RESPONSE AND DEVELOPMENT COMPLETION REPORT

AREA B: SUB-PARCEL B1-1
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:

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1600 Sparrows Point Boulevard
Sparrows Point, Maryland 21219

Prepared By:

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ARM Project No. 20010201

Respectfully Submitted,
ARM Group LLC

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Revision 0 – September 17, 2020

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1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic, has prepared this Response and Development Completion Report for the portion of the Tradepoint Atlantic property that has been designated as Area B: Sub-Parcel B1-1 (the Site). Parcel B1 is comprised of approximately 217 acres of the approximately 3,100-acre former plant property. Sub-Parcel B1-1 consists of approximately 116 acres located primarily within Parcel B1 and extending into Parcel B4 and Parcel B5, located as shown on **Figure 1**. All documents related to the investigation and development of the sub-parcel are listed in the Reference List in **Appendix A**. Copies of relevant email communication are provided in **Appendix B**.

Phase II Investigations specific to soil and groundwater conditions were performed for the areas surrounding Sub-Parcel B1-1 in accordance with the following agency-approved Phase II Investigation Work Plans:

- Area B: Parcel B1 (Revision 3) dated March 3, 2016.
- Area B: Parcel B4 (Revision 1) dated July 8, 2016.
- Area B: Parcel B5 (Revision 1) dated December 3, 2015.
- Area B Groundwater Investigation (Revision 3) dated October 6, 2015.

The full analytical results and conclusions of each investigation have been presented to the agencies in the following Phase II Investigation Reports:

- Area B: Parcel B1 (Revision 1) dated August 7, 2019.
- Area B: Parcel B4 (Revision 1) dated August 7, 2019.
- Area B: Parcel B5 (Revision 3) dated July 8, 2019.
- Area B Groundwater Investigation (Revision 0) dated September 30, 2016.

The Sub-Parcel B1-1 Response and Development Work Plan (RADWP) (Revision 1) and accompanying Comment Response Letter were submitted on August 30, 2019. A previous revision of the RADWP was approved for implementation by the Maryland Department of the Environment (MDE) on July 30, 2019. A subsequent addendum to the RADWP addressing a proposed stormwater utility modification, dated February 2, 2020, was approved by the MDE on February 28, 2020 with comments. The comments were resolved via email on March 4, 2020.

The development of Sub-Parcel B1-1 as a parking complex generally included grading, placement of subbase, installation of underground utilities, construction of minor support structures, paving, landscape capping, and railway capping.

1.1. REPORT PURPOSE

The purpose of this Response and Development Completion Report is to document response actions and development activities undertaken in order to secure a No Further Action (NFA) Letter and Certificate of Completion (COC) for the Site. In addition, this report is being submitted in accordance with the requirements outlined in the following agreements:

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

The following section (Section 1.2) provides the project background and Section 1.3 provides an overview of the Site development and response action activities. The response actions performed are described in Section 2.0, site development activities are summarized in Section 3.0, and conclusions are provided in Section 4.0.

1.2. PROJECT BACKGROUND

1.2.1. Site Description and History

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

The Sub-Parcel B1-1 Development Area occupies the central portion of Parcel B1 and northern portions of Parcel B4 and Parcel B5. These areas of the Tradepoint Atlantic property were formerly occupied by portions of the main steel making area and various support facilities. The area of Parcel B1 occupied by the Site included a large section of the Primary Rolling Mills Area. The small area of Parcel B5 in the southeastern corner of the Site was formerly occupied by the Open Hearth Furnace Area (which also extended into the southern portion of Parcel B1 and eastern portion of Parcel B4). Both of these areas contained multiple iron and steel industrial work processes including material heating furnaces, soaking pits, descaling operations, storage yards (Mould Yard), and rolling and coiling operations. The portion of Parcel B4 located within Sub-Parcel B1-1 was formerly occupied by storage yards/buildings and repair shops. More information regarding the specific historical activities conducted in each area can be found in the agency-approved Phase II Investigation Work Plans for Parcel B1 (Revision 3 dated March 3, 2016),

Parcel B4 (Revision 1 dated July 8, 2016), and Parcel B5 (Revision 1 dated December 3, 2015). All buildings were demolished, and vegetation was removed, prior to the start of development activities.

1.2.2. Historical Environmental Activities

Prior to demolition of structures, the Development Area was formerly occupied by portions of the main steel making area and various support facilities. A Phase I ESA was completed by Weaver Boos Consultants for the entire Sparrows Point property on May 19, 2014. The Phase I ESA identified particular features across the Tradepoint Atlantic property which presented potential risks to the environment. The results of the Phase I ESA are described in more detail in the Sub-Parcel B1-1 RADWP (Revision 2 dated July 7, 2017).

The Phase I ESA identified the following RECs within the Sub-Parcel B1-1 boundaries:

- Waste Oil Stabilization/Packing Area (REC 9A, Finding 233)
- Rolling Mills Impoundment (REC 9B, Finding 238)

Relevant SWMUs and AOCs were also identified as located in Figure 3-1 from the DCC Report. There were no AOCs identified within the Sub-Parcel B1-1 boundary. The following SWMUs were identified within the Sub-Parcel B1-1 boundary:

- RCRA Regulated Storage Area (SWMU 193)
- Rolling Mill Scale Pit (SWMU 92)

1.2.3. Phase II Investigation

Phase II Investigations specific to soil and groundwater conditions were performed for the areas surrounding Sub-Parcel B1-1 in accordance with the requirements outlined in the ACO as further described in the following agency-approved Phase II Investigation Work Plans:

- Area B: Parcel B1 (Revision 3) dated March 3, 2016.
- Area B: Parcel B4 (Revision 1) dated July 8, 2016.
- Area B: Parcel B5 (Revision 1) dated December 3, 2015.
- Area B Groundwater Investigation (Revision 3) dated October 6, 2015.

All soil and groundwater samples were collected and analyzed in accordance with agency-approved protocols during these Phase II Investigations, the specific details of which can be reviewed in each agency-approved Work Plan. Each Phase II Investigation was developed to target specific features which represented a potential release of hazardous substances and/or petroleum products to the environment, including RECs, SWMUs, and AOCs as well as numerous

other targets defined from former operations that would have the potential for environmental contamination. Samples were also collected at site-wide locations to ensure full coverage of each investigation area. The full analytical results and conclusions of each investigation have been presented to the agencies in the following Phase II Investigation Reports:

- Area B: Parcel B1 (Revision 1) dated August 7, 2019.
- Area B: Parcel B4 (Revision 1) dated August 7, 2019.
- Area B: Parcel B5 (Revision 3) dated July 8, 2019.
- Area B Groundwater Investigation (Revision 0) dated September 30, 2016.

1.3. SITE DEVELOPMENT AND RESPONSE ACTIONS

The Site has been developed for use as a parking complex. The parking complex includes two above grade processing buildings totaling approximately 73,000 square feet and 88,000 square feet, respectively, and associated access roads and intersections. Development activities generally included utility installations, grading, and hot mix asphalt (HMA) paving. Outside of the main development area, temporary construction zones with a total area of approximately 0.5 acres were utilized to install the facility entrance and subgrade utilities for the project. The temporary utility work outside of the boundary of the Site is not intended to be the basis for the issuance of a NFA or a COC, although the scope of construction is covered by the Sub-Parcel B1-1 RADWP and Addendum. Subsequent site-use would involve large-scale parking and vehicle work in the processing buildings.

The response and development actions approved for protection of human health and the environment at the Site included proper abandonment of piezometers, delineation and removal of petroleum-contaminated soil in two areas, and environmental capping.

2.0 RESPONSE ACTIVITIES

2.1. WELL ABANDONMENT

Permanent groundwater monitoring wells SW12-PZP001, SW-060-MWS, SW-061-MWS, SW-062-MWS, SW-063-MWS, and SW-068-MWS, which were located inside the Sub-Parcel B1-1 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on March 21, 2019 and on June 24, 2019, prior to the start of development activities. An additional permanent monitoring well, SW-031-MWS, was properly abandoned on March 17, 2020due to its interference with the construction of the interim access road described in Section 3.3.

Deep production wells #1: BA-81-2742 and #2A: BA-81-2741 were abandoned in May 2019 by A.C. Schultes, contracted by Tradepoint Atlantic.

There are no remaining wells (or piezometers) on the sub-parcel.

Abandonment records are provided in **Appendix C**.

2.2. EXCAVATION ACTIVITIES

Two piezometers (B5-098-PZ and B5-099-PZ) within the Sub-Parcel B1-1 development area had measurable NAPL accumulation and were excavated following the Parcel B5 Phase II Investigation. Impacted soils were excavated as documented in the report titled Response Action Completion Report for Area B: Parcel B5, B5-098 Response Areas dated July 12, 2019 (**Appendix D**). A total of approximately 5,700 cubic yards (bank) of soil was removed during excavation. The NAPL-impacted soil was taken to the on-site industrial landfill (Greys Landfill) following laboratory analysis. Representatives from the MDE visited the Response Area on May 13, 2019 and gave approval to backfill following their instructions to excavate additional identified impacted material in a few small areas along the northern perimeter of the main excavation area.

Elevated concentrations of diesel range organics (TPH-DRO) and polynuclear aromatic hydrocarbons (PAHs) were detected at boring location B5-161-SB during the Parcel B5 Phase II Investigation. A piezometer was installed at the location, and NAPL was not detected. Per request of the MDE, additional investigation was performed at the location. Test pits were completed, as documented in the Test Pitting Completion Letter for B5-161-SB dated July 12, 2019 (**Appendix D**). Due to the proximity to location B5-098-PZ, excavated material from the test pits and soil removal was managed concurrently.

3.0 SITE DEVELOPMENT ACTIVITIES

This section presents a summary of the completed development work as well as materials management and other protocols that were followed during the development of Sub-Parcel B1-1 to adequately mitigate potential risks for future uses of the property. The development area is shown in **Figure 2** and **Figure 3**.

Development activities began in August 2019 with ARCO as the General Contractor. Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities to ensure compliance with environmental regulations and the development plans, including performing dust monitoring and soil screening services. The Notice of Completion of Remedial Actions letter provided by HCEA (**Appendix E**) states that the environmental cap was constructed in general accordance with the Sub-Parcel B1-1 RADWP and Addendum. Select Daily Field Reports prepared by the EP are included in **Appendix F**. One notable occurrence occurred during development on January 31, 2020 and is discussed in further detail in Section 3.12. Only those field reports from notable occurrences have been included. Select photos from general development activities are included in **Appendix G**.

Site development activities are discussed in the Quarterly Development Status Updates for the third quarter of 2019 through the second quarter of 2020 (**Appendix H**). The following sections provide information not covered in the Quarterly Development Status Updates.

3.1. PRE-CONSTRUCTION MEETING

Prior to any earthwork being conducted on-site, a pre-construction meeting was held to address proper operating procedures for working on-site and handling potentially contaminated material. Records are provided in **Appendix I**.

3.2. RADWP ADDENDUM – STORMWATER UTILITY LINE

An addendum to the RADWP addressing a proposed stormwater utility modification, dated February 2, 2020, was approved by the MDE on February 28, 2020 with comments. The comments were resolved via email on March 4, 2020. The stormwater utility line was constructed in accordance with the RADWP Addendum. Details regarding soil management and a notable occurrence are provided in the following sections. The MDE had inquired about an existing rail line on Parcel B4 that would be impacted by the stormwater utility alignment. During installation, the rail line was not disturbed. The contractors were able to excavate on both sides of the rail line and dig under the rail line to install the stormwater utility.

3.3. ACCESS ROAD

An interim access road for use in roll on- roll off (RORO) activities for Sub-Parcel B1-1, also referred to as the "Berth Road", was constructed in accordance with the specifications provided to the MDE via email from Tradepoint Atlantic (**Appendix B**). The paving of the road will serve as an environmental cap and was installed to the required thicknesses specified in the RADWP and Addendum. Utility construction completed for the access road was constructed in accordance with the Sub-Parcel B1-1 RADWP soil management and health and safety protocols. The road area has been included in the 116-acre total sub-parcel area. The interim access roadway was not covered in the Screening Level Risk Assessment (SLRA) discussed in the RADWP. Tradepoint Atlantic will retain the roadway long-term and will maintain it in accordance with the maintenance requirements of the RADWP and this Completion Report. The alignment of the access road is shown on **Figure 4**.

3.4. GRADING AND SITE PREPARATION

Slag fill from elsewhere on the Tradepoint Atlantic property was placed across the entire site as sub-base beneath capped and landscaped areas. Mass grading was performed across the entire site. Materials that did not exhibit evidence of impacts that were removed during grading activities were placed beneath capped areas. Material with evidence of impacts was stockpiled and managed as discussed in Section 3.6. No materials left the 3,100 acre property.

3.5. UTILITY INSTALLATION

Excavated material that did not exhibit evidence of impacts was replaced inside utility trenches as backfill or was placed on-site under capped areas.

3.6. FILL MATERIALS

The following fill materials were used during the development of Sub-Parcel B1-1:

- #57 Stone from Blue Grass (used as site backfill), previously approved by the MDE for use as clean fill at the Sparrows Point property via email on March 20, 2017;
- CR-6 stone from Martin Marietta (used as site backfill), previously approved by the MDE for use as clean fill at the Sparrows Point property via email on October 30, 2019;
- Clean fill from Sub-Parcel B2-2 Logistics Center X excavation spoils, approved by the MDE via email on September 9, 2019;
- Topsoil from Port Covington, approved by the MDE via email on September 24, 2019; and
- #57 Stone from Vulcan Materials Company (used as railway ballast and sub-ballast), approved by the MDE via email on November 18, 2019.

Fill approval documentation is provided in **Appendix J**.

3.7. PLACEMENT OF SUB-BASE

Processed slag aggregate from elsewhere on the Tradepoint Atlantic property was brought to the Site and graded. Mass grading was performed across the entire Site.

3.8. SOIL SAMPLING AND DISPOSAL

Details regarding the sampling and disposal of excavated materials are presented in the Quarterly Status Updates for the third quarter of 2019 through the second quarter of 2020 (**Appendix H**). It should be noted that the Quarterly Development Status Update for the first quarter of 2020 incorrectly reported a total volume of impacted material of 3,550 cubic yards generated during utility work under the RADWP Addendum. The actual amount of impacted material generated in the first quarter of 2020 was 400 cubic yards. The value has been corrected in the document included in **Appendix H**. The results of stockpile sample laboratory testing for all excavated materials tested during the duration of the Sub-Parcel B1-1 development are included in **Appendix K**. The material remains stockpiled in the area to the south of the Sub-Parcel B1-1 development boundary, within the area covered by the RADWP Addendum.

Approximately 1,000 cubic yards of excess screened soil with no evidence of contamination has been stockpiled in the eastern portion of Parcel B18. To date, samples have been submitted for laboratory analysis in order to seek MDE approval for reuse elsewhere on the Tradepoint Atlantic property.

3.9. DUST CONTROL

General construction operations, including removal of existing foundations or utilities, soil excavation and transport, soil grading, trenching for utilities, and cap construction activities were performed at the Site. To limit worker exposure to contaminants borne on dust and windblown particulates, dust control measures were to be implemented, if warranted when the above activities were performed. The action level used for the purpose of determining the need for additional dust suppression techniques (e.g. watering and/or misting) during the response and development activities on Site was 3.0 mg/m³.

Dust monitoring was performed with three MetOne E-sampler dust monitors. The dust monitors were placed daily upwind of, downwind of, and inside the active work zone. Dust readings were recorded at each monitor at a rate of once per minute. Daily summaries of 15-minute average dust readings are provided as an electronic attachment. Dust control measures were to be implemented if a sustained level above 3.0 mg/m^3 was observed. Some exceedances of the 3.0 mg/m^3 action level were observed during construction activities. However, the exceedances appeared to be associated with trucks passing near the monitor and were not sustained for more than two minutes. After electronic dust monitoring was terminated, the EP continued to monitor for visible dust. The Contractor utilized a water truck to mitigate dust generation during the development work operations.

3.10. WATER MANAGEMENT

During the development of Sub-Parcel B1-1, all dewatering discharges discharged to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) via the Tin Mill Canal. All dewatering discharges were pumped through filter bags prior to conveyance to the Tin Mill Canal. No aqueous samples were collected during the development of Sub-Parcel B1-1.

3.11. HEALTH AND SAFETY

The contractor was responsible for following safety procedures, including schedule limitations, to control contact with potentially contaminated soil or groundwater. The RADWP specified limits for exposure days of ground-intrusive work for each employee. In lieu of tracking exposure days, the site contractors elected to employ Modified Level D personal protective equipment (PPE), as allowed by the RADWP. Acknowledgement forms signed by the site contractors are provided in **Appendix L**.

3.12. NOTABLE OCCURRENCES

On January 31, 2020, soil exhibiting odors and elevated PID readings as well as free product were detected during storm drain test pit excavation in the area to the south of the sub-parcel covered under the RADWP Addendum. Work in the area was stopped, and the MDE was notified by Tradepoint Atlantic. On February 3, 2020, HCEA used absorbent pads to remove any potential free product from the groundwater. The MDE visited the site on February 3, 2020 to observe the test pit and requested that additional material be removed from the western side of the excavation. The MDE also requested that test pits be excavated south and east of the area. The requested test pits, as well as the removal of additional soils from the western portion of the area, were performed on February 5, 2020. No evidence of NAPL was detected during the additional excavation activities. HCEA continued to monitor groundwater in the excavation and no reoccurring sheen or product was detected inside the pit. The apparent source of the contamination was a concrete obstruction that was removed from the ground.

Following the observation of free product on January 31, 2020, all potential product was removed with absorbent pads. HCEA continued to monitor the water, and after several days with no product reappearing in the excavation, approval was granted by Tradepoint Atlantic to pump the water to the HCWWTP. The excavation was monitored for approximately two weeks before being backfilled. An email record from Tradepoint Atlantic to the MDE is included in **Appendix B**.

The relevant Daily Field Reports are provided in **Appendix F**.

3.13. PAVING

As stated in the Notice of Completion of Remedial Actions prepared by HCEA (**Appendix E**), the environmental cap installed during the Sub-Parcel B1-1 development meets the required thicknesses specified in the RADWP and Addendum.

3.14. LANDSCAPED AREAS AND RAILWAY CAPS

As stated in the Notice of Completion of Remedial Actions (**Appendix F**), capping in the majority of the landscaped areas was installed to meet the specifications established in the Sub-Parcel B1-1 RADWP. VCP approved fill was placed as fill beneath landscaped areas. As discussed above in Section 3.4 (Fill Materials), the materials used in landscaped areas were approved by the MDE (**Appendix J**).

The selected marker fabric (see **Appendix M**) meets the specifications given in the RADWP.

Railway tracks were constructed as described in the RADWP with ballast and sub-ballast materials approved by the MDE as discussed above in Section 3.4 (Fill Materials).

3.15. INSTITUTIONAL CONTROLS (FUTURE LAND USE CONTROLS)

Long-term conditions related to future use of the Site will be described within the No Further Action Letter (NFA) and COC. These conditions are anticipated to include the following:

- A restriction that limits the use of the property to industrial land use.
- 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.
- Notice to MDE prior to any future soil disturbance activities at the Site below areas designated for engineering controls. This written notice will be required at least 30 days prior to any planned excavation activities at the Site that will penetrate through the cap.
- Requirement for a HASP in the event of any future excavations at the Site.
- Complete appropriate characterization and disposal of any future material excavated from beneath the cap in accordance with applicable local, state and federal requirements.
- Implementation of inspection procedures and maintenance of the containment remedies as outlined the following section.

The responsible party will file the above deed restrictions as defined by the MDE VCP in the NFA and COC. The soil disturbance and maintenance requirements will apply to the entire Site. The entire Site will be subject to the industrial use groundwater use restrictions.

3.16. POST REMEDIATION REQUIREMENTS

Post remediation requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site. Deed restrictions will be recorded within 30 days after receipt of the final NFA.

Maintenance requirements will include inspection and maintenance of landscape and hardscape capped areas to minimize degradation of the cap and exposure to the underlying soil. Specific inspection protocols and maintenance schedules will be addressed in an Institutional Controls and Operations & Maintenance Plan, specific to Sub-Parcel B1-1, to be submitted under separate cover.

The responsible party will perform cap maintenance inspections, perform maintenance of the cap, and retain cap inspection records. Areas of the cap that have degraded will be repaired in accordance with the Institutional Controls and Operations & Maintenance Plan. The MDE shall be notified within ten business days of any repairs that are the result of cap failure. The notification will include documentation of the conditions being repaired and the location of the repair.

In addition, the MDE will be provided with a written notice at least 30 days prior to any planned excavation activities at the Site that will penetrate through the cap. Written notice of planned excavation activities will include the proposed date(s) for the excavation, location of the excavation, health and safety protocols (as required), clean fill source (as required), and proposed characterization and disposal procedures.

4.0 CONCLUSION

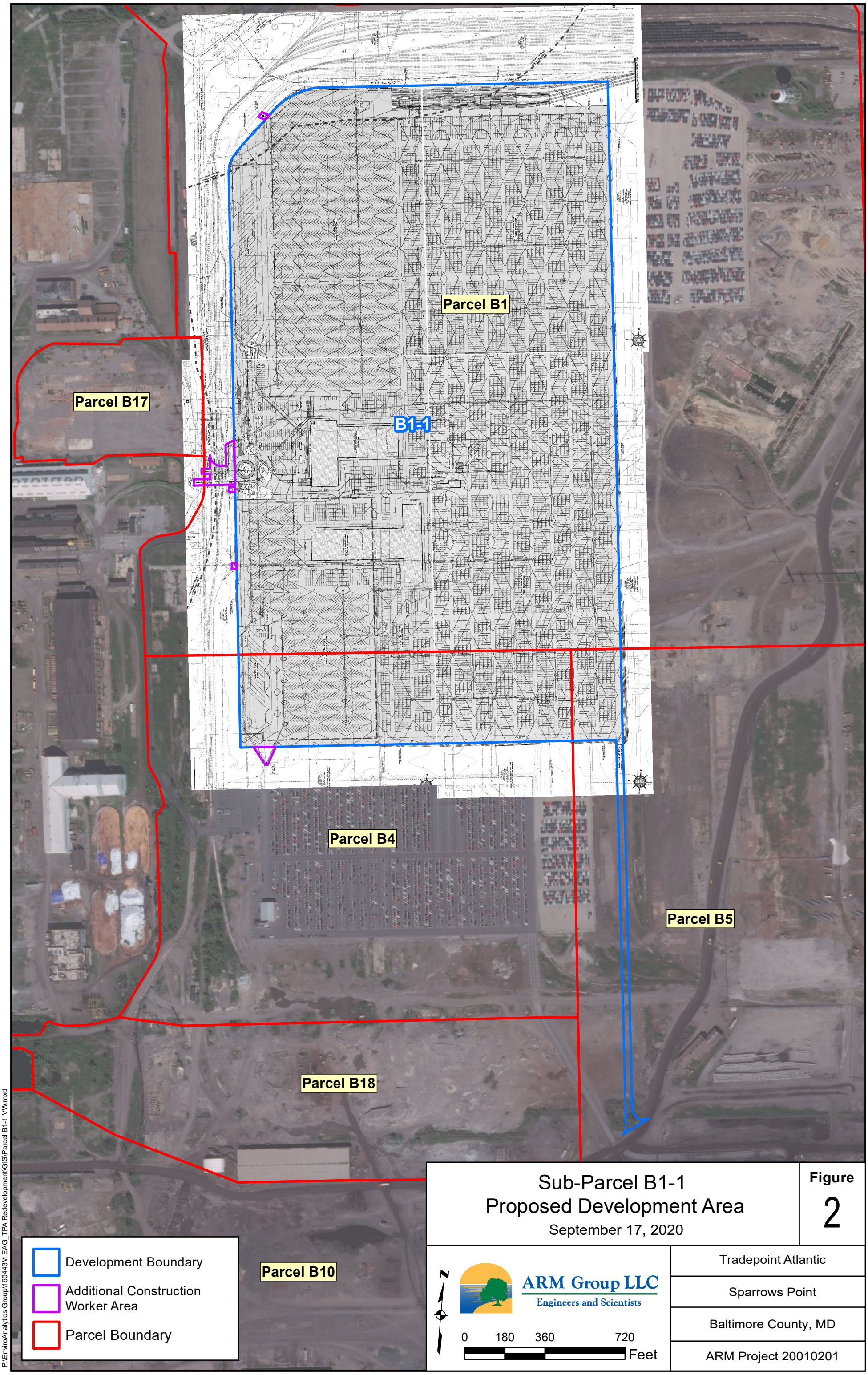
Between August 2019 and July 2020, response and development actions were conducted as part of the redevelopment of the Site identified as Sub-Parcel B1-1. The remedial actions specified in the RADWP included: abandonment of temporary groundwater collection points and wells, capping of building and parking areas with paving; capping of landscaped areas and utility corridors within the cap with clean fill; and implementation of institutional controls.

A Notice of Completion of Remedial Actions, prepared by the EP, a Professional Engineer registered in Maryland, is enclosed in **Appendix E** to certify that the response actions have been completed in accordance with the requirements described in the RADWP and Addendum, and the Site is suitable for occupancy and use.

As a result of the information contained herein, it has been demonstrated that the response and development actions have been completed in accordance with the approved RADWP and Addendum. With construction of the containment remedy (caps) in conjunction with redevelopment of the Site, the applicable requirements for obtaining a NFA Letter and COC for this Site have been fulfilled. Therefore, Tradepoint Atlantic is respectfully requesting issuance of a NFA Letter for the Site at this time. It is ARM's understanding that Tradepoint Atlantic will record the NFA Letter and the deed restrictions identified in the RADWP within 30 days after receipt of the final NFA Letter. Proof of recordation will be submitted to MDE upon receipt from Baltimore County.

FIGURES


Sub-Parcel B1-1 Boundary
Site Boundary
Parcel Boundaries
Private Property
Parcel A9
Parcel A13
Parcel A5
Parcel A7
Parcel A14
Parcel A11
Parcel A8
Parcel A12
Parcel A2
Parcel A15
Parcel A17
Parcel A18
Parcel A16
Parcel A6
Parcel A4
Parcel A10
Parcel A3
Parcel A1
Parcel B6
Parcel B8
Parcel B14
Parcel B21
Parcel B22
Parcel B16
Parcel B24
Parcel B15
Parcel B23
Parcel B7
Parcel B25
Parcel B1
B1-1
Parcel B2
Parcel B3
Parcel B17
Parcel B19
Parcel B4
Parcel B5
Parcel B9
Parcel B18
Parcel B10
Parcel B13
Parcel B20
Parcel B11
Parcel B12
Tradepoint Atlantic
Area A and Area B Parcels
September 17, 2020
Figure
1
ARM Group LLC
Engineers and Scientists
0 500 1,000 2,000
Feet
Tradepoint Atlantic
Sparrows Point
Baltimore County, MI
Area A: Project 200101
Area A: Project 200102
B1-1: Project 20010201



Sub-Parcel B1-1
Proposed Development Area

September 17, 2020

Figure 2

ARM Group LLC
Engineers and Scientists

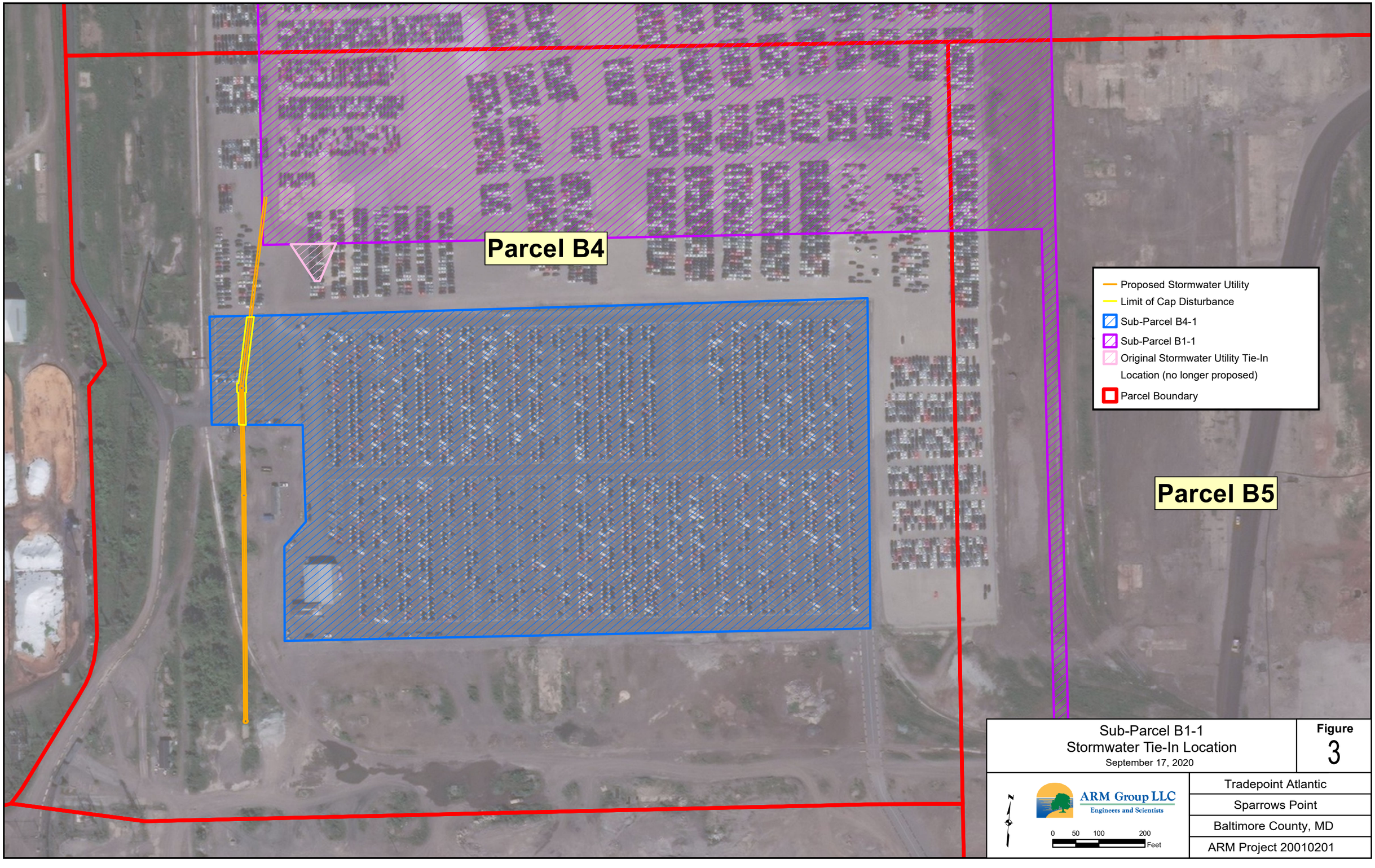
Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 20010201

P:\EnviroAnalytics Group\160443M EAG_TPA Redevelopment\GIS\Parcel B1-1 VW.mxd



Sub-Parcel B1-1
Stormwater Tie-In Location
September 17, 2020

Figure
3

ARM Group LLC
Engineers and Scientists

0 50 100 200
Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 20010201

TRADEPOINT ATLANTIC

1600 Sparrows Point Blvd, Baltimore, MD 21219

VW Access Road to Marine Berth
PAVED AREA
Sparrows Point, Baltimore County, Maryland

Figure 4

Scale: 1" = 200'	Date: 2/7/2020	Page: 1 of 1

APPENDIX A

Reference List

Sub-Parcel B1-1

Weaver Boos Consultants (2014). *Phase I Environmental Site Assessment: Former RG Steel Facility*. Final Draft. May 19, 2014.

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ARM Group, Inc. (2019). *Response and Development Work Plan, Area B: Sub-Parcel B1-1*. Revision 1. August 30, 2019.

(Approval to proceed with development was given following review of Revision 0, and final approval of the RADWP was given following review of Revision 1.)

ARM Group, Inc. (2019). *Quarterly Development Status Update: Third Quarter 2019, Area B: Sub-Parcel B1-1*. October 30, 2019.

ARM Group, Inc. (2020). *Response and Development Work Plan Addendum, Area B: Sub-Parcel B1-1*. Revision 0. February 2, 2020.

Reference List

Sub-Parcel B1-1

ARM Group, Inc. (2020). *Quarterly Development Status Update: Fourth Quarter 2019, Area B: Sub-Parcel B1-1*. January 27, 2020.

ARM Group, Inc. (2020). *Quarterly Development Status Update: First Quarter 2020, Area B: Sub-Parcel B1-1*. April 27, 2020.

ARM Group, Inc. (2020). *Quarterly Development Status Update: Second Quarter 2020, Area B: Sub-Parcel B1-1*. July 31, 2020.

APPENDIX B

From:	Jennifer Sohns -MDE-
To:	Matthew Newman
Cc:	James Calenda; Barbara Brown -MDE-; Oduwole, Moshood; Prince.Ruth@epa.gov; Pete Haid; Craven, Laura; Keith Progin (kprogin@hcea.com)
Subject:	Re: Sub-Parcel B1-1 RDWP Addendum
Date:	Wednesday, March 4, 2020 10:22:25 AM
Attachments:	image001.png

Thank you.

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472
(O)
Website
| Facebook
| Twitter

Click here to complete a three question
customer
experience survey.

On Wed, Mar 4, 2020 at 10:15 AM Matthew Newman <mnewman@tradepointatlantic.com> wrote:

> Jennifer,
>
> The material was encountered in the vicinity of the tie-in/near the NAPL delineation borings.
>
> Thank you,
>
> -Matt Newman
>
> **Matthew Newman, P.E.**

Environmental Manager

TRADEPOINT ATLANTIC

1600 Sparrows Point Boulevard

Baltimore, Maryland 21219

T 410.709.1286 **D** 443.649.5063 **C** 443.791.9046

mnewman@tradepointatlantic.com

From: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Sent: Wednesday, March 4, 2020 10:05 AM
To: Matthew Newman <mnewman@tradepointatlantic.com>
Cc: James Calenda <jcalenda@enviroanalyticsgroup.com>; Barbara Brown -MDE- <barbara.brown1@maryland.gov>; Oduwole, Moshood <Oduwole.Moshood@epa.gov>; Prince.Ruth@epa.gov; Pete Haid <phaid@tradepointatlantic.com>; Craven, Laura <lcraven@wcgrp.com>; Keith Progin (kprogin@hcea.com) <kprogin@hcea.com>
Subject: Re: Sub-Parcel B1-1 RDWP Addendum

Thanks Matt,

Do you know where along the line they were encountered? Down by the known NAPL area of further north?

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
Website | Facebook | Twitter

On Tue, Mar 3, 2020 at 1:36 PM Matthew Newman <mnewman@tradepointatlantic.com> wrote:

> Jennifer,
>
> Sounds like a plan for next week.
>
> Keith should be sending out the monthly soil stockpile tracker today which will also include a map that shows the excavated soil stockpile. The soils which were segregated were encountered generally from 5 to 9 feet below ground surface.
>
> Thank you,
>
> -Matt Newman
>
> **Matthew Newman, P.E.**
>
> **Environmental Manager**
>
> TRADEPOINT ATLANTIC
>
> 1600 Sparrows Point Boulevard
>
> Baltimore, Maryland 21219
>
> **T** 410.709.1286 **D** 443.649.5063 **C** 443.791.9046
>
> *mnewman@tradepointatlantic.com*
>
> **From:** Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>

Sent: Tuesday, March 3, 2020 9:52 AM
To: Matthew Newman <mnewman@tradepointatlantic.com>
Cc: James Calenda <jcalenda@enviroanalyticsgroup.com>; Barbara Brown -MDE- <barbara.brown1@maryland.gov>; Oduwole, Moshood <Oduwole.Moshood@epa.gov>; Prince.Ruth@epa.gov; Pete Haid <phaid@tradepointatlantic.com>; Craven, Laura <lcraven@wcgrp.com>; Keith Progin (kprogin@hcea.com) <kprogin@hcea.com>
Subject: Re: Sub-Parcel B1-1 RDWP Addendum

Matt,

Thank you for the update. We will definitely discuss the use of slag as rail ballast and subballast at our meeting next week. Please provide a figure showing the location of the excavated soil from the stormwater line and include details re: depth of contaminated soil.

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
Website | Facebook | Twitter

On Mon, Mar 2, 2020 at 1:48 PM Matthew Newman <mnewman@tradepointatlantic.com> wrote:

> Jennifer,
>
> The construction contractor is coordinating closely with TPA Rail to replace the rail line after the stormwater line has been installed in kind. We will be using approximately 6 to 13 inches slag ballast under the rail and 12 inches of slag sub-ballast. Let's discuss the rail standard for "non-RDWP" sections during the site tour on March 12.

The contractor has proceeded with the Outfall 012 tie-in point beginning at the southern portion of the line. Approximately 400 feet of line remains to connect to Parcel B1-1. The Environmental Professional observed continuously when work was conducted at the tie-in point. No NAPL was encountered; however, approximately 10 loads of material with a petroleum odor and PID readings above 10 ppm were segregated. The segregated material was placed on plastic and covered in plastic.

The original test pit remained open for over two weeks and no new NAPL was observed entering the pit. As reported previously, no NAPL was encountered in the additional delineation test pits either. Due to safety concerns, the construction contractor has backfilled the original test pit. Please find attached a photograph of the open excavation prior to being filled. Only a slight bacterial film observed on the surface after two weeks of observation.

The contractor will be proceeding through the area of the original test pit in the next few days. The EP will observe this work continuously and report any detections of NAPL in the area. Material will be segregated, if necessary, based on field measurements using a PID.

Please let me know if you have any questions.

Thank you,

-Matt Newman

Matthew Newman, P.E.

Environmental Manager

TRADEPOINT ATLANTIC

1600 Sparrows Point Boulevard

Baltimore, Maryland 21219

T 410.709.1286 **D** 443.649.5063 **C** 443.791.9046

mnewman@tradepointatlantic.com

From: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Sent: Friday, February 28, 2020 12:21 PM
To: James Calenda <jcalenda@enviroanalyticsgroup.com>
Cc: Barbara Brown -MDE- <barbara.brown1@maryland.gov>; Oduwole, Moshood <Oduwole.Moