

SCREENING LEVEL RISK ASSESSMENT REPORT

AREA A: PARCEL A3 REMNANT AREA
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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ARM Project No. 170219M

Respectfully Submitted,

A handwritten signature in black ink that reads "Joshua Barna".

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A handwritten signature in black ink that reads "Neil Peters".

T. Neil Peters, P.E.
Senior Vice President

Revision 0 – August 30, 2019

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Soil Laboratory Certificates of Analysis.....	Electronic Attachment
Soil Data Validation Reports	Electronic Attachment
ProUCL Input Tables (formatted soil analytical data).....	Electronic Attachment
ProUCL Output Tables	Electronic Attachment
Lead Evaluation Spreadsheet.....	Electronic Attachment

1.0 INTRODUCTION

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Screening Level Risk Assessment (SLRA) for an undeveloped remnant portion of the Tradepoint Atlantic property that has been designated within Area A: Parcel A3 (the Remnant Area or the Site). The Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) are providing regulatory oversight of the ongoing investigation and redevelopment activities on the property. The USEPA intends to issue a final Statement of Basis for each parcel of the Tradepoint Atlantic property. In general, the Statement of Basis for each parcel is planned to be based upon the actual development plans which are supported by Response and Development Work Plans (RADWPs) containing site-specific SLRAs. As determined by USEPA, supplemental site-specific SLRA documents are to be prepared for those portions of the parcel that are outside of planned development areas (termed “remnants”).

1.1 SITE DESCRIPTION

Many of the ongoing or proposed development areas on the property overlap with portions of the investigative parcel boundaries designated within Area A and Area B. The full extent of Parcel A3, shown in **Figure 1**, is comprised of 64 acres of the approximately 3,100-acre former steel mill property located in Sparrows Point, Maryland. The eastern portion of Parcel A3 has undergone recent industrial redevelopment as noted in the approved RADWP for Area A: Sub-Parcel A3-1, Revision 3 dated April 24, 2017 and updated June 5, 2017. Sub-Parcel A3-1 represents approximately 54 acres of redevelopment within Parcel A3.

The legal descriptions for Sub-Parcel A3-1 and Parcel A1 were prepared by Morris & Ritchie Associates, Inc. and are provided in **Appendix A** and **Appendix B**, respectively. The legal description of Sub-Parcel A3-1 deviates slightly from the 54-acre boundary shown in the RADWP for this development project. Notably, the area surrounding the existing substation near the northern portion of Parcel A3 was included within the development area in the RADWP but is not included within the Sub-Parcel A3-1 legal description. However, engineering controls including clean fill capping will be completed for this area as highlighted on **Figure 2**. No legal description currently exists for the referenced area; however, an environmental covenant boundary will ultimately be required to be established for this portion of Parcel A3 because, per the SLRA in the RADWP, this area of the property is subject to a long-term capping requirement (and associated institutional controls) to be protective of workers.

This SLRA Report covers the remainder of Parcel A3, which consists of an 11.3-acre plot located primarily along the western and southern edges of Sub-Parcel A3-1 (**Figure 1**). A negligible portion of the remnant is found along the southeastern edge of Parcel A3, where it abuts with the legal description of Parcel A1 (as can be seen in **Figure 2**). There are no plans in the short/long-term to develop this Remnant Area and therefore a RADWP is not being pursued. This SLRA

Report includes a site-specific assessment for potential future Composite Workers, primarily to evaluate the existing surface soil conditions which will remain in place and undisturbed. The SLRA does not include an evaluation of Construction Worker risk because it is not anticipated that this Remnant Area will be developed.

1.2 SUMMARY OF PARCEL INVESTIGATION

A Phase II Investigation for soil conditions was performed for Parcel A3 in accordance with the approved Phase II and Pre-Design Investigation Work Plan (dated September 17, 2015). The findings of the soil investigation were presented in the Phase II Investigation Report for Parcel A3 (Revision 1 dated July 8, 2016). Additionally, a Phase II Investigation for soil conditions was performed for Parcel B8 in accordance with the approved Phase II Investigation Work Plan (dated September 25, 2015). The findings of the soil investigation were presented in the Phase II Investigation Report for Parcel B8 (Revision 1 dated March 16, 2018). This SLRA Report summarizes the soil data that are relevant to this evaluation of the Parcel A3 Remnant Area, and includes select soil data collected during the Parcel A3 and Parcel B8 Phase II Investigations. The soil laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports are included as electronic attachments.

Because there are no development plans for this Remnant Area, this document focuses on existing surface soil conditions. The surface soils will remain in place and undisturbed, so there is no potential for Composite Worker exposures to subsurface (or pooled) soil. Likewise, there is no potential for 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). Therefore, the groundwater investigation results from the referenced Phase II Investigations are not included.

A total of 19 soil samples were collected from the 10 boring locations shown on **Figure 2** during the Parcel A3 Phase II investigation (seven borings) and Parcel B8 Phase II Investigation (three borings). The data from these samples were included in this evaluation of risk for the Parcel A3 Remnant Area. Phase II Investigation soil samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), Oil & Grease, Target Analyte List (TAL) metals, hexavalent chromium, and cyanide. Shallow soil samples (0 to 1 foot bgs) were also analyzed for polychlorinated biphenyls (PCBs). Select soil samples collected as part of the Parcel A3 and Parcel B8 Phase II Investigations were also analyzed for total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO); however, these samples are not within or proximate to the Remnant Area. **Table 1** and **Table 2** summarize organic and inorganic parameter soil detections, respectively.

PAL exceedances in the soil samples relevant for the Parcel A3 Remnant Area included one SVOC (benzo[a]pyrene), two PCB groups (Aroclor 1248 and total PCBs), and four inorganics (arsenic, manganese, thallium, and vanadium). The soil PAL exceedances for organic compounds are provided on **Figure S1** while the inorganic soil PAL exceedances are provided on **Figure S2**.

2.0 HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT

2.1 ANALYSIS PROCESS

A human health SLRA has been completed for the Composite Worker scenario based on the analytical data obtained from the characterization of surface and subsurface soils within, and immediately adjacent to, the Parcel A3 Remnant Area. The SLRA does not include an evaluation of Construction Worker risk because it is not anticipated that this Remnant Area will be developed. The SLRA was conducted to evaluate the existing soil conditions within this remnant area of Parcel A3 that has not yet been developed so that a baseline SLRA exists for the entirety of the property parcel designated as Parcel A3.

The SLRA included the following evaluation process:

Identification of Exposure Units (EUs): The entire Parcel A3 Remnant Area covers a total of 11.3 acres and therefore does not require division into separate EUs. The Composite Worker evaluation covers the entirety of the Remnant Area.

Identification of Constituents of Potential Concern (COPCs): For the project-specific SLRA, compounds that were present at concentrations at or above the USEPA Regional Screening Levels (RSLs) set at a target cancer risk of $1E-6$ or target non-cancer Hazard Quotient (HQ) of 0.1 were identified as COPCs to be included in the SLRA. A COPC screening analysis is provided in **Table 3** to identify 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 soil COPC dataset was divided into surface (0 to 1 foot), subsurface (>1 foot), and pooled depths for estimation of potential EPCs. A statistical analysis was performed for the surface soil and pooled soil COPC datasets 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. Due to the limited number of sub-surface soil samples included in the SLRA, the maximum reported value for each COPC in the sub-surface soil was used as the EPC for each constituent. For lead, the arithmetic mean for each depth was calculated for comparison to the Adult Lead Model (ALM)-based values, and any individual results exceeding 10,000 mg/kg would be delineated for possible excavation and removal (not applicable at this Site). For PCBs, all results equaling or exceeding 50 mg/kg would be delineated for possible excavation and removal (not applicable at this Site).

Risk Ratios: The surface soil EPCs, subsurface soil EPCs, and pooled soil EPCs were compared to the USEPA RSLs for the Composite Worker. 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).

