RESPONSE AND DEVELOPMENT WORK PLAN

AREA B: SUB-PARCEL B20-1
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic, has prepared this Response and Development Work Plan (RADWP) for a portion of the Tradepoint Atlantic property that has been designated as Area B: Sub-Parcel B20-1 (the Site). Tradepoint Atlantic submitted a letter (dated October 19, 2022; **Appendix A**) requesting an expedited plan review to achieve construction deadlines for the proposed development on this Site. As shown on **Figure 1**, Sub-Parcel B20-1 consists of approximately 9.03 acres located primarily within Parcel B20, but extending into Parcel B13 of the approximately 3,100-acre former steel plant property.

Sub-Parcel B20-1 is slated for development and occupancy as a scrap yard. Subsequent site-use will involve storage and recovery of scrap metals. No buildings or underground utilities are proposed as part of the proposed development.

The conduct of any environmental assessment and cleanup activities on the Tradepoint Atlantic property, as well as any associated development, is subject to the requirements outlined in the following agreements:

- Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the Maryland Department of the Environment (MDE), effective September 12, 2014; and
- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the United States Environmental Protection Agency (USEPA), effective November 25, 2014.

An application to enter the full Tradepoint Atlantic property (3,100 acres) into the MDE Voluntary Cleanup Program (MDE-VCP) was submitted to the MDE on June 27, 2014. The property's current and anticipated future use is Tier 3 (Industrial) and plans for the property include demolition and redevelopment over the next several years.

Sub-Parcel B20-1 is part of the acreage that was removed (Carveout Area) from inclusion in the Multimedia Consent Decree between Bethlehem Steel Corporation, the USEPA, and the MDE (effective October 8, 1997) as documented in correspondence received from USEPA on September 12, 2014. Based on this agreement, USEPA determined that no further investigation or corrective measures will be required under the terms of the Consent Decree for the Carveout Area. However, the SA reflects that the property within the Carveout Area will remain subject to the USEPA's Resource Conservation and Recovery Act (RCRA) Corrective Action authorities.

In consultation with the Regulators, Tradepoint Atlantic affirms that it desires to accelerate the assessment, remediation, and redevelopment of certain sub-parcels within the larger site due to current market conditions. To that end, the Regulator and Tradepoint Atlantic agree that the

Controlled Hazardous Substance (CHS) Act (Section 7-222 of the Environment Article) and the CHS Response Plan (Code of Maryland Regulations (COMAR) 26.14.02) shall serve as the governing statutory and regulatory authority for completing the development activities on Sub-Parcel B20-1 and complement the statutory requirements of the VCP (Section 7-501 of the Environment Article). Upon submission of a RADWP and completion of any remedial activities for the sub-parcel, the Regulators shall issue a No Further Action Letter (NFA) upon a recordation of an Environmental Covenant describing any necessary land use controls for the specific sub-parcel. At such time that all the sub-parcels within the larger parcel have completed remedial activities, Tradepoint Atlantic shall submit to the Regulators a request for issuing a Certificate of Completion (COC) as well as all pertinent information concerning completion of remedial activities conducted on the parcel. Once the VCP has completed its review of the submitted information it shall issue a COC for the entire parcel described in Tradepoint Atlantic's VCP application.

Alternatively, Tradepoint Atlantic or other entity may elect to submit an application for a specific sub-parcel and submit it to the VCP for review and acceptance. If the application is received after the cleanup and redevelopment activities described in this RADWP are implemented and a NFA is issued by the Agencies pursuant to the CHS Act, the VCP shall prepare a No Further Requirements Determination for the sub-parcel.

If Tradepoint Atlantic or other entity has not carried out cleanup and redevelopment activities described in the RADWP, the cleanup and redevelopment activities may be conducted under the oversight authority of either the VCP or the CHS Act, so long as those activities comport with this RADWP.

This RADWP provides a Site description and history; summary of environmental conditions identified by the 2014 Phase I Environmental Site Assessment (ESA); summary of relevant findings and environmental conditions identified by the relevant Phase II Investigations conducted between 2015 and 2020; summary of the recent 2023 Phase II soil investigation conducted to evaluate existing soils at the Site; a human health Screening Level Risk Assessment (SLRA) conducted for the identified conditions; and any necessary engineering and/or institutional controls to facilitate the planned development and address the impacts and potential human health exposures. These controls include work practices and applicable protocols that are submitted for approval to support the development and use of the Site. Engineering/institutional controls approved and installed for this RADWP shall be described in closure certification documentation submitted to the Agencies demonstrating that exposure pathways on the Site are addressed in a manner that protects public health and the environment.

The remainder of Parcel B20 and Parcel B13 will be addressed in separate development plans in accordance with the requirements of the ACO, which may include RADWPs, if necessary. This work will include assessments of risk and, if necessary, RADWPs to address unacceptable risks associated with future land use.

2.0 SITE DESCRIPTION AND HISTORY

2.1 SITE DESCRIPTION

The Sub-Parcel B20-1 development project consists of approximately 9.03 acres comprising a portion of Parcel B20 and Parcel B13 (**Figure 1**). The development will include completion of a scrap yard. The Site is currently zoned Manufacturing Heavy-Industrial Major (MH-IM) and is not occupied. There is no groundwater use on-site or within the surrounding Tradepoint Atlantic property.

The Site has historically been used as a material storage area, so ground surface elevations have changed significantly within the past several years, ranging from approximately 6 to 30 feet above mean sea level (amsl) across Parcels B13 and B20. Additionally, as discussed below, significant slag reclamation activities have occurred throughout the area.

2.2 SITE HISTORY

From the late 1800s until 2012, the production and manufacturing of steel was conducted at Sparrows Point. Iron and steel production operations and processes at Sparrows Point included raw material handling, coke production, sinter production, iron production, steel production, and semi-finished and finished product preparation. In 1970, Sparrows Point was the largest steel facility in the United States, producing hot and cold rolled sheets, coated materials, pipes, plates, and rod and wire. The steel making operations at the facility ceased in fall 2012.

As described in the Phase II Work Plans listed in Section 3.2, the Site historically contained miscellaneous materials storage associated with ore yard material handling. Raw materials were transported to the Sparrows Point facility by ship, truck, and rail and unloaded at the Ore Pier, A Pier, and car dumper. From storage the raw materials were transported by truck or conveyors to the Ore Yard for storage. The Ore Yard was divided into seven distinct storage areas (A, B, C, D, E, F, and G yards). Material stored in the Ore Yard included, but was not limited to, iron ore, ore fines, sinter, lime, limestone, and coke breeze. The B yard was used for coke storage and miscellaneous materials. The A yard (also a coke-storage area) was leased to and operated by Kinder Morgan. Raw materials were conveyed from the central unloading station to one of the yards via one of three main conveyors. The three main conveyors discharged to several distributing conveyors that fed individual piles in the yard. The raw material from the yard was sent either to the Bedding Plant or the Blast Furnace stockhouse by a series of conveyors. Transitions between conveyors were enclosed or were located inside buildings for dust control and reclamation.

3.0 ENVIRONMENTAL SITE ASSESSMENT RESULTS

3.1 PHASE I ENVIRONMENTAL SITE ASSESSMENT RESULTS

A Phase I ESA was completed by Weaver Boos Consultants for the entire Sparrows Point property on May 19, 2014. Weaver Boos completed site visits of Sparrows Point from February 19 through 21, 2014, for the purpose of characterizing current conditions at the former steel plant. The Phase I ESA identified particular features across the Tradepoint Atlantic property which presented potential risks to the environment. These RECs included buildings and process areas where releases of hazardous substances and/or petroleum products potentially may have occurred. The Phase I ESA also relied upon findings identified during a previous visual site inspection (VSI) conducted in 1991 as part of the RCRA Facility Assessment (RFA) prepared by A.T. Kearney, Inc. dated August 1993, for the purpose of identifying Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) on the property. This VSI is regularly cited in DCC Report.

Weaver Boos' distinction of a REC or Non-REC was based upon the findings of the DCC Report (which was prepared when the features remained on-site in 1998) or on observations of the general area during their site visit. Weaver Boos made the determination to identify a feature as a REC based on historical information, observations during the site visit, and prior knowledge and experience with similar facilities. There were no RECs, SWMUs, AOCs or Findings identified within the Sub-Parcel B20-1 development area.

3.2 PHASE II INVESTIGATION RESULTS – SUB-PARCEL B20-1

Phase II Investigations specific to soil and groundwater conditions were performed for the property area including Sub-Parcel B20-1 in accordance with the requirements outlined in the ACO as further described in the following agency-approved Phase II Investigation Work Plans:

- Area B: Parcel B13 (Revision 0) dated March 25, 2016
- Area B: Parcel B20 (Revision 0) dated June 28, 2019

All soil samples and groundwater samples were collected and analyzed in accordance with agency-approved protocols during the Phase II Investigations, the specific details of which can be reviewed in each agency-approved Work Plan. Each Phase II Investigation was developed to target specific features which represented a potential release of hazardous substances and/or petroleum products to the environment, including RECs, SWMUs, and AOCs, as applicable, as well as numerous other targets identified from former operations that would have the potential for environmental contamination. Samples were also collected at site-wide locations to ensure full coverage of each investigation area. The full analytical results and conclusions of each investigation have been presented to the agencies in the following Phase II Investigation Reports:

- Area B: Parcel B13 (Revision 0) dated April 19, 2017

- Area B: Parcel B20 (Revision 0) dated January 14, 2021

In August 2022, two supplemental shallow samples were collected to characterize the 0-2 foot interval as shown on **Figure 2**. These sample results are included in this RADWP.

Following completion of the Parcel B13 and Parcel B20 Phase II Investigations, approximately 10 to 20 feet of slag reclamation occurred throughout the area. As a result of slag reclamation activities, the existing surface elevation is below the final depths of some of the previously completed Phase II Investigation soil borings. Therefore, additional B20-1 Phase II soil sampling was conducted within the Site as proposed by the Work Plan Update Letter for Sub-Parcel B20-1 (dated January 20, 2023) to ensure soil results are representative of current onsite conditions. The results of this soil sampling are summarized below.

This RADWP summarizes the relevant groundwater findings from the original Phase II Investigations, and the relevant soil findings from the 2023 Phase II Investigation with respect to the proposed development of Sub-Parcel B20-1.

3.2.1 Phase II Soil Investigation Findings

Based on the scope of development for Sub-Parcel B20-1, 23 soil samples collected from 12 soil borings (including 10 soil borings from the B20-1 Phase II Investigation conducted in January 2023 and two soil borings from the B20 supplemental investigation in August 2022) were included in this evaluation of Sub-Parcel B20-1. The 12 boring locations are shown on **Figure 2**, and the samples obtained from these borings provided relevant analytical data for discussion of on-site conditions.

Supplemental soil sampling was conducted on August 31, 2022, within Parcel B20 to more fully characterize shallow soils at the Site. Shallow soil samples (0 to 2 foot bgs) were analyzed for TCL SVOCs and PAHs, Oil & Grease, DRO, GRO, TAL metals, hexavalent chromium, cyanide, and PCBs. Sampling for VOCs was not conducted because no soil sample exhibited a PID reading above 10 parts per million (ppm).

Soil samples collected during the January 2023 Sub-Parcel B20-1 Phase II Investigation were analyzed for the Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs) and polynuclear aromatic hydrocarbons (PAHs), Oil & Grease, Target Analyte List (TAL) metals, hexavalent chromium, and cyanide. Shallow soil samples (0 to 1 foot below ground surface (bgs)) were analyzed for polychlorinated biphenyls (PCBs). Soil sampling targets with potential petroleum contamination were also analyzed for total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO). The laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports are included as electronic attachments. The Data Validation Reports contain qualifier keys for the flags assigned to individual results in the attached summary tables.

Soil sample results were screened against the Project Action Limits (PALs) established in the property-wide Quality Assurance Project Plan (QAPP) dated April 5, 2016, or based on other direct agency guidance. Several PALs have been adjusted based on revised toxicity data published by the USEPA (May 2021). As shown on **Figure S1**, PAL exceedances were limited to two PCB mixtures (Aroclor 1260 and total PCBs) and one inorganic (arsenic). **Table 1** and **Table 2** provide summaries of the detected organic compounds and inorganics in the soil samples collected from the soil borings relevant for this Site evaluation.

Non-aqueous phase liquid (NAPL) was not observed in any of the Phase II soil boring locations or the supplemental soil boring locations.

3.2.2 B20-035-SB Soil Excavation

As shown on **Figure S2**, soil boring B20-035-SB was a completed as part of the initial Parcel B20 Phase II Investigation and is located outside of the Sub-Parcel B20-1 development area. At this location, thallium exceeded its PAL (12 mg/kg) in the subsurface sample B20-035-SB-4 (collected from 3 to 4 feet bgs) with a concentration of 18.5 mg/kg. The thallium concentration of the surface sample B20-035-SB-1 was below the detection limit (10.6 U mg/kg). In accordance with the Sub-Parcel B20-1 Excavation Work Plan (dated November 18, 2022), a 10-foot by 20-foot excavation area was completed on December 1, 2022 to a depth of 6 feet. Confirmation samples were collected from each sidewall (at approximately 3-4 feet bgs) and from the bottom of the excavation (at 6 feet bgs). The confirmation samples were analyzed for metals; there were no PAL exceedances from any of the confirmation samples. Additional details are provided in the Excavation Completion Letter (dated December 8, 2022).

3.2.3 Phase II Groundwater Investigation Findings

Groundwater conditions were investigated as reported in the Parcel B13 and Parcel B20 Phase II Investigation Reports. These reports included aqueous sample data from two relevant piezometers (B20-012-PZ and B20-035-PZ) as shown on shown on **Figure 3**. During the Phase II Investigation, the depth to groundwater ranged from 7 to 11 feet bgs. There is no direct exposure risk for future Composite Workers at the Site because there is no use of groundwater on the Tradepoint Atlantic property and groundwater is not expected to be encountered in the sub-parcel.

Each groundwater monitoring point was inspected for evidence of NAPL using an oil-water interface probe prior to sampling. None of the monitoring points relevant for the proposed development project showed evidence of NAPL during these checks. The groundwater samples were analyzed for TCL-VOCs, TCL-SVOCs, TAL metals (dissolved only), hexavalent chromium, total cyanide, TPH-DRO, TPH-GRO, and Oil & Grease. The laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports are included as electronic attachments. The Data Validation Reports contain qualifier keys for the flags assigned to individual results in the attached summary tables.

The Phase II Investigation groundwater results were screened against the PALs established in the property-wide QAPP dated April 5, 2016, or based on other direct agency guidance. Similar to the evaluation of soil data, several PALs have been adjusted based on revised toxicity data published by the USEPA (May 2021). **Table 3** and **Table 4** provide summaries of the detected organic compounds and inorganics in the groundwater samples submitted for laboratory analysis, and **Figure GW1** presents the groundwater results that exceeded the PALs. PAL exceedances in the Phase II Investigation groundwater samples collected in the vicinity of the proposed development project consisted of two VOCs (benzene and chloroform), one SVOC (naphthalene), DRO, and Oil & Grease.

3.2.4 Locations of Potential Concern

Groundwater data were screened to determine whether any sample results exceeded the USEPA Vapor Intrusion Target Cancer Risk (TCR) (carcinogen) or Target Hazard Quotient (THQ) (non-carcinogen) Screening Levels. None of the individual sample results exceeded the cumulative VI cancer risk screening level of 1E-5. However, both sample locations exceeded the non-cancer VI Hazard Index (HI) value of 1 for cyanide. The VI risk evaluation is summarized in **Table 5**. No permanent enclosed development is planned at the Site, so there is no Composite Worker VI risk.

