UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION III

STATEMENT OF BASIS

Tradepoint Atlantic
Sparrows Point, Maryland
EPA ID no. MDD 053 945 432

EPA Region III
Land, Chemicals & Redevelopment Division

Contents

I. INTRODUCTION

The United States Environmental Protection Agency (EPA) has prepared this Statement of Basis (SB) to solicit public comment on its proposed remedy for five parcels (Parcels) of property, Parcels A2, A3, B3, B4 Remnant Area, and B15, respectively, located on the 3,100-acre Sparrows Point Facility (Facility) in Baltimore Harbor **(Figure 1).** Tradepoint Atlantic (TPA), the current owner of the Facility, is subdividing the Facility into parcels for redevelopment. EPA understands that TPA has already leased several of the Parcels and that development and construction are currently under way.

The Facility is subject to EPA's Corrective Action authorities under the Solid Waste Disposal Act, as amended, commonly referred to as the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 et seq. The Corrective Action Program requires that facilities subject to certain provisions of RCRA investigate and address releases of hazardous waste and hazardous constituents, often in the form of soil or groundwater contamination, that have occurred at or from their property. Maryland is not authorized for the Corrective Action Program under Section 3006 of RCRA, therefore, EPA retains primary authority in the State of Maryland to implement it.

EPA's proposed remedies for soils at the Parcels are as follows:

- Parcel A2 – Compliance with an approved Soil Management Plan and Land Use Restrictions implemented through Institutional Controls (ICs).
- Parcel B3 – Land use restrictions implemented through ICs.
- Parcel A3- Soil excavation, installation of an engineered cap, compliance with an approved Soil Management Plan and Land Use Restrictions implemented through ICs
- Parcel B4 Remnant Area – Soil excavation, compliance with an approved Soil Management Plan; soil vapor intrusion investigation and remediation as necessary, and Land Use Restrictions implemented through ICs
- B15 – Installation of an engineered cap, compliance with an approved Soil Management Plan and Land Use Restrictions implemented through ICs.

This SB does not include a proposed final remedy for groundwater. EPA will issue a separate SB for Facility-wide groundwater and solicit public comment on its proposal once the groundwater at the entire Facility has been evaluated. In the interim, EPA, is proposing groundwater use restrictions at the Parcels to prevent all uses of shallow groundwater until a final remedy for Facility-wide groundwater is selected.

EPA has compiled an Administrative Record (AR) containing all documents, including the complete set of reports that document Facility conditions, on which EPA's proposed remedy is based. EPA encourages anyone interested in this matter to review the AR.

EPA is providing a thirty (30) day public comment period on this SB. EPA will address all significant comments received during the public comment period. If EPA determines that new information or public comments warrant a significant modification to the proposed remedies, EPA will modify the proposed remedies or select other alternatives based on such new information and/or public comments and will solicit public comment on its modified proposed remedies. If any of the final remedies is substantially unchanged from the one proposed, EPA will issue a Final Decision and Response to Comments (FDRTC) and inform all persons who submitted written comments or requested notice of EPA's Final Decision.

Information on the RCRA Corrective Action Program as well as a fact sheet for the Facility can be found by navigating to https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-sparrows-point-llc-sparrows-point-md. An index to the Administrative Record (AR) which supports this SB is attached as Attachment 1, and references all documents, including data and quality assurance information, on which each of EPA's proposed remedies is based. See Section IX, Public Participation, for information on how you may review the AR.

II. FACILITY BACKGROUND

A. History

The Facility comprises a 3,100-acre peninsula in Baltimore Harbor (Sparrows Point Peninsula or Peninsula), generally bounded by the Back River, Bear Creek, and the Northwest Branch of the Patapsco River. In 1887, Maryland Steel built an iron furnace on the Facility, and the first iron was cast in 1889. The Bethlehem Steel Corporation (BSC) purchased the property in 1916 and enlarged it, building mills to produce hot rolled sheet, cold rolled sheet, galvanized sheet tin mill products, and steel plate. During peak production in 1959, BSC operated 12 coke-oven batteries, 10 blast furnaces, and four open-hearth furnaces at the Facility.

This SB summarizes work undertaken pursuant to a 1997 federal consent decree and a 2014 administrative settlement agreement, as detailed below. RCRA corrective action work is ongoing at the Facility.

In 1997, the Federal District Court for the District of Maryland entered a Consent Decree (CD) under Section 3008(h) of RCRA, 42 U.S.C. § 6928(h), that had been signed by BSC, the Maryland Department of Environment (MDE), and EPA (Civil Action Nos. JFM-97-558 and JFM-97-559). The CD required BSC to undertake certain RCRA Corrective Action activities at the Facility, including, among other tasks, completing a Site Wide Investigation (SWI) and a Corrective Measures Study (CMS), and implementation of Interim Measures (IMs) as necessary. A Phase I Environmental Site Assessment (ESA) was completed for the Facility on May 19, 2014. The Phase I ESA identified Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) across the Facility property that presented potential risks to the environment including buildings and process areas where releases of hazardous substances and/or petroleum products potentially may have occurred. At the time the CD was entered, EPA and MDE had identified eighty-one (81) SWMUs and twenty-eight (28) AOCs at the Facility and designated five special study areas to focus on initially in the SWI, consisting of the Tin Mill Canal/Finishing Mills, Greys Landfill, Coke Point Landfill, Coke Oven Areas and Humphreys Impoundment. The CD did not require implementation of corrective measures, apart from IMs, several of which are currently in operation at the Facility.

BSC declared bankruptcy in 2003, steelmaking continued at the Facility under a series of new owners, each of whom also continued to carry out the work required under the CD. Steelmaking operations at the Facility ended in 2012, when then-owner, RG Steel Sparrows Point LLC, declared bankruptcy. In August 2012 several companies, including Sparrows Point LLC (SPLLC), purchased the Facility from RG Steel Sparrows Point LLC through a bankruptcy sale. SPLLC subsequently acquired all the property interests in the Facility. In July 2014, the District Court entered an amendment to the CD adding SPLLC as a Respondent. Meanwhile, SPLLC had notified EPA and MDE of its interest in selling the Facility to Sparrows Point Terminal LLC (SPTLLC). In September 2014, EPA and MDE entered into a Settlement Agreement and Covenant Not to Sue (SA) that was subject to public comment, and an Administrative Order on Consent (ACO), respectively, with SPTLLC. The agreements, together, provide for the cleanup

of the Facility under both RCRA Corrective Action and Maryland law. SPTLLC subsequently acquired the Facility, and following public comment and publication of EPA's response, the SA was finalized in November 2014. In 2016 SPTLLC changed its name to Tradepoint Atlantic (Tradepoint). Tradepoint has organized the Facility into parcels for redevelopment as commercial, light industrial and logistics facilities.

The EPA and MDE have been working jointly to oversee the investigation and cleanup of the Facility being conducted under MDE's ACO and EPA's SA.