Assessment of Lead: For lead, the arithmetic mean concentrations for surface soils, subsurface soils, and pooled soils for the site-wide EU were compared to the applicable RSL (800 mg/kg) as an initial screening. If the mean concentrations for the site-wide EU were below the applicable RSL, the Site 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 2,518 mg/kg, which is the most conservative (i.e., lowest) concentration which would yield a probability of 5% of a blood lead concentration of 10 ug/dL. If the arithmetic mean concentrations for the site-wide EU were below 2,518 mg/kg, the Site was identified as requiring no further action for lead. The lead averages and ALM screening levels are presented for surface, subsurface, and pooled soils in **Table 4**. For lead, any results equaling or exceeding 10,000 mg/kg would warrant additional delineation for possible excavation and removal (not applicable at this Site).

Assessment of Oil & Grease: EPCs were not calculated for Oil & Grease. Instead, the individual results were compared to the PAL set to a HQ of 1 (6,200 mg/kg). No soil samples exceeded the PAL for Oil & Grease. Additionally, none of the boring locations relevant for this evaluation of the Parcel A3 Remnant Area exhibited any physical evidence of product (i.e., NAPL) in the soil cores.

Risk Characterization Approach: If the baseline risk ratio for each non-carcinogenic COPC or cumulative target organ does not exceed 1 (with the exception of lead), 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 site-wide EU will be considered 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 of the COPC.

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. For lead, if the ALM results indicate that the mean concentrations would present a 5% to 10% probability of a blood concentration of 10 ug/dL for the site-wide EU, then capping of the Site would be an acceptable presumptive remedy. The mean soil lead concentrations corresponding to ALM probabilities of 5% and 10% are 2,518 mg/kg, and 3,216 mg/kg, respectively. If the ALM indicates that the mean concentrations would present a >10% probability of a blood concentration of 10 ug/dL for the Site, further analysis of site conditions including toxicity reduction would be completed such that the probability would be reduced to less than 10% after toxicity reduction, but before capping.

2.2 SLRA RESULTS AND RISK CHARACTERIZATION

Soil data were divided into three datasets (surface, subsurface, and pooled) for the Parcel A3 Remnant Area to evaluate potential exposure scenarios. Because there are no development plans for this Remnant Area, this document focuses on existing surface soil conditions. The surface soils will remain in place and undisturbed, so there is no potential for Composite Worker exposures to subsurface (or pooled) soil. For the sake of completeness, all three exposure scenarios are presented to provide a baseline evaluation for the potential future Composite Worker in the event that a future construction project is proposed on the Parcel A3 Remnant Area. In such case, a comprehensive evaluation of risk (including a Construction Worker evaluation) will be required to be submitted within a RADWP or related document. Currently, there are no development plans for this Remnant Area.

EPCs were calculated using the ProUCL software for the surface soil and pooled soil datasets at the Site. As noted above, the maximum reported value for each COPC in the sub-surface soil was used as the EPC for each constituent due to the limited sample size. ProUCL output tables (with computed UCLs) derived from the data for each COPC in surface/pooled soils are provided as electronic attachments, with computations presented and EPCs calculated for COPCs within these 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 EPCs for the surface, subsurface, and pooled exposure scenarios are provided in **Table 5**.

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 lead concentrations are presented for each dataset in **Table 4**, which indicates that neither surface, subsurface, nor pooled soils exceeded the USEPA RSL of 800 mg/kg. There were no locations within the Remnant Area where concentrations of lead exceeded 10,000 mg/kg.

Composite Worker Assessment:

Risk ratios for the estimates of potential EPCs for the Composite Worker are shown in **Table 6** (surface), **Table 7** (subsurface), and **Table 8** (pooled soils). The results are summarized below:

Worker Scenario	Exposure Unit	Medium	Hazard Index (>1)	Total Cancer Risk
Composite Worker	Remnant	Surface Soil	none	7E-6
		Subsurface Soil	Dermal System = 5	7E-6
		Surface & Subsurface Soil	Dermal System = 5	6E-6

Based on the risk ratios for the Parcel A3 Remnant Area, further remediation or engineering controls are not required to be protective of potential Composite Worker exposures to surface soils. None of the carcinogenic risk estimates for the Composite Worker were greater than 1E-5, and none of the surface soil non-carcinogenic HI values exceeded 1. Because no future construction is planned, the surface soil will act as a cap and will prevent future Composite Workers from contacting potentially impacted subsurface soil.

As noted in the table above, the calculated HI for the dermal system exceeded 1 in subsurface (and pooled) soil. In the event that a future construction project is proposed on the Parcel A3 Remnant Area, a comprehensive evaluation of risk (including a Construction Worker evaluation) will be required to be submitted within a RADWP or related document. Currently, there are no development plans for this Remnant Area.

2.3 EVALUATION OF COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (CERCLA) CRITERIA

Results from the SLRA indicate that further remediation or engineering controls are not required within the Parcel A3 Remnant Area to mitigate potential current and future Composite Worker risks. Since no construction is planned on the remnant, no additional protections for the current and future Composite Worker are warranted (beyond protective institutional controls).

The undisturbed scenario 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 at the Site. 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 Composite Workers are acceptable despite a limited number of detections of soil constituents in excess of the USEPA RSLs. Because no future construction is planned, the surface soil will act as a cap and will prevent future Composite Workers from contacting potentially impacted subsurface soil. Groundwater does not present a human health hazard for the Composite Worker since there is no groundwater use on the Tradepoint Atlantic property.

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. Currently, there are no development plans for this Remnant Area. The objective is to protect potential future Composite Workers from 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 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. 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 any 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. The Composite Worker evaluation indicated no long-term risks within the existing surface soil which might require mitigation. Institutional controls (deed restrictions) will be implemented to protect Composite Workers (and potentially future Construction Workers) against disturbances of the soil that might lead to

inadvertent contact with impacted subsurface soils or groundwater. The anticipated institutional controls are discussed in Section 3.1. 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, land and 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. Further remediation or engineering controls are not necessary to reduce toxicity, mobility, or volume of waste in this case. No further remediation or engineering controls are proposed for this Site.

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 phase. 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. There is no implementation phase in this case, as no remedy installation is required.

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

3.0 SUMMARY AND RECOMMENDATIONS

A SLRA based on the soil samples collected from within, and directly adjacent to, the Parcel A3 Remnant Area indicates that further remediation or engineering controls are not required to mitigate Composite Worker risks. Because no future construction is planned in the remnant, the surface soil will act as a cap and will prevent future Composite Workers from contacting potentially impacted subsurface soil. The surface soils will remain in place and undisturbed.

An environmental covenant will be required to be established to encompass the Parcel A3 Remnant Area. Although further remediation or engineering controls are not required, institutional controls (deed restrictions) will be implemented to protect Composite Workers (and potentially future Construction Workers) against disturbances of the soil that might lead to inadvertent contact with impacted soils or groundwater. The proposed institutional controls for the remnant will be defined according to the environmental covenant boundary.

While a comprehensive RADWP is not warranted at this time because no development is anticipated to be performed in the designated remnant, should future development be pursued, such work would remain subject to many of the standard requirements for construction as outlined in RADWPs previously approved by the agencies. In the event that a future construction project is proposed on a portion of the Parcel A3 Remnant Area, a comprehensive evaluation of risk (including a Construction Worker evaluation) will be required to be submitted within a RADWP or related document, which will formally designate any areas seeking regulatory closure.

3.1 INSTITUTIONAL CONTROLS (FUTURE LAND USE CONTROLS)

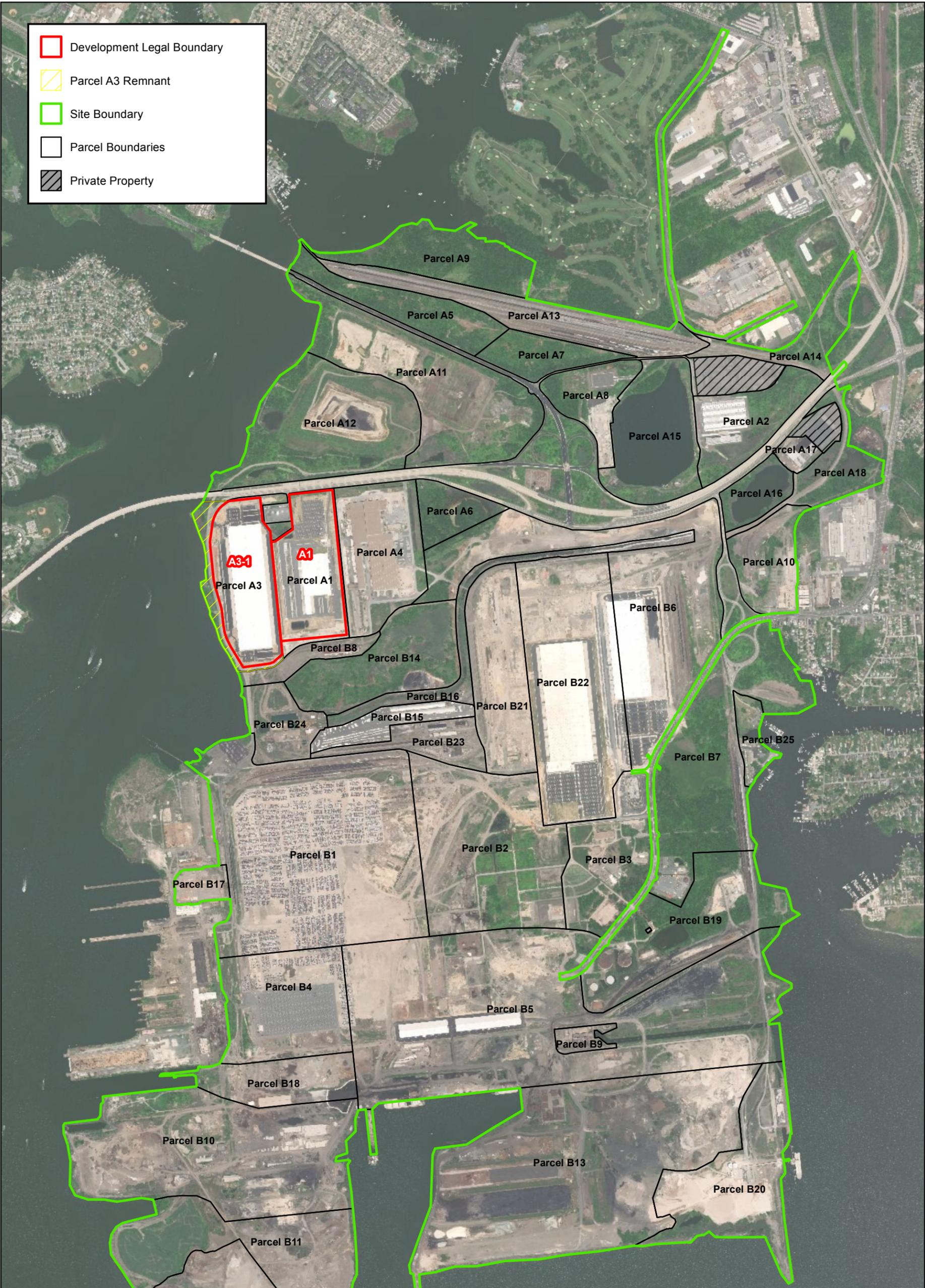
There is currently no plan for future development within the Parcel A3 Remnant Area. However, it is anticipated that institutional controls will be implemented to protect Composite Workers, and potentially future Construction Workers, against disturbances of the soil that might lead to inadvertent contact with impacted soils or groundwater. Long-term conditions related to future use of the Site will be placed on the SLRA approval, No Further Action Letter (NFA), and Certificate of Completion (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. The entire Tradepoint Atlantic property will be subject to the groundwater use restriction.
- Notice to the MDE and USEPA at least 30 days prior to any future soil disturbances.
- Requirement for a Health and Safety Plan (HASp) in the event of any future excavations.
- Complete appropriate characterization and disposal of any future material excavated at the Site in accordance with applicable local, state and federal requirements.

As the responsible party, Tradepoint Atlantic will file the above deed restrictions as defined by the MDE-VCP in the NFA and COC. Deed restrictions will be recorded after receipt of the final NFA. Long-term requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site.

Written notice to the MDE and USEPA of any 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.

FIGURES

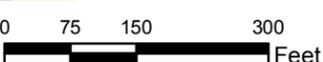


Development Legal Boundary
 Parcel A3 Remnant
 Site Boundary
 Parcel Boundaries
 Private Property

Tradepoint Atlantic Area A and Area B Parcels August 30, 2019		Figure 1
 ARM Group Inc. Engineers and Scientists		Tradepoint Atlantic Baltimore County, MD EnviroAnalytics Group
 		Area A: Project 150298M Area B: Project 150300M Development: Project 160443M



-  Phase II Boring
-  Development Legal Boundary
-  Area to be Capped Outside Existing Sites
-  Remnant
-  Parcel Boundary

Parcel A3 Remnant Area Soil Borings Field Sample Locations August 30, 2019		Figure 2
 ARM Group Inc. Engineers and Scientists	Tradepoint Atlantic Baltimore County, MD EnviroAnalytics Group ARM Project 170219M	
 		



RW-071-SB-1

RW-072-SB-1

RW-049-SB-1

RW-049-SB-5

RW-049-SB-10

RW-042-SB-1

RW-042-SB-5

RW-073-SB-0.5

RW-074-SB-0.5

RW-075-SB-1

Parcel A3

Parcel A1

B8-013-SB-1

B8-013-SB-5

B8-013-SB-10

B8-011-SB-1

PCB

Aroclor 1248: 1.6

PCBs (total): 1.6

B8-011-SB-5

B8-011-SB-10

B8-009-SB-1

SVOC

Benzo[a]pyrene: 3.3

B8-009-SB-5

B8-009-SB-10

Parcel B8

Parcel B14

Parcel B24

Phase II Boring

Development Legal Boundary

Area to be Capped Outside Existing Sites

Remnant

Parcel Boundary

Parcel A3 Remnant Area Soil Borings Organic PAL Exceedances (mg/kg)

August 30, 2019

Figure S1

ARM Group Inc. Engineers and Scientists

0 75 150 300 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
AUT Project 170219M



RW-071-SB-1
 Arsenic: 11.4 J
 Manganese: 32,600

RW-072-SB-1

RW-049-SB-1

RW-049-SB-5
 Arsenic: 5.6 J

RW-049-SB-10
 Arsenic: 7.6 J

RW-042-SB-1
 Arsenic: 9.0 J

RW-042-SB-5

RW-073-SB-0.5
 Arsenic: 8.7 J

RW-074-SB-0.5
 Arsenic: 6.1 J
 Manganese: 46,200

RW-075-SB-1
 Arsenic: 8.2 J

Parcel A1

Parcel A3

B8-013-SB-1
 Arsenic: 24.8

B8-013-SB-5
 Manganese: 30,200
 Thallium: 41.0
 Vanadium: 11,000 J-

B8-013-SB-10

B8-011-SB-1
 Arsenic: 17.7 J

B8-011-SB-5
 Arsenic: 10.2 J

B8-011-SB-10

B8-009-SB-1
 Arsenic: 7.0 J

B8-009-SB-5
 Arsenic: 3.6 J

B8-009-SB-10
 Arsenic: 20.1 J

Parcel B8

Parcel B14

Parcel B24

- Phase II Boring
- Development Legal Boundary
- Area to be Capped Outside Existing S&W
- Remnant
- Parcel Boundary

Parcel A3 Remnant Area Soil Borings Inorganic PAL Exceedances (mg/kg) August 30, 2019		Figure S2
		Tradepoint Atlantic Baltimore County, MD EnviroAnalytics Group ARM Project 170219M

TABLES

**Table 1 - Parcel A3 Remnant
Summary of Organics Detected in Soil**

Parameter	Units	PAL	B8-009-SB-1	B8-009-SB-5	B8-011-SB-1	B8-011-SB-5	B8-011-SB-10	B8-013-SB-1	B8-013-SB-5	B8-013-SB-10	RW-042-SB-1
Volatile Organic Compounds											
2-Butanone (MEK)	mg/kg	190,000	0.0054 J	0.0081 U	0.0064 J	0.023 U	N/A-M	0.01 U	0.0028 J	N/A-M	0.011 J
Acetone	mg/kg	670,000	0.027	0.012	0.031	0.023 U	N/A-M	0.013	0.019	N/A-M	0.061
Benzene	mg/kg	5.1	0.0045 U	0.0041 U	0.0045 U	0.011 U	N/A-M	0.0052 U	0.002 J	N/A-M	0.0018 J
Carbon disulfide	mg/kg	3,500	0.0047	0.0041 U	0.0034 J	0.011 U	N/A-M	0.0052 U	0.0034 J	N/A-M	0.028
Cyclohexane	mg/kg	27,000	0.0091 U	0.0081 U	0.0089 U	0.023 U	N/A-M	0.01 U	0.011 U	N/A-M	0.0033 J
Methyl Acetate	mg/kg	1,200,000	0.045 U	0.041 U	0.045 U	0.11 U	N/A-M	0.052 U	0.055 UJ	N/A-M	0.06 U
Methylene Chloride	mg/kg	1,000	0.0045 U	0.0041 U	0.0045 U	0.011 U	N/A-M	0.0052 U	0.0022 J	N/A-M	0.0038 J
Toluene	mg/kg	47,000	0.0045 U	0.0041 U	0.0045 U	0.011 U	N/A-M	0.0052 U	0.00071 J	N/A-M	0.0029 J
Trichloroethene	mg/kg	6	0.0045 U	0.0041 U	0.0045 U	0.011 U	N/A-M	0.0052 U	0.0055 U	N/A-M	0.006 U
Semi-Volatile Organic Compounds[^]											
1,1-Biphenyl	mg/kg	200	0.07 J	0.075 U	0.063 J	0.076 J	0.077 U	0.079 U	0.073 U	5.1	0.082 U
2,4-Dimethylphenol	mg/kg	16,000	0.02 J	0.075 U	0.018 J	0.042 J	0.077 U	0.079 U	0.073 UJ	0.8	0.082 U
2-Chloronaphthalene	mg/kg	60,000	0.023 J	0.075 U	0.072 U	0.084 U	0.077 U	0.079 U	0.073 U	0.075 U	0.082 U
2-Methylnaphthalene	mg/kg	3,000	0.42	0.15 U	0.051	0.62	N/A-M	0.086	0.032	N/A-M	0.093
2-Methylphenol	mg/kg	41,000	0.075 U	0.075 U	0.072 U	0.028 J	0.077 U	0.079 U	0.073 UJ	0.56	0.082 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.038 J	0.15 U	0.028 J	0.091 J	0.15 U	0.16 U	0.15 UJ	2	0.16 U
Acenaphthene	mg/kg	45,000	1.2	0.15 U	0.03	0.038	N/A-M	0.013 J	0.0055 J	N/A-M	0.018
Acenaphthylene	mg/kg	45,000	0.19	0.15 U	0.27	0.35	N/A-M	0.22	0.021	N/A-M	0.11
Acetophenone	mg/kg	120,000	0.081	0.075 U	0.032 J	0.023 J	0.077 U	0.079 U	0.073 U	0.021 J	0.082 U
Anthracene	mg/kg	230,000	2.6	0.15 U	0.48	0.49	N/A-M	0.29	0.091	N/A-M	0.14
Benz[a]anthracene	mg/kg	21	3.6	0.15 U	1.3	0.61	N/A-M	0.71	0.49	N/A-M	0.51
Benzaldehyde	mg/kg	120,000	0.099 J	0.075 R	0.049 J	0.09 J	0.077 UJ	0.079 R	0.073 R	0.075 R	0.082 R
Benzo[a]pyrene	mg/kg	2.1	3.3	0.016 J	1.2	0.43	N/A-M	0.87	0.39	N/A-M	0.55
Benzo[b]fluoranthene	mg/kg	21	8.2	0.15 U	2.3	1	N/A-M	2.2	0.87	N/A-M	1.3
Benzo[g,h,i]perylene	mg/kg		1.2	0.15 U	0.3	0.22	N/A-M	0.62	0.2	N/A-M	0.2
Benzo[k]fluoranthene	mg/kg	210	5.6	0.15 U	1.1	0.44	N/A-M	1	0.43	N/A-M	0.38
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.018 J	0.075 U	0.072 UJ	0.084 U	0.077 U	0.079 U	0.073 U	0.75 U	0.082 U
Carbazole	mg/kg		0.12	0.075 U	0.33	0.12	0.077 U	0.079 U	0.056 J	42	0.082 U
Chrysene	mg/kg	2,100	4.8	0.029 J	1.3	0.66	N/A-M	1.1	0.54	N/A-M	0.64
Dibenz[a,h]anthracene	mg/kg	2.1	0.65	0.15 U	0.16	0.12	N/A-M	0.26	0.12	N/A-M	0.11
Fluoranthene	mg/kg	30,000	6.7	0.037 J	1.5	0.95	N/A-M	0.76	0.72	N/A-M	0.89
Fluorene	mg/kg	30,000	0.98	0.15 U	0.041	0.092	N/A-M	0.018 B	0.0065 B	N/A-M	0.025
Indeno[1,2,3-c,d]pyrene	mg/kg	21	1.5	0.15 U	0.38	0.25	N/A-M	0.67	0.25	N/A-M	0.24
Naphthalene	mg/kg	17	0.4	0.15 U	0.062	0.97	N/A-M	0.097	0.13	N/A-M	0.19
Phenanthrene	mg/kg		3.3	0.15 U	0.39	1.9	N/A-M	0.23	0.42	N/A-M	0.31
Phenol	mg/kg	250,000	0.023 J	0.075 UJ	0.072 U	0.051 J	0.077 U	0.079 U	0.073 UJ	0.85	0.082 U
Pyrene	mg/kg	23,000	6.7	0.033 J	1.7	0.78	N/A-M	0.77	0.54	N/A-M	0.83
PCBs											
Aroclor 1248	mg/kg	0.94	0.088 U	N/A	0.089 U	N/A	N/A	1.6	N/A	N/A	0.1 U
Aroclor 1260	mg/kg	0.99	0.081 J	N/A	0.051 J	N/A	N/A	0.086 U	N/A	N/A	0.1 U
PCBs (total)	mg/kg	0.97	0.62 U	N/A	0.62 U	N/A	N/A	1.6	N/A	N/A	0.7 U
Oil and Grease											
Oil and Grease	mg/kg	6,200	1,830	312	868	484	N/A-M	390	214	N/A-M	586

Detections in bold

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

[^] PAH compounds were analyzed via SIM

N/A: The parameter was not analyzed for this sample.

N/A-M: This parameter was not analyzed for this sample due to the SVOC Microwave method resampling event.

(Further described in the SVOC Soil Resample Analysis Clarification Letter dated June 1, 2017)

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 for this analyte is a quantitative estimate.

B: This analyte was not detected substantially above the level of the associated method blank or field blank.

R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this analyte in the sample.

**Table 1 - Parcel A3 Remnant
Summary of Organics Detected in Soil**

Parameter	Units	PAL	RW-042-SB-5	RW-049-SB-1	RW-049-SB-5	RW-071-SB-1	RW-072-SB-1	RW-073-SB-0.5	RW-074-SB-0.5	RW-075-SB-1
Volatile Organic Compounds										
2-Butanone (MEK)	mg/kg	190,000	0.003 J	0.019	0.0014 J	0.015	0.012	0.029	0.012	0.022
Acetone	mg/kg	670,000	0.032	0.12	0.015	0.075	0.2	0.47	0.098	0.22
Benzene	mg/kg	5.1	0.0058 U	0.0023 J	0.006 U	0.0019 J	0.0052 J	0.0036 J	0.0018 J	0.0015 J
Carbon disulfide	mg/kg	3,500	0.0058 U	0.017	0.0036 J	0.0022 J	0.0018 J	0.015	0.0087	0.0077
Cyclohexane	mg/kg	27,000	0.012 U	0.0061 J	0.012 U	0.0014 J	0.011 U	0.0024 J	0.00098 J	0.00093 J
Methyl Acetate	mg/kg	1,200,000	0.058 U	0.059 U	0.06 U	0.054 U	0.0016 J	0.0016 J	0.055 U	0.058 U
Methylene Chloride	mg/kg	1,000	0.0055 J	0.0024 J	0.0045 J	0.0026 J	0.0045 J	0.0039 J	0.0055 U	0.0039 J
Toluene	mg/kg	47,000	0.0058 U	0.0017 J	0.00053 J	0.0013 J	0.00066 J	0.0023 J	0.001 J	0.0013 J
Trichloroethene	mg/kg	6	0.0058 U	0.0022 J	0.006 U	0.0054 U	0.0054 U	0.0064 U	0.0055 U	0.0058 U
Semi-Volatile Organic Compounds^										
1,1-Biphenyl	mg/kg	200	0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.02 J	0.073 U	0.079 U
2,4-Dimethylphenol	mg/kg	16,000	0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.087 U	0.073 U	0.079 U
2-Chloronaphthalene	mg/kg	60,000	0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.087 U	0.073 U	0.079 U
2-Methylnaphthalene	mg/kg	3,000	0.0075 U	0.031	0.0079 U	0.0073	0.0071	0.1	0.051	0.017
2-Methylphenol	mg/kg	41,000	0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.087 U	0.073 U	0.079 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.14 U	0.17 U	0.16 U	0.15 U	0.15 U	0.17 U	0.15 U	0.16 U
Acenaphthene	mg/kg	45,000	0.0075 U	0.0081	0.0079 U	0.0071 U	0.0071 U	0.18	0.043	0.035
Acenaphthylene	mg/kg	45,000	0.0075 U	0.075	0.0079 U	0.0067 J	0.019	0.2	0.012	0.01
Acetophenone	mg/kg	120,000	0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.087 U	0.073 U	0.079 U
Anthracene	mg/kg	230,000	0.0075 U	0.11	0.0062 J	0.0046 J	0.012	0.48	0.037	0.13
Benz[a]anthracene	mg/kg	21	0.0075 U	0.36 J	0.015	0.018	0.053	1.4	0.18	0.68
Benzaldehyde	mg/kg	120,000	0.072 R	0.085 R	0.078 R	0.019 J	0.054 J	0.071 J	0.019 J	0.032 J
Benzo[a]pyrene	mg/kg	2.1	0.0075 U	0.41 J	0.012	0.02	0.058	1.3	0.24	0.57
Benzo[b]fluoranthene	mg/kg	21	0.0075 U	1.1	0.021	0.036	0.089	2	0.43	1
Benzo[g,h,i]perylene	mg/kg		0.0075 U	0.13 J	0.0021 J	0.017	0.03	0.57	0.089	0.11
Benzo[k]fluoranthene	mg/kg	210	0.0075 U	0.29 J	0.011	0.013	0.039	0.96	0.13	0.32
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.072 U	0.085 U	0.078 U	0.078 J	0.077 UJ	0.087 UJ	0.073 UJ	0.079 UJ
Carbazole	mg/kg		0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.057 J	0.024 J	0.044 J
Chrysene	mg/kg	2,100	0.0075 U	0.44 J	0.013	0.024	0.056	1.3	0.21	0.64
Dibenz[a,h]anthracene	mg/kg	2.1	0.0075 U	0.059 J	0.0079 U	0.0059 J	0.013	0.25	0.041	0.056
Fluoranthene	mg/kg	30,000	0.0075 U	0.55 J	0.031	0.035	0.1	2.6	0.28	1.4
Fluorene	mg/kg	30,000	0.0075 U	0.01	0.0025 J	0.002 J	0.0043 J	0.24	0.012	0.026
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.0075 U	0.17 J	0.0079 U	0.014	0.033	0.62	0.1	0.15
Naphthalene	mg/kg	17	0.0075 U	0.046	0.0059 J	0.0081	0.015	0.19	0.069	0.016
Phenanthrene	mg/kg		0.0075 U	0.12 J	0.025	0.023	0.044	2.2	0.16	0.47
Phenol	mg/kg	250,000	0.072 U	0.085 U	0.078 U	0.073 U	0.077 U	0.087 U	0.073 U	0.079 U
Pyrene	mg/kg	23,000	0.0075 U	0.58 J	0.022	0.028	0.078	2	0.23	1.2
PCBs										
Aroclor 1248	mg/kg	0.94	N/A	0.097 U	N/A	0.089 U	0.018 U	0.1 U	0.018 U	0.019 U
Aroclor 1260	mg/kg	0.99	N/A	0.097 U	N/A	0.089 U	0.0085 J	0.1 U	0.019	0.019 U
PCBs (total)	mg/kg	0.97	N/A	0.68 U	N/A	0.62 U	0.13 U	0.73 U	0.13 U	0.13 U
Oil and Grease										
Oil and Grease	mg/kg	6,200	135	449	458	83.8 J	309	480	349	338

Detections in bold

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

^ PAH compounds were analyzed via SIM

N/A: The parameter was not analyzed for this sample.

N/A-M: This parameter was not analyzed for this sample due to the SVOC Microwave method resampling event.

(Further described in the SVOC Soil Resample Analysis Clarification Letter dated June 1, 2017)

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 for this analyte is a quantitative estimate.

B: This analyte was not detected substantially above the level of the associated method blank or field blank.

R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this analyte in the sample.

**Table 2 - Parcel A3 Remnant
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	B8-009-SB-1	B8-009-SB-5	B8-009-SB-10	B8-011-SB-1	B8-011-SB-5	B8-013-SB-1	B8-013-SB-5	RW-042-SB-1	RW-042-SB-5
Metals											
Aluminum	mg/kg	1,100,000	35,900	9,300	N/A	30,300	2,410	20,000	10,000	8,710	2,960
Arsenic	mg/kg	3	7 J	3.6 J	20.1 J	17.7 J	10.2 J	24.8	2	9 J	2.1 U
Barium	mg/kg	220,000	318 J	32.2 J	N/A	308 J	65 J	191 J	107 J	131	22
Beryllium	mg/kg	2,300	6	0.38 B	N/A	5.1	1.1 U	2.8	0.64 U	1.3 J	0.25 B
Cadmium	mg/kg	980	1.4	0.14 B	N/A	1.8	0.41 J	3.1	0.48 J	10.3 J	1.2 U
Chromium	mg/kg	120,000	98 J	13.7 J	N/A	68 J	34.1 J	195	3,320	110 J	3.9 J
Chromium VI	mg/kg	6.3	1.1 UJ	1.1 UJ	N/A	1.1 UJ	0.75 J-	1 UJ	2.1 J-	1.2 UJ	1.1 UJ
Cobalt	mg/kg	350	4.8	3.6 J	N/A	8.3	4.9 B	13.2	15.8	15 J	1.4 J
Copper	mg/kg	47,000	42.9 J	7.8 J	N/A	241 J	36.9 J	123 J	84.9 J	101 J	2.2 J
Iron	mg/kg	820,000	86,900 J	11,800 J	N/A	114,000 J	29,100 J	134,000 J	188,000 J	72,700	2,910
Lead	mg/kg	800	118 J	10.4 J	N/A	77 J	115 J	203	13	198 J	5.2 J
Manganese	mg/kg	26,000	4,590	68.9	N/A	3,690	484	4,250	30,200	1,140	35.8
Mercury	mg/kg	350	0.099 R	0.062 J-	N/A	0.024 J-	0.055 J-	0.1 UJ	0.1 UJ	0.12	0.013 J
Nickel	mg/kg	22,000	63.3 J	7.2 B	N/A	127 J	14.8 J	39.5 J	36.6 J	85.4 J	2.9 B
Selenium	mg/kg	5,800	2.1 J	3.2 U	N/A	2.6 J	4.2 U	2.2 B	2.5 U	4 U	3.3 U
Silver	mg/kg	5,800	2.8 U	2.4 U	N/A	0.79 B	3.2 U	0.66 J	1.9 U	3 U	2.5 U
Thallium	mg/kg	12	9.3 U	7.9 U	N/A	8.8 U	2.4 B	6.2 U	41	10.1 U	8.2 U
Vanadium	mg/kg	5,800	79.5 J	20.3 J	N/A	47.5 J	485 J	362 J-	11,000 J-	56.5 J	6.3 J
Zinc	mg/kg	350,000	437 J	32.9 J	N/A	417 J	217 J	1,070	42.3	1,930	11
Other											
Cyanide	mg/kg	150	1.1	0.59 U	N/A	0.65 U	0.53 J	0.53 J-	0.34 J-	0.88	0.17 J

Detections in bold

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

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UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

J-: The positive result for this analyte is a quantitative estimate but may be biased low.

B: This analyte was not detected substantially above the level of the associated method blank or field blank.

R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this analyte in the sample.

**Table 2 - Parcel A3 Remnant
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	RW-049-SB-1	RW-049-SB-5	RW-049-SB-10	RW-071-SB-1	RW-072-SB-1	RW-073-SB-0.5	RW-074-SB-0.5	RW-075-SB-1
Metals										
Aluminum	mg/kg	1,100,000	23,800	9,540	N/A	9,880	1,150	17,200	8,890	8,680
Arsenic	mg/kg	3	2.6 J	5.6 J	7.6 J	11.4 J	2.3 J	8.7 J	6.1 J	8.2 J
Barium	mg/kg	220,000	285	22	N/A	138	9.3	217	127	118
Beryllium	mg/kg	2,300	2.8 J	0.31 B	N/A	0.98 B	0.73 U	1.4 J	1 J	0.66 B
Cadmium	mg/kg	980	1 J	1.6 U	N/A	0.55 B	2.1 J	1.6 J	1.2 J	0.78 J
Chromium	mg/kg	120,000	60.6 J	23 J	N/A	895 J	10.3 J	960 J	777 J	26.6 J
Chromium VI	mg/kg	6.3	1.2 UJ	0.52 J-	N/A	1.1 UJ	1.1 UJ	1.3 UJ	1.1 UJ	1.1 UJ
Cobalt	mg/kg	350	18.4 J	1.9 J	N/A	8.8 J	0.77 J	22.5 J	5 J	6.2 J
Copper	mg/kg	47,000	55.1 J	10.3 J	N/A	71.4 J	5 J	81.6 J	40.9 J	32.7 J
Iron	mg/kg	820,000	54,900	22,600	N/A	167,000	6,380	95,000	96,800	15,800
Lead	mg/kg	800	71.5 J	7.5 J	N/A	43.3 J	27.2 J	401 J	82 J	125 J
Manganese	mg/kg	26,000	880	257	N/A	32,600	101	13,500	46,200	640
Mercury	mg/kg	350	0.047 J	0.021 J	N/A	0.012 J	0.026 J	0.18	0.034 J	0.51
Nickel	mg/kg	22,000	69.4 J	5 B	N/A	18.6 J	2.7 B	98.9 J	19 J	15.8 J
Selenium	mg/kg	5,800	4.6 U	4.3 U	N/A	3.9 U	2.9 U	4.2 U	3.8 U	4.3 U
Silver	mg/kg	5,800	3.4 U	3.3 U	N/A	3 U	2.2 U	3.1 U	2.8 U	3.3 U
Thallium	mg/kg	12	11.5 U	10.8 U	N/A	9.9 U	7.3 U	10.4 U	9.4 U	10.9 U
Vanadium	mg/kg	5,800	70.9 J	34.9 J	N/A	3,090 J	13.9 J	2,600 J	2,880 J	36 J
Zinc	mg/kg	350,000	344	18.7 B	N/A	249	262	941	591	551
Other										
Cyanide	mg/kg	150	0.16 J	0.39 J	N/A	0.38 J	0.5 J	2.1	0.89	0.36 J

Detections in bold

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

N/A: This parameter was not analyzed for this sample.

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

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

J-: The positive result for this analyte is a quantitative estimate but may be biased low.

B: This analyte was not detected substantially above the level of the associated method blank or field blank.

R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this analyte in the sample.

**Table 3 - Parcel A3 Remnant
COPC Screen 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	B8-013-SB-10	5.1		0.02	1.07	17	29.41	410	20	no
2,4-Dimethylphenol	105-67-9	B8-013-SB-10	0.8		0.018	0.22	17	23.53		1,600	no
2-Butanone (MEK)	78-93-3	RW-073-SB-0.5	0.029		0.0014	0.01	15	80.00		19,000	no
2-Chloronaphthalene	91-58-7	B8-009-SB-1	0.023	J	0.023	0.02	17	5.88		6,000	no
2-Methylnaphthalene	91-57-6	B8-011-SB-5	0.62		0.0071	0.13	15	80.00		300	no
2-Methylphenol	95-48-7	B8-013-SB-10	0.56		0.028	0.29	17	11.76		4,100	no
Acenaphthene	83-32-9	B8-009-SB-1	1.2		0.0055	0.16	15	66.67		4,500	no
Acenaphthylene	208-96-8	B8-011-SB-5	0.35		0.0067	0.12	15	80.00			no
Acetone	67-64-1	RW-073-SB-0.5	0.47		0.012	0.10	15	93.33		67,000	no
Acetophenone	98-86-2	B8-009-SB-1	0.081		0.021	0.04	17	23.53		12,000	no
Aluminum	7429-90-5	B8-009-SB-1	35,900		1,150	13,248	15	100.00		110,000	no
Anthracene	120-12-7	B8-009-SB-1	2.6		0.0046	0.37	15	86.67		23,000	no
Aroclor 1248	12672-29-6	B8-013-SB-1	1.6		1.6	1.60	10	10.00	0.95		YES (C)
Aroclor 1260	11096-82-5	B8-009-SB-1	0.081	J	0.0085	0.04	10	40.00	0.99		no
Arsenic	7440-38-2	B8-013-SB-1	24.8		2	9.18	17	94.12	3	48	YES (C)
Barium	7440-39-3	B8-009-SB-1	318	J	9.3	139	15	100.00		22,000	no
Benz[a]anthracene	56-55-3	B8-009-SB-1	3.6		0.015	0.76	15	86.67	21		no
Benzaldehyde	100-52-7	B8-009-SB-1	0.099	J	0.019	0.05	9	88.89	820	12,000	no
Benzene	71-43-2	RW-073-SB-0.5	0.0036	J	0.00052	0.002	15	53.33	5.1	42	no
Benzo[a]pyrene	50-32-8	B8-009-SB-1	3.3		0.012	0.67	15	93.33	2.1	22	YES (C)
Benzo[b]fluoranthene	205-99-2	B8-009-SB-1	8.2		0.021	1.58	15	86.67	21		no
Benzo[g,h,i]perylene	191-24-2	B8-009-SB-1	1.2		0.0021	0.28	15	86.67			no
Benzo[k]fluoranthene	207-08-9	B8-009-SB-1	5.6		0.011	0.82	15	86.67	210		no
Beryllium	7440-41-7	B8-009-SB-1	6		1	2.91	15	46.67	6,900	230	no
bis(2-Ethylhexyl)phthalate	117-81-7	RW-071-SB-1	0.078	J	0.018	0.05	17	11.76	160	1,600	no
Cadmium	7440-43-9	RW-042-SB-1	10.3	J	0.41	2.20	15	73.33	9,300	98	no
Carbazole	86-74-8	B8-013-SB-10	42		0.024	5.34	17	47.06			no
Carbon disulfide	75-15-0	RW-042-SB-1	0.028		0.0018	0.009	15	73.33		350	no
Chromium	7440-47-3	B8-013-SB-5	3,320		3.9	440	15	100.00		180,000	no
Chromium VI	18540-29-9	B8-013-SB-5	2.1	J-	0.52	1.12	15	20.00	6.3	350	no
Chrysene	218-01-9	B8-009-SB-1	4.8		0.013	0.84	15	93.33	2,100		no
Cobalt	7440-48-4	RW-073-SB-0.5	22.5	J	0.77	8.98	15	93.33	1,900	35	no
Copper	7440-50-8	B8-011-SB-1	241	J	2.2	62.4	15	100.00		4,700	no
Cyanide	57-12-5	RW-073-SB-0.5	2.1		0.16	0.64	15	86.67		120	no
Cyclohexane	110-82-7	RW-049-SB-1	0.0061	J	0.00093	0.003	15	40.00		2,700	no
Dibenz[a,h]anthracene	53-70-3	B8-009-SB-1	0.65		0.0059	0.15	15	80.00	2.1		no
Fluoranthene	206-44-0	B8-009-SB-1	6.7		0.031	1.18	15	93.33		3,000	no
Fluorene	86-73-7	B8-009-SB-1	0.98		0.002	0.13	15	73.33		3,000	no

**Table 3 - Parcel A3 Remnant
COPC Screen 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?
Indeno[1,2,3-c,d]pyrene	193-39-5	B8-009-SB-1	1.5		0.014	0.36	15	80.00	21		no
Iron	7439-89-6	B8-013-SB-5	188,000	J	2,910	73,193	15	100.00		82,000	YES (NC)
Lead [^]	7439-92-1	RW-073-SB-0.5	401	J	5.2	99.8	15	100.00		800	no
Manganese	7439-96-5	RW-074-SB-0.5	46,200		35.8	9,242	15	100.00		2,600	YES (NC)
Mercury	7439-97-6	RW-075-SB-1	0.51		0.012	0.09	14	85.71		35	no
Methyl Acetate	79-20-9	RW-072-SB-1	0.0016	J	0.0016	0.002	15	13.33		120,000	no
Methyl Acetate	79-20-9	RW-073-SB-0.5	0.0016	J	0.0016	0.002	15	13.33		120,000	no
Methylene Chloride	75-09-2	RW-042-SB-5	0.0055	J	0.0022	0.004	15	60.00	1,000	320	no
Naphthalene	91-20-3	B8-011-SB-5	0.97		0.0059	0.17	15	86.67	17	59	no
Nickel	7440-02-0	B8-011-SB-1	127	J	14.8	53.5	15	73.33	64,000	2,200	no
PCBs (total)*	1336-36-3	B8-013-SB-1	1.6		1.6	1.60	10	10.00	0.94		YES (C)
Phenanthrene	85-01-8	B8-009-SB-1	3.3		0.023	0.74	15	86.67			no
Phenol	108-95-2	B8-013-SB-10	0.85		0.023	0.31	17	17.65		25,000	no
Pyrene	129-00-0	B8-009-SB-1	6.7		0.022	1.11	15	93.33		2,300	no
Selenium	7782-49-2	B8-011-SB-1	2.6	J	2.1	2.35	15	13.33		580	no
Silver	7440-22-4	B8-013-SB-1	0.66	J	0.66	0.66	15	6.67		580	no
Thallium	7440-28-0	B8-013-SB-5	41		41	41.0	15	6.67		1.2	YES (NC)
Toluene	108-88-3	RW-042-SB-1	0.0029	J	0.00053	0.001	15	60.00		4,700	no
Trichloroethene	79-01-6	RW-049-SB-1	0.0022	J	0.0022	0.002	15	6.67	6	1.9	no
Vanadium	7440-62-2	B8-013-SB-5	11,000	J-	6.3	1,386	15	100.00		580	YES (NC)
Zinc	7440-66-6	RW-042-SB-1	1,930		11	507	15	93.33		35,000	no

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

J-: The positive result reported for this analyte is a quantitative estimate but may be biased low.

COPC = Constituent of Potential Concern

TR = Target Risk

C = Compound was identified as a cancer COPC

HQ = Hazard Quotient

NC = Compound was identified as a non-cancer COPC

*PCBs (total) include the sum of all detected aroclor mixtures, including those without regional screening levels (e.g. Aroclor 1262, Aroclor 1268) which are not displayed.

[^]The COPC screening level for lead was not adjusted to the HQ=0.1 because lead is not assessed in the SLRA. The 800 mg/kg PAL is relevant to the Adult Lead Model procedure.

**Table 4 - Parcel A3 Remnant
Assessment of Lead**

Exposure Unit	Surface/Sub-Surface	Arithmetic Mean (mg/kg)
Parcel Remnant (11.3 ac.)	Surface	135
	Sub-Surface	30.2
	Pooled	99.8

Adult Lead Model (ALM) Risk Levels	
Soil Concentration (mg/kg)	Probability of Blood Concentration of 10 ug/dL
2,518 mg/kg	5%
3,216 mg/kg	10%

**Table 5 - Parcel A3 Remnant
Soil Exposure Point Concentrations**

			Parcel Remnant (11.3 ac.)					
			EPCs - Surface Soils		EPCs - Sub-Surface Soils		EPCs - Pooled Soils	
Parameter	Cancer COPC Screening Level (mg/kg)	Non-Cancer COPC Screening Level (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)	EPC Type	EPC (mg/kg)
Arsenic	3.00	48.0	95% Student's-t UCL	13.8	Maximum Value	20.1	95% KM (t) UCL	11.6
Iron		82,000	95% Student's-t UCL	113,159	Maximum Value	188,000	95% Student's-t UCL	100,335
Manganese		2,600	95% Adjusted Gamma UCL	36,627	Maximum Value	30,200	95% Adjusted Gamma UCL	25,938
Thallium		1.20	NA	NA	Maximum Value	41.0	Maximum Value	41.0
Vanadium		580	Maximum Value	3,090	Maximum Value	11,000	99% Chebyshev (Mean, Sd) UCL	8,818
PCBs (total)	0.94		Maximum Value	1.60	NA	NA	Maximum Value	1.60
Benzo(a)pyrene	2.10	22.0	95% Student's-t UCL	1.41	Maximum Value	0.43	95% KM (Chebyshev) UCL	1.58

Bold indicates EPC higher than lowest COPC SL

NA indicates no detections

COPC = Constituent of Potential Concern

Note: Maximum values used for sub-surface due to sample size <10

**Table 6 - Parcel A3 Remnant
Surface Soils
Composite Worker Risk Ratios**

Parameter	Target Organs	EPC (mg/kg)	Parcel Remnant (11.3 ac.)			
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
			Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	13.8	3.00	480	4.6E-06	0.03
Iron	Gastrointestinal	113,159		820,000		0.1
Manganese	Nervous	36,627		26,000		1
Thallium	Dermal	NA		12.0		
Vanadium	Dermal	3,090		5,800		0.5
PCBs (total)		1.60	0.94		1.7E-06	
Benzo(a)pyrene	Developmental	1.41	2.10	220	6.7E-07	0.006
					7E-06	↓

Bold indicates maximum value used

NA indicates no detections

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

Total HI	Cardiovascular	0
	Dermal	1
	Gastrointestinal	0
	Nervous	1
	Developmental	0

**Table 7 - Parcel A3 Remnant
Sub-Surface Soils
Composite Worker Risk Ratios**

Parameter	Target Organs	EPC (mg/kg)	Parcel Remnant (11.3 ac.)			
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
			Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	20.1	3.00	480	6.7E-06	0.04
Iron	Gastrointestinal	188,000		820,000		0.2
Manganese	Nervous	30,200		26,000		1
Thallium	Dermal	41.0		12.0		3
Vanadium	Dermal	11,000		5,800		2
PCBs (total)		NA	0.94			
Benzo(a)pyrene	Developmental	0.43	2.10	220	2.0E-07	0.002
					7E-06	↓

Bold indicates maximum value used

NA indicates no detections

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

Total HI	Cardiovascular	0
	Dermal	5
	Gastrointestinal	0
	Nervous	1
	Developmental	0

**Table 8 - Parcel A3 Remnant
Pooled Soils
Composite Worker Risk Ratios**

Parameter	Target Organs	EPC (mg/kg)	Parcel Remnant (11.3 ac.)			
			Composite Worker			
			RSLs (mg/kg)		Risk Ratios	
			Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	11.6	3.00	480	3.9E-06	0.02
Iron	Gastrointestinal	100,335		820,000		0.1
Manganese	Nervous	25,938		26,000		1
Thallium	Dermal	41.0		12.0		3
Vanadium	Dermal	8,818		5,800		2
PCBs (total)		1.60	0.94		1.7E-06	
Benzo(a)pyrene	Developmental	1.58	2.10	220	7.5E-07	0.007
					6E-06	↓

Bold indicates maximum value used

RSLs were obtained from the EPA Regional Screening Levels at
https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search

Total HI	Cardiovascular	0
	Dermal	5
	Gastrointestinal	0
	Nervous	1
	Developmental	0

APPENDIX A

EXHIBIT B

**DESCRIPTION OF THE LAND SUBJECTED TO THE CONDOMINIUM
PURSUANT TO THE FIRST AMENDMENT**

MORRIS & RITCHIE ASSOCIATES, INC.

ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS,
AND LANDSCAPE ARCHITECTS



May 31, 2017

49.237 Acre Land Unit 3, TradePoint Atlantic Land Condominium, Located on the South Side of
Bethlehem Boulevard and the East Side of Riverside Drive, Fifteenth Election District, Baltimore
County, Maryland

BEGINNING for the same at a rebar and cap now set distant South 05° 34' 03" East 205.11 feet from a
rebar and cap heretofore set at the southwest corner of Land Unit 2 as shown on the plat entitled
"Condominium Plat, Land Units 1 and 2, TRADEPOINT ATLANTIC LAND CONDOMINIUM" and
recorded among the Land Records of Baltimore County, Maryland in Condominium Plat Book JLE 31,
Pages 748-752, said rebar and cap now set having Maryland Coordinate System coordinates of North
570067.79 feet and East 1457054.52 feet, thence running for new lines new lines of division through the
land conveyed by and described in a Special Warranty Deed from Sparrows Point LLC to Sparrows
Point Terminal, LLC, dated September 18, 2014 and recorded among the said Land Records in Book
35478, Folio 379, as now surveyed, with bearings referred to the Maryland Coordinate System
(NAD'83/91), three courses, viz:

1. South 47° 35' 13" West 150.09 feet to a point of curvature,
2. By a tangent curve to the right with a radius of 160.00 feet and an arc length of 96.04 feet, said
curve being subtended by a chord bearing South 64° 47' 00" West 94.61 feet, to a point of
tangency, and
3. South 81° 58' 46" West 409.64 feet to a mag. nail now set on the east side of Riverside Drive
and on the future easterly right of way line of Riverside Drive as intended to be 70-foot-wide,
thence continuing to run for new lines of division through the last mentioned conveyance and
intending to bind on the said future right of way line of the said Riverside Drive, ten courses, viz:
4. North 31° 11' 57" West 377.18 feet to a point of curvature,
5. By a tangent curve to the right with a radius of 765.00 feet and an arc length of 335.24 feet, said
curve being subtended by a chord bearing North 18° 38' 42" West 332.57 feet, to a point of
tangency,
6. North 06° 05' 26" West 185.00 feet to a point of curvature,
7. By a tangent curve to the left with a radius of 680.00 feet and an arc length of 115.95 feet, said
curve being subtended by a chord bearing North 10° 58' 31" West 115.81 feet, to a point of
tangency,
8. North 15° 51' 36" West 338.69 feet to a point of curvature,
9. By a tangent curve to the right with a radius of 550.00 feet and an arc length of 94.30 feet, said
curve being subtended by a chord bearing North 10° 56' 53" West 94.19 feet, to a point of
tangency,

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49.237 Acre Land Unit 3, TradePoint Atlantic Land Condominium
May 31, 2017
Page 2 of 2

- 10. North 06° 02' 11" West 511.89 feet to a point of curvature,
- 11. By a tangent curve to the right with a radius of 570.00 feet and an arc length of 140.41 feet, said curve being subtended by a chord bearing North 01° 01' 15" East 140.06 feet, to a point of tangency,
- 12. North 08° 04' 41" East 210.31 feet to a point of curvature, and
- 13. By a tangent curve to the right with a radius of 465.00 feet and an arc length of 462.00 feet, said curve being subtended by a chord bearing North 36° 32' 29" East 443.23 feet, to a rebar and cap now set on the south side of Bethlehem Boulevard, thence leaving the aforesaid Riverside Drive and continuing to run for new lines of division through the last mentioned conveyance, four courses, viz:
- 14. North 83° 43' 12" East, along the said south side of Bethlehem Boulevard, 476.91 feet to a rebar and cap now set,
- 15. South 05° 34' 03" East 361.15 feet,
- 16. South 37° 04' 55" East 197.54 feet, and
- 17. South 05° 34' 03" East 168.16 feet to a rebar and cap heretofore set at the westernmost corner of the aforesaid Land Unit 2, thence continuing the same course and binding on the westerly outline of the said Land Unit 2,
- 18. South 05° 34' 03" East 1539.25 feet to a rebar and cap heretofore set, thence leaving the said Land Unit 2, continuing the same course and running for a new line of division through the last mentioned conveyance,
- 19. South 05° 34' 03" East 205.11 feet to the place of beginning.

CONTAINING 49.237 acres of land, more or less.

BEING part of the land conveyed by and described in a Special Warranty Deed from Sparrows Point LLC to Sparrows Point Terminal, LLC, dated September 18, 2014 and recorded among the Land Records of Baltimore County, Maryland in Book 35478, Folio 379; BEING ALSO all of Land Unit 3 as shown on the plats entitled "CONDOMINIUM PLAT, LAND UNITS 3 AND 4, TRADEPOINT ATLANTIC LAND CONDOMINIUM" and to be recorded among the said Land Records.



(Current License Expires 5/2/18)

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APPENDIX B

MORRIS & RITCHIE ASSOCIATES, INC.

ENGINEERS, ARCHITECTS, PLANNERS, SURVEYORS,
AND LANDSCAPE ARCHITECTS



February 28, 2017

25.000 Acre Land Unit 2, TradePoint Atlantic Land Condominium, Located on the South Side of Bethlehem Boulevard, Fifteenth Election District, Baltimore County, Maryland.

BEGINNING for the same at a point on the southerly side of Bethlehem Boulevard, an undedicated privately owned roadway, said point having Maryland Coordinate System coordinates of North 572537.17 feet and East 1457158.63 feet, thence running along the said southerly side of the said road and running for new lines of division through the land conveyed by and described in a Special Warranty Deed from Sparrows Point LLC to Sparrows Point Terminal, LLC, dated September 18, 2014 and recorded among the Land Records of Baltimore County, Maryland in Book 35478, Folio 379, as now surveyed, with bearings referred to the Maryland Coordinate System (NAD'83/91), two courses, viz:

1. North 83° 43' 12" East 603.26 feet, and
2. North 85° 20' 59" East 71.53 feet to a rebar and cap now set, thence leaving the aforesaid roadway and continuing the run for new lines of division through the land described in the aforesaid deed, six courses, viz:
3. South 05° 34' 03" East 2248.88 feet to a mag. nail heretofore set,
4. South 84° 25' 57" West 1017.92 feet to a rebar and cap now set,
5. North 05° 34' 03" West 1539.25 feet to a rebar and (KCI) cap heretofore set,
6. North 84° 25' 57" East 58.70 feet,
7. North 55° 27' 53" East 334.52 feet, and
8. North 06° 26' 00" West 541.32 feet to the place of beginning.

CONTAINING 47.389 acres of land, more or less.

BEING part of the land conveyed by and described in a Special Warranty Deed from Sparrows Point LLC to Sparrows Point Terminal, LLC, dated September 18, 2014 and recorded among the Land Records of Baltimore County, Maryland in Book 35478, Folio 379.



(Current License Expires 5/2/18)

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