Station B Parcel Sale, AEI (AEI 2005)

The 2002 plan was updated to include additional characterization data collected since the generation of the plan. PCB Areas were expanded and subdivided as needed to include these new data in anticipation of the sale of a portion of the northern portion of the Site designated as Parcel A.

According to the report, the investigation of PCB impacts in the northern portion of the Site was complete and that a portion of the Site was fully characterized with respect to PCBs. PCB levels in soil and pavement in the Former Coal Yard exterior to the building were reportedly less than 10 mg/kg and leachable PCBs were not detected.

PCB impacts to sediments in Catch Basin 2, which discharges to the cooling water tunnel, were identified. Plans were established in the plan to pump out the catch basin and to dispose of the materials removed.

2.2.10 2006 Station B Parcel PCB Cleanup Plan, AEI (AEI, 2006)

In March 2006, AEI submitted a PCB Cleanup Plan to the EPA for cleanup of the Station B Parcel. A portion of the northern portion of the Site was clearly identified as Parcel A and had been formerly subdivided from the rest of the Site. This plan supersedes previously submitted remedial plans.

The stated remedial goals for Parcel A are ≤1 mg/kg for PCB Remediation Wastes (i.e., soil, concrete, and other porous materials) north of the Demarcation Line shown on site drawings and ≤10 mg/kg for PCB Remediation Wastes south of the line. The intent of the cleanup was to achieve unrestricted access for high occupancy use without further conditions north of the Demarcation Line and to have ELURs placed on the property south of this line.

2.2.11 2007 Parcel A PCB Cleanup Plan, AEI (AEI, 2007)

In April 2007, AEI submitted a PCB Cleanup Plan to the EPA for cleanup of Parcel A. A portion of the northern portion of the Site was clearly identified as Parcel A and had been formerly subdivided from the rest of the Site. This plan supersedes previously submitted remedial plans.

The stated remedial goals for Parcel A are ≤1 mg/kg for PCB Remediation Wastes (i.e., soil, concrete, and other porous materials) north of the Demarcation Line shown on site drawings and ≤10 mg/kg for PCB Remediation Wastes south of the line. The intent of the cleanup was to achieve unrestricted access for high occupancy use without further conditions north of the Demarcation Line and to have ELURs placed on the property south of this line.

2.2.12 2008 Interim Status Report/Quinnipiac Energy English Station Parcel A PCB Cleanup Plan, AEI, (AEI, 2008)

In 2008 AEI submitted an interim status report on the performance of remedial actions in Parcel A. Work performed to date had depleted the funding for cleanup established throw an escrow account and AEI was unable to complete the PCB cleanup specified in the 2007 plan.

Remedial actions included; (1) scarification of concrete within Station B but verification sampling indicated that remedial goals were not achieved, (2) excavation of soil from two small areas within that area designated as PCB Area 2.2 and verification sampling indicated that remedial goals were achieved, and (3) excavation of soil from an area designated as PCB Area 3.2 to remove soil with total PCB concentrations >10 mg/kg. No other remedial actions were documented in the Interim Status Report.

2.2.13 2015 Draft Section 4 Subsurface Investigation for the Former English Station, HRP (HRP, 2015)

In 2015, HRP completed a subsurface investigation on behalf of UI to characterize the distribution of soil and groundwater contamination in the vicinity of select AOCs identified for the Site. The subsurface investigation was completed in accordance with a Generalized Scope of Work Plan submitted to the CT DEEP in February 2014. The investigation activities were completed to provide a preliminary evaluation of the distribution of contamination in select AOCs and were not meant to fully characterize the Site. Areas of the Site investigated at this time included the following:

- AOC-1: Station B Building;
- AOC-7: Above Ground Waste Oil Storage Tank and Oil Pump;
- AOC-8: Above Ground Fuel Oil Storage Tanks;
- AOC-12: Cooling Water Discharge Tunnel;
- AOC-13: Former Wastewater Treatment Facility;
- Various exterior areas of Parcel B; and
- Groundwater monitoring wells (sampling of existing wells) at various locations across the Site.

HRP's evaluation of AOCs 7, 8, and 13, all located in the southwest portion of the Site, involved the drilling of twenty soil borings and the collection and laboratory analysis on 40 soil samples. Photoionization detector (PID) readings were detected in several soil samples ranging to 108.3 parts per million by volume (ppmV), with the maximum reading detected at a depth of 13-15 ft bgs in soil boring SB-092914-109. Additionally, a sheen was observed at 8.5 to 10 ft bgs and 14 to 15 ft bgs in soil borings SB-093014-112 and 113, respectively. None of these soil samples exceeded ten times (10x) the groundwater protection criteria (GWPC) when analyzed using SPLP methodology.

2.3 Nature and Extent of Contamination

Weston & Sampson performed Site investigation between July and September 2017. The investigation included the collection of soil, on-Site sediment, porous media (concrete, wood and asphalt), and groundwater samples for laboratory analysis. The investigation was performed in accordance with the SOS, English Station, revised July 2017. The SOS was reviewed by the CT DEEP and all comments on the SOS provided by CT DEEP were addressed.

Data from historical and the Weston & Sampson Site investigations are used to determine the nature and extent of PCB impacts to environmental media at the Site. A Subpart N grid pattern was not always used to complete the delineation of PCB impacts at the Site. However, sufficient data are available to characterize the extent of releases, determine maximum PCB concentrations within each remediation area, and to design remedial actions to address PCBs. Remedial excavations performed to address

PCB impacts to soil and other solid environmental media will be verified with sampling on a Subpart O grid pattern except for AOC-14, cooling water tunnel. In AOC-14, PCB-impacted sediments will be removed along the length north of the Demarcation Line shown on Figures 7 and 8. The complete removal of sediments along this length will be verified by visual inspection. Characterization data for the concrete in the tunnel indicates that only limited PCB impacts and none exceeding 1 mg/kg. South of the Demarcation Line, none of the PCB impacts to sediments or concrete exceed 1 mg/kg.

Refer to Figures 3 through 5 for the locations of AOCs described below, sample locations, and a summary of PCB concentrations by depth. See Tables 1 through 6 for a summary of soil PCB analytical data by AOC. A more complete description of the findings of the Site investigation is provided in the North Side Investigation Summary Report provided electronically as Appendix A. and the South Side Investigation Summary Report provided electronically in Appendix B.

2.3.1 Parcel A Areas of Concern

Parcel A contains AOC-1 AOC- 2, one of three areas marked as AOC-3, a small portion of AOC-6, most of AOC-12 (split into AOC-12E, 12W, and 12N) and most of AOC-14. Each AOC was previously investigated for soil, sediment, and porous media. Findings of the PCB investigation for the above AOCs are provided below and the AOC locations are shown on Figures 3 through 5:

<u>AOC-1: Station B</u>

- PCB Remediation Wastes within the structure have been remediated under an EPA-Approved Self-Implementing RAP. A Remedial Action Report has been submitted to both the CT DEEP and EPA.
- Remaining PCB-containing building materials are all Excluded PCB Products. During demolition, measures will be employed to prevent the release of PCBs to the environment as described in the Contractor's Demolition Plan Submittal.
- Demolition wastes containing PCBs will be removed from the Site for disposal.
- PCBs were not detected in soil beneath the building and no remediation of soil is necessary.