B. Site Geology and Hydrogeology

The Facility is located within the Coastal Plain Physiographic Province, which is the relatively low-lying portion of the Atlantic Slope. The unconsolidated sediments beneath the Sparrows Point Peninsula lie horizontally on a bedrock surface of Precambrian and Early Paleozoic crystalline rock that slopes downward to the southeast. The unconsolidated sediments include (from youngest corresponding to surficial to oldest) recent fill deposits consisting primarily of iron- and steel-making slag; the Pleistocene Talbot Formation (predominantly clays, organic clays, silts, and muds) approximately five to 100 ft. thick; the Upper Cretaceous Patapsco Formation (predominantly sand and gravel interbedded with lenses of sandy clay) approximately 145 to 255 ft. thick; the Upper Cretaceous Arundel Formation (predominantly dense, plastic clays with nodules of iron oxide and a few discontinuous lenses of sand) approximately 20 to 180 ft. thick with an average thickness of 100 ft.; and the Lower Cretaceous Patuxent Formation (interbedded and lenticular beds of gravel, sand, sandy clay, and clay) approximately 50 to 250 ft. thick. The Cretaceous formations comprise the Potomac Group.

The aquifer system immediately underlying the Sparrow's Point Peninsula is called the Lower Patapsco Aquifer system. A deeper confined aquifer exists below the approximately 100 feet overlying Arundel Clay confining unit in the Patuxent Formation and is called the Patuxent aquifer system. Groundwater investigations at Sparrow's Point are conducted solely in the Lower Patapsco because there is no connection between the two aquifers.

Unconfined groundwater exists within the shallow aquifer comprised of the slag fill material, and intermediate and deeper aquifers exist within the Talbot and Patapsco Formations, respectively. The Lower Patapsco aquifers are hydraulically interconnected but are partially separated in areas by discontinuous lenses of silt and clay. Radial flow on the western side of the peninsula is toward Bear Creek and the Patapsco River to the west. Flow on the south side of the peninsula is south toward the southern shoreline and turning basin. Flow on the east side of the peninsula is toward Old Road Bay to the east. Groundwater flow direction within the intermediate aquifer along the western portion of the Peninsula is northwest, influenced by historical pumping activities in the area near the shipyard to the west of the Peninsula. Groundwater flow direction within the intermediate aquifer along the eastern portion of the peninsula is south-southwest in the apparent direction of the natural gradient. Groundwater flow direction within the deep aquifer is unidirectional to the east-northeast.

III. PARCEL DESCRIPTION

The investigation results of the Parcels are presented in the following subsections. Samples of soil, groundwater, and soil gas as necessary were collected at the Parcels and compared with site-wide Project Action Limits (PALs) (screening values) that were established in a Quality Assurance Project Plan, dated April 5, 2016, which in turn were based on EPA's Regional Screening Levels , including a worker composite exposure to soil and potable use of groundwater. The soil vapor levels are from MDE Tier 1 Target Commercial Gas Screening Levels. Each constituent that exceeded its PAL is deemed a Constituent of Potential Concern (COPC).

Complete details, including sampling data, can be found in the individual reports listed in the Index to the AR, and located in the AR. Sampling included soil, groundwater, and sub-slab soil gas at the Parcels. Chemicals of concern (COCs) include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and inorganics (e.g., mercury).

A. Parcel A2

Parcel A2 is comprised of 41 acres **(Figure 2)** and is bound to the south and east by the Baltimore Beltway. This parcel is partially occupied by the Reservoir Road Warehouse and the Process Storage Building, also known as the DACS Building. The remainder of the parcel is occupied by roads or undeveloped areas comprised of open space and woods. The Reservior Road Warehouse was formerly used for material storage of refractory supplies, electrical materials, and other parts. The DACs Building was formerly used for storage of materials, most notably drums containing lubricants. Both the Reservoir Road Warehouse and DACs Building are currently intact and are now occupied.

EPA and MDE approved a Land Use Environmental Covenant (EC) for the northern section of Parcel A2 in October 2019. Once EPA makes a final remedy decision, a separate EC shall be created for the remainder of Parcel A2 (Parcel A2 Remnant Area).

B. Parcel A3

Parcel A3 is approximately 64 acres **(Figure 3)**. Parcel A3 is bounded to the west by Riverside Drive and Bear Creek, to the north by Bethlehem Boulevard and Interstate 695, and to the east by the by Federal Express warehouse facility (also known as Parcel A1). The eastern area of the parcel (Sub-Parcel A3-1), located east of Riverside Drive has undergone recent industrial development as approved in the Response and Development Work Plan (RDWP) submitted to MDE and EPA, which includes construction of a Warehouse/Distribution Center, asphalt paving and landscaped area. The remainder of Parcel A3 (Parcel A3 Remnant Area) consists of an 11.3-acre plot located primarily along the western and southern edges of Sub-Parcel A3-1.

The Rod and Wire Mill was located in the northwestern portion of Parcel A3 and produced rods and wire products from the 1940s to the early 1980s. All manufacturing activities at the Rod and

Wire Mill area ceased operation in the 1980s with subsequent demolition of all structures between 1994 and 2000.

Manufacturing activities at the Rod and Wire Mill included leaching of zinc ore and a subsequent treatment process to remove cadmium impurities. The leaching process was implemented in large tanks located inside the former Rod and Wire Mill building. In the 1950s through the early 1970s, the acidic leach residue was stored in the former Northwest pond until about 1959 when filters were installed to dewater the residues. Dewatered sludge generated from this process was temporarily stored on the ground outside the mill in the Former Sludge Bin Storage Area. Filtrate from the dewatering process was recycled to the wire plating process. Excess filtrate was discharged to the former East Pond until 1971. The operations ended in the early 1980's when the Rod and Wire Mill was shut down. These activities resulted in zinc and cadmium contaminated soil and groundwater. Light non-aqueous phase liquid (LNAPL) was also discovered in shallow groundwater in the northwestern portion of the site in 2015.

C. Parcel B3

Parcel B3 is comprised of 54.3 acres **(Figure 4)**. This parcel is bounded to the west by the Plant Garage and a portion of the former residential area that was occupied by mill workers (within Parcel B2), to the north by the former Finishing Mills Area and the former Hot Strip Mill Area (within Parcel B22 and Parcel B6), to the south by the former Blast Furnace Area (within Parcel B5) and the former Penwood Storage Tank Farm (within Parcel B19), and to the east by the Baltimore County Vehicle Maintenance Shops and Baltimore Fire Academy (within Parcel B7). The parcel is comprised of several buildings which have either been demolished or are proposed for demolition. Parcel B3 also contains the main Tradepoint Atlantic office and the former Roll Grinding Facility, currently occupied by MCM Construction that conducts material handling onsite.

D. Parcel B4 Remnant Area

Parcel B4 is comprised of approximately 72 acres **(Figure 5)**. This SB addresses a portion of Parcel B4 (Remnant Area) which consists of a 36.9-acre plot. This SB does not address the central portion of Parcel B4 which is designated as Sub-Parcel B4-1. Sub-Parcel B4-1consists of approximately 21.0 acres and is now part of the Sub-Parcel B1-1 development. EPA selected a Final Remedy for Sub-Parcel B4-1 in June 2017. Sub-Parcel B4-1 has been redeveloped as an automotive and distribution center (Roll-On, Roll-off or RORO) with development activities including grading, asphalt paving, lighting and security improvements.

E. Parcel B15

Parcel B15 is comprised of 19.3 acres **(Figure 6).** This parcel is bounded to the south by a former Carpenter Shop (within Parcel B23), to the north by the Tin Mill Canal (within Parcel B16), to the west by the Humphrey Creek Waste Water Treatment Plant (within Parcel B24), and to the east by the Finishing Mills Study Area (within Parcel B21). Parcel B15 includes a 4,275-square foot enclosed building that is within the historical Brick Sheds and 4.5 acres of historical pavement and laydown areas. The Brick Sheds are standing on elevated floor slabs with open sides.