Other locations of potential concern which are subject to special requirements could include elevated lead, PCBs, or TPH/Oil & Grease in soil. The soil data for Sub-Parcel B20-1 were evaluated to determine the presence of any such locations of potential concern including: lead concentrations above 10,000 mg/kg, PCB concentrations above 50 mg/kg, or TPH/Oil & Grease concentrations above 6,200 mg/kg. There were no soil concentrations of lead, PCBs, or TPH/ Oil & Grease above the specified criteria.

Locations with physical evidence of NAPL are also considered to be locations of potential concern with respect to proposed development. No visual observations of NAPL were noted at any locations for Site. Additionally, no NAPL was detected in any monitoring wells proximate to the proposed development area.

3.3 Human Health Screening Level Risk Assessment

3.3.1 Analysis Process

A human health SLRA has been completed based on the analytical data obtained from the characterization of surface and subsurface soils. The SLRA was conducted to evaluate the existing soil conditions to determine if any response measures are necessary.

The SLRA included the following evaluation process:

Identification of Exposure Units (EUs): The Composite Worker and Construction Worker SLRA were both evaluated using a site-wide Exposure Unit (EU1) with an area of

9.03 acres. All of the data from the Agency-approved Work Plan Update Letter for Sub-Parcel B20-1 (dated January 20, 2023) has been included.

Identification of Constituents of Potential Concern (COPCs): For the project-specific SLRA, COPC screening was completed assuming a Target Risk (TR) of 1E-6 and Target Hazard Quotient (THQ) of 0.1. The initial screening also identified parameters detected at a frequency greater than 5%. Based on that data set, parameters were identified as COPCs if:

- The compound was detected in soil at a frequency of greater than 5%;
- The maximum detection exceeded the USEPA's Composite Worker Soil Regional Screening Levels (RSLs).

A COPC screening analysis is provided in **Table 6** to identify all compounds above the relevant screening levels.

All aroclor mixtures (e.g., Aroclor 1248, Aroclor 1260) are taken into account for the reported concentrations of total PCBs. The total PCBs concentrations are used to evaluate the carcinogenic risk associated with PCBs.

Exposure Point Concentrations (EPCs):

The COPC soil datasets for the site-wide EU1 were divided into surface (0 to 2 feet bgs), subsurface (>2 feet bgs), and pooled depths for estimation of potential EPCs. Thus, there are three soil datasets associated with site-wide EU1. If there were less than 10 sample results, the maximum detected value was used as the soil EPC. If there were 10 or more sample results in the dataset, then a statistical analysis was performed using the ProUCL software (version 5.0) developed by the USEPA to determine representative reasonable maximum exposure (RME) values for the EPC for each constituent. The RME value is typically the 95% Upper Confidence Limit (UCL) of the mean. For lead, the arithmetic mean for each depth was calculated for comparison to the Adult Lead Model (ALM)-based values (presented in **Table 7**).

Risk Ratios: The surface soil EPCs, subsurface soil EPCs, and pooled soil EPCs were compared to the USEPA RSLs for the Composite Worker and to site-specific Soil Screening Levels (SSLs) for the Construction Worker based on equations derived in the USEPA Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (OSWER 9355.4-24, December 2002). Risk ratios were calculated with a cancer risk of 1E-6 and a non-cancer HQ of 1. The risk ratios for the carcinogens were summed to develop a screening level estimate of the baseline cumulative cancer risk. The risk ratios

for the non-carcinogens were segregated and summed by target organ to develop a screening level estimate of the baseline cumulative non-cancer Hazard Index (HI).

For the Construction Worker, site-specific risk-based evaluations were completed for a range of potential exposure frequencies to determine the maximum allowable exposure frequency for the site-wide EU1 that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or HI of 1 for the individual target organs. This analysis indicated that the allowable exposure frequency before additional worker protections or more detailed job safety evaluations might be needed is 240 days.

There is no potential for direct human exposure to groundwater for a Composite Worker since groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized). In the event that construction/excavation leads to a potential Construction Worker exposure to groundwater during development, health and safety plans and management procedures shall be followed to limit exposure risk.

Assessment of Lead: For lead, the arithmetic mean concentrations for surface soils, subsurface soils, and pooled soils for the EU1 were compared to the applicable RSL (800 mg/kg) as an initial screening. If the mean concentrations for the EU1 was below the applicable RSL, the EU1 was identified as requiring no further action for lead. If a mean concentration exceeded the RSL, the mean values were compared to calculated ALM values (ALM Version dated 6/21/2009 updated with the 5/17/2017 OLEM Directive) with inputs of 1.8 for the geometric standard deviation and a blood baseline lead level of 0.6 ug/dL. The ALM calculation generates a soil lead concentration of 1,050 mg/kg, which is the most conservative (i.e., lowest) concentration which would yield a probability of 5% of a blood lead concentration of 5 ug/dL. If the arithmetic mean concentrations for the EU1 were below 1,050 mg/kg, the EU1 was identified as requiring no further action for lead. The lead averages are presented for surface, subsurface, and pooled soils in **Table 7**. Neither surface, subsurface, nor pooled soils exceeded an average lead concentration of 800 mg/kg.

Assessment of TPH/Oil & Grease: EPCs were not calculated for TPH/Oil & Grease. Instead, the individual results were compared to the PAL set to a HQ of 1 (6,200 mg/kg). There were no soil sampling results with concentrations above the PAL.

Risk Characterization Approach: Generally, if the baseline risk ratio for each non-carcinogenic COPC or cumulative target organ does not exceed 1, and the sum of the risk ratios for the carcinogenic COPCs does not exceed a cumulative cancer risk of 1E-5, then a no further action determination will be recommended. If the baseline estimate of cumulative cancer risk exceeds 1E-5 but is less than or equal to 1E-4, then capping of the EU1 will be considered to be an acceptable remedy for the Composite Worker. The efficacy of capping for elevated non-cancer hazard will be evaluated in terms of the

magnitude of exceedance and other factors such as bioavailability. For the Construction Worker, cumulative cancer risks exceeding 1E-5 (but less than or equal to 1E-4) or HI values exceeding 1 will be mitigated via site-specific health and safety requirements.

The USEPA's acceptable risk range is between 1E-6 and 1E-4. If the sum of the risk ratios for carcinogens exceeds a cumulative cancer risk of 1E-4, further analysis of site conditions will be required including the consideration of toxicity reduction in any proposal for a remedy. The magnitude of any non-carcinogen HI exceedances and bioavailability of the COPC will also dictate further analysis of site conditions including consideration of toxicity reduction in any proposal for a remedy.

3.3.2 SLRA Results and Risk Characterization

Soil data were divided into three datasets (surface, subsurface, and pooled) for Sub-Parcel B20-1 to evaluate potential exposure scenarios. No major grading activities are proposed as part of the development activities; however, each of these potential exposure scenarios was evaluated for the SLRA.

EPCs were calculated for each soil dataset (i.e., surface, subsurface, and pooled soils) in the site-wide EU1. ProUCL output tables (with computed UCLs) derived from the data for each COPC in soils are provided as electronic attachments, with computations presented and EPCs calculated for COPCs within each of the datasets. The ProUCL input tables are also included as electronic attachments. The results were evaluated to identify any samples that may require additional assessment or special management based on the risk characterization approach. The calculated EPCs for the surface, subsurface, and pooled exposure scenarios are provided in **Table 8**.

As indicated above, the EPCs for lead are the average (i.e., arithmetic mean) values for each dataset. A lead evaluation spreadsheet, providing the computations to determine lead averages for each dataset, is also included as an electronic attachment. The average and maximum lead concentrations are presented for each dataset in **Table 7**, which indicates that neither surface, subsurface, nor pooled soils exceeded an average lead concentration of 800 mg/kg.

Composite Worker Assessment:

Risk ratios for the estimates of potential EPCs for the Composite Worker baseline scenario at the Site are shown in **Table 9** (surface), **Table 10** (subsurface), and **Table 11** (pooled). The results are summarized as follows:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Composite Worker	Site-wide EU1 (9.03 acres)	Surface Soil	none	4E-6
		Subsurface Soil	none	1E-6
		Pooled Soil	none	3E-6

Based on the risk ratios for Sub-Parcel B20-1, no capping remedy is required for EU1 to be protective of future Composite Workers for the surface, subsurface, and pooled exposure scenarios. None of the cancer risk values exceeded 1E-5, and there were no Hazard Index values above 1. Institutional controls to mitigate VI risk would be necessary if future development proposed buildings at the Site.

Construction Worker Assessment:

Currently, no ground intrusive activities which could result in potential Construction Worker exposures are expected to be performed by specific work crews. Construction Worker risks were evaluated for several different exposure scenarios to determine the maximum exposure frequency for the site-wide EU1 that would result in risk ratios equivalent to a cumulative cancer risk of 1E-5 or HI of 1 for any individual target organ. Risk ratios for the Construction Worker scenario using the selected duration (240 days) are shown in **Table 12** (surface), **Table 13** (subsurface), and **Table 14** (pooled). The variables entered for calculation of the site-specific Construction Worker SSLs (EU1 area, input assumptions, and exposure frequency) are indicated as notes on the tables. The spreadsheet used for computation of the site-specific Construction Worker SSLs is included as **Appendix B**. The results are summarized as follows:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Construction Worker	Site-Wide EU1 (9.03 acres) (240 exposure days)	Surface Soil	none	7E-7
		Subsurface Soil	none	2E-7
		Pooled Soil	none	5E-7

Using the selected exposure duration for the site-wide EU1 (240 days), the carcinogenic risks were all less than 1E-5, and none of the non-carcinogens caused a cumulative HI to exceed 1 for any target organ system. These findings are below the acceptable limits for no further action established by the agencies. This evaluation indicates that additional site-specific health and safety requirements (beyond standard Level D protection) would be required only if the allowable exposure duration of 240 days were to be exceeded for an individual worker.

No intrusive activities are expected at the Site; however, upgraded Personal Protective Equipment (PPE) beyond standard Level D protection would be used for any intrusive work as a protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. The modified Level D PPE requirements which will be applied immediately and throughout this project, including specific PPE details, planning, tracking/supervision, enforcement, and documentation, are outlined in the PPE Standard Operational Procedure (SOP) provided as **Appendix C**.

Institutional controls will be required to be established for the protection of future Construction Workers in the event of any future long-term construction projects which could include intrusive activities. The anticipated institutional controls include notification requirements, health and safety requirements, and materials management requirements.

3.3.3 Evaluation of RCRA Criteria

Based on the data obtained from the characterization of surface and subsurface soils, results from the SLRA indicate that no measures are required to mitigate potential Composite Worker risks.

Site-specific health and safety controls will be implemented to mitigate Construction Worker risks within the sub-parcel. This includes using modified Level D PPE. The modified Level D PPE requirements will be implemented throughout the project duration in accordance with the PPE SOP provided as **Appendix C**, should any intrusive work occur. Institutional controls will also be required to be established for the protection of future Construction Workers in the event of any future long-term construction projects which could include intrusive activities or development of enclosed buildings that would be subject to VI risk evaluation.

The undisturbed scenario (i.e., the scenario which does not require an environmental cap) has been evaluated for consistency with the CERCLA Threshold Criteria and the Balancing Criteria as described below. The Threshold Criteria assess the overall protection of human health and the environment, the achievement of media cleanup objectives, and the control of sources of releases. The Balancing Criteria assess long-term effectiveness and permanence; reduction of toxicity, mobility or volume; short-term effectiveness; implementability; cost effectiveness; and community and State acceptance.

Threshold Criteria:

Protect Human Health and the Environment: The assessment against this criterion evaluates how the undisturbed scenario, as a whole, protects and maintains protection of human health and the environment. The undisturbed scenario evaluated in the SLRA indicates that risks to current and future industrial workers are acceptable. Groundwater does not present a human health hazard since there is no groundwater use. There are also no VI risks because no enclosed buildings are currently proposed. Implementation of the

proposed institutional controls will address the residual risk and will also protect hypothetical current or future Construction Workers by eliminating or controlling potential exposure pathways, thus, reducing potential intake and contact of soil and groundwater COPCs by human receptors.

Achieve Media Cleanup Objective: The assessment against this criterion describes how the undisturbed scenario meets the cleanup objective, which is risk reduction, appropriate for the expected current and reasonably anticipated future land use. The objective is to protect workers (current and future Composite Worker and future Construction Worker) from potential exposures to site-related soil or groundwater constituents at levels that may result in risks of adverse health effects. Given the controlled access and use restrictions, the proposed undisturbed scenario will attain soil and groundwater objectives.

Control the Source of Releases: In its Resource Conservation and Recovery Act (RCRA) Corrective Action proposed remedies, USEPA seeks to eliminate or reduce further releases of hazardous wastes or hazardous constituents that may pose a threat to human health and the environment. Controlling the sources of contamination relates to the ability of the undisturbed scenario to reduce or eliminate, to the maximum extent practicable, further releases. None of the soils remaining on-site were identified as exhibiting characteristics of hazardous waste. Sampling results did not indicate localized, discernible source areas associated with the soil conditions observed at the Site. The control measures included with the proposed undisturbed scenario, such as Materials Management Plan requirements and groundwater use restrictions, provide a mechanism to control and reduce potential further releases of COPCs. This is achieved by eliminating the potential for groundwater use and requiring proper planning associated with future intrusive activities.

Balancing Criteria:

Long-Term Reliability and Effectiveness: The assessment against this criterion evaluates the long-term effectiveness of the undisturbed scenario in maintaining protection of human health and the environment. The primary focus of this criterion is the extent and effectiveness of the controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes. Except for potential VI risks, the Composite Worker evaluation indicated no long-term risks for an industrial worker which might require mitigation. Institutional controls (deed restrictions) will be implemented to protect future Construction Workers against intrusive work that might lead to inadvertent long-term contact with potentially impacted groundwater. These institutional controls are anticipated to include a restriction prohibiting the use of groundwater for any purpose, evaluation of VI risks prior to any potential future building development, a written notice to the Agencies of any future soil disturbance activities, health and safety requirements for any excavations, and proper management and characterization of any removed material. The long-term

effectiveness is high, as institutional controls are readily implementable and easily maintained. Given the historical, heavily industrial uses of the Site and the surrounding area, including the presence of landfills, industrial land uses of this area and existing groundwater use restrictions are expected to continue in the long term.

Reduction of Toxicity, Mobility, or Volume of Waste: The assessment against this criterion evaluates the anticipated performance of specific technologies that a remedial action alternative may employ.

Environmental capping is not necessary to reduce toxicity, mobility, or volume of waste in this case. No capping remedy is proposed for EU1.

As summarized in the Excavation Completion Letter (dated December 8, 2022), an excavator was used to remove the soil in a 10-foot by 20-foot excavation down to a depth of 6 feet bgs. This resulted in a reduction in toxicity and volume of the waste; the thallium impacts at B20-035-SB are no longer a location of potential concern.

Short-term Effectiveness: The assessment against this criterion examines how well the proposed undisturbed scenario protects human health and the environment during the construction and implementation. This criterion also includes an estimate of the time required to achieve protection for either the entire site or individual elements associated with specific site areas or threats. The results of the SLRA indicate that risks to the Construction Worker during implementation are mitigated by limiting workers to the specific exposure duration given in the SLRA (240 days). The short-term risk to site workers following general health and safety measures during implementation of the remedy will be low. Short-term effectiveness in protecting on-site workers and the environment will be achieved through establishing appropriate management, construction, health and safety, and security procedures. Proper water management protocols will be implemented to prevent discharges offsite. Security will be used to maintain controlled access during construction to be protective of site visitors.

Implementability: The assessment against this criterion evaluates the technical and administrative feasibility, including the availability of trained and experienced personnel, materials, and equipment. Technical feasibility includes the ability to construct and operate the technology, the reliability of the technology, and the ability to effectively monitor the technology. Administrative feasibility includes the capability of obtaining permits, meeting permit requirements, and coordinating activities of governmental agencies. There are no concerns related to implementability in this case.

Cost Effectiveness: The assessment against this criterion evaluates the capital costs, annual Operating and Maintenance (O&M) costs, and the net present value (NPV) of this

remedy relative to other alternatives. The undisturbed scenario does not have an associated remedial cost, regardless of the presence of soil containing COPCs.

State/Support Agency Acceptance: The Agencies have been involved throughout the Site investigation process. The proposed use restrictions included in this RADWP are generally recognized as commonly employed measures for long-term stewardship. Ultimately Agency support will be evaluated based on comments received during the public comment period.

The undisturbed scenario with institutional controls will satisfy the CERCLA Threshold Criteria and Balancing Criteria and will do so in a manner that ensures rapid and reliable implementation and effectiveness. The undisturbed scenario is cost-effective and consistent with the proposed development plan for the Site.

4.0 PROPOSED SITE DEVELOPMENT PLAN

Tradepoint Atlantic is proposing a scrap yard on Sub-Parcel B20-1. No occupied structures are currently proposed for Sub-Parcel B20-1. The proposed scrap yard will be located on the approximately 9.03 acres located primarily within Parcel B20, but extending into Parcel B13. The proposed future use of Sub-Parcel B20-1 is Tier 3 – Industrial. The remainder of Parcel B13 and Parcel B20 will be addressed in separate development plans in accordance with the requirements of the ACO that will include RADWPs, if necessary. An environmental cap is not required at Sub-Parcel B20-1.

Certain compounds are present in the soils located near the surface and in the subsurface at concentrations in excess of the PALs. Therefore, soil is considered a potential media of concern. Based on the results of the SLRA, potential risks associated with soil impacts exceeding the PALs do not require surface engineering controls (e.g. capping) to be protective of future adult worker health.

Future Construction Workers may contact surface and/or subsurface soil during earth movement activities associated with construction activities, including within the temporary external construction worker areas outside of the primary development area. The findings of the Construction Worker SLRA indicated that using the site-specific 240-day exposure frequency for the site-wide EU1, the screening level estimates of Construction Worker cancer risk were less than 1E-5 and no HI values above 1 were identified for any target organ system (the acceptable thresholds for no further action).

No activities at the Site are expected to require intrusive work; however, if intrusive work was needed, upgraded PPE beyond standard Level D protection will be used in conjunction with the property-wide Health and Safety Plan (HASP) for the entire scope covered by this RADWP as a protective measure to ensure that there are no unacceptable exposures for Construction Workers during project implementation. The modified Level D PPE requirements which will be applied throughout this project, including specific PPE details, planning, tracking/supervision, enforcement, and documentation, are outlined in the PPE SOP provided as **Appendix C**.

A restriction prohibiting the use of groundwater for any purpose at the Site will be included as an institutional control in the NFA and COC issued by the Agencies, and a deed restriction prohibiting the use of groundwater will be filed. Additionally, institutional controls requiring an evaluation of VI risk would be required for any potential future buildings at the Site. The groundwater use restriction will protect future Composite Workers from potential direct exposures. Proper water management is required to prevent unacceptable discharges or risks to Construction Workers during development. Work practices and health and safety plans governing groundwater encountered during excavation activities will provide protection for Construction Workers involved with development at the Site.

The process of constructing the proposed construction equipment storage and repair yard will involve the tasks listed below. Documentation of the outlined tasks and procedures will be provided in a Sub-Parcel B20-1 Development Completion Report.

4.1 RESPONSE PHASE – GROUNDWATER NETWORK MODIFICATION

There are no temporary groundwater sample collection points or permanent monitoring wells currently located within the proposed LOD. There are several shallow wells located outside of the Site, as shown on **Figure 4**, which are not expected to be impacted by the proposed development work.

4.2 DEVELOPMENT PHASE

No development is necessary to prepare the Site for use as a scrap yard. No grading, utility installation, or paving is proposed. Therefore, no dust monitoring or dewatering will be necessary. Minor placement of Regulator-approved VCP clean fill material may be conducted to fill in any holes or ruts in the Site.

4.2.1 Erosion and Sediment Control Installation

Installation of erosion and sediment controls will be completed in accordance with the requirements of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control prior to any construction at the Site. It is not anticipated that any soils will be generated.

4.2.2 Grading and Site Preparation

No grading activities are proposed. However, minor placement of Regulator-approved VCP clean fill material may be conducted to fill in any holes or ruts at the Site. Materials will be obtained from Regulator-approved sources and will be documented prior to transport to the Site.

5.0 DEVELOPMENT IMPLEMENTATION PROTOCOLS

5.1 HEALTH AND SAFETY

A property-wide HASP has been developed and is provided with this RADWP (as an electronic attachment) to present the minimum requirements for worker health and safety protection for all development projects. All contractors working on the Site must prepare their own HASP that provides a level of protection at least as much as that provided by the attached HASP. Alternately, on-site contractors may elect to adopt the HASP provided.

General health and safety controls (level D protection) are adequate to mitigate potential risk to Construction Workers conducting ground intrusive activities for a duration of up to 240 exposure days. No intrusive work is proposed as part of this RADWP. Health and safety controls outlined in the HASP and PPE SOP will mitigate any potential risk to future Construction Workers from contacting impacted soil and groundwater during development. The modified Level D PPE requirements planned for this development project, including specific PPE details, planning, tracking/supervision, enforcement, and documentation, are outlined in the PPE SOP provided as **Appendix C**.

Prior to commencing work, the contractor must conduct an on-site safety meeting for all personnel. All personnel must be made aware of the HASP and the PPE SOP. Detailed safety information shall be provided to personnel who may be exposed to COPCs. Workers will be responsible for following established safety procedures to prevent contact with potentially contaminated material.

5.2 INSTITUTIONAL CONTROLS (FUTURE LAND USE CONTROLS)

Long-term conditions related to future use of the Site will be placed on the RADWP approval, NFA, and COC. These conditions are anticipated to include the following:

- A restriction prohibiting the use of groundwater for any purpose at the Site and a requirement to characterize, containerize, and properly dispose of groundwater in the event of deep excavations encountering groundwater.
- An evaluation of VI risk if future buildings are proposed at the Site.
- Notice to the Agencies at least 30 days prior to any future soil disturbances.
- Notice to the USEPA at least 30 days prior to any future soil disturbances, only if the proposed duration of ground intrusive activity would exceed the allowable exposure duration determined in the SLRA and the contractor will not use the modified Level D PPE specified in the approved SOP.
- Requirement for a HASP in the event of any future excavations at the Site.

- Complete appropriate characterization and disposal of any material excavated/pumped at the Site in accordance with applicable local, state, and federal requirements.

The owner/operator will file the above deed restrictions as defined by the Regulator-VCP in the NFA and COC.

5.3 POST REMEDIATION REQUIREMENTS

Post remediation requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site. Deed restrictions will be recorded within 30 days after receipt of the final NFA. In addition, the Agencies will be provided with a written notice of any future excavations (as applicable). Written notice of planned excavation activities will include the proposed date(s) for the excavation, location of the excavation, health and safety protocols (as required), clean fill source (as required), and proposed characterization and disposal requirements. Written notice may consist of email correspondence and/or hard copy correspondence.

6.0 PERMITS, NOTIFICATIONS AND CONTINGENCIES

The participant and their contractors will comply with all local, state, and federal laws and regulations by obtaining any necessary approvals and permits to conduct the activities contained herein. Any permits or permit modifications from State or local authorities will be provided as addenda to this RADWP.

A grading permit is required if the proposed grading disturbs over 5,000 square feet of surface area or over 100 cubic yards of earth. A grading permit is required for any grading activities in any watercourse, floodplain, wetland area, buffers (stream and within 100 feet of tidal water), habitat protection areas or forest buffer areas (includes forest conservation areas). Because no grading is proposed, a grading permit will not required as part of this development project. Erosion and Sediment Control Plans will be submitted as needed to the Agencies prior to initiation of any land disturbance.

Contingency measures will include the following:

1. The Agencies will be notified immediately of any previously undiscovered contamination, previously undiscovered storage tanks and other oil-related issues, and citations from regulatory entities related to health and safety practices.

2. Any significant change to the implementation schedule will be noted in the progress reports to Agencies.

7.0 IMPLEMENTATION SCHEDULE

- No development activities are anticipated.

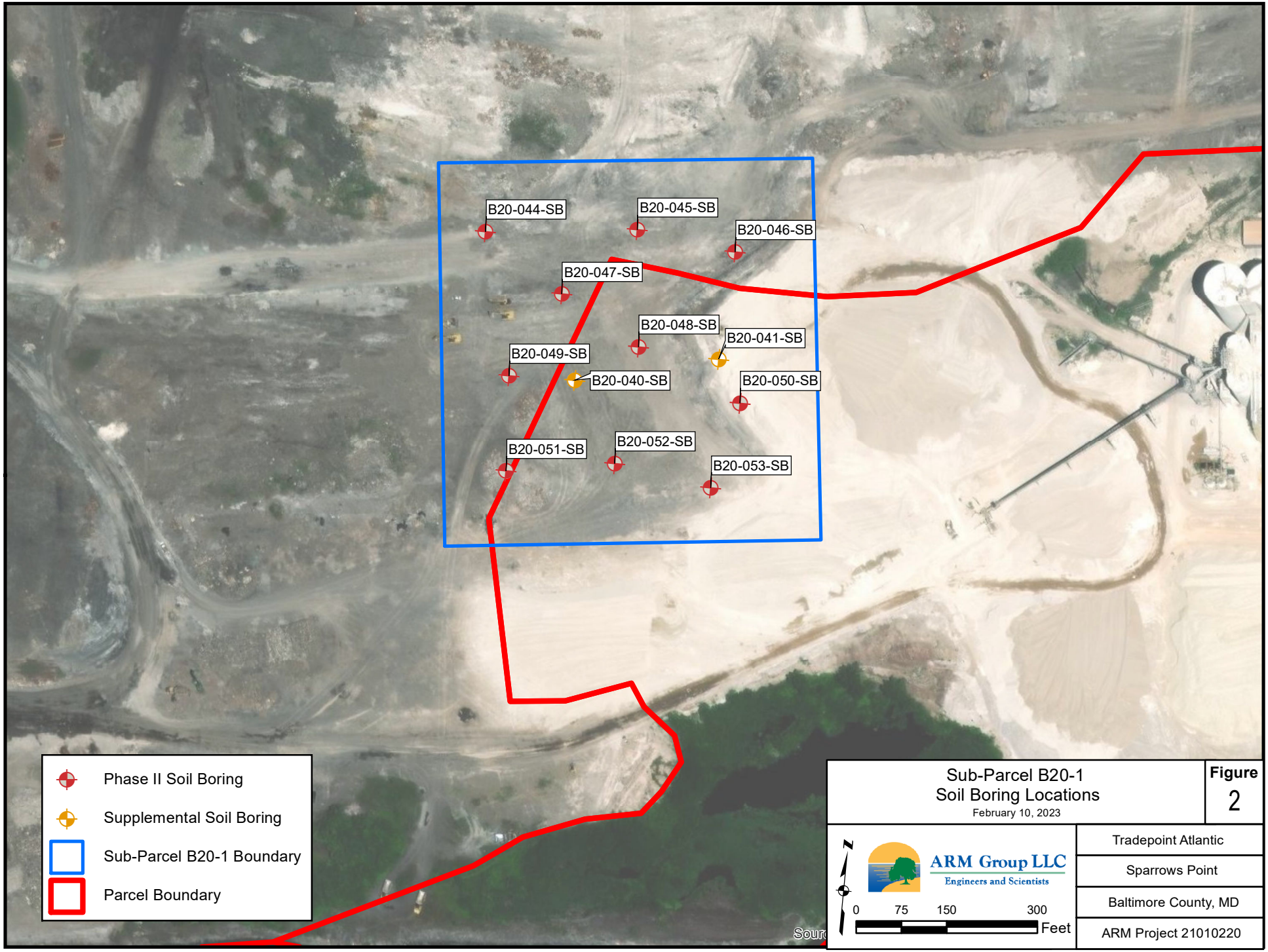
The proposed administrative schedule is shown below:

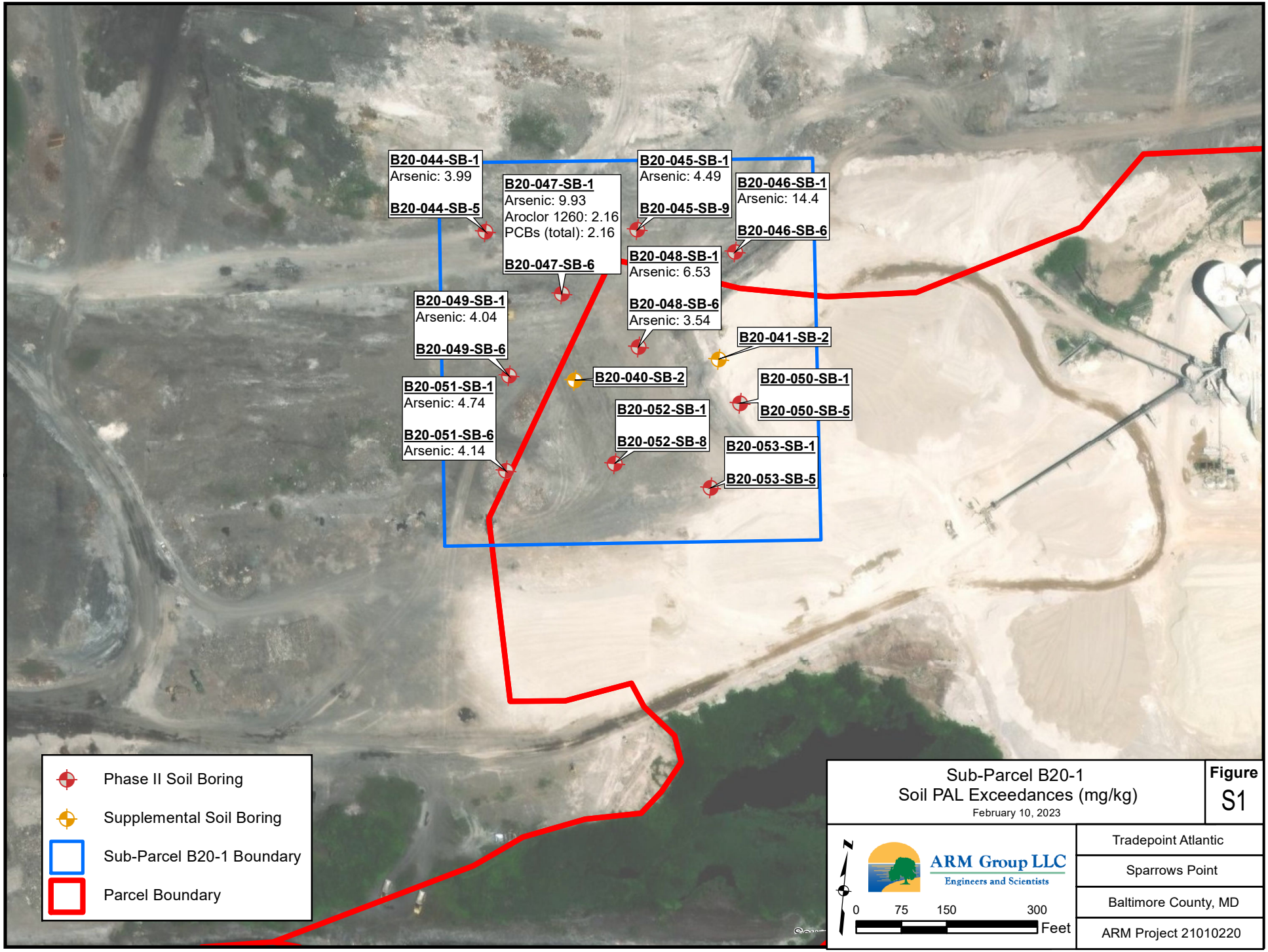
Task	Proposed Completion Date
Anticipated RADWP Approval	March 2023
Development:	
Not Applicable	
Submittal of Development Completion Report/ Notice of Completion of Remedial Actions*	April 2023
Request for NFA from the Agencies	April 2023
Recordation of institutional controls in the land records office of Baltimore County	Within 30 days of receiving the approval of NFA from the Agencies
Submit proof of recordation with Baltimore County	Upon receipt from Baltimore County

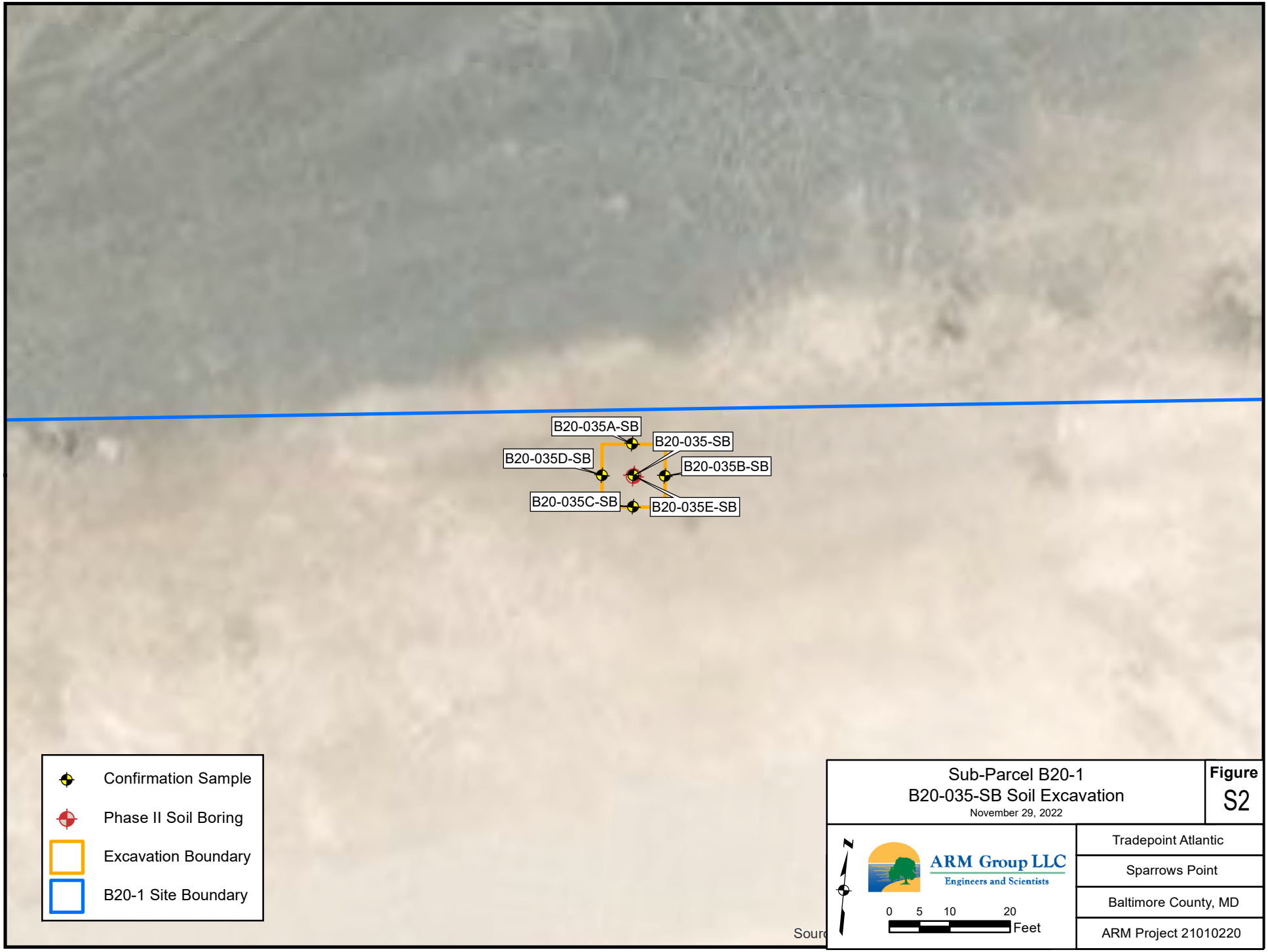
*Notice of Completion of Remedial Actions will be prepared by Professional Engineer registered in Maryland and submitted with the Development Completion Report to certify that the work is consistent with the requirements of this RADWP and the Site is suitable for occupancy and use.

FIGURES


Sub-Parcel B20-1 Boundary
Site Boundary
Parcel Boundaries
Private Property
Parcel A9
Parcel A13
Parcel A5
Parcel A7
Parcel A14
Parcel A11
Parcel A8
Parcel A12
Parcel A15
Parcel A2
Parcel A17
Parcel A18
Parcel A16
Parcel A6
Parcel A4
Parcel A10
Parcel A3
Parcel A1
Parcel B6
Parcel B8
Parcel B14
Parcel B21
Parcel B22
Parcel B16
Parcel B24
Parcel B15
Parcel B23
Parcel B7
Parcel B25
Parcel B1
Parcel B2
Parcel B3
Parcel B17
Parcel B19
Parcel B4
Parcel B5
Parcel B9
Parcel B18
Parcel B10
Parcel B13
B20-1
Parcel B20
Parcel B11
Parcel B12
Tradepoint Atlantic
Area A and Area B Parcels
December 16, 2022
Figure
1
ARM Group LLC
Engineers and Scientists
0 500 1,000 2,000
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
Area A: Project 210101
Area B: Project 210102


B20-044-SB
B20-045-SB
B20-046-SB
B20-047-SB
B20-048-SB
B20-041-SB
B20-049-SB
B20-040-SB
B20-050-SB
B20-051-SB
B20-052-SB
B20-053-SB
Phase II Soil Boring
Supplemental Soil Boring
Sub-Parcel B20-1 Boundary
Parcel Boundary
Sub-Parcel B20-1
Soil Boring Locations
February 10, 2023
Figure
2
ARM Group LLC
Engineers and Scientists
0
75
150
300
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010220

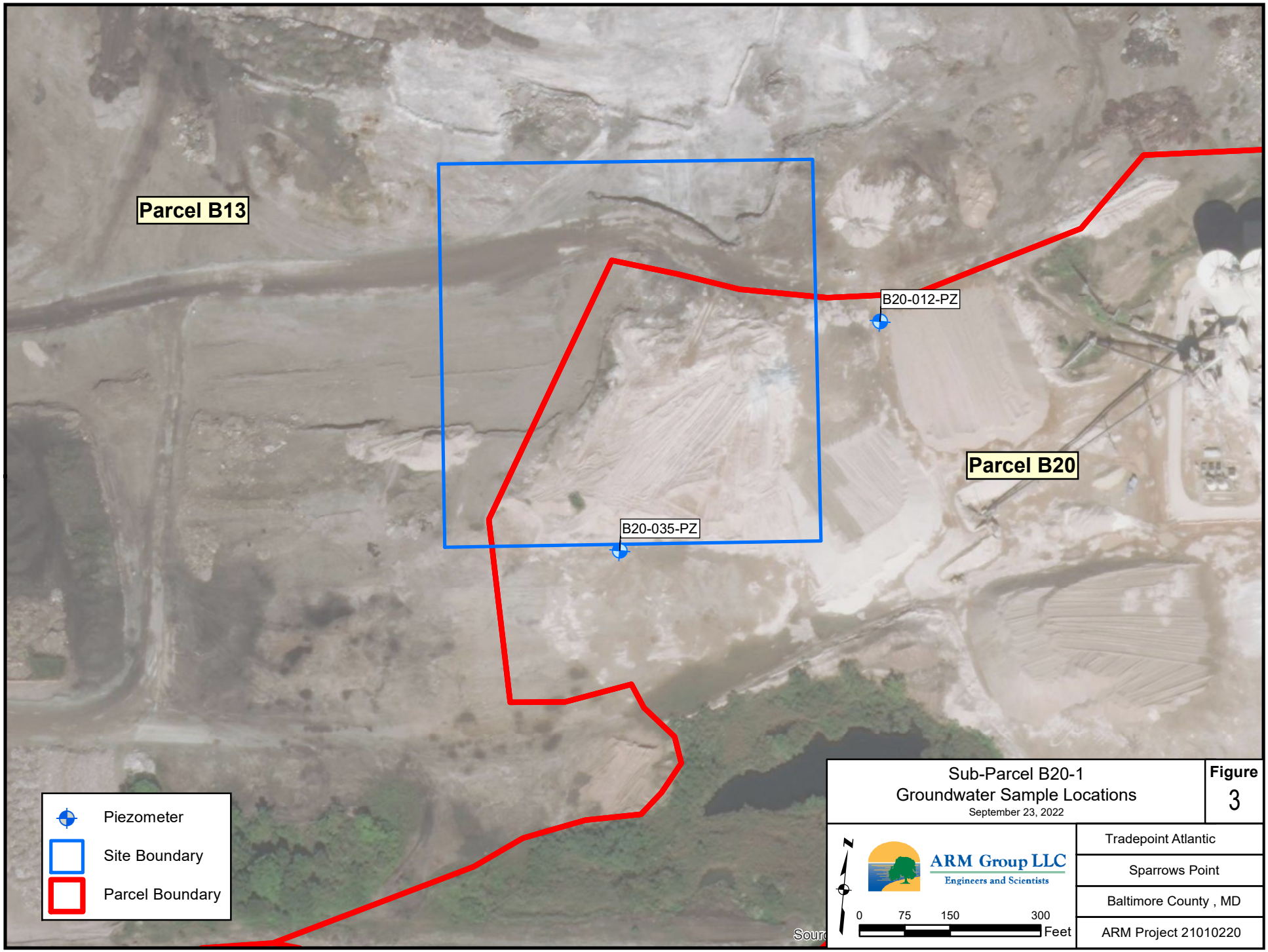

B20-044-SB-1
Arsenic: 3.99
B20-044-SB-5
B20-047-SB-1
Arsenic: 9.93
Aroclor 1260: 2.16
PCBs (total): 2.16
B20-047-SB-6
B20-045-SB-1
Arsenic: 4.49
B20-045-SB-9
B20-046-SB-1
Arsenic: 14.4
B20-046-SB-6
B20-048-SB-1
Arsenic: 6.53
B20-048-SB-6
Arsenic: 3.54
B20-049-SB-1
Arsenic: 4.04
B20-049-SB-6
B20-041-SB-2
B20-040-SB-2
B20-050-SB-1
B20-050-SB-5
B20-051-SB-1
Arsenic: 4.74
B20-051-SB-6
Arsenic: 4.14
B20-052-SB-1
B20-052-SB-8
B20-053-SB-1
B20-053-SB-5
Phase II Soil Boring
Supplemental Soil Boring
Sub-Parcel B20-1 Boundary
Parcel Boundary
Sub-Parcel B20-1
Soil PAL Exceedances (mg/kg)
February 10, 2023
Figure
S1
ARM Group LLC
Engineers and Scientists
0
75
150
300
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010220

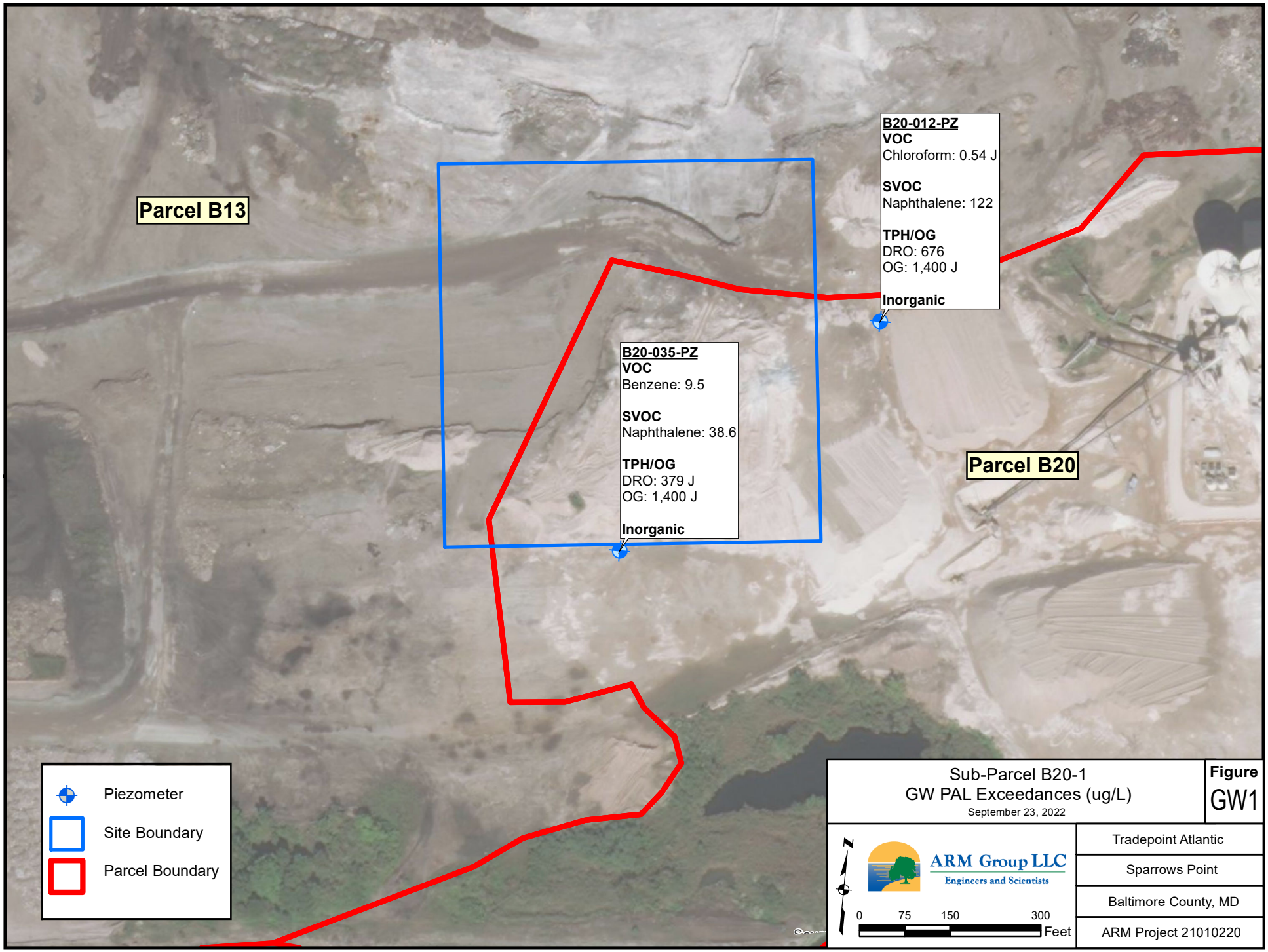


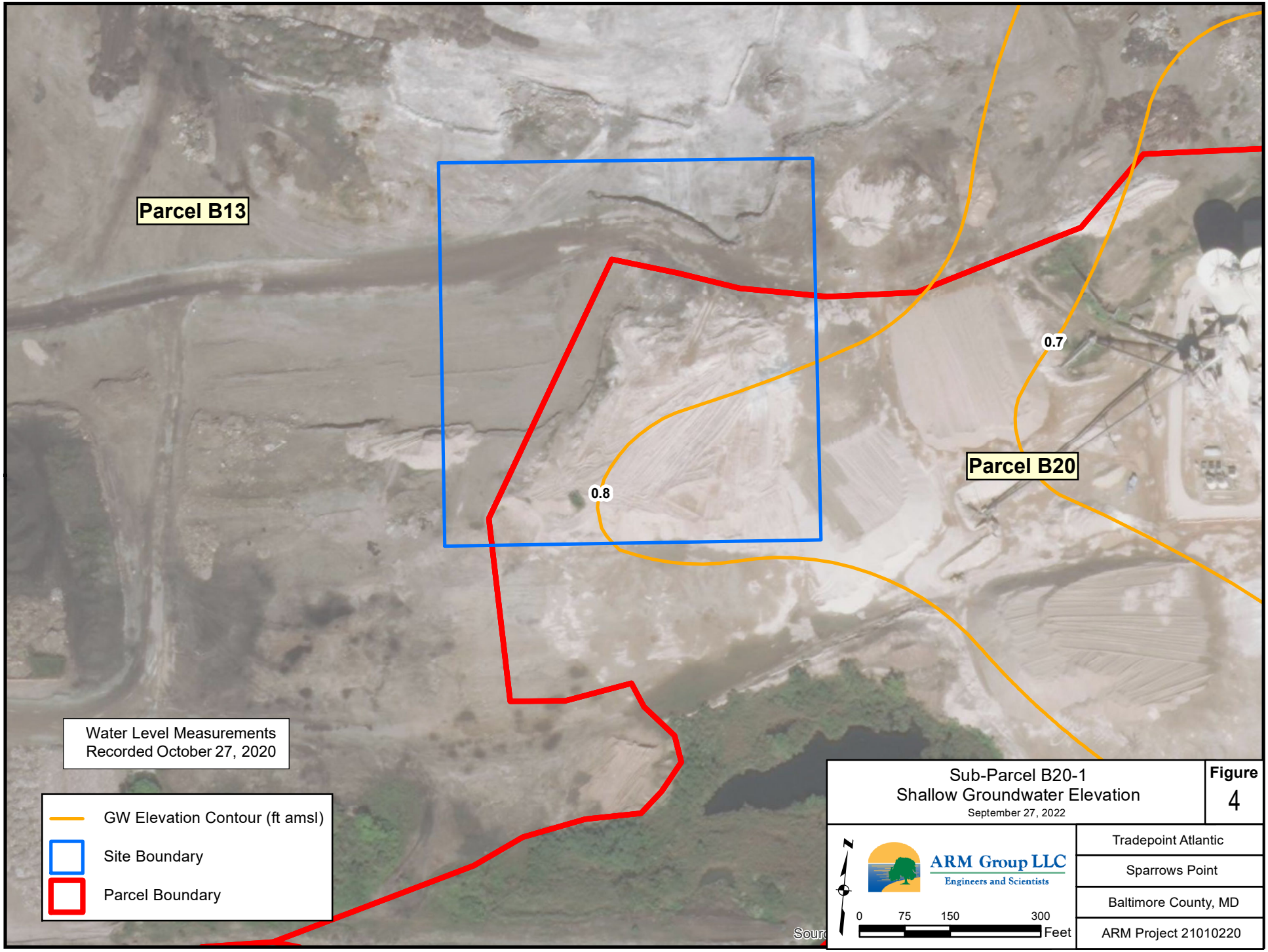
Sub-Parcel B20-1
B20-035-SB Soil Excavation
November 29, 2022

Figure
S2

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010220


Parcel B13
B20-012-PZ
Parcel B20
B20-035-PZ
Piezometer
Site Boundary
Parcel Boundary
Sub-Parcel B20-1
Groundwater Sample Locations
September 23, 2022
Figure
3
ARM Group LLC
Engineers and Scientists
0
75
150
300
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County , MD
ARM Project 21010220


Parcel B13
Parcel B20
B20-012-PZ
VOC
Chloroform: 0.54 J
SVOC
Naphthalene: 122
TPH/OG
DRO: 676
OG: 1,400 J
Inorganic
B20-035-PZ
VOC
Benzene: 9.5
SVOC
Naphthalene: 38.6
TPH/OG
DRO: 379 J
OG: 1,400 J
Inorganic
Piezometer
Site Boundary
Parcel Boundary
Sub-Parcel B20-1
GW PAL Exceedances (ug/L)
September 23, 2022
Figure
GW1
ARM Group LLC
Engineers and Scientists
0
75
150
300
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010220


Parcel B13
Parcel B20
0.7
0.8
Water Level Measurements
Recorded October 27, 2020
GW Elevation Contour (ft amsl)
Site Boundary
Parcel Boundary
Sub-Parcel B20-1
Shallow Groundwater Elevation
September 27, 2022
Figure
4
ARM Group LLC
Engineers and Scientists
0
75
150
300
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010220

TABLES

Table 1 - Sub-Parcel B20-1
Summary of Organics Detected in Soil

Parameter	Units	PAL	B20-040-SB-2* 8/31/2022	B20-041-SB-2* 8/31/2022	B20-044-SB-1* 1/26/2023	B20-044-SB-5* 1/26/2023	B20-045-SB-1* 1/26/2023	B20-045-SB-9* 1/26/2023	B20-046-SB-1* 1/27/2023	B20-046-SB-6* 1/27/2023	B20-047-SB-1* 1/27/2023	B20-047-SB-6* 1/27/2023	B20-048-SB-1* 1/27/2023
Semi-Volatile Organic Compounds^													
1,1-Biphenyl	mg/kg	200	*0.43 U*	*0.41 U*	**0.075 J**	*0.44 U*	*0.42 U*	*0.41 U*	*0.42 U*	*0.44 U*	*0.43 U*	*0.42 U*	*0.44 U*
2-Methylnaphthalene	mg/kg	3,000	**0.028**	**0.0023 J**	**0.092**	**0.0047 J**	**0.016**	**0.003 J**	**0.027**	*0.0077 U*	**0.037**	*0.0075 U*	**0.04**
Acenaphthene	mg/kg	45000	**0.0042 J**	*0.0072 U*	**0.023**	*0.0078 U*	**0.0044 J**	*0.0072 U*	**0.019**	*0.0077 U*	**0.0035 J**	*0.0075 U*	**0.021**
Acenaphthylene	mg/kg	45,000	**0.018**	**0.0009 J**	**0.04**	**0.0016 J**	**0.027**	**0.0013 J**	**0.03**	*0.0077 U*	**0.04**	*0.0075 U*	**0.063**
Acetophenone	mg/kg	120,000	*0.19 U*	*0.18 U*	**0.034 J**	*0.2 U*	*0.18 U*	*0.18 U*	*0.18 U*	*0.19 U*	*0.19 U*	*0.18 U*	*0.19 U*
Anthracene	mg/kg	230,000	**0.022**	**0.0025 J**	**0.092**	**0.004 J**	**0.024**	**0.0014 J**	**0.067**	*0.0077 U*	**0.026**	*0.0075 U*	**0.083**
Benz[a]anthracene	mg/kg	21	**0.11**	*0.11 U*	**1.1**	*0.12 U*	**0.11**	*0.11 U*	**0.3**	*0.12 U*	**0.19**	*0.11 U*	**0.43**
Benzo[a]pyrene	mg/kg	2.1	**0.07**	**0.0036 J**	**0.34**	**0.0089**	**0.11**	**0.0038 J**	**0.26**	*0.0077 U*	**0.19**	*0.0075 U*	**0.3**
Benzo[b]fluoranthene	mg/kg	21	**0.13**	**0.0056 J**	**0.4**	**0.01**	**0.15**	**0.005 J**	**0.31**	*0.0077 U*	**0.23**	*0.0075 U*	**0.36**
Benzo[g,h,i]perylene	mg/kg		**0.064**	**0.0027 J**	*0.0079 U*	*0.0078 U*	*0.0074 U*	*0.0072 U*	*0.0074 U*	*0.0077 U*	**0.13**	*0.0075 U*	*0.0075 U*
Benzo[k]fluoranthene	mg/kg	210	**0.042**	**0.0018 J**	**0.091**	**0.0028 J**	**0.034**	**0.0016 J**	**0.096**	*0.0077 U*	**0.085**	*0.0075 U*	**0.1**
bis(2-Ethylhexyl)phthalate	mg/kg	160	*0.19 U*	*0.18 U*	*0.19 U*	*0.2 U*	*0.18 U*	*0.18 U*	**100**	*0.19 U*	*0.19 U*	*0.18 U*	*0.19 U*
Caprolactam	mg/kg	400,000	*0.19 U*	*0.18 U*	*0.19 U*	**0.13 J**	*0.18 U*	*0.18 U*	**0.42**	**0.33**	**0.16 J**	*0.18 U*	**0.23**
Carbazole	mg/kg		*0.19 U*	*0.18 U*	**0.1 J**	*0.2 U*	*0.18 U*	*0.18 U*	**0.036 J**	*0.19 U*	*0.19 U*	*0.18 U*	**0.048 J**
Chrysene	mg/kg	2,100	**0.089**	**0.0042 J**	**0.3**	**0.008**	**0.098**	**0.004 J**	**0.26**	*0.0077 U*	**0.16**	*0.0075 U*	**0.26**
Dibenz[a,h]anthracene	mg/kg	2.1	**0.016**	**0.0018 J**	*0.0079 U*	*0.0078 U*	*0.0074 U*	**0.00072 J**	*0.0074 U*	*0.0077 U*	**0.037**	*0.0075 U*	*0.0075 U*
Fluoranthene	mg/kg	30,000	**0.17**	**0.013**	*0.0079 U*	*0.0078 U*	**0.18**	**0.0078**	*0.0074 U*	*0.0077 U*	**0.31**	**0.00071 J**	*0.0075 U*
Fluorene	mg/kg	30,000	**0.0088**	**0.0025 J**	**0.022**	**0.0014 J**	**0.005 J**	**0.00086 J**	**0.017**	*0.0077 U*	**0.0054 J**	*0.0075 U*	**0.024**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.072**	**0.0038 J**	**0.25**	**0.0063 J**	**0.09**	**0.003 J**	**0.18**	*0.0077 U*	**0.18**	*0.0075 U*	**0.22**
Naphthalene	mg/kg	8.6	**0.041**	**0.01**	**0.13**	**0.0086**	**0.033**	**0.0044 J**	**0.068**	*0.0077 U*	**0.052**	**0.0033 J**	**0.081**
Phenanthrene	mg/kg		**0.098**	**0.016**	**0.29**	**0.013**	**0.08**	**0.005 J**	**0.24**	*0.0077 U*	**0.11**	*0.0075 U*	**0.24**
Phenol	mg/kg	250,000	*0.19 U*	*0.18 U*	*0.19 U*	*0.2 U*	*0.18 U*	*0.18 U*	*0.18 U*	*0.19 U*	*0.19 U*	*0.18 U*	*0.19 U*
Pyrene	mg/kg	23,000	**0.15**	**0.0086**	**0.62**	**0.018**	**0.19**	**0.0081**	**0.52**	**0.00069 J**	**0.31**	**0.00068 J**	**0.57**
Polychlorinated Biphenyls (PCBs)													
Aroclor 1242	mg/kg	0.97	*0.037 U*	*0.0365 U*	**0.119**	*N/A*	*0.181 U*	*N/A*	**0.106**	*N/A*	*0.187 U*	*N/A*	**0.0724**
Aroclor 1254	mg/kg	0.97	**0.0306 J**	*0.0365 U*	**0.0745**	*N/A*	*0.181 U*	*N/A*	**0.173**	*N/A*	*0.187 U*	*N/A*	**0.172**
Aroclor 1260	mg/kg	0.99	**0.0292 J**	*0.0365 U*	**0.166**	*N/A*	**0.771**	*N/A*	**0.336**	*N/A*	**2.16**	*N/A*	**0.507**
Aroclor 1268	mg/kg		**0.0411**	*0.0365 U*	**0.0921**	*N/A*	*0.181 U*	*N/A*	*0.0367 U*	*N/A*	*0.187 U*	*N/A*	*0.0374 U*
PCBs (total)	mg/kg	0.97	**0.101 J**	*0.0365 U*	**0.452**	*N/A*	**0.771**	*N/A*	**0.615**	*N/A*	**2.16**	*N/A*	**0.751**
TPH/Oil & Grease													
Diesel Range Organics	mg/kg	6,200	**19 J**	**9.4 J**	**100**	**21 J**	**35 J**	**6.5 J**	**100**	**3.3 J**	**45**	**3.4 J**	**88**
Gasoline Range Organics	mg/kg	6,200	**2.8 J**	**2.2 J**	**1 J**	**0.71 J**	**0.7 J**	**0.65 J**	**0.84 J**	**0.87 J**	**0.72 J**	**0.74 J**	**0.77 J**
Oil & Grease	mg/kg	6,200	**423**	**334**	**836**	**438**	**893**	**310**	**746**	*233 U*	**506**	**394**	**379**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.
R: The result reported for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this analyte in the sample.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.

Table 1 - Sub-Parcel B20-1
Summary of Organics Detected in Soil

Parameter	Units	PAL	B20-048-SB-6* 1/27/2023	B20-049-SB-1* 1/27/2023	B20-049-SB-6* 1/27/2023	B20-050-SB-1 1/30/2023	B20-050-SB-5 1/30/2023	B20-051-SB-1* 1/27/2023	B20-051-SB-6* 1/27/2023	B20-052-SB-1 1/30/2023	B20-052-SB-8 1/30/2023	B20-053-SB-1 1/30/2023	B20-053-SB-5 1/30/2023
Semi-Volatile Organic Compounds^													
1,1-Biphenyl	mg/kg	200	*0.43 U*	*0.43 U*	*0.41 U*	*0.44 U*	*0.43 U*	*0.44 U*	*0.45 U*	**0.025 J**	*0.43 U*	**0.039 J**	*0.44 U*
2-Methylnaphthalene	mg/kg	3,000	*0.0075 U*	**0.024**	**0.058**	**0.1**	*0.0075 U*	**0.063**	**0.025**	**0.11**	*0.0075 U*	**0.11**	**0.011**
Acenaphthene	mg/kg	45000	*0.0075 U*	**0.0084**	**0.15**	**0.042**	*0.0075 U*	**0.049**	**0.041**	**0.059**	*0.0075 U*	**0.041**	**0.012**
Acenaphthylene	mg/kg	45,000	*0.0075 U*	**0.013**	**0.012**	**0.088**	**0.001 B**	**0.044**	**0.015**	**0.11**	*0.0075 U*	**0.37**	**0.094**
Acetophenone	mg/kg	120,000	*0.19 U*	*0.19 U*	*0.18 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.2 U*	*0.19 U*	*0.19 U*	*0.18 U*	*0.19 U*
Anthracene	mg/kg	230,000	*0.0075 U*	**0.025**	**0.13**	**0.21**	**0.0012 J**	**0.12**	**0.18**	**0.28**	**0.0012 J**	**0.47**	**0.081**
Benz[a]anthracene	mg/kg	21	*0.11 U*	**0.13**	**0.26**	**0.79**	**0.11 B**	**0.4**	**0.33**	**0.75**	**0.11 B**	**2.3**	**0.37**
Benzo[a]pyrene	mg/kg	2.1	**0.0019 J**	**0.13**	**0.24**	**0.74**	**0.002 B**	**0.41**	**0.29**	**0.7**	**0.0012 B**	**1.6**	**0.29**
Benzo[b]fluoranthene	mg/kg	21	**0.0038 J**	**0.15**	**0.28**	**0.8**	**0.0025 B**	**0.43**	**0.3**	**0.8**	**0.0014 B**	**2.4**	**0.4**
Benzo[g,h,i]perylene	mg/kg		**0.0016 J**	*0.0075 U*	**0.17**	*0.015 U*	**0.0011 B**	*0.0076 U*	**0.18**	*0.015 U*	**0.00072 B**	*0.0074 U*	*0.0077 U*
Benzo[k]fluoranthene	mg/kg	210	**0.0012 J**	**0.04**	**0.083**	**0.26**	**0.00068 B**	**0.11**	**0.094**	**0.18**	*0.0075 U*	**0.53**	**0.12**
bis(2-Ethylhexyl)phthalate	mg/kg	160	*0.19 U*	*0.19 U*	*0.18 U*	*0.19 U*	*0.19 U*	*0.19 U*	*0.2 U*	*0.19 U*	*0.19 U*	**0.14 J**	*0.19 U*
Caprolactam	mg/kg	400,000	*0.19 U*	*0.19 U*	*0.18 U*	**0.21**	**0.15 J**	**0.14 J**	*0.2 U*	**2.2**	**0.41**	**0.19**	**0.49**
Carbazole	mg/kg		*0.19 U*	*0.19 U*	**0.03 J**	**0.074 J**	*0.19 U*	**0.036 J**	**0.037 J**	**0.084 J**	*0.19 U*	**0.14 J**	**0.026 J**
Chrysene	mg/kg	2,100	**0.0027 J**	**0.11**	**0.19**	**0.62**	**0.0018 B**	**0.33**	**0.26**	**0.76**	**0.0013 B**	**1.7**	**0.27**
Dibenz[a,h]anthracene	mg/kg	2.1	*0.0075 U*	*0.0075 U*	**0.042**	*0.015 U*	*0.0075 U*	*0.0076 U*	**0.049**	*0.015 U*	*0.0075 U*	*0.0074 U*	*0.0077 U*
Fluoranthene	mg/kg	30,000	**0.0039 J**	**0.2**	**0.71**	*0.015 U*	**0.0046 J**	*0.0076 U*	**0.74**	*0.015 U*	**0.0029 J**	**4.5**	*0.0077 U*
Fluorene	mg/kg	30,000	*0.0075 U*	**0.0063 J**	**0.1**	**0.04**	*0.0075 U*	**0.046**	**0.039**	**0.076**	*0.0075 U*	**0.088**	**0.011**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.0021 J**	**0.1**	**0.2**	**0.55**	**0.0016 B**	**0.27**	**0.21**	**0.52**	**0.0009 B**	**1.5**	**0.26**
Naphthalene	mg/kg	8.6	**0.0017 J**	**0.033**	**0.066**	**0.2**	**0.0026 J**	**0.051**	**0.02**	**0.16**	*0.0075 U*	**0.3**	**0.038**
Phenanthrene	mg/kg		**0.0018 J**	**0.076**	**0.5**	**0.48**	**0.0032 J**	**0.33**	**0.4**	**0.65**	**0.0018 J**	**2**	**0.23**
Phenol	mg/kg	250,000	*0.19 U*	*0.19 U*	**0.091 J**	*0.19 U*	*0.19 U*	*0.19 U*	*0.2 U*	*0.19 U*	*0.19 U*	*0.18 R*	*0.19 U*
Pyrene	mg/kg	23,000	**0.0039 J**	**0.23**	**0.58**	**1.2**	**0.004 B**	**0.75**	**0.6**	**1.3**	**0.0024 B**	**3.6**	**0.58**
Polychlorinated Biphenyls (PCBs)													
Aroclor 1242	mg/kg	0.97	*N/A*	**0.0216 J**	*N/A*	*0.0385 U*	*N/A*	**0.0608**	*N/A*	**0.0514**	*N/A*	**0.0634**	*N/A*
Aroclor 1254	mg/kg	0.97	*N/A*	**0.0241 J**	*N/A*	**0.55**	*N/A*	**0.0604**	*N/A*	**0.0809**	*N/A*	**0.0631**	*N/A*
Aroclor 1260	mg/kg	0.99	*N/A*	**0.0267 J**	*N/A*	**0.157**	*N/A*	**0.137**	*N/A*	**0.215**	*N/A*	**0.0637**	*N/A*
Aroclor 1268	mg/kg		*N/A*	**0.0181 J**	*N/A*	**0.0734**	*N/A*	**0.0622**	*N/A*	**0.0916**	*N/A*	**0.0436**	*N/A*
PCBs (total)	mg/kg	0.97	*N/A*	**0.0905 J**	*N/A*	**0.78**	*N/A*	**0.32**	*N/A*	**0.439**	*N/A*	**0.234**	*N/A*
TPH/Oil & Grease													
Diesel Range Organics	mg/kg	6,200	**8.2 J**	**20 J**	**30 J**	**41**	**4.5 B**	**46**	**32 J**	**40**	**4.6 B**	**46**	**12 B**
Gasoline Range Organics	mg/kg	6,200	**0.9 J**	**0.64 J**	**0.88 J**	**1 B**	**0.79 B**	**0.84 J**	**0.84 J**	**1.8 B**	**0.65 B**	**0.85 B**	**0.86 B**
Oil & Grease	mg/kg	6,200	*232 U*	**555**	**769**	**570**	**513 J-**	**895**	**451**	**746**	**293**	**729**	**310**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.
R: The result reported for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this analyte in the sample.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.

Table 2 - Sub-Parcel B20-1
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	B20-040-SB-2* 8/31/2022	B20-041-SB-2* 8/31/2022	B20-044-SB-1* 1/26/2023	B20-044-SB-5* 1/26/2023	B20-045-SB-1* 1/26/2023	B20-045-SB-9* 1/26/2023	B20-046-SB-1* 1/27/2023	B20-046-SB-6* 1/27/2023	B20-047-SB-1* 1/27/2023	B20-047-SB-6* 1/27/2023	B20-048-SB-1* 1/27/2023	B20-048-SB-6* 1/27/2023
Metals														
Aluminum	mg/kg	1100000	**26,500**	**31,800**	**18,400**	**24,400**	**21,100**	**23,400**	**12,000**	**24,000**	**12,400**	**24,000**	**14,400**	**23,700**
Antimony	mg/kg	470	*10.8 U*	*10.5 U*	**2.98 J**	**0.965 J**	**2.36 J**	**0.889 J**	**4.57**	**0.608 J**	**4.6**	**1.3 J**	**3.43 J**	**2.51 J**
Arsenic	mg/kg	3	**2.93**	**2.12**	**3.99**	**0.293 J**	**4.49**	**0.552 J**	**14.4**	*0.891 U*	**9.93**	**1**	**6.53**	**3.54**
Barium	mg/kg	220,000	**149**	**106**	**216**	**270**	**300**	**245**	**197**	**194**	**234**	**214**	**152**	**180**
Beryllium	mg/kg	2,300	**3.43**	**3.76**	**2.28**	**2.09**	**1.27**	**1.64**	**0.906**	**2.08**	**0.782**	**1.88**	**1.57**	**2.52**
Cadmium	mg/kg	980	**0.542 J**	**0.294 J**	**0.362 J**	*0.9 U*	**0.699 J**	*0.843 U*	**1.01**	*0.891 U*	**1.26**	*0.864 U*	**0.871**	*0.874 U*
Calcium	mg/kg		**122,000**	**139,000**	**119,000**	**164,000**	**120,000**	**153,000**	**62,500**	**182,000**	**64,500**	**151,000**	**126,000**	**130,000**
Chromium	mg/kg	120,000	**28.2**	**8.33**	**102**	**20.6**	**74.7**	**10.7**	**116**	**2.91**	**140**	**18.7**	**155**	**136**
Chromium VI	mg/kg	6.3	*0.915 U*	*0.892 U*	*0.957 U*	*0.955 U*	*0.899 U*	*0.89 U*	**0.516 J**	*0.933 U*	*0.927 U*	*0.904 U*	*0.922 U*	*0.928 U*
Cobalt	mg/kg	350	**2.58 J**	**2.79 J**	**2.86**	**0.691 J**	**1.6 J**	*1.68 U*	**3.79**	*1.78 U*	**4.68**	**1.68 J**	**2.69**	**2.59**
Copper	mg/kg	47,000	**12.3**	**5.12**	**23.8**	**6.33**	**25.4**	**6.55**	**52.3**	**2.64**	**53.4**	**10**	**27**	**12.8**
Iron	mg/kg	820,000	**19,500**	**15,900**	**28,200**	**4,420**	**19,400**	**3,690**	**49,600**	**523**	**59,600**	**12,300**	**30,300**	**30,300**
Lead	mg/kg	800	**28.3**	**0.734 J**	**51.9**	**7.49**	**82.6**	**2.56 J**	**110**	*4.45 U*	**116**	*4.32 U*	**66.3**	**4.09 J**
Magnesium	mg/kg		**27,800**	**30,200**	**27,000**	**30,500**	**22,700**	**29,100**	**16,400**	**19,200**	**22,100**	**23,900**	**19,400**	**24,000**
Manganese	mg/kg	26,000	**4,200**	**4,090**	**6,340**	**2,940**	**4,640**	**2,190**	**3,450**	**2,080**	**3,060**	**3,940**	**3,840**	**6,900**
Mercury	mg/kg	350	**0.151**	*0.073 U*	**0.324**	**0.068 J**	**0.556**	*0.074 U*	**1.92**	*0.089 U*	**0.391**	*0.085 U*	**0.236**	*0.078 U*
Nickel	mg/kg	22,000	**4.62 J**	**1.47 J**	**17.2**	**10.9**	**10.2**	**1.09 J**	**23.3**	**0.251 J**	**29.7**	**2.39**	**12.8**	**4.86**
Potassium	mg/kg		**1,960**	**1,770**	**859**	**1,230**	**989**	**1,050**	**679**	**878**	**654**	**760**	**1,250**	**939**
Selenium	mg/kg	5,800	**3.43 J**	**2.85 J**	**3.49**	**0.57 J**	**2.17**	**0.524 J**	**2.65**	**0.718 J**	**2.72**	**1.51 J**	**2.2**	**4.86**
Silver	mg/kg	5,800	**0.781 J**	*2.1 U*	*0.45 U*	*0.45 U*	*0.43 U*	*0.421 U*	*0.426 U*	*0.445 U*	*0.437 U*	*0.432 U*	*0.435 U*	*2.18 U*
Sodium	mg/kg		**1,720**	**1,420**	**2,120**	**2,260**	**2,860**	**1,820**	**974**	**2,800**	**1,050**	**2,360**	**598**	**1,370**
Thallium	mg/kg	12	**2.78 J**	**3.06 J**	*1.8 U*	*1.8 U*	*1.72 U*	*1.68 U*	*1.7 U*	*1.78 U*	*1.75 U*	*1.73 U*	*1.74 U*	*1.75 U*
Vanadium	mg/kg	5,800	**61.4**	**25.6**	**311**	**74.6**	**138**	**60.1**	**135**	**19.9**	**134**	**159**	**133**	**837**
Zinc	mg/kg	350,000	**50.9**	**2.64 J**	**105**	**8.48**	**279**	**8.11**	**322**	**1.36 J**	**525**	*4.32 U*	**247**	**13.4**
Other														
Cyanide	mg/kg	150	**4**	**1.4**	**2.4**	**2.3**	**1.4**	**6.5**	**2.4**	**3.4**	**3.3**	**0.46 J**	**6.8**	**2.2**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J: The positive result reported for this analyte is a quantitative estimate.
J+: The positive result for this analyte is a quantitative estimate but may be biased high.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.

Table 2 - Sub-Parcel B20-1
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	B20-048-SB-10* 1/27/2023	B20-049-SB-1* 1/27/2023	B20-049-SB-6* 1/27/2023	B20-050-SB-1 1/30/2023	B20-050-SB-5 1/30/2023	B20-051-SB-1* 1/27/2023	B20-051-SB-6* 1/27/2023	B20-052-SB-1 1/30/2023	B20-052-SB-8 1/30/2023	B20-053-SB-1 1/30/2023	B20-053-SB-5 1/30/2023
Metals													
Aluminum	mg/kg	1100000	*N/A*	**23,600**	**17,600**	**14,900**	**17,400**	**24,000**	**23,800**	**12,900**	**19,900**	**16,300**	**23,100**
Antimony	mg/kg	470	*N/A*	**2.34 J**	**1.85 J**	**3.09 J**	**2.78 J**	**3.4 J**	**3.43 J**	**3.41 J**	**0.586 J**	**3.12 J**	**1.75 J**
Arsenic	mg/kg	3	**0.711**	**4.04**	**2.38**	**2.02**	**1.2**	**4.74**	**4.14**	*0.867 U*	**0.25 J**	**1.86**	**0.967**
Barium	mg/kg	220,000	*N/A*	**333**	**208**	**173 J-**	**150 J-**	**202**	**174**	**139 J-**	**181 J-**	**178 J-**	**192 J-**
Beryllium	mg/kg	2,300	*N/A*	**1.96**	**1.59**	**4.23**	**3.54**	**2.73**	**2.64**	**3.94**	**4.24**	**4.7**	**6.15**
Cadmium	mg/kg	980	*N/A*	**0.26 J**	**0.117 J**	**1.47**	**0.818 J**	**0.505 J**	**0.094 J**	**1.81**	*0.897 U*	**1.2**	**0.329 J**
Calcium	mg/kg		*N/A*	**167,000**	**131,000**	**90,600**	**113,000**	**160,000**	**151,000**	**108,000**	**144,000**	**114,000**	**136,000**
Chromium	mg/kg	120,000	*N/A*	**130**	**82.6**	**98 J**	**18 J**	**109**	**104**	**395 J**	**2.21 J**	**163 J**	**34.3 J**
Chromium VI	mg/kg	6.3	*N/A*	*0.908 U*	*0.888 U*	*0.936 UJ*	*0.918 UJ*	*0.943 U*	*0.95 U*	*0.92 UJ*	*0.908 U*	*0.913 UJ*	*0.927 UJ*
Cobalt	mg/kg	350	*N/A*	**2**	**1.02 J**	**2.92 J-**	**3.05 J-**	**2.14**	**1.78 J**	**2.23 J-**	*1.79 UJ*	**2.38 J-**	**0.521 J**
Copper	mg/kg	47,000	*N/A*	**18.6**	**15.8**	**42.8 J-**	**11.3 J-**	**22.2**	**22.1**	**25.7 J-**	**1.89 J-**	**25.2 J-**	**4.6 J-**
Iron	mg/kg	820,000	*N/A*	**26,800**	**21,000**	**30,200**	**34,400**	**33,400**	**31,800**	**49,100**	**1,990**	**31,200**	**15,800**
Lead	mg/kg	800	*N/A*	**25.9**	**11**	**68.1 J-**	**0.56 J**	**43.8**	**47.4**	**57.6 J-**	*4.49 UJ*	**54.5J-**	**4.78 J-**
Magnesium	mg/kg		*N/A*	**30,800**	**23,200**	**19300 J+**	**27,300**	**29,100**	**28,400**	**26,100**	**29,100**	**20,400**	**29,400**
Manganese	mg/kg	26,000	*N/A*	**5,040**	**6,420**	**4,140**	**1,150**	**5,080**	**4,570**	**9,000**	**4,460**	**3,730**	**2,160**
Mercury	mg/kg	350	*N/A*	**0.097**	*0.079 U*	**0.326**	*0.086 U*	**0.159**	**0.171**	**0.099**	*0.085 U*	**0.174**	*0.078 U*
Nickel	mg/kg	22,000	*N/A*	**10.9**	**5.27**	**12.2**	*2.18 UJ*	**9.32**	**7.27**	**5.66 J-**	*2.24 UJ*	**7.82 J-**	*2.23 UJ*
Potassium	mg/kg		*N/A*	**1,350**	**1,330**	**1,450**	**539**	**884**	**984**	**834**	**1,720**	**1,040**	**1,290**
Selenium	mg/kg	5,800	*N/A*	**2.59**	**2.42**	**2.58**	**2.93**	**3.82**	**3.77**	**5.26**	**4.62**	**2.48**	**2.76**
Silver	mg/kg	5,800	*N/A*	*0.431 U*	*2.13 U*	*0.463 U*	*0.436 U*	*0.444 U*	*0.448 U*	*0.434 U*	*0.449 U*	*0.453 U*	*0.446 U*
Sodium	mg/kg		*N/A*	**2,140**	**1,560**	**1,020**	**924**	**1,110**	**1,050**	**665**	**1,550**	**692**	**856**
Thallium	mg/kg	12	*N/A*	*1.72 U*	*1.7 U*	**4.4**	**1.24 J**	*1.78 U*	*1.79 U*	**8.64**	**3.94**	**3.76**	**1.96**
Vanadium	mg/kg	5,800	*N/A*	**535**	**284**	**129**	**74.2**	**187**	**129**	**526**	**21.7**	**207**	**63.8**
Zinc	mg/kg	350,000	*N/A*	**91.6**	**47.1**	**288**	**1.12 J**	**138**	**42**	**616 J+**	**0.787 J**	**176 J+**	**16.8 J+**
Other													
Cyanide	mg/kg	150	*N/A*	**2.6**	**1.6**	**6.2 J-**	**0.39 J**	**2.2**	**4.2**	**3.7 J-**	*1.1 UJ*	**14 J-**	**9.9 J-**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J: The positive result reported for this analyte is a quantitative estimate.
J+: The positive result for this analyte is a quantitative estimate but may be biased high.
J-: The positive result for this analyte is a quantitative estimate but may be biased low.

Table 3 - Sub-Parcel B20-1
Summary of Organics Detected in Groundwater

Parameter	Units	PAL	B20-012-PZ*	B20-035-PZ
			10/23/2020	7/14/2020
Volatile Organic Compounds				
Benzene	µg/L	5	**0.75 J**	**9.5**
Carbon disulfide	µg/L	810	**0.92 J**	*1 U*
Chloroform	µg/L	0.22	**0.54 J**	*1 U*
Ethylbenzene	µg/L	700	**0.63 J**	*1 U*
Styrene	µg/L	100	**2.6**	*1 U*
Tetrachloroethene	µg/L	5	*1 U*	*1 U*
Toluene	µg/L	1,000	**3.4**	**2.1**
Xylenes	µg/L	10,000	**11.9**	**4.9**
Semi-Volatile Organic Compounds^				
1,1-Biphenyl	µg/L	0.83	*0.97 U*	*1 U*
1,4-Dioxane	µg/L	0.46	*0.099 U*	*0.1 U*
2,4-Dimethylphenol	µg/L	360	*0.97 U*	**0.52 J**
2-Methylnaphthalene	µg/L	36	**4.4**	**1.5**
2-Methylphenol	µg/L	930	*0.97 U*	**0.56 J**
3&4-Methylphenol(m&p Cresol)	µg/L	930	*1.9 U*	*2 U*
Acenaphthene	µg/L	530	**0.093 J**	**0.72**
Acenaphthylene	µg/L	530	**0.06 J**	**0.041 J**
Acetophenone	µg/L	1,900	**2.1**	**1.8**
Anthracene	µg/L	1,800	**0.06 J**	**0.12**
Benz[a]anthracene	µg/L	0.03	*0.099 U*	*0.1 U*
bis(2-chloroethoxy)methane	µg/L	59	**0.43 J**	*1 U*
Carbazole	µg/L		*0.97 U*	**0.97 J**
Chrysene	µg/L	25	*0.099 U*	*0.1 U*
Fluoranthene	µg/L	800	*0.099 U*	**0.14**
Fluorene	µg/L	290	**0.14**	**0.58**
Naphthalene	µg/L	0.12	**122**	**38.6**
Pentachlorophenol	µg/L	1	*2.4 U*	*2.5 U*
Phenanthrene	µg/L		**0.089 J**	**1.1**
Phenol	µg/L	5,800	*0.97 U*	*1 U*
Pyrene	µg/L	120	*0.099 U*	**0.12**
TPH/Oil & Grease				
Diesel Range Organics	µg/L	47	**676**	**379 J**
Oil & Grease	µg/L	47	**1,400 J**	**1,400 J**

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

J: The positive result reported for this analyte is a quantitative estimate.

Table 4 - Sub-Parcel B20-1
Summary of Inorganics Detected in Groundwater

Parameter	Units	PAL	B20-012-PZ*	B20-035-PZ
			10/23/2020	7/14/2020
Metal				
Aluminum, Dissolved	µg/L	20,000	**119**	**168**
Barium, Dissolved	µg/L	2,000	**51.2**	**46.3**
Chromium VI, Dissolved	µg/L	0.035	*10 U*	*10 U*
Chromium, Dissolved	µg/L	100	**0.61 J**	**0.65 J**
Iron, Dissolved	µg/L	14,000	*70 U*	*70 U*
Manganese, Dissolved	µg/L	430	**2.7 J**	*5 U*
Mercury, Dissolved	µg/L	2	**0.06 J**	*0.2 U*
Selenium, Dissolved	µg/L	50	**6.5 J**	*8 U*
Vanadium, Dissolved	µg/L	86	**28.6**	**7.6**
Zinc, Dissolved	µg/L	6,000	*10 U*	*10 U*
Other				
Cyanide	µg/L	200	**6.7 J**	**6.2 J**

Detections above reporting limit in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method or field blank.

Table 5 - Sub-Parcel B20-1
Cumulative Vapor Intrusion Comparison

				B20-012-PZ		B20-035-PZ	
				10/23/2020		7/14/2020	
Parameter	Type	Organ Systems	VI Screening Criteria (ug/L)	Conc. (ug/L)	Risk/ Hazard	Conc. (ug/L)	Risk/ Hazard
Cancer Risk							
Benzene	VOC	Immune	69	0.75 J	1.1E-07	9.5	1.4E-06
Chloroform	VOC	Hepatic; Nervous; Respiratory	36	0.54 J	1.5E-07	1 U	0
Ethylbenzene	VOC	Developmental; Hepatic; Urinary	150	0.63 J	4.2E-08	1 U	0
1,4-Dioxane	SVOC	Hepatic	130,000	0.099 U	0	0.1 U	0
Naphthalene	SVOC	Nervous; Respiratory	200	122	6.1E-06	38.6	1.9E-06
Cumulative Vapor Intrusion Cancer Risk					6E-06		3E-06
Non-Cancer Risk							
Cyanide, Total	Other	Reproductive	3.5	6.7 J	1.91	6.2 J	1.77
Xylenes	VOC	Nervous	1,600	11.9	0.007	4.9	0.003
Cumulative Vapor Intrusion Non-Cancer Hazard					2		2

Yellow highlighted values indicate exceedances of the cumulative vapor intrusion criteria: TCR>1E-05 or THI>1
Conc. = Concentration

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.

Table 6 - Sub-Parcel B20-1
COPC Screening Analysis

Parameter	CAS#	Location of Max Result	Max Detection (mg/kg)	Final Flag	Min Detection (mg/kg)	Average Detection (mg/kg)	Total Samples	Frequency of Detection (%)	Cancer TR=1E-06 (mg/kg)	Non-Cancer HQ=0.1 (mg/kg)	COPC?
1,1-Biphenyl	92-52-4	B20-044-SB-1	0.075	J	0.025	0.05	25	16.00	410	20	no
2-Methylnaphthalene	91-57-6	B20-053-SB-1	0.11		0.003	0.05	20	75.00		300	no
2-Methylnaphthalene	91-57-6	B20-052-SB-1	0.11		0.003	0.05	20	75.00		300	no
Acenaphthene	83-32-9	B20-049-SB-6	0.15		0.0035	0.04	20	65.00		4,500	no
Acenaphthylene	208-96-8	B20-053-SB-1	0.37		0.001	0.06	20	80.00			no
Acetophenone	98-86-2	B20-044-SB-1	0.034	J	0.034	0.03	25	4.00		12,000	no
Aluminum	7429-90-5	B20-044-SB-5	24,400		12,000	19,565	20	100.00		110,000	no
Anthracene	120-12-7	B20-053-SB-1	0.47		0.0012	0.11	20	85.00		23,000	no
Antimony	7440-36-0	B20-047-SB-1	4.6		0.586	2.50	20	100.00		47	no
Aroclor 1242	53469-21-9	B20-044-SB-1	0.119		0.0216	0.07	10	70.00	0.95		no
Aroclor 1254	11097-69-1	B20-050-SB-1	0.55		0.0241	0.15	10	80.00	0.97	1.5	no
Aroclor 1260	11096-82-5	B20-047-SB-1	2.16		0.0267	0.45	10	100.00	0.99		YES (C)
Arsenic	7440-38-2	B20-046-SB-1	14.4		0.25	3.68	21	90.00	3	48	YES (C)
Barium	7440-39-3	B20-049-SB-1	333		139	207	20	100.00		22,000	no
Benz[a]anthracene	56-55-3	B20-053-SB-1	2.3		0.00089	0.35	20	95.00	21		no
Benzo[a]pyrene	50-32-8	B20-053-SB-1	1.6		0.0012	0.31	20	90.00	2.1	22	no
Benzo[b]fluoranthene	205-99-2	B20-053-SB-1	2.4		0.0014	0.39	20	90.00	21		no
Benzo[g,h,i]perylene	191-24-2	B20-051-SB-6	0.18		0.00072	0.08	20	30.00			no
Benzo[k]fluoranthene	207-08-9	B20-053-SB-1	0.53		0.00068	0.11	20	85.00	210		no
Beryllium	7440-41-7	B20-053-SB-5	6.15		0.782	2.64	20	100.00	6,900	230	no
bis(2-Ethylhexyl)phthalate	117-81-7	B20-046-SB-1	100		0.14	50.1	25	8.00	160	1,600	no
Cadmium	7440-43-9	B20-052-SB-1	1.81		0.094	0.77	20	70.00	9,300	10	no
Calcium	7440-70-2	B20-046-SB-6	182,000		62,500	129,330	20	100.00			no
Caprolactam	105-60-2	B20-052-SB-1	2.2		0.13	0.40	25	60.00		40,000	no
Carbazole	86-74-8	B20-053-SB-1	0.17	J	0.026	0.07	25	44.00			no
Chromium	7440-47-3	B20-052-SB-1	395		2.21	95.6	20	100.00			no

Table 6 - Sub-Parcel B20-1
COPC Screening Analysis

Parameter	CAS#	Location of Max Result	Max Detection (mg/kg)	Final Flag	Min Detection (mg/kg)	Average Detection (mg/kg)	Total Samples	Frequency of Detection (%)	Cancer TR=1E-06 (mg/kg)	Non-Cancer HQ=0.1 (mg/kg)	COPC?
Chromium VI	18540-29-9	B20-046-SB-1	0.516	J	0.516	0.52	20	5.00	6.3	350	no
Chrysene	218-01-9	B20-053-SB-1	1.7		0.0013	0.30	20	90.00	2,100		no
Cobalt	7440-48-4	B20-047-SB-1	4.68		0.521	2.27	20	85.00	1,900	35	no
Copper	7440-50-8	B20-047-SB-1	53.4		1.89	20.5	20	100.00		4,700	no
Cyanide	57-12-5	B20-053-SB-1	14		0.39	4.00	20	95.00		120	no
Dibenz[a,h]anthracene	53-70-3	B20-051-SB-6	0.049		0.00072	0.03	20	20.00	2.1		no
Di-n-butylphthalate	84-74-2	B20-053-SB-1	0.088	J	0.088	0.09	25	4.00		8,200	no
Fluoranthene	206-44-0	B20-053-SB-1	4.5		0.00071	0.61	20	55.00		3,000	no
Fluorene	86-73-7	B20-049-SB-6	0.1		0.00086	0.03	20	75.00		3,000	no
Indeno[1,2,3-c,d]pyrene	193-39-5	B20-053-SB-1	1.5		0.0009	0.25	20	90.00	21		no
Iron	7439-89-6	B20-047-SB-1	59,600		523	25,701	20	100.00		82,000	no
Lead^	7439-92-1	B20-047-SB-1	116		0.56	44.4	20	85.00		80	YES (NC)
Magnesium	7439-95-4	B20-049-SB-1	30,800		16,400	24,870	20	100.00			no
Manganese	7439-96-5	B20-052-SB-1	9,000		1,150	4,257	20	100.00		2,600	YES (NC)
Mercury	7439-97-6	B20-046-SB-1	1.92		0.068	0.38	20	60.00		35	no
Naphthalene	91-20-3	B20-053-SB-1	0.3		0.0017	0.07	20	90.00	8.6	59	no
Nickel	7440-02-0	B20-047-SB-1	29.7		0.251	10.1	20	85.00	64,000	2,200	no
PCBs (total)*	1336-36-3	B20-047-SB-1	2.16		0.0905	0.66	10	100.00	0.94		YES (C)
Phenanthrene	85-01-8	B20-053-SB-1	2		0.0018	0.31	20	90.00			no
Phenol	108-95-2	B20-049-SB-6	0.091	J	0.091	0.09	25	4.00		25,000	no
Pyrene	129-00-0	B20-053-SB-1	3.6		0.00068	0.55	20	100.00		2,300	no
Selenium	7782-49-2	B20-052-SB-1	5.26		0.524	2.73	20	100.00		580	no
Sodium	7440-23-5	B20-045-SB-1	2860		598	1,489	20	100.00			no
Thallium	7440-28-0	B20-052-SB-1	8.64		1.24	3.99	20	30.00		1.2	YES (NC)
Vanadium	7440-62-2	B20-048-SB-6	837		19.9	208	20	100.00		580	YES (NC)
Zinc	7440-66-6	B20-052-SB-1	616		0.787	154	20	95.00		35,000	no

J: The positive result reported for this analyte is a quantitative estimate.

COPC = Constituent of Potential Concern
TR = Target Risk
HQ = Hazard Quotient

C = Compound was identified as a cancer COPC
NC = Compound was identified as a non-cancer COPC

*PCBs (total) include the sum of all detected aroclor mixtures, including those without RSLs (e.g. Aroclor 1262, Aroclor 1268) which are not displayed.
^Lead is assessed separately through the ALM and IEUBK models.

Table 7 - Sub-Parcel B20-1
Assessment of Lead

Exposure Unit	Surface/Sub-Surface	Maximum Concentration (mg/kg)	Arithmetic Mean (mg/kg)
EU1 (9.03 ac.)	Surface	116	67.7
	Sub-Surface	47.4	9.11
	Pooled	116	38.4

Table 8 - Sub-Parcel B20-1
Soil Exposure Point Concentrations

	EU1 (9.03 ac.)					
	EPCs - Surface Soils		**EPCs - Sub-Surface Soils**		**EPCs - Pooled Soils**	
Parameter	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)
Arsenic	95% KM (t) UCL	7.69	95% KM Adjusted Gamma UCL	2.85	Gamma Adjusted KM-UCL	5.31
Manganese	95% Student's-t UCL	5,846	95% Student's-t UCL	4,797	95% Student's-t UCL	4,985
Thallium	**Maximum Value**	**8.64**	**Maximum Value**	**3.94**	95% KM (t) UCL	2.83
Vanadium	95% KM (t) UCL	466	95% Adjusted Gamma UCL	416	95% Adjusted Gamma UCL	311
Total PCBs	95% Adjusted Gamma UCL	1.22	NA	NA	95% Adjusted Gamma UCL	1.22

Bold indicates maximum value used as the EPC
NA indicates no detections observed

Table 9 - Sub-Parcel B20-1
Surface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	EU1 (9.03 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	7.69	3.00	480	2.6E-06	0.02
Manganese	**Nervous**	5,846		26,000		0.2
Thallium	**Dermal**	**8.64**		12.0		0.7
Vanadium	**Dermal**	466		5,800		0.08
PCBs (total)		1.22	0.94		1.3E-06	
					4E-06	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
Bold indicates maximum value used as the EPC
EPC: Exposure Point Concentration
HQ: Hazard Quotient
HI: Hazard Index

Total HI	Dermal	1
	Cardiovascular	0
	Nervous	0

Table 10 - Sub-Parcel B20-1
Subsurface Soils
Composite Worker Risk Ratios

Parameter	Target Organs	EU1 (9.03 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	2.85	3.00	480	9.5E-07	0.006
Manganese	**Nervous**	4,797		26,000		0.2
Thallium	**Dermal**	**3.94**		12.0		0.3
Vanadium	**Dermal**	416		5,800		0.07
PCBs (total)		NA	0.94			
					1E-06	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
Bold indicates maximum value used as the EPC
NA indicates no detections observed
EPC: Exposure Point Concentration
HQ: Hazard Quotient
HI: Hazard Index

Total HI	Dermal	0
	Cardiovascular	0
	Nervous	0

Table 11 - Sub-Parcel B20-1
Pooled Soils
Composite Worker Risk Ratios

Parameter	Target Organs	EU1 (9.03 ac.)				
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
		EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	5.31	3.00	480	1.8E-06	0.01
Manganese	**Nervous**	4,985		26,000		0.2
Thallium	**Dermal**	2.83		12.0		0.2
Vanadium	**Dermal**	311		5,800		0.05
PCBs (total)		1.22	0.94		1.3E-06	
					3E-06	↓

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
EPC: Exposure Point Concentration
HQ: Hazard Quotient
HI: Hazard Index

Total HI	Dermal	0
	Cardiovascular	0
	Nervous	0

Table 12 - Sub-Parcel B20-1
Surface Soils
Construction Worker Risk Ratios

240 Day		EU1 (9.03 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	7.69	15.7	100	4.9E-07	0.08
Manganese	**Nervous**	5,846		3,916		1
Thallium	**Dermal**	**8.64**		14.3		0.6
Vanadium	**Dermal**	466		1,631		0.3
PCBs (total)		1.22	6.10		2.0E-07	
					7E-07	↓

SSLs calculated using equations in 2002 EPA Supplemental Guidance
Bold indicates maximum value used as the EPC
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/truck)
3 meter source depth thickness
EPC: Exposure Point Concentration
HQ: Hazard Quotient
HI: Hazard Index

Total HI	Dermal	1
	Cardiovascular	0
	Nervous	1

Table 13 - Sub-Parcel B20-1
Subsurface Soils
Construction Worker Risk Ratios

240 Day		EU1 (9.03 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	**Cardiovascular; Dermal**	2.85	15.7	100	1.8E-07	0.03
Manganese	**Nervous**	4,797		3,916		1
Thallium	**Dermal**	**3.94**		14.3		0.3
Vanadium	**Dermal**	416		1,631		0.3
PCBs (total)		NA	6.10			
					2E-07	↓

SSLs calculated using equations in 2002 EPA Supplemental Guidance
Bold indicates maximum value used as the EPC
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/truck)
3 meter source depth thickness
EPC: Exposure Point Concentration
HQ: Hazard Quotient
HI: Hazard Index

Total HI	Dermal	1
	Cardiovascular	0
	Nervous	1

Table 14 - Sub-Parcel B20-1
Pooled Soils
Construction Worker Risk Ratios

240 Day		EU1 (9.03 ac.)				
			Construction Worker			
			SSLs (mg/kg)		Risk Ratios	
Parameter	Target Organs	EPC (mg/kg)	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	5.31	15.7	100	3.4E-07	0.05
Manganese	Nervous	4,985		3,916		1
Thallium	Dermal	2.83		14.3		0.2
Vanadium	Dermal	311		1,631		0.2
PCBs (total)		1.22	6.10		2.0E-07	
					5E-07	↓

SSLs calculated using equations in 2002 EPA Supplemental Guidance
Guidance Equation Input Assumptions:
5 cars/day (2 tons/car)
5 trucks/day (20 tons/truck)
3 meter source depth thickness
EPC: Exposure Point Concentration
HQ: Hazard Quotient
HI: Hazard Index

Total HI	Dermal	0
	Cardiovascular	0
	Nervous	1

APPENDIX A

October 19, 2022

Maryland Department of Environment
1800 Washington Boulevard
Baltimore MD, 21230

Attention: Ms. Barbara Brown

Subject: Request to Enter Temporary CHS Review
Tradepoint Atlantic Parcel B20-1

Dear Ms. Brown:

The conduct of any environmental assessment and cleanup activities on the Tradepoint Atlantic property, as well as any associated development, is subject to the requirements outlined in the following agreements:

- Administrative Consent Order (ACO) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the Maryland Department of the Environment (effective September 12, 2014); and
- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the United States Environmental Protection Agency (effective November 25, 2014).

On September 11, 2014, Tradepoint Atlantic submitted an application to the Maryland Department of the Environment's (Department) Voluntary Cleanup Program (VCP).

In consultation with the Department, Tradepoint Atlantic affirms that it desires to accelerate the assessment, remediation, and redevelopment of certain sub-parcels within the larger site due to current market conditions. To that end, the Department and Tradepoint Atlantic agree that the Controlled Hazardous Substance (CHS) Act (Section 7-222 of the Environment Article) and the CHS Response Plan (COMAR 26.14.02) shall serve as the governing statutory and regulatory authority for completing the development activities on Sub-Parcel B20-1 and complement the statutory requirements of the Voluntary Cleanup Program (Section 7-501 of the Environment Article). Upon submission of a Site Response and Development Work Plan and completion of the remedial activities for the sub-parcel, the Department shall issue a "No Further Action" letter upon a recordation of an environmental covenant describing any necessary land use controls for the specific sub-parcel. At such time that all the sub-parcels within the larger parcel have completed remedial activities, Tradepoint Atlantic shall submit to the Department a request for issuing a Certificate of Completion (COC) as well as all pertinent information concerning completion of remedial activities conducted on the parcel. Once the VCP has completed its review of the submitted information it shall issue a COC for the entire parcel described in Tradepoint Atlantic's VCP application.

Alternatively, Tradepoint Atlantic, or another entity may elect to submit an application for a specific sub-parcel and submit it to the VCP for review and acceptance. If the application is received after the cleanup and redevelopment activities described in this work plan are implemented and a No Further Action letter is issued by the Department pursuant to the CHS Act, the VCP shall prepare a No Further Requirements Determination for the sub-parcel.

If Tradepoint Atlantic or other entity has not carried out cleanup and redevelopment activities described in the work plan, the cleanup and redevelopment activities may be conducted under the oversight authority of either the VCP or the CHS Act, so long as those activities comport with this work plan.

Engineering and institutional controls approved as part of this Site Response and Development Work Plan shall be described in documentation submitted to the Department demonstrating that the exposure pathways on the sub-parcel are addressed in a manner that protects public health and the environment. This information shall support Tradepoint Atlantic's request for the issuance of a COC for the larger parcel.

Please do not hesitate to contact Tradepoint Atlantic for further information.

Thank you,

Matthew Newman

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APPENDIX B

Construction Worker Soil Screening Levels
Maximum Allowable Work Day Exposure
Calculation Spreadsheet - Sub-Parcel B20-1

Description	Variable	Value
Days worked per week	DW	5
Exposure duration (yr)	ED	1
Hours worked per day	ET	8
A/constant (unitless) - particulate emission factor	Aconst	12.9351
B/constant (unitless) - particulate emission factor	Bconst	5.7383
C/constant (unitless) - particulate emission factor	Cconst	71.7711
Dispersion correction factor (unitless)	FD	0.185
Days per year with at least .01" precipitation	P	130
Target hazard quotient (unitless)	THQ	1
Body weight (kg)	BW	80
Averaging time - noncancer (yr)	ATnc	1
Soil ingestion rate (mg/d)	IR	330
Skin-soil adherence factor (mg/cm2)	AF	0.3
Skin surface exposed (cm2)	SA	3300
Event frequency (ev/day)	EV	1
Target cancer risk (unitless)	TR	01E-06
Averaging time - cancer (yr)	ATc	70
A/constant (unitless) - volatilization	Aconstv	2.4538
B/constant (unitless) - volatilization	Bconstv	17.566
C/constant (unitless) - volatilization	Cconstv	189.0426
Dry soil bulk density (kg/L)	Pb	1.5
Average source depth (m)	ds	3
Soil particle density (g/cm3)	Ps	2.65
Total soil porosity	Lpore/Lsoil	0.43
Air-filled soil porosity	Lair/Lsoil	0.28

Construction Worker Soil Screening Levels
Maximum Allowable Work Day Exposure
Calculation Spreadsheet - Sub-Parcel B20-1

Area of site (ac)	Ac	9.03	→ Site-Wide EU1
Overall duration of construction (wk/yr)	EW	48	
Exposure frequency (day/yr)	EF	**240**	
Cars per day	Ca	5	
Tons per car	CaT	2	
Trucks per day	Tru	5	
Tons per truck	TrT	20	
Mean vehicle weight (tons)	w	**11**	
Derivation of dispersion factor - particulate emission factor (g/m2-s per kg/m3)	Q/Csr	**15.4**	
Overall duration of construction (hr)	tc	**8,064**	
Overall duration of traffic (s)	Tt	**6,912,000**	
Surface area (m2)	AR	**36,543**	
Length (m)	LR	**191**	
Distance traveled (km)	ΣVKT	**459**	
Particulate emission factor (m3/kg)	PEFsc	**76,132,260**	
Derivation of dispersion factor - volatilization (g/m2-s per kg/m3)	Q/Csa	**8.56**	
Total time of construction (s)	Tcv	**6,912,000**	

Input
Calculation

Chemical	RfD & RfC Sources	^Ingestion SF (mg/kg-day)$^{-1}$	^Inhalation Unit Risk (ug/m^3)$^{-1}$	^Subchronic RfD (mg/kg-day)	^Subchronic RfC (mg/m^3)	^GIABS	Dermally Adjusted RfD (mg/kg-day)	^ABS	^RBA	*Dia	*Diw	*Henry's Law Constant (unitless)	*Kd	*Koc	DA	Volatilization Factor - Unlimited Reservoir (m^3/kg)	Carcinogenic Ingestion/ Dermal SL (SLing/der)	Carcinogenic Inhalation SL (SLinh)	Carcinogenic SL (mg/kg)	Non-Carcinogenic Ingestion/ Dermal SL (SLing/der)	Non-Carcinogenic Inhalation SL (SLinh)	Non-Carcinogenic SL (mg/kg)
Arsenic, Inorganic	I/C	1.50E+00	4.30E-03	3.00E-04	1.50E-05	1	3.00E-04	0.03	0.6			-	2.90E+01				15.8	5,655	15.7	101	5,210	100
Manganese (Non-diet)	I	-	-	2.40E-02	5.00E-05	0.04	9.60E-04	0.01	1			-	6.50E+01							5,056	17,368	3,916
Thallium (Soluble Salts)	P	-	-	4.00E-05	-	1	4.00E-05	0.01	1			-	7.10E+01							14.3		14.3
Vanadium and Compounds	A	-	-	1.00E-02	1.00E-04	0.026	2.60E-04	0.01	1			-	1.00E+03							1,712	34,735	1,631
PCB Total	I	2.00E+00	5.71E-04	-	-	1		0.14	1	2.40E-02	6.30E-06	1.70E-02	4.68E+02	7.80E+04	4.66E-08	3.33E+4	9.09	18.6	6.10			

*chemical specific parameters found in Chemical Specific Parameters Spreadsheet at https://www.epa.gov/risk/regional-screening-levels-rsls
^chemical specific parameters found in Unpaved Road Traffic calculator at https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search
I: chemical specific parameters found in the IRIS at https://www.epa.gov/iris
C: chemical specific parameters found in Cal EPA at https://www.dtsc.ca.gov/AssessingRisk
A: chemical specific parameters found in Agency for Toxic Substances and Disease Registry Minimal Risk Levels (MRLs) at https://www.atsdr.cdc.gov/mrls/pdfs/atsdr_mrls.pdf
P: chemical specific parameters found in the Database of EPA PPRTVs at https://hhpprtv.ornl.gov/quickview/pprtv.php

APPENDIX C

Sparrows Point Development - PPE Standard Operational Procedure, Revision 3

Planning, Tracking/Supervision, Enforcement, and Documentation

Planning

- Response and Development Work Plan (RDWP) for each individual redevelopment sub-parcel identifies and documents site conditions.
- RDWP is reviewed and approved by regulators.
- Contractor HASP to address site-specific conditions and PPE requirements:
    - Contractor H&S professional to sign-off on PPE requirements for site workers;
    - Job Safety Analysis (JSA) to be performed for ground intrusive work.
- Project Environmental Professional (EP) assigned to each construction project – monitors project during environmentally sensitive project phases and is available to construction contractor on an as needed basis. EP responsibilities include the following:
    - Dust monitoring
    - Routine ground intrusive breathing space air monitoring
    - Soil tracking
    - Water handling oversight
    - Ground intrusive work observation
    - Notification for unexpected conditions
- Pre-construction meeting identifies EP roles and responsibilities and reviews site conditions.
- Contractor to perform job-site HazCom. HazCom to be addressed in Contractor HASP and include:
    - PPE requirements,
    - Exposure time limits,
    - Identification of chemicals of concern and potential effects of over-exposure (adverse reactions),
    - Methods and routes of potential exposure.
- All personnel that will be performing ground intrusive work within impacted soils shall sign-off on HazCom.
- If, based on a thorough review of Site conditions, it is expected that construction workers will have the potential to encounter materials considered hazardous waste under RCRA or DOT regulations, HAZWOPER-trained personnel will be utilized.

Tracking/Supervision

- Contractor to record any day that there is ground intrusive work and confirm that proper PPE is being worn.
- EP will note ground intrusive work on daily work sheets and perform at least one spot check per day.
- EP will log on daily work sheets PPE compliance for all intrusive work areas at least once per day.

- EP to take example photos of Exclusion Zones/Contamination Reduction Zones periodically.

Work Zones Delineation

- Exclusion Zone – The Exclusion Zones will include the areas proposed for excavation or with active trenches, excavations, or ground intrusive work, at a minimum. Personnel working within the exclusion zone will be required to wear Modified Level D PPE as described in this SOP. EP to take example photos of Exclusion Zones/Contamination Reduction Zones periodically. The Exclusion Zones will be identified each work day.
- Contamination Reduction Zone – This work zone is located outside of the exclusion zone, but inside of the limits of development (LOD). The Contamination Reduction Zone will be located adjacent to the Exclusion Zone, and all personal decontamination including removal of all disposable PPE/removal of soil from boots will be completed in the Contamination Reduction Zone.

Documentation

- Contractor HASP and HazCom.
- Contractor ground intrusive tracking record.
- HASP and HazCom sign-in sheets.
- EP pre-con memos.
- EP daily work sheets.
- Records documenting intrusive work and proper PPE use to be provided in completion report.

Enforcement

- Non-compliance of PPE requirements will result in disciplinary action up to and including prohibition from working on Sparrows Point.

Unknown and/or Unexpected Conditions

If unknown and/or unexpected conditions are encountered during the project that the EP determines to have a reasonable potential to significantly impact construction worker health and safety, the following will be initiated:

1. Job stoppage,
2. TPA and MDE notification,
3. Re-assessment of conditions.

Work will not continue until EP has cleared the area. If hazardous waste is identified, a HAZWOPER contractor will be brought in to address. The approved contingency plan will be implemented, where appropriate.

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with

side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.