<u>AOC-2: Station B Former UST Area</u>

- Four petroleum USTs were previously removed from this area in 2002 and a remedial excavation was performed to remove impacted soil. Post excavation soil sampling identified petroleum impacts.
- PCBs were not detected in the analysis of soil samples during the Weston & Sampson investigation and historical Site investigations and no PCB-related remedial actions are planned within this AOC.

<u>AOC-3: Former Septic Systems</u>

- AOC-3 includes one former septic system location within Parcel A.
- This one part of the AOC was previously investigated by others and no PCB impacts were identified. There is no new data to include in this RAP and no PCB-related remedial actions are planned within this AOC.

<u>AOC-6: Capacitor Release/Outdoor Capacitor Banks 1-3 (PCB Area 3.1)</u>

- PCB impacts requiring remediation were identified within AOC-6, but not the portion within Parcel

A.

- Other areas of PCB releases were characterized and delineated during the Weston & Sampson and historical Site investigations that will require remediation and these are discussed in the Parcel B PCB RAP. No PCB-related remedial actions are planned within the portion of this AOC within Parcel A.

AOC-12E: (PCB Area 6.2)

- A portion AOC-12E (PCB Area 6.2) is located within the eastern portion of Parcel A in an area historically used for coal storage. Weston & Sampson performed investigation in an areawhere petroleum-impacted soil was previously identified, and PCBs were not detected. No PCB-related remedial actions are planned for this AOC.

AOC-12N: Former Coal Storage

- AOC-12N is located south of Station B. Weston & Sampson performed investigation in this area where petroleum-impacted soil was previously identified, and PCBs were not detected. No PCB-related remedial actions are planned for this AOC.

AOC-12W: PCB Areas 2.1, 2.2 and 3.2

- Extensive sampling was performed by Weston & Sampson in a grid pattern within this AOC located in the north central portion of the property. PCB impacts to soil >1 mg/kg were identified in historical investigations within this area and were previously remediated by others. Weston & Sampson investigation did not find PCBs in soil from 0 to 4 ft bgs at concentrations > 1 mg/kg during the 2017 site investigation.
- At one Weston & Sampson sample location, AOC-12W 39, PCBs were detected at a concentration 4.4 mg/kg at 7 to 7.5 feet below ground surface (ft bgs). The extent of this release is delineated by historical and Weston & Sampson Site investigation data.
- Historical Site data found PCBs at concentrations requiring remediation along the southwestern portion of the AOC-12W. The extent of these PCB releases is delineated sufficiently to design remedial actions.

AOC-14: Cooling Water Tunnel

- AOC-14 consists of a former Cooling Water Discharge Tunnel that is located mostly within the central and eastern portion of Parcel A. Weston & Samson performed sediment and porous media sampling in the tunnel every 10 feet, where accessible, to characterize potential impacts.
- Sediments were found to be impacted with PCBs at concentrations less than 10 mg/kg. Limited PCB impacts to concrete were identified and all detections were less than 1 mg/kg.

2.4 Conceptual Site Model

Based on the review of Site history and investigation results, Weston & Sampson has developed a Conceptual Site Model (CSM) for PCB Site impacts.

- Detections of PCBs within Parcel A are mostly limited to the area north of the English Station building. PCBs were not found in concentrations requiring remediation in the area surrounding Station B.
- The data are indicative of surface release mechanisms and PCB impacts are generally limited

to surficial soil. However, there are indications that soil may have been reworked during construction activities or larger releases with impacts to soil extending to 11 ft bgs.

- When on-Site sediments were identified within subsurface structures (i.e., cooling water tunnel), PCBs were typically found in the sediment materials indicating potential for runoff of PCB-impacted soil into those structures.

PCB impacts will be remediated to achieve compliance with the applicable remedial criteria as discussed in Section 1.4. The remedial goals for Parcel A are:

- To remove PCB-impacted environmental media with total PCB concentrations >1 mg/kg from Parcel A except for the area south of the Demarcation Line. The remedial actions will include soil excavations from two areas and removal of sediments from the cooling water tunnel.
- For the area south of the Demarcation Line, PCB-impacted media are currently less than 10 mg/kg PCBs. No additional soil excavations are required to achieve this remedial goal and the PCB impacts will be rendered inaccessible by placement of four (4) feet of suitable soil fill. The soil used to render these impacts inaccessible will also serve as the barrier required under §761.61(a)(4)(i)(A). The soil used to construct this barrier will not meet all of the requirements specified in §761.61(a)(7) and approval of this alternative will be required under §761.61(c).

A portion of an area of excavation for soil with PCBs ≥50 mg/kg that will be performed as part of the remediation of the Parcel B RAP overlaps onto Parcel A. This excavation is not part of the Parcel A remediation and will not be discussed further in this text. See the English Station Parcel B Partial PCB Remedial Action Plan, November 2018, Revised September 2019 for details concerning this excavation.

3.0 REMEDIAL ACTION PLAN

This section outlines the plans and procedures to be implemented for the remediation of PCB-impacted soils on Parcel A. Planned PCB soil remediation activities, including selected remedial criteria, will be completed in accordance with the requirements of 761.61(a) and the previously approved Parcel A Soil Remedial Plan. Not all activities comply with the Self-Implementing requirements and will require approval under 761.61(c) by EPA. Details regarding the remedial objectives, scope, and sequence of remediation are provided below.

Public notification will be performed prior to performance of the remediation. The public notification will consist of (1) posting a sign of the size specified by CT DEEP and with the required wording on the property a minimum of thirty days prior to starting remediation and (2) publishing notice of remediation in a newspaper of wide circulation in New Haven.

3.1 Remedial Goals

The remedial goals for PCBs within Parcel A are:

- To remove all soil, sediment, concrete, and any other porous materials tested to have PCBs greater than 1 mg/kg from Parcel A north of the Demarcation Line and to transport for offsite disposal. All soil removal actions will be verified by sampling performed according to the requirements of 40 CFR Part 761 Subpart O.
- To remove surficial impacts to soil, sediment, concrete and other porous materials tested to have PCBs greater than 1 mg/kg from Parcel A and to transport for offsite disposal. These PCB removal actions will also be verified by sampling performed according to the requirements of 40 CFR Part 761 Subpart O.
- To render soil south of the Demarcation Line with total PCB concentrations $<$10 mg/kg inaccessible by constructing physical barriers consisting of an orange geotextile and four feet of suitable soil fill completed with grass. The soil used to render these impacts inaccessible will also serve as the barrier required under §761.61(a)(4)(i)(A). The soil used to construct this barrier will not meet all of the requirements specified in §761.61(a)(7) and approval of this alternative will be required under §761.61(c). Since the soil fill layer is being employed solely to prevent direct exposure to the underlying soil containing PCBs $<$10 mg/kg and not limit infiltration of water through the layer, the requirements pertaining to permeability, sieve, liquid limit and plasticity index parameter under §761.61(a)(7), are not required to provide performance of the soil fill layer for the purpose intended.
- To demolish Station B and to remove all Excluded PCB Product-containing building materials from the Site for offsite disposal.

These remedial goals assume that an Industrial/Commercial Environmental Land Use Restriction (ELUR) will be placed on at least the portion of Parcel A south of the Demarcation Line and that residential criteria will not be applicable. The ELUR will be filed on the property records following the completion of intrusive remedial activities.

Analytical testing performed indicates that materials containing PCBs at 10 mg/kg or less do not exceed the Pollutant Mobility Criteria (PMC). Additional testing to demonstrate compliance with the PMC is not warranted and therefore will not be performed during remedial verification sampling.

3.2 Remedial Objectives and Approach

The overall objective of remediation will be to remediate PCB-impacted soil to facilitate site redevelopment. To achieve this objective, planned remedial activities will include:

- Preparation of remedial plans and applications for permits;
- Site preparation and establishment of temporary facilities, including site security, signage and erosion and sedimentation controls;
- Excavation and off-site disposal of PCB-impacted soil, sediment and porous materials with total PCB concentrations greater than 1 mg/kg on Parcel A north of the Demarcation Line;
- South of the Demarcation Line, PCB impacts <10 mg/kg will be rendered inaccessible by construction of a soil barrier;
- Collection of verification soil samples for PCB analysis to confirm the limits of soil remediation;
- Dewatering and removal of sediment from the cooling water tunnel;
- Final restoration of soil excavation areas and cooling tunnel with suitable backfill soil and filling to the proposed finish grade elevations; and
- Recording ELURs on the land records.

This RAP focuses on the remediation of PCBs only. Other remedial actions to be performed on Parcel B for PCBs and for other COCs Site-wide are described in separate plans to be submitted to CT DEEP and, for those RAPs for remediation of PCBs, to EPA.

3.3 Remedial Planning

3.3.1 Permits

The following permits and approvals from federal, state and local government agencies are anticipated for Site remediation:

- EPA approval of this RAP, which services as notification of UI's intent to conduct a self-implementing cleanup plan with some provisions to be approved under §761.61(c). A signed certification from the property owner, as required by §761.61(a)(3)(E), is attached in Appendix C.
- Connecticut Department of Energy & Environmental Protection (CTDEEP) General Permit for Discharge of Groundwater Remediation Wastewater Directly to Surface Water.
- Stormwater Pollution Control Plan
- City of New Haven Coastal Site Plan Review
- City of New Haven Building Permits.
- City of New Haven Demolition Permits.

Permit application signature pages for permit applications already submitted are included in Appendix D.

3.3.2 Contractor Submittals

The selected Remedial Contractor will be required to prepare and provide submittals prior to initiating remedial work at the Site. These submittals will include an Air Monitoring and Dust Control Plan, Support of Excavation Plan (Shoring Plan), Dewatering Effluent Treatment Plan, Equipment Decontamination

Plan, Excavated Materials Management Plan, and a Demolition Plan. These plans will be reviewed by UI for completeness prior to approval.

The Remedial Contractor will also be responsible for preparing applications and securing permits from local and state agencies as required for the performance of the work. The Contractor will be required to submit the permits to UI prior to initiating work.

3.3.3 Work Phases

Remediation work at the Site will be separated into three major phase areas. These areas are as follows as shown on Drawing C-2 from the Contract Documents included in Appendix E:

- Phase 1 Area – Includes the south side of Parcel B and consists of the area outside of the English Station Building which is discussed in the RAP for Parcel B.
- Phase 2 Area – Includes the north side of Parcel B and consists of the area currently paved along the east side of Ball Island north of the English Station Building which is also discussed in the RAP for Parcel B. The Station B cooling water tunnel on both Parcels A and B will be remediated during this phase.
- Phase 3 Area – Parcel A and portions of Parcel B north and west of the English Station Building.

The selected Remedial Contractor will prepare the Site as described in Section 3.4 below and as shown on Figures 6 through 8. Pending the approval of the Parcel B Partial PCB Remedial Action Plan (November 2018, Revised September 2019), the Contractor will likely begin the soil remediation work in the Phase 1 Area identified on Drawing C-2, Appendix E, by performing PCB remedial actions first, demonstrating completion of the remediation by verification sampling, and then performing other remedial actions required to address other COCs. The Contractor may choose to overlap and start other PCB soil remediation work between the Phase Areas but shall complete PCB remediation within each Phase area before addressing other impacts.

3.3.4 Public Notification

In accordance with the PCO and the RSRs, public notice for these activities is required. In accordance with CGS Section 22a-134a(i), TRC, on the behalf of UI, will provide public notice of the intent to remediate. The methods of public notice will include the following:

- Public notice will be published in a local newspaper having substantial circulation in the area affected by the Site.
- Notification will be issued to the director of the City of New Haven Health Department.

A sign has been erected on the Site and contains the text prescribed in CGS Section 22a-133x. Proof of the published public notice and a picture of the sign posted is provided in Appendix F.

3.4 Site Preparation and Temporary Construction Controls

3.4.1 Site Security

The proximity of building demolition and soil excavation areas to roadways that will be used during the performance of Site activities and to other commercial properties will require procedures to address public health and safety during construction. These factors will be addressed using signage, permanent and temporary fencing to restrict access to the Site and prevent trespassing, and physical barriers to minimize potential physical hazards on the Site during remediation. It is anticipated that traffic control will be required during certain phases of the remediation project and the Remedial Contractor will be required to work with the City of New Haven to obtain necessary permits and to arrange for police

presence when required. The Remedial Contractor will also be required to erect fencing following the demolition of Station B.

3.4.2 Erosion and Sedimentation Controls

Prior to initiating soil excavation, erosion and sedimentation controls will be deployed around designated work areas and site perimeter as designated in the Stormwater Pollution Control Plan and permit obtained by the Contractor. The erosion and sedimentation controls will be designed and installed in accordance with the Connecticut Guidelines for Erosion and Sediment Control. The controls will also be inspected and maintained throughout construction and removed following final stabilization of disturbed surfaces and demobilization of remedial equipment.

3.4.3 Debris Piles

Figure 6 indicates the location of debris piles on Parcel A and photographs of the piles are included in Appendix G. Prior to the performance of soil excavations on the property, the debris piles will be sampled and transported offsite for disposal, as required. The debris piles identified on Parcel A indicated on Figure 6 are as follows:

A. Boat stored on a trailer south of Station B;

B. Trailer in poor condition south of Station B;

C. Creosote treated wood in south coal storage area;

D. Piles of demolished concrete from English Station Building in PCB Area 3.2;

E. Large concrete blocks;

F. Tires; and

G. Roofing debris from Station B that has fallen to the ground south of the building.

The following describes proposed sampling for each debris location and how materials will be disposed based upon the results of testing:

A. The boat stored on the site south of Station B sits on a trailer and is located within an area where PCBs have not been detected in surface materials. The boat has been tested and disposed off-Site.

B. The trailer is in an area where PCBs have not been detected in surface materials. The tires on the trailer will be wipe tested to determine if there are any PCBs on the surface of the tires. Three additional samples will be collected from other debris in the area of the trailer. If PCBs are detected in the wipe tests at $\geq$10 μg/100 cm^2 or bulk samples of debris at $\geq$1 mg/kg, the tires and/or trailer will be disposed of as PCB Remediation Wastes $\geq$50 mg/kg. Two samples of the asphalt beneath the tires will be collected if PCBs are detected in the tires. The asphalt beneath the trailer and other debris will be sampled on a Subpart N grid pattern if PCBs are detected in the samples of the debris. Remediation and subsequent verification of the asphalt will be performed if PCBs are identified in the asphalt at concentrations $>$1.0 mg/kg.

C. Three samples of the creosote-treated wood debris will be collected from each of the two locations where the wood is currently located (6 samples total). Three samples of the other

debris located at the western location (see photograph provided in Attachment C) will also be collected. If PCBs are detected in any of the materials at ≥1 mg/kg, the debris will be disposed of as PCB Remediation Wastes ≥50 mg/kg. Following removal of the wood and debris, three samples of asphalt will be collected at each of the two locations (6 samples total). Remediation and subsequent verification of the asphalt will be performed if PCBs are identified in the asphalt at concentrations >1.0 mg/kg.

D. The two piles of smaller concrete debris are located within PCB Area 3.2 where PCBs have been detected in shallow soil. The concrete debris is suspected to have come from demolition activities performed within English Station and could potentially be impacted by PCBs. Six samples will be collected from each of the smaller concrete piles (12 samples total). If PCBs are detected in a sample from a concrete debris pile at ≥1 mg/kg, both piles will be disposed of as PCB Remediation Wastes and completely removed and disposed of as PCB Remediation Wastes ≥50 mg/kg. Following removal of concrete, the surficial soil beneath the piles will be characterized on a Subpart N grid to determine if additional remediation is required. Surficial soil samples will be collected from an interval of 0 to 3 inches and remediation of soil performed if total PCBs are >10 mg/kg. If PCBs are not detected in the concrete debris, the piles will be spread at their current location and covered with the Soil Barrier.

E. The large concrete blocks are located north of and on top of the wall at the location. The concrete debris is suspected to have come from demolition activities performed with English Station and could potentially be impacted by PCBs. Twelve samples will be collected from the concrete. If PCBs are detected in a sample from a concrete debris pile at ≥1 mg/kg, the pile will be completely removed and disposed of as PCB Remediation Wastes ≥50 mg/kg. Following removal of concrete, the surficial soil beneath the piles will be characterized on a Subpart N grid to determine if additional remediation is required. Surficial soil samples will be collected from an interval of 0 to 3 inches and remediation of soil performed if total PCBs are >10 mg/kg. If PCBs are not detected in the concrete debris, the piles will be spread at their current location and covered with the Soil Barrier.

F. The tire pile is located within an area where PCBs have not been found in surficial materials and are not suspected to be a source of PCBs. One wipe sample will be collected from each tire. If PCBs are detected in the wipe sample at ≥10 μg/100 cm^2, the entire tire pile will be disposed of as PCB Remediation Waste ≥50 mg/kg. In addition, three samples of the asphalt beneath the tires will be collected and analyzed and remediation performed if total PCB concentrations are >1.0 mg/kg. If PCBs are not detected in any of the wipe samples, no additional sampling will be performed, and the tires removed and disposed of appropriately. There are other single tires located on the site. The same procedures will be employed to determine the appropriate disposal for these tires.

G. Asbestos-containing roofing materials are falling from Station B onto the ground to the south of the building. These materials have been determined to not contain PCBs and have fallen in an area where PCBs have not been found in surficial materials. As such, these materials will be collected for disposal by appropriately trained personnel and disposed of as asbestos wastes. No additional sampling is proposed.

3.4.4 Dust Monitoring

Dust monitoring for total particulate emissions and fugitive dust within work areas and at the site perimeter will be implemented during building demolition and soil excavation and handling activities to reduce potential exposures to on- and off-site receptors during remediation. Monitoring will be conducted continuously using real-time measurement equipment.

The selected Remedial Contractor will be required to develop an Air Monitoring and Dust Control Plan that will include provisions to:

- Limit dust exposures for site workers; and
- Limit PCB exposures for potential offsite receptors.

The air monitoring plan will include action levels at which the Remedial Contractor will be required to implement or to increase dust control measures. PCB concentrations in air will be calculated using the dust measurements and an assumed concentration of PCBs in the dust. The results for the dust monitoring will be reviewed regularly by UI and the Remedial Contractor to evaluate the effectiveness of the dust control measures employed. At a minimum, dust controls will include the use of windscreens on temporary fencing and use of polyethylene sheeting over temporary stockpiles. If necessary, active dust controls, such as wet spraying will also be deployed.

3.4.5 Clearing and Grubbing

As noted on Figure 6, limited clearing and grubbing of brush at the Site will be required to clear remediation areas and to allow site access. Vegetation at the Site is limited to brushy vegetation and no trees are present.

Within non-PCB remediation areas, brushy vegetation will be removed with the roots. The Remedial Contractor will be responsible for the removal of the clearing and grubbing wastes from the Site. Within PCB remediation areas, the Remedial Contractor will cut the brushy vegetation approximately six inches from the ground surface and the Remedial Contractor will be responsible for the removal of the clearing wastes from the site. The roots will be handled and disposed of in the same manner as the soil it is in contact with.

3.4.6 Subsurface Structures

Subsurface structures to be abandoned or demolished are noted on Figure 7. These structures include manholes and catch basins as well as Station B and the Cooling Water Tunnel. Procedures for remediation of AOC-14, cooling water tunnels, are different and are discussed in Section 3.8. The following procedures will be employed to abandon manholes and catch basins on Parcel A:

- Water and sediments will be pumped out of the structures and sent to the dewatering effluent system for treatment prior to discharge;
- The manhole will be entered and concrete at the base of the structure and the base of any concrete piping to the manhole will be sampled following the EPA Standard Operating Procedure for Sampling Porous Materials and tested for total PCBs by EPA Methods 3540 and 8082.
    - If PCB concentrations in the concrete at the base of the structure or concrete piping are equal to or less than 1.0 mg/kg, no further remediation will be performed; or
    - If PCB concentrations in concrete at the base of the structure or concrete piping are greater than 1.0 mg/kg, the concrete base and concrete piping will be removed and disposed of as PCB Remediation Waste ≥50 mg/kg. Exposed soil and remaining concrete piping will be tested for total PCBs to determine if soil or additional concrete remediation is required. Verification sampling as per Subpart O would be performed following any additional remedial actions.

- Pipe and conduit openings into the subsurface structure will be abandoned by blocking the pipe or conduit and then filling the remaining void with concrete;
- If the concrete is not removed as part of a remedial action, a hole will be drilled in the base of the structure so that stormwater will not accumulate within the structure.

3.5 Demolition of Structures

Structures to be demolished during the remediation are shown on Figure 7 and will be demolished as follow:

- Station B (AOC-1) – Will be demolished because of its deteriorating condition. The building has been remediated as per an EPA Approved self-implementing remedial plan and no PCB Remediation Wastes or PCB Bulk Product Wastes remain on the structure. However, Excluded PCB Product-containing paints, caulks, glazing and mastics are present. Measures will be employed to prevent the release materials containing Excluded PCB Product during demolition and the wastes generated will be disposed.
- Cooling Water Tunnel (AOC-14) – The tunnel will be dewatered, and the sediments removed as discussed in Section 3.8. Following remediation, holes will be drilled in the base of the structure to allow water to drain, the concrete demolished and left in the tunnel, and then the tunnel will be backfilled with clean soil.

The Remedial Contractor will be responsible for preparing Building Demolition Plans and submitting to UI for review and approval prior to performing the Work. The Remedial Contractor will also be responsible for obtaining demolition permits from the City of New Haven and any other permits necessary for the performance of the Work.

3.6 Soil Excavations

Soil excavation areas are shown on Figure 8. Prior to performing soil excavations, the Remedial Contractor shall survey and mark the extent of the excavations in the field. Soil excavations will be performed to the depths indicated on the figures at a minimum and will be extended if verification sample results indicate that remedial goals have not been achieved.

3.6.1 Site-Specific Design Considerations

It is anticipated that groundwater will be encountered at approximately three to five ft bgs and that this level will fluctuate under tidal influences. As such, dewatering and excavation supports will be required for all excavations that extend greater than four feet below grade. The Remedial Contractor will be required to obtain the services of a Professional Engineer to design the dewatering system and effluent treatment system as well as excavation support systems. The Remedial Contractor will submit stamped plans for dewatering and excavation support to UI for review and approval prior to the Remedial Contractor performing the work.

3.7 Post-Excavation Verification Sampling

The limits and depths of PCB soil excavation shown on Figure 8 and are based on the PCB characterization completed to date. The final extent of soil remediation will be determined based on verification testing.

Verification samples will be collected and analyzed for total PCBs using EPA Methods 8082 with 3540C (Soxhlet extraction). All post-excavation verification sampling will be performed in accordance with the procedures specified in 40 CFR Part 761 Subpart O.

The current bulkhead was installed between 1999 and 2003. This bulkhead was installed beyond the limits of the former bulkhead and the space between the two structures was filled with stone. Excavations

along the bulkhead will be performed to the former bulkhead structure and verification samples will be collected from that structure. Excavations will be continued to the current bulkhead as required to meet remedial goals. However, the steel of the current bulkhead will not be sampled. The steel will be decontaminated following the procedures of §761.79(c)(2) and then wipe sampled.

It is the responsibility of the Remedial Contractor to determine excavation shoring methods. However, for excavations performed along or near to the perimeter sheet pile wall, the presence of subsurface structures (e.g., deadmen, concrete supports) may prevent the use of sheet piles. In these cases, the excavations will be sloped to provide stable sidewalls. Verification sampling will be performed in a manner that will allow for determination that the horizontal extent of the excavation has achieved remedial goals prior to removal of additional materials for sloping. Removal of these additional materials following verification sampling will allow for handling of these materials as clean.

If sheet piling is to be used for excavation stabilization, it may not be possible to pull sheet piles and then perform verification sampling following the completion of the excavation. If these conditions are determined, the sidewalls of the excavations will be sampled using a GeoProbe.

A modified approach to GeoProbe sampling will be employed for this purpose. Instead of using a Macrocore, where full recovery may be an issue, a large-bore soil sampler will be employed instead. A Standard Operating Procedure for use of the large-bore soil sampler prepared by GeoProbe is included in Appendix H and the procedures outlined therein would be used.

Sampling in this manner will produce the recovery needed to accurately determine the depth of the sample collected for pre-verification of the extent of the excavation. This will be done so that sheet piles may be installed beyond the limits of the excavation extents required to remove soil with PCBs at concentrations > 1 mg/kg in the two excavations planned for Parcel A.

Samples will be collected as follows following the modified GeoProbe procedures:

- Sample locations will be marked around the perimeter of the designed sheet pile location at five-foot intervals;
- The GeoProbe will be advanced at each location and verification samples collected at the surface and every five foot of depth extending to five feet below the excavation base (e.g., 0-0.25, 5-5.25, 10-10.25, 12-15.25, and deeper as required); and
- The samples collected will be of intervals not to exceed three inches at each location.

3.7.1 Contingency

Based on the sampling and analysis conducted to date, the extent of PCBs in soil is well understood. However, due to the source of the release, removal of additional soil impacted by PCBs may be required to address heterogeneity in subsurface conditions and achieve the remedial objectives. The final limits of soil excavation will be determined according to the post-excavation verification soil sampling frequency described above. If verification sample results indicate PCB concentrations exceed remedial goals, then additional soil will be removed to comply with the remedial goal. Following the additional removal, additional verification samples will be collected. This process of removal and verification will continue until residual PCB concentrations in soil are all less than remedial goals.

3.7.2 Continued Use of Concrete Structures within Excavations

There is potentially a need for the continued use of concrete that may have been contaminated with PCBs regulated for disposal by spills of liquid PCBs. The continued use provision under §761.30(p) would only be applied to concrete structures that cannot be damaged by partial demolition or where partial demolition may affect their designed use.

Types of concrete structures that may be encountered in the subsurface on Parcel A include concrete that was installed as part of the construction of the sheet pile wall that surrounds Ball Island. This

concrete is integral to the structural stability of the bulkhead and cannot be removed or damaged without damaging the stability of the bulkhead. Concrete will be tested if it is part of the sidewall or base of an excavation and, to qualify for continued use under §761.30(p), if the verification sample results are ≥1.0 mg/kg total PCBs, the concrete:

a. Would be double wash rinsed as per Subpart S;

b. An ML mark placed on the concrete;

c. A geotextile fabric placed over the concrete to form a barrier;

d. The excavation would be backfilled; and

e. The location of the PCB Remediation Waste concrete and the total PCB concentrations would be recorded on the land records so that, if the concrete support for the bulkhead was removed in the future, the concrete could be handled, stored, and disposed of as a PCB Remediation Waste.

Concrete footings and foundations in the subsurface that are part of structures that are no longer used at the facility will also be encountered in the sidewalls and base of excavations. These concrete structures no longer perform a useful function and will be remediated to meet remedial goals for the Site. Specifically, concrete with total PCB concentrations ≥1.0 mg/kg north of the Demarcation Line will be removed and disposes offsite, and the remediation verified by sampling consistent with the requirements of Subpart O. South of the Demarcation Line, concrete with total PCB concentrations >10 mg/kg will be removed and disposed offsite.

3.8 Cooling Water Tunnel

The limits of the cooling water tunnel, a closed box culvert structure, are shown on Figure 7. The cooling water tunnel will be dewatered to the extent practicable and the dewatering effluent will be treated in the system built to treat dewatering effluent from excavations prior to discharge.

The remaining sediments will be pumped from the entire extent of the cooling water tunnel and placed in a lined waste-storage container. Remaining water in the lined waste-storage container will be tested to determine that total PCB concentrations are <0.5 µg/L. If the PCB concentrations in free water are > 0.5 µg/L and the sediment fails the paint filter test, additional free water will be removed from the sediment to achieve a passing paint filter test before treating the sediment with a reagent or solidifying amendment. The free water > 0.5 µg/L shall be decontaminated as a PCB Liquid. After this has been completed, the sediments will be amended so that remaining free water is absorbed and the remaining material can be transported for disposal at a landfill.

Sediment removal will be verified visually prior to demolition of the structure and the remedial goal is to remove all sediments. No verification samples will be collected from the concrete base of the tunnel and previously collected characterization presented in Table 8 indicate that PCB impacts to the concrete are limited and do not exceed 1 mg/kg.

Following performance of the remedial actions described above, the tunnel will be demolished as described in Section 3.5.

3.9 Waste Management

3.9.1 Soil and Concrete

Excavated soil and concrete from PCB-impacted demolitions will either be live-loaded into waste

containers for transport offsite for disposal or transported to the onsite waste storage areas as shown on Figure 8. None of the wastes to be generated from Parcel A are PCB Remediation Waste ≥50 mg/kg. It is estimated that an additional 1,000 tons of soil will be removed from Parcel A for disposal as PCB Remediation Waste < 50 mg/kg at a landfill permitted to accept such wastes.

Waste storage areas for PCB Remediation Wastes will be constructed in accordance with the requirements of §761.65(c)(9). A high strength geomembrane will be placed at the base of the waste storage areas. At the completion of work, sampling will be performed within the footprint of the waste storage area on a Subpart N grid frequency. Additional remediation will be performed as needed to remove PCB impacts.

Close-out of the waste storage areas will include characterization of the asphalt beneath the area by sampling on a Subpart N grid even if the geomembrane placed beneath the soil is found to be intact. Remediation of any impacts identified as >1.0 mg/kg total PCBs will be performed as needed. Characterization samples of the asphalt will be collected by following the EPA standard operating procedure for sampling porous materials. Samples will be extracted and analyzed for total PCBs using EPA Methods 3540 and 8082.

3.9.2 Dewatering Effluent

Dewatering effluent from soil excavations will be treated prior to discharge. The Remedial Contractor will be responsible for the design of the dewatering effluent treatment system and drawings are to be stamped by a Professional Engineer prior to submittal to UI for review and approval.

It is anticipated that dewatering effluent will be discharged to surface water. The Remedial Contractor shall be responsible for preparing all permit application forms and for obtaining a General Permit for the Discharge of Groundwater Remediation Wastewater to Surface Water.

The Remedial Contractor will submit a Decontamination Plan that will include decontamination of the dewatering treatment system for review by UI prior to the start of work. All components of thetreatment system that contact dewatering effluent with solids (i.e., those components of the system prior to filtration of solids) will either be disposed of decontaminated as per the requirements of §761.79(b) or (c). For those components that only contact water, they will only be decontaminated if effluent PCB concentrations are found to be >0.5 µg/L. If this occurs, this equipment will also be decontaminated as per the requirements of §761.79(b) or (c).

3.10 Site Restoration

Site restoration will be performed following the completion of removal actions (i.e., soil excavation and structure demolition) at the Site. The purpose of the site restoration activities will be to stabilize areas of removal actions and to create barriers to render soil beneath the restored areas inaccessible. Final grades and other site features to be included as part of the site restoration are shown on Figure 9.

3.10.1 Construction of Demarcation Barriers

Following achievement of remedial goals, for the purposes of future site management, a demarcation barrier consisting of an orange geotextile will be placed at the base of all PCB excavations areas to separate impacted Site soil from clean materials to be used in site restoration.

The base of the excavations will be smoothed and compacted prior to placing the demarcation barrier. After the base has been adequately prepared, the orange geotextile will be placed on the base and secured with landscaping staples suitable for this use.

3.10.2 Backfilling Excavations

Suitable soil fill material is needed to backfill excavations. The following discussion provides a

description of the soil materials that will be deemed acceptable and the methods that will be used to ensure quality control for these soil materials.

Excavated areas below the groundwater table will be backfilled with Non-Polluted Soil only as specified herein to the average groundwater table elevation (approximately elevation 4 +/- feet) or as required by the Engineer. Fill and backfill above the groundwater table will be with Non-Polluted Soil and Natural Soil. Other soil materials used in Site restoration (e.g., screened soil materials, topsoil, gravel, crushed stone) will meet the gradation requirements in the technical specifications and chemical concentrations specified for Non-Polluted Soil.

The remediation contractor will be required to sample imported soil materials (i.e., Non-Polluted Soil or Natural Soil) and other soil materials to be used as specified in the Contract Documents (e.g., screened soil materials, topsoil, gravel, crushed stone.) that are proposed for use at the Site for chemical testing at a frequency of 1 sample per 500 cubic yards. Contractor will submit samples to an approved, independent laboratory certified by the Connecticut Department of Public Health for analysis for the following chemical parameters:

a. Petroleum hydrocarbons by the CT DEEP Extractable Total Petroleum Hydrocarbons (ETPH) Method;
b. Volatile organic compounds (VOCs) by EPA Method 8261;
c. Semi-volatile organic compounds (SVOCs) by EPA Method 8270;
d. RSR 15 metals by EPA Methods 6010 and 7471;
e. Pesticides by EPA Method 8081; and
f. PCBs by EPA Method 8082 with soil extraction by EPA Method 3540.

All analytical testing procedures will conform to Connecticut's Reasonable Confidence Protocols (RCPs) and the contractor's consultant will perform a Data Quality Assessment/Data Usability Evaluation as per CTDEEP requirements.

3.10.2.1 Non-Polluted Soil

Non-Polluted Soil shall be granular, well-graded friable soil; free of sediment, asphalt fragments, rubbish, debris, wood, glass, concrete, metal, bricks, ice, snow, tree stumps, roots, clay, organic matter and any non-soil deleterious material; with 25 percent or less passing the No. 200 sieve; no stone greater than two-third (2/3) loose lift thickness, or three (3) inches, whichever is smaller. Soil material acceptable for use shall be classified as GM, GC, SM or SC according to the Unified Soil Classification System and shall have a plasticity index of less than 10.

Chemical properties for all soil materials must meet the following specifications for chemical concentrations to be classified as Non-Polluted Soil:

a. Soil defined as unconsolidated geologic material overlying bedrock, but not including sediment, and not affected by a release of a substance. A Release is defined as any discharge, spillage, uncontrolled loss, seepage, filtration, leakage, injection, escape, dumping, pumping, pouring, emitting, emptying, or disposal of a substance. A Substance is defined as an element, compound or material, which when added to air, water or soil or sediment may alter the physical, chemical, biological or characteristic of such air, water, soil or sediment. Sediment is defined as unconsolidated material occurring in a stream channel, estuarine waters, or marine waters.

(Reference Connecticut Regulation of State Agencies 22a-133k-1(a) – Definitions)

b. No detectable concentrations of petroleum hydrocarbons as determined by CT DEEP ETPH Method with laboratory reporting limits less than the Analytical Detection Limit (ADL), Residential Direct Exposure Criteria (RDEC) and the GA PMC;
c. No detectable concentrations of VOCs by EPA Method 8260 with laboratory reporting limits less than the ADL, RDEC or the GA Pollutant Mobility Criteria (PMC) for each analyte;
d. No detectable concentrations of SVOCs by EPA Method 8270 with laboratory reporting limits less than the ADL, RDEC or the GA PMC for each analyte;
e. Concentrations of RSR 15 metals by EPA Methods 6010 and 7471 less than the lower of the ADL, the High Range Background Concentration (see table below for metals concentrations) and the GA PMC by SPLP Method for each metal;
f. No detectable concentrations of pesticides by EPA Method 8081 with laboratory reporting limits less than the ADL, RDEC or the GA PMC for each analyte; and
g. No detectable concentrations of PCBs by EPA Method 8082 with laboratory reporting limits less than the ADL, RDEC or the GA PMC by SPLP Method.
h. The RDEC is the Residential Criteria provided in Appendix A and the GA, GAA Mobility Criteria (GA PMC) provided in Appendix B of the Regulations of Connecticut State Agencies, Section 22a-133k-1 through -3, inclusive.
i. Soil will be analyzed for each analyte for which an RDEC and GA PMC is provided.

Background Metals Concentrations

Metal	High Range Background Concentration (mg/kg)
Antimony	ND
Arsenic	5.4
Barium	800
Beryllium	3.5
Cadmium	0.3
Chromium	8.5
Copper	93
Lead	32
Mercury	0.08
Nickel	40
Selenium	49
Silver	0.83
Thallium	1
Vanadium	157
Zinc	130

ND – Not detected above laboratory reporting limits.

Source: Background concentrations for Connecticut Mesozoic Basin soils from

Brown and Thomas, "Major and Trace Element Geochemistry and Background Concentrations for Soils in Connecticut," Northeastern Geoscience, Volume 32, 2014.

3.10.2.2 Natural Soil

Suitable fill listed as Natural Soil shall conform to the definition of Natural Soil as defined by the CTDEEP Solid Waste Regulations Section 22a-209-1, "Natural Soil" means soil in which all substances naturally occurring therein are present in concentrations of such substance occurring naturally in the environment and in which soil no other substance is analytically detectable. For the purpose of this definition, substance shall have the same meaning as in Section 22a-133k-l of the Regulations of Connecticut State Agencies. Soil materials that do not meet the specifications for chemical concentrations to be classified as Non-Polluted Soil may be used onsite as Natural Soil as long as all of the metals conform to the following table that specifies the lower of the site background metals concentration and the RDEC. Metals must also conform to the GA PMC by SPLP method. In addition, all of the other substances (non-natural) must comply with the requirements of Non-Polluted Soil.

Natural Soil Metals Concentrations

Metal	Concentration (mg/kg)
Antimony	4
Arsenic	10
Barium	320
Beryllium	2.0
Cadmium	5
Chromium	72
Copper	760
Lead	400
Mercury	4
Nickel	70
Selenium	15
Silver	1
Thallium	5
Vanadium	390
Zinc	1,000

ND – Not detected above laboratory reporting limits.

Only non-polluted soil will be used to backfill excavations below the groundwater surface which averages four ft bgs. All backfill materials will be placed and compacted in one-foot lifts and compaction to 90% of the modified proctor density will be required.

3.10.3 Establishing Turf

Areas to be completed with turf will be completed with six inches of topsoil and then hydroseeded.

Topsoil will be tested for VOC, SVOCs, ETPH, pesticides, and metals at a frequency of one sample per every 500 tons of material to be transported to the Site. The topsoil shall be determined to be a non-polluted material free from impacts due to release.

3.10.4 Construction of Soil Barriers

Soil barriers will be constructed in all areas not to be completed with pavement to render the soil beneath inaccessible as shown on Figure 9. In Parcel A, a portion of the Site will be mounded to raise the final grade. The mound will be constructed with maximum slopes of 4:1 (H:V) and minimum slopes of two percent. The maximum slopes can be mowed easily and can be maintained. The minimum slopes can be constructed to allow for drainage without ponding.

3.10.5 Construction of Soil/Asphalt Barriers

Paving materials and paving operations will be performed in accordance with the requirements of the Connecticut Department of Transportation Form 817. Prior to placing subbase for the asphalt, the limits of excavation areas to be prepared will be smoothed and compacted, an orange geotextile will be placed at the base of the excavation area, subbase and base materials will be placed and compacted (minimum 24 inches thick), and then completed with a minimum of 3 inches of bituminous concrete. Areas to be completed with paving are shown on Figure 9.

3.10.6 Survey

The final horizontal and vertical extent of soil excavations will be surveyed prior to backfilling. Final surface grades will be surveyed following the completion of Site Restoration. All surveys will be performed by a Connecticut-Licensed Land Surveyor and shall comply with A-2 and T-2 standards.

3.11 Equipment Decontamination

Any equipment that contacts PCB Remediation Wastes will either be (1) disposed with the PCB Remediation Wastes or (2) decontaminated prior to removal from the Site or being used for non-PCB work. Non-porous surfaces will either be (1) swabbed with a solvent containing greater than seventy-five percent terpene hydrocarbons or (2) double washed/rinsed in accordance with the procedures outlined in 40 CFR 761, Subpart S.

Solid wastes generated during decontamination will be placed with PCB Remediation Wastes or containerized for appropriate off-site disposal. Wash water from the decontamination of equipment will either be treated with dewatering effluent for discharge or collected and pumped to an on-Site temporary storage tank. Accumulated wash water will be sampled for disposal characterization analysis and transported and disposed of off-Site based on the characterization data.

3.12 Inspection and Monitoring Procedures During Construction

The selected Remedial Contractor will be responsible for inspection of site conditions to determine that they comply with the requirements of this Parcel A RAP and the EPA Approval. The Remedial Contractor will also be responsible for performing site monitoring (e.g., air monitoring, sampling of treated dewatering effluent, local and State permitting conditions) during the performance of site remediation activities.

UI will choose an oversight engineer to observe remedial activities, site restoration, and the disposal of PCB-impacted soil. During remediation, the oversight engineer will record remediation progress and will prepare a Remedial Action Report (RAR) following the completion of remediation activities.

4.0 LIMITATIONS

This Parcel A PCB Remedial Action Plan was prepared for the use of the UI, exclusively. The findings provided by Weston & Sampson in this report are based solely on the information reported in this document. Future investigations, and/or information that was not available to Weston & Sampson at the time of the investigation, may result in a modification of the findings stated in this report.

Should additional information become available concerning this Site or neighboring properties which could directly impact the Site in the future, that information should be made available to Weston & Sampson for review so that, if necessary, conclusions presented in this report may be modified. The conclusions of this report are based on Site conditions observed by Weston & Sampson personnel at the time of the investigation, information provided by UI, and samples collected and analyzed on the date shown or stated in this report. This report has been prepared in accordance with generally accepted engineering and geological practices. No other warranty, express or implied, is made.

5.0 REFERENCES

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FIGURES

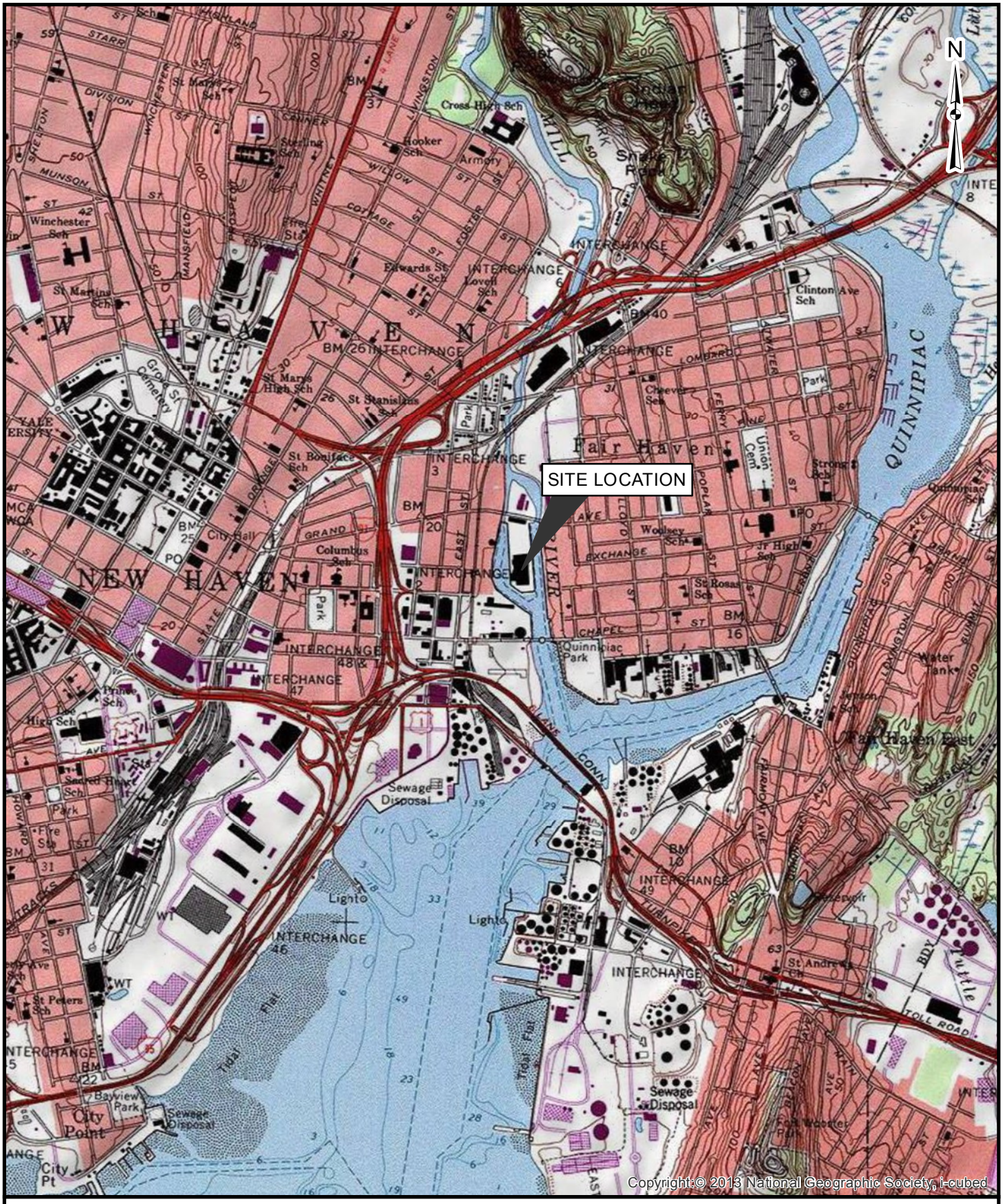


FIGURE 1
United Illuminating English Station Power Plant
510A Grand Avenue, New Haven, Connecticut

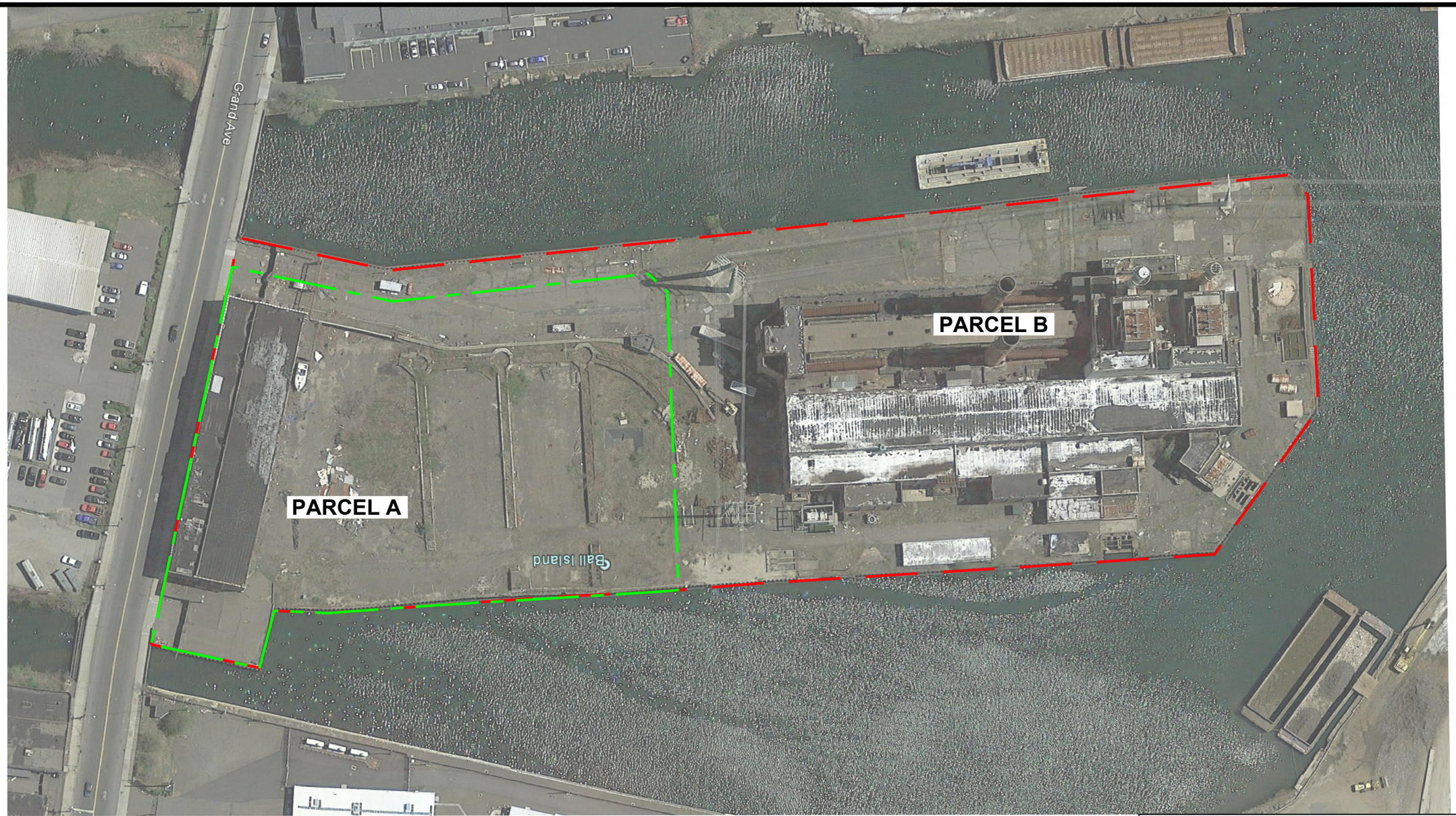
SITE LOCUS

2,000 0 2,000

Feet

Weston & Sampson

Path: \\gisdatasrv\GIS\DataStore\Client\United Illuminating\Project\English Station\Locus Map.mxd User: ozerekoz Saved: 10/17/2017 12:10:09 PM Opened: 10/17/2017 12:12:33 PM



NOTES:

1. REVISION 4 INCLUDES A PROPERTY LINE ADJUSTMENT BASED ON THE 11/28/16 SURVEY BY GODFREY–HOFFMAN & ASSOC.
2. ADAPTED FROM PLAN TITLED "SITE PLAN AND APPROXIMATE PARCEL BOUNDARIES" DATED 10/07/2016 BY TRC COMPANIES, INC..
3. AERIAL IMAGE FROM GOOGLE EARTH PRO, DATE OF IMAGE: 04/20/2016

PROPERTY BOUNDARY

PARCEL BOUNDARY

N

100 50 0 100 200

SCALE: 1"=100'

FIGURE 2

UNITED ILLUMINATING ENGLISH STATION POWER PLANT
510A GRAND AVENUE, NEW HAVEN, CONNECTICUT

SITE PLAN WITH PARCEL BOUNDARY

DESIGNED BY: PML	CHECKED BY: MB	DATE: DEC. 2019

Weston & Sampson℠