IV. SUMMARY OF ENVIRONMENTAL INVESTIGATIONS

The investigation results of the Parcels are presented in the following subsections. Samples of soil, groundwater, and soil gas as necessary were collected at all parcels and compared with site-wide Project Action Limits (PALs) (screening values) that were established in a Quality Assurance Project Plan, dated April 5, 2016. PALs were based on EPA's Regional Screening Levels, including a worker composite exposure to soil and potable use of groundwater. The soil vapor levels are from MDE Tier 1 Target Commercial Soil Gas Screening Levels. Each constituent that exceeded its PAL is deemed a Constituent of Potential Concern (COPC).

Complete details, including sampling data, can be found in the individual reports listed in the Index to the AR, and located in the AR. Sampling included soil, groundwater and sub-slab soil gas at the Parcels.

A Human Health Screening Level Risk Assessment (SLRA) was conducted for all Parcels to evaluate the potential risks for use of the Parcels associated with current and future receptors.

A. Parcel A2

1. Soil Exposure Pathway

A total of 50 soil samples were collected as part of Parcel A2 Phase II Investigation. Soil borings were advanced at 23 locations across the Parcel to assess the presence or absence of soil contamination. Samples were analyzed for VOCs, SVOCs, metals, cyanide, Oil & Grease and PCBs. One SVOC (benzo[a]pyrene) and four inorganic compounds (arsenic, manganese, lead, and hexavalent chromium) were detected above their respective PALs.

2. Groundwater Results

Four temporary groundwater sample collection points were installed to facilitate the collection of groundwater samples at Parcel A2 during the Phase II Investigation. Groundwater samples were analyzed for VOCs, SVOCs, Oil & Grease, Dissolved Metals, and cyanide. No concentration of any VOC compound exceeded its groundwater PAL. 1,4-dioxane is the only SVOC detected at a concentration that exceed its PAL. Four inorganic compounds (arsenic, manganese, cobalt, and iron) were also detected above their respective PALs.

3. Vapor Intrusion

A total of 18 sub-slab temporary monitoring probes were installed in the Reservoir Road Warehouse and the DACS building to collect sub-slab soil gas samples. No VOCs detected in the sub-slab soil gas samples exceeded their respective PALs.

4. Human Health Screening Level Risk Assessment

A SLRA was conducted for soils to evaluate the site conditions in support of the design of necessary response measures at Parcel A2. In surface soils, the SLRA indicated that the cancer risk and the non-cancer hazard index for the Composite Worker do not exceed the target acceptable values.
The carcinogenic risk for the Composite Worker exposure to subsurface soils were below the target. However, an elevated hazard above the acceptable Hazard Index (HI) of 1 was calculated for the nervous system (due to elevated manganese) for a potential Composite Worker exposure to subsurface soils. Based on this assessment, unacceptable risk to a Composite Worker may be encountered if soil disturbances occur that relocate manganese-impacted soils to the surface.

The Construction Worker SLRA for an exposure duration of 35 workdays demonstrated that the cancer risks for surface and subsurface soils were below the acceptable values. In addition, no elevated non-cancer hazards above the HI of 1 were calculated for any target organ for surface or subsurface soils using the 35-day exposure duration. These findings show that there are no potentially unacceptable risks/hazards resulting from exposures to Parcel A2 soils if the duration of intrusive work for future development projects is limited to 35 days.

B. Parcel A3

1. Soil Exposure Pathway

Sub-Parcel A3-1

A total of 159 soil samples were collected and analyzed to assess the presence or absence of soil contamination in Sub-Parcel A3-1. Samples were analyzed for VOCs, SVOCs, Oil & Grease, metals, cynanide, TPH and PCBs. Results show that three VOCs (trichloroethene, 1,2-dibromo-3-chloropropane, and 1,4-dichlorobenzene) and seven SVOCs (all PAHs) were detected above their respective PALs. In addition, two PCB groups, Oil & Grease, and five inorganics (arsenic, manganese, cadmium, lead and hexavalent chromium) were also detected above their respective PALs.

Parcel A3 Remnant Area

Nineteen soil samples were collected from 10 boring locations in and adjacent to the Parcel A3 Remnant Area and analyzed for the same constituents as were analyzed for Sub-Parcel A3-1, listed directly above. Results showed that one SVOC (benzo[a]pyrene), two PCB groups, and four inorganics (arsenic, manganese, thallium and vanadium) exceeded their respective PALs.

2. Groundwater Results

A total of 18 groundwater samples were collected for analysis as part of the Parcel A3 Phase II Investigations. Samples were analyzed for VOCs, SVOCs, Oil & Grease, dissolved metals, cyanide and TPH.

Analytical results identified two VOCs (1,1-dichoroethane and trichloroethene), five SVOCs (benzo{a}anthracene, benzo{b}fluoroanthene, naphthalene, pentachlorophenol and 1,4-dioxane), TPH, Oil & Grease, and eleven inorganic compounds (cadmium, hexavalent chromium, manganese, antimony, iron, zinc, cyanide, vanadium, cobalt, thallium, and arsenic) that were detected above their respective PALs. A groundwater Pump and Treat system was operational at the Rod & Wire Mill between 1986 and 2016 to address groundwater that exhibited elevated concentrations of cadmium and zinc. An interim measure that contains in-situ groundwater treatment of zinc and cadmium contamination is currently in operation at the Rod & Wire Mill.

In addition, a small area of Light Non-Aqueous Phase Liquid (LNAPL) was detected in a Sub-Parcel A3-1 piezometer during the groundwater investigation. Subsequently, the LNAPL was delineated and excavated. Post excavation NAPL monitoring is ongoing in the northern border area of Sub-Parcel A3-1

3. Human Health Screening Level Risk Assessment

Two separate SLRAs were conducted for soils at Sub-Parcel A3-1 and the Parcel A3 Remnant Area, respectively. The SLRAs were conducted to further evaluate the site conditions in support of the design of necessary response measures.

For Sub-Parcel A3-1, the SLRA results for the Composite Worker for both surface and subsurface soils showed cancer risk estimates exceeding 1 in 100,000, but less than 1 in 10,000. There were no unacceptable non-cancer hazard quotients for the Composite Worker. Based on the SLRA findings, EPA is proposing to require that Sub-Parcel A3-1 have an engineered cap to protect Composite Workers. For Construction Workers, the SLRA results show acceptable cancer risk (below 1 in 100,000), but an elevated hazard index (HI) of greater than the target of 1 for surface and subsurface soils. This elevated HI was due to elevated soil cadmium concentrations, which are restricted to specific areas in Sub-Parcel A3-1 (the former East Pond, the former Sludge Bin Storage Area, and the former Northwest Pond). These specific areas will be identified as Cadmium Exclusion Zones, for which intrusive work by construction workers cannot be conducted unless all soils containing cadmium at concentrations greater than 934 mg/kg have first been removed.

In addition, soil Oil & Grease PAL exceedances that do not appear to be petroleum related have been identified in a number of soil borings in Sub-Parcel A3-1. These areas will be evaluated for NAPL mobility, potentially delineated for excavation, and/or assessed relative to proposed subsurface structures. Also, soil lead PAL exceedances were found within the footprint of the proposed building development for Sub-Parcel A3-1 and were further delineated to provide data for input into the EPA Adult Lead Model. While the model results showed no unacceptable risk to potential pregnant workers and the entire lead impacted area will be subject to an engineered cap, the areas of two highest lead concentrations (greater than 10,000 mg/kg) was excavated and removed for an additional degree of worker protection.

For the Parcel A3 Remnant Area, the SLRA results for Composite Worker exposure to surface soil indicate cancer risk and non-cancer hazard estimates below the acceptable targets. However, the sub-surface soil poses an unacceptable non-cancer hazard to the Composite Worker, while

the cancer risk is below the acceptable target. Therefore, the surface soils will be required to remain undisturbed as a natural cap to protect Composite Workers from sub-surface soil exposure. The SLRA does not include an evaluation of Construction Worker risk because it is not anticipated that this Remnant Area could be developed due to its steep grade and location on the bank of Bear Creek.

C. Parcel B3

1. Soil Exposure Pathway

A total of 65 soil samples were collected and analyzed as part of the Parcel B3 Phase II Investigation. Samples were analyzed for SVOCs, TPH and, Oil and Grease, PCBs, inorganics, and cyanide. Results show that exceedances of the PALs in soil within Parcel B3 were limited to a single inorganic constituent: arsenic.

2. Groundwater Results

Groundwater at Parcel B3 was investigated as part of the larger Area B Groundwater Phase II Investigation and the Finishing Mills Phase II Groundwater Investigation. Aqueous PAL exceedances in the shallow groundwater in the vicinity of Parcel B3 consisted of one VOC (benzene), two SVOCs (naphthalene and pentachlorophenol), three inorganic compounds (cobalt, manganese, and hexavalent chromium) and TPH.

3. Vapor Intrusion

A total of seven temporary vapor monitoring probes were installed to collect sub-slab soil gas samples. Three sample locations were completed in the Tradepoint Atlantic Office and four sample locations were completed in the former Roll Grinding Facility (MCM Building). While there were VOCs detected in both buildings, none of the detections exceeded the PALs in any of the sub-slab soil gas samples submitted for analysis. These results indicate no concern for vapor intrusion into existing or future building located on Parcel B3.

4. Human Health Screening Level Risk Assessment

A SLRA was conducted for soils to further evaluate the site conditions in support of the design of necessary response measures, to address the future Composite Worker and Construction Worker in the event that future development is proposed for Parcel B3. The SLRA indicated that the cancer risk and non-cancer hazard estimates were below the acceptable targets for the Composite Worker exposure to surface and sub-surface soils. In addition, the SLRA determined that both cancer risk and non-cancer hazard were below the acceptable targets for a 250-day exposure for the Construction Worker, for both surface and sub-surface soils.

D. Parcel B4 Remnant Area

1. Soil Exposure Pathway

A total of 60 soil samples were collected from 30 boring locations during the Phase II investigation at the Remnant Area of Parcel B4. Soil samples were analyzed for VOCs, SVOCs, TPH, metals, cyanide and PCBs. PAL exceedances in the soil samples relevant for the Parcel B4 Remnant Area included two SVOCs (benzo[a]pyrene and naphthalene), three PCB groups (Aroclor 1254, Aroclor 1260, and total PCBs), and six inorganics (arsenic, chromium VI, lead, manganese, thallium, and vanadium). In addition, one boring location exhibited physical evidence of non-aqueous phase liquid (NAPL) in the soil.

Additional PCB delineation activities were completed to further characterize a detection of PCBs more than 50 mg/kg (the limit at which mandatory excavation and removal of PCB-impacted material is required) at one boring location. PCB delineation activities resulted in the collection of 117 additional soil samples. Results show that vertical distribution of material exceeding 50 mg/kg of total PCBs is limited to the shallow soil.

2. Groundwater Results

Eight shallow groundwater samples were collected from permanent monitoring wells during the Area B Groundwater Phase II Investigation, and the data from these samples were included in the evaluation of current conditions under the Parcel B4 Remnant Area. The groundwater samples were analyzed for VOCs, SVOCs, TPH, metals (total and dissolved), hexavalent chromium (total), cyanide and PCBs. PAL exceedances in the shallow groundwater in the vicinity of the Parcel B4 Remnant Area consisted of two VOCs (benzene and chloroform), four SVOCs (1,1-biphenyl, benz[a]anthracene, benzo[a]pyrene, and naphthalene), three inorganics (cobalt, manganese, and cyanide) and TPH. In addition, a NAPL plume is being delineated around the soil boring with NAPL traces (B4-018-SB).

3. Human Health Screening Level Risk Assessment

A SLRA was conducted for the B4 Remnant Area to evaluate the risk posed by soil exposure to Composite and Construction Workers in support of the design of potential response measures. PCB data from the soil samples exhibiting exceedances of 50 mg/kg of total PCBs were excluded from the SLRA because TPA proposed to excavate and dispose of soils exceeding the threshold of 50 mg/kg. For the lifetime Composite Worker and Construction Worker 80 -day exposure scenarios, SLRA results show that the carcinogenic risk estimates and the non-carcinogenic hazards do not exceed the acceptable values in the Parcel B4 Remnant Area soils.

E. Parcel B15

1. Soil Exposure Pathway

A total of 49 soil samples were collected as part of the Parcel B15 Phase II Investigation. Soil borings were advanced at 21 locations across the parcel to assess the presence or absence of soil contamination. Soil samples were analyzed for SVOCs, metals, TPH, Oil and Grease, PCBs, and cyanide. PAL exceedances in soil within Parcel B15 consisted of five inorganics (arsenic, lead, manganese, thallium, and vanadium), six SVOCs (benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz [a, h] anthracene, indeno [1,2,3-c, d] pyrene, and naphthalene), PCBs, Oil & Grease, and TPH. A number of Parcel B15 soil borings showed evidence of NAPL and/or elevated concentrations of TPH/Oil & Grease. Several of these borings were thoroughly investigated with a piezometer study for indications of NAPL mobility into groundwater. NAPL was not detected in groundwater throughout the investigation, indicating that the observed traces of soil boring NAPL are not mobile.

2. Groundwater Results

Groundwater at Parcel B15 was investigated as part of the Area B Groundwater Phase II Investigation and the Finishing Mills groundwater investigation, plus three additional site-specific temporary wells. PAL exceedances in groundwater at Parcel B15 included two VOCs (tetrachloroethene and chloroform), three SVOCs (1,1-biphenyl, benz[a]anthracene, and naphthalene), two inorganic compounds (thallium and vanadium), TPH, and Oil and Grease.

3. Vapor Intrusion

Three temporary vapor monitoring probes were installed within the enclosed portion of the Southern Brick Shed to collect sub-slab soil gas samples for VOC analysis. None of the VOCs detected exceeded the PALs in any of the sub-slab soil gas samples, indicating no concern for vapor intrusion into the enclosed Southern Brick Shed.

4. Human Health Screening Level Risk Assessment

A SLRA was conducted for soils to further evaluate the site conditions in support of the design of necessary response measures for Parcel B15. The SLRA results for the Composite Worker for both surface and subsurface soils showed cancer risk estimates exceeding 1 in 100,000, but less than 1 in 10,000, and unacceptable hazard indices for surface and sub-surface soils. Based on these results, EPA is proposing to require that Parcel B15 have an engineered cap to protect Composite Workers. For Construction Workers, the SLRA results show acceptable cancer risk and non-cancer hazard for a 35-day exposure to both surface and sub-surface soils.

V. CORRECTIVE ACTION OBJECTIVES

EPA's Corrective Action Objectives for the specific environmental media at the Parcels are as follows:

1. EPA's Corrective Action Objective for soils at the Parcels is to prevent direct human contact with Parcel soils shown to pose unacceptable cancer risk (greater than 1 in 100,000) or non-cancer hazard (greater than a hazard quotient of 1) to composite workers and/or construction workers, as documented in the SLRA.

2. EPA's Corrective Action Objective for soil vapor intrusion into occupied buildings located on the Parcels is to prevent worker exposure to volatile chemicals emanating from subsurface soil or groundwater at concentration exceeding industrial air Regional Screening Levels set at a cancer risk of 1 in 100,000 or hazard quotient of 1.

   While Facility-wide groundwater is being evaluated under the Corrective Action Program, EPA's proposed interim corrective action objective for groundwater at the Parcels is to prevent exposures to hazardous constituents in groundwater that have been detected above applicable PALs.

VI. PROPOSED REMEDY FOR SOILS AND GROUNDWATER

A. Soils

EPA's Proposed Remedies for soils at the Parcels are as described below. Specific requirement for ICs is described in a separate section later in this document. Once EPA selects the Final Remedy for the Parcels, the components of the Final Remedy will be incorporated into and become enforceable under paragraph 72 of the SA. In addition, if required, within sixty (60) days of the issuance of the Final Remedy, TPA shall submit for EPA approval, a Corrective Measures Implementation Workplan ("CMI Workplan") for implementation of the corrective measure selected in the Final Remedy. EPA acknowledges that TPA may not be required to submit a CMI Workplan if EPA determines that all the information required in a CMI Workplan has been included in the Response and Development Workplans (RADWP) submitted for the Parcels. If EPA determines that a CMI Workplan is not required, EPA will so notify TPA, and the RADWP will then be enforceable by EPA under paragraph 72 of the SA.

1. *Parcel A2* – The proposed remedy for soils at Parcel A2 is Land Use Restrictions implemented through Institutional Controls (ICs). As documented in the SLRA, the hazard index for composite workers exceeded 1 for subsurface soils. Therefore, the Parcel A2 property owner shall submit 30-day notification to MDE and EPA of any intrusive soil activities that exceed one foot in depth, consistent with the Parcel A2 Environmental Covenant Institutional Controls Management Plan. Land use restrictions shall be implemented to prevent land use for commercial, recreational, or residential purposes.

2. *Parcel A3* – The proposed remedy for soils in the Sub-Parcel A3-1 Development Area includes some selective removal of contaminated soils followed by the installation of an engineered cap for the entire sub-parcel consisting of building slabs, paving, lined detention ponds, and capped landscaping. The requirements for the individual cap components are described in the Sub-Parcel A3-1 RADWP. Sub-Parcel A3-1-specific ICs will include a prohibition of intrusive construction work in the Cadmium Exclusion Zones, unless all soils containing cadmium at concentrations greater than 934 mg/kg have first been removed. Secondly, if the Sub-Parcel A3-1 property owner proposes intrusive soil disturbance of a duration exceeding 60 days for the building footprint or 120 days for all areas outside the building footprint in a rolling year for construction workers, the property owner shall submit 30-day notification to MDE and EPA which must detail specific measures (modified PPE, OSHA HAZWOP certified workers, cycling of crews, or a revised SLRA) to ensure construction worker protection.

   The proposed remedy for soils in the Parcel A3 Remnant Area is land use restrictions implemented through ICs. The surface soil shall not be disturbed in any way, such that it is maintained as a natural cap protecting workers from sub-surface soil exposure. If a future construction project is proposed for the Parcel A3 Remnant Area, a comprehensive evaluation of Construction Worker risk will be required to be submitted and approved by EPA and MDE prior to any intrusive activities.

In addition, land use restrictions shall be implemented for the entire Parcel A3 in order to prevent land use for commercial, recreational, or residential purposes.

3. *Parcel B3* - The proposed remedy for soils at Parcel B3 is Land Use Restrictions implemented through ICs. Land use restrictions shall be implemented in order to prevent land use for agricultural, recreational, or residential purposes.

4. *Parcel B4 Remnant Area* - The proposed remedy for soils at Parcel B4 Remnant Area is comprised of soil excavation and Land Use Restrictions implemented through ICs. Selective removal of the defined area containing concentrations of total PCBs greater than 50 mg/kg will be conducted. In addition, if the Parcel B4 Remnant Area property owner proposes intrusive soil disturbance of a duration exceeding 80 days in a rolling year for construction workers, the property owner shall submit 30-day notification to MDE and EPA which must detail specific measures (modified PPE, OSHA HAZWOP certified workers, cycling of crews, or a revised SLRA) to ensure construction worker protection. Land use restrictions shall be implemented in order to prevent land use for commercial, recreational, or residential purposes.

   NAPL contamination initially found in a piezometer placed at the B4-018-SB soil boring location in the Parcel B4 Remnant Area will be delineated, and the affected area will be surveyed and monitored. Any future building proposed for the NAPL area shall be required to either include a vapor mitigation system or provide a demonstration via a soil gas survey that such mitigation is unnecessary. Also, if potential future construction includes sub-surface utilities in the vicinity of the soil boring locations which had evidence of NAPL protocols for mitigation of potential product mobility must be specified in a future RADWP.

5. *Parcel B15* - The proposed remedy for soils at Parcel B15 is engineering controls which consist of paved capping on the entire Parcel, and Land Use Restrictions implemented through Institutional Controls. In addition, if the Parcel B15 property owner proposes intrusive soil disturbance of a duration exceeding 35 days in a rolling year for construction workers, the property owner shall submit 30-day notification to MDE and EPA which must detail specific measures (modified PPE, OSHA HAZWOP certified workers, cycling of crews, or a revised SLRA) to ensure construction worker protection. Also, if potential future construction includes sub-surface utilities in the vicinity of the soil boring locations which had evidence of NAPL and/or elevated concentrations of soil TPH/Oil & Grease (B15-003-SB, B15-006-SB, B15-008-SB, B15-017-SB, B15-018-SB, and B15-021-SB), protocols for mitigation of potential product mobility must be specified in a future RADWP.

   Land use restrictions shall be implemented for Parcel B15 in order to prevent land use for commercial, recreational, or residential purposes.

Institutional Controls

EPA's proposed remedy for soils at the Parcels includes the following use restrictions and requirements to be implemented through institutional controls (ICs):

- The Parcels shall not be used for residential purposes, and within 90 days of EPA's issuance of a Final Decision, the then-current owner shall file an environmental covenant to prevent use of the Parcels for residences, schools, day care facilities, or recreational uses that would result in exposure to contaminated soil above residential risk-based concentrations and shall limit land use to commercial or industrial;
- The then-current owner shall maintain the integrity of all caps and covers on Parcels by conducting regular periodic inspections (no less frequently than yearly), making timely repairs if needed, and maintaining a record of such inspection and maintenance.
- All earth moving activities on the Parcels including excavation, grading, and/or utility construction, shall be conducted in compliance with an MDE-approved Soil Management Plan such that the activity will not pose a threat to human health and the environment or adversely affect or interfere with the covered areas;
- A site-specific Health and Safety Plan shall be submitted to MDE and EPA for approval prior to any earth moving activities to protect construction workers from engaging in activities that could expose them to contaminants remaining in soils; and
- The then-current owner shall allow EPA, MDE and/or their authorized agents and representatives, access to the Parcels to inspect and evaluate the continued effectiveness of caps and covers, and (if necessary) to ensure completion of any additional remediation necessary to ensure the protection of public health and safety and the environment.

EPA anticipates that the above-listed use restrictions necessary to prevent human exposure to contaminants remaining in soils at the Parcels will be implemented through an enforceable environmental covenant, filed with the Baltimore County Land Records Office or other appropriate office. If EPA determines that additional maintenance and monitoring activities, use restrictions, or other corrective actions are necessary to protect human health or the environment, EPA has the authority to require and enforce such additional corrective actions through an enforceable instrument, provided any necessary public participation requirements are met.

B. Groundwater

Because contaminants remain in the groundwater at the Facility, while Facility-wide groundwater is being investigated further, EPA is proposing to prohibit the use of groundwater at the Parcels and Sub-Parcels for any purpose as an interim remedy. The groundwater use restriction will be implemented through enforceable ICs in conjunction with the land use restriction described above.

In addition, for any proposed excavation encountering groundwater, the property owner shall implement the requirements of a site-specific health and safety plan to ensure worker protection measures are met and provide 30-day written notification to MDE.

VII. EVALUATION OF PROPOSED REMEDY

For purposes of EPA's evaluation below, the proposed remedy for soils and the proposed interim remedy for groundwater will be hereinafter referred to collectively as the Proposed Remedy.

A. Threshold Criteria

1. Protect Human Health and the Environment

The Proposed Remedy will protect human health from exposure, including future exposure, to soil and groundwater contamination. At Parcels A3 and B15 where capping is proposed, the Proposed Remedy will require that the owner install caps throughout the Parcels where soil samples show exceedances of PALs. In addition, because contaminants will remain in the soil and groundwater at the Parcels at levels inappropriate for residential use, EPA's Proposed Remedy requires land and groundwater use restrictions that will prohibit future uses that would pose an unacceptable risk.

2. Achieve Media Cleanup Objectives

EPA's Proposed Remedy meets the soil cleanup objectives appropriate for the current and reasonably anticipated future land use. The Proposed Remedy does not include cleanup of groundwater, which will instead be addressed separately by a Facility-wide groundwater remedy developed for the entire 3,100-acre Sparrows Point Facility. In the short-term, the Proposed Remedy will prohibit potable use of groundwater at the Parcels.

3. Remediating the Source of Releases

The soil management procedures will require the proper removal and disposal of potentially contaminated soils that are disturbed during any construction/excavation activities conducted on-Site in accordance with applicable state and federal laws and regulations, thereby removing the source of contaminants from Facility soils and thereby reducing the potential for contaminants to migrate from those soils to groundwater. In addition, selective excavation and removal of contaminated soils will reduce the potential for future releases at the affected Parcels.

B. Balancing/Evaluation Criteria

1. Long-Term Effectiveness

The Proposed Remedy will provide long-term effectiveness in protecting human health and the environment by controlling exposure to contaminants remaining in soils. Land use restrictions will prohibit use of the Parcels for residences, schools, day care facilities, and recreational uses that could result in exposure to contaminated soil above residential risk-based concentrations. The Proposed Remedy requires compliance with an MDE-approved Soil Management Plan to control exposure to and spread of contaminated soil during construction and regrading activities. Additionally, the ICs will impose a requirement that the owner inspect the engineering covers at

Parcels A3 and B15 no less than annually, and to make repairs as necessary. While EPA is not proposing a remedy for groundwater in this SB, EPA is proposing an interim remedy which will provide long-term effectiveness by prohibiting groundwater withdrawal for all potable uses.

2. Reduction of Toxicity, Mobility, or Volume of the Hazardous Constituents

Compliance with an MDE-approved Soil Management Plan in construction and landscaping activities will control exposure and spread of contaminated soil. No new activities are anticipated at the Parcels that would further contaminate soil or groundwater.

3. Short-Term Effectiveness

The installation of caps and covers requires minimal installation time, minimal excavation, and minimal offsite disposal which minimizes short-term exposure to contaminated soil. The work that was performed in accordance with the approved RDWP at Parcels A3 and B15 was carried out by qualified persons in compliance with the MDE-approved Soil Management and an acceptable health and safety plan.

4. Implementability

EPA does not anticipate any technical or institutional constraints that will inhibit installation of the covers or implementation of the ICs proposed.

5. Cost

The Proposed Remedy will meet the corrective action objectives at a cost significantly lower than other alternatives such as complete removal of contaminated media. The remedy construction and maintenance costs are incorporated into the necessary costs to develop the Parcels.

6. Community Acceptance

EPA will solicit public comment on the Proposed Remedy and will review comments received during the 30-day public comment period to evaluate community acceptance. If requested, a public meeting will be held. Responses to comments and any subsequent modifications to the Proposed remedy will be included in EPA's Final Decision and Response to Comments.

7. State/Support Agency Acceptance

MDE and EPA have jointly conducted this investigation. The Proposed Remedy is consistent with applicable MDE requirements and addresses the applicable requirements of MDE Voluntary Cleanup Program.

VIII. FINANCIAL ASSURANCE

The ACO requires Tradepoint to establish and maintain financial assurance for completion of work in accordance with Section XIII (Financial Assurance) of the ACO. Tradepoint has provided MDE a copy of the Trust Agreement and documentation that the Trust has been initially funded with $43 million, in addition to a $5 million letter of credit. This financial assurance, for which MDE is the custodian, will also satisfy EPA's financial assurance requirements for this Proposed Remedy.

IX. PUBLIC PARTICIPATION

Before EPA selects a Final Remedy for the Parcels, the public may participate in the remedy selection process by reviewing this SB and documents contained in the Administrative Record (AR). The AR contains all information considered by EPA in reaching this proposed decision and is available for public review during office hours at two locations:

Barbara Brown
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard Baltimore, Maryland 21230
(410) 537-3493

Or

Moshood Oduwole
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103
(215) 814-3362

Interested parties are encouraged to review the AR and comment on EPA's Proposed Remedy. The public comment period will last thirty (30) calendar days from the date that notice is published in a local newspaper. You may submit comments by mail, fax, or e-mail to Mr. Moshood Oduwole, EPA project manager. EPA may hold a public meeting to discuss this Proposed Remedy upon request, which should also be made to Mr. Oduwole whose contact information is listed above.

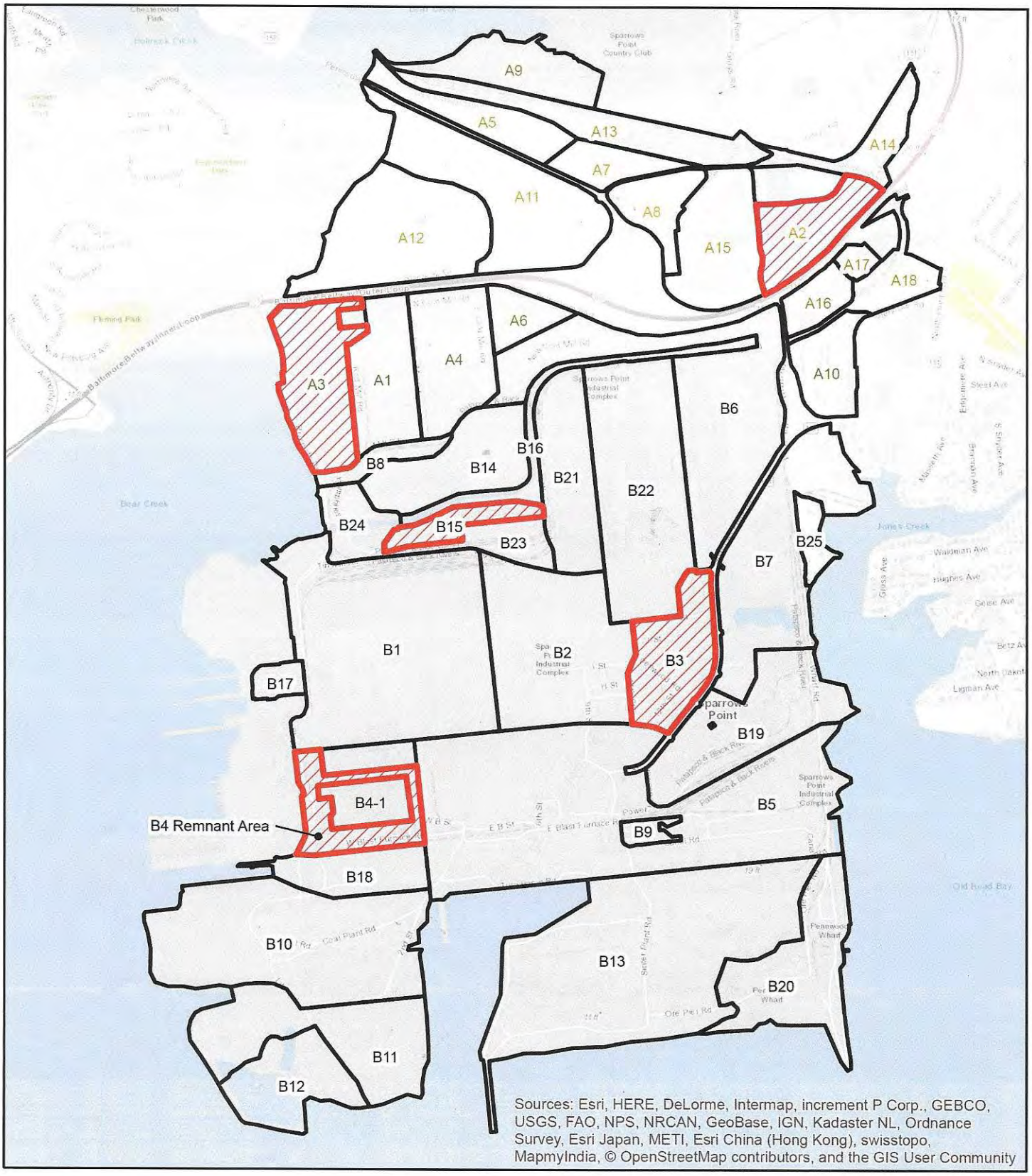
EPA will respond to all relevant comments received during the comment period. If EPA determines that new information warrants a modification to the Proposed Remedy, EPA will modify the Proposed Remedy or select other alternatives based on such new information and/or public comments. EPA will announce its Final Remedy and explain the rationale for any changes in the Final Decision. All persons who comment on this Proposed Remedy will receive a copy of the Final Decision. Others may obtain a copy by contacting Mr. Oduwole at the address listed above.

Date: 3.3.20

John Armstead, Director
Land, Chemicals and Redevelopment Division
U.S. Environmental Protection Agency, Region III

INDEX OF ADMINISTRATIVE RECORD

1. Phase 1 Environmental Site Assessment – Former RG Steel Facility Final Draft May 19, 2014.
2. Phase II Investigation Report – Area A: Parcel A2 Revision 4 March 14, 2018.
3. Environmental Covenant – Reservoir Road (Parcel A2 or Land Unit 5) October 2019.
4. Phase II Investigation Report – Area A: Parcel A3 Revision 0 June 10, 2016.
5. Response and Development Work Plan – Area A: Sub-Parcel A3-1 Revision 3 April 24, 2017.
6. Response and Development Work Plan Addendum – Area A: Sub-Parcel A3-1 December 13, 2019.
7. Screening Level Risk Assessment Report – Area A: Parcel A3 Remnant Area Revision 0 August 30, 2019.
8. Phase II Investigation Report – Area B: Parcel B3 Revision 0 April 13, 2018
9. Technical Memorandum- Delineation of NAPL (RW22-PZM)- Parcel A3 June 14, 2017
10. Response to MDE/EPA Comments – RW-052-SB Lead Excavation Work May 18, 2017.
11. Phase II Investigation Report – Area B: Parcel B4 revision 0 March 3, 2017
12. Statement of Basis – Parcel A1 and Sub-Parcel B4-1 February 2017.
13. Screening Level Risk Assessment Report – Area B: Parcel B4 Remnant Area Revision 0 August 2019.
14. Phase II Investigation Report – Area B: Parcel B15 Revision 1 April 2018.



N
W E
S

0 0.25 0.5 0.75 1 Miles

Figure 1
TradePoint Atlantic
Sparrows Point, MD
EPA ID # MDD053945432

Parcels for Proposed Remedy

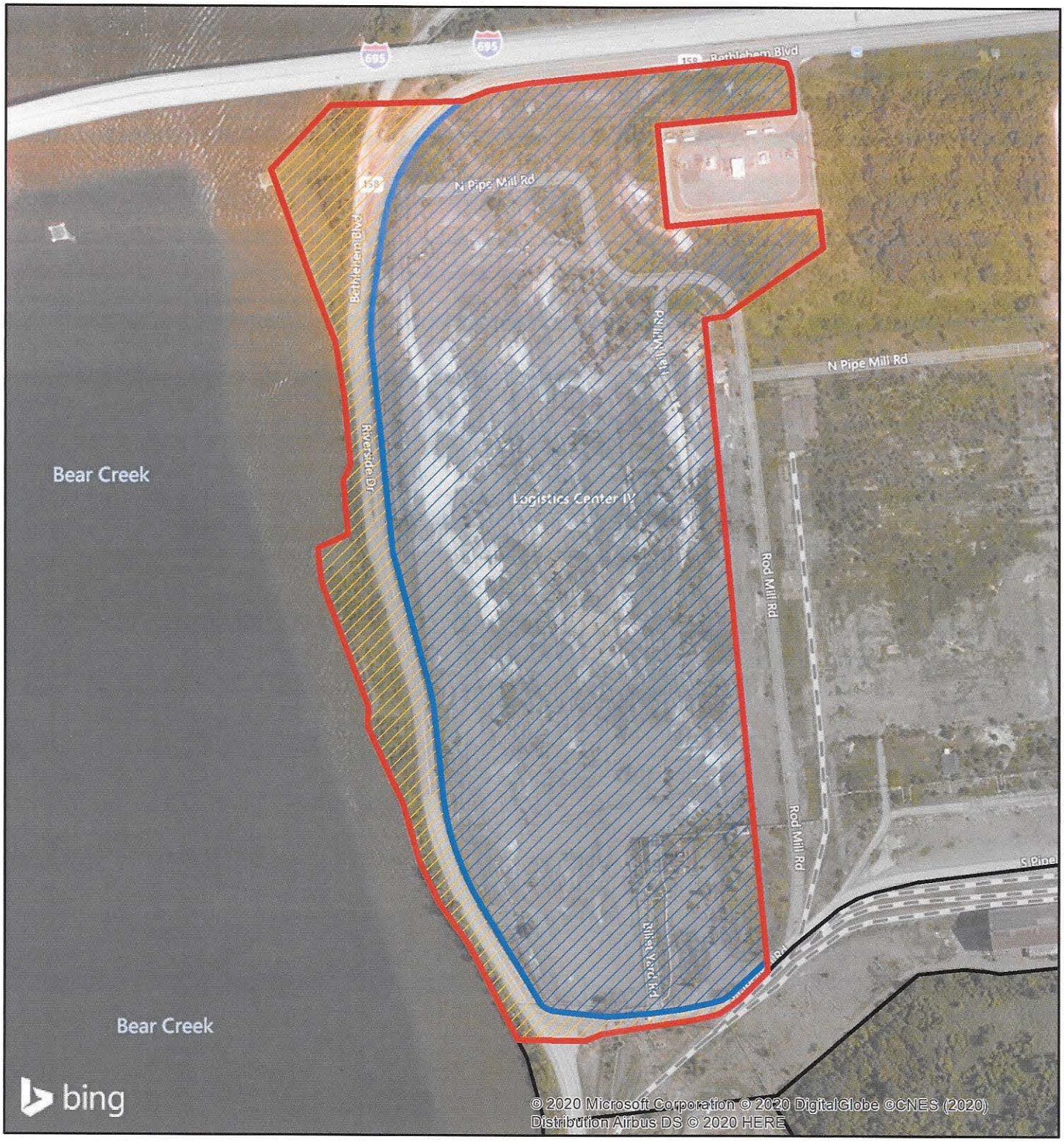
Parcel Boundaries

N
W E
S

0 250 500 750 1,000
Feet

Figure 2
TradePoint Atlantic
Sparrows Point, MD
EPA ID # MDD053945432

Parcel A2
Area of Existing Environmental Covenant
Parcel A2 Remnant Area



N
W E
S

0 200 400 600 800 1,000
Feet

Figure 3
TradePoint Atlantic
Sparrows Point, MD
EPA ID # MDD053945432

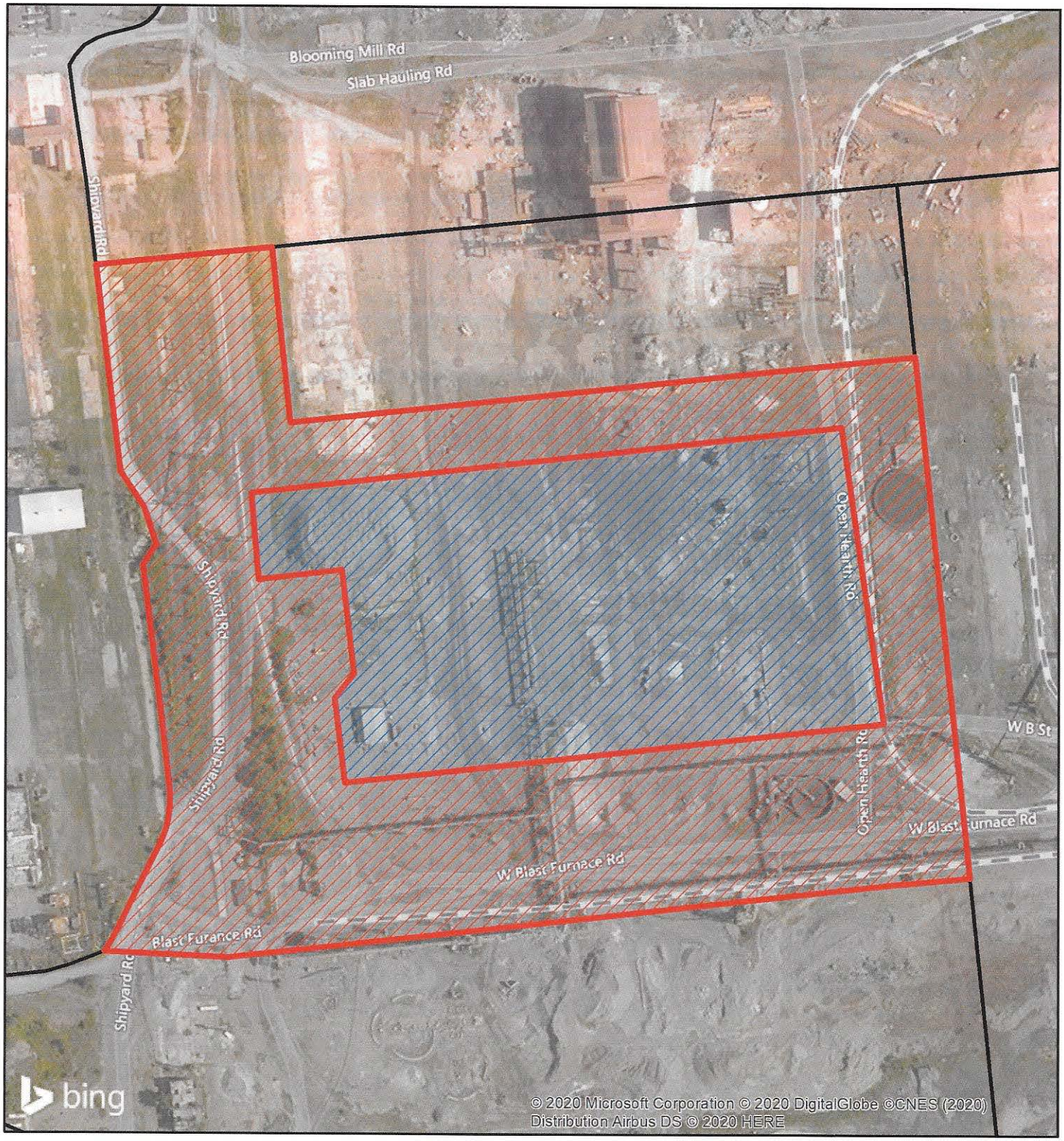
Parcel A3
Sub-Parcel A3-1
Parcel A3 Remnant Area

N
W E
S

0 200 400 600 800 1,000
Feet

Figure 4
TradePoint Atlantic
Sparrows Point, MD
EPA ID # MDD053945432

Parcel B3



N
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0 200 400 600 800 1,000
Feet

Figure 5
TradePoint Atlantic
Sparrows Point, MD
EPA ID # MDD053945432

Parcel B4 Remnant Area
Sub-Parcel B4-1

N
W E
S

0 200 400 600 800 1,000
Feet

Figure 6
TradePoint Atlantic
Sparrows Point, MD
EPA ID # MDD053945432

Parcel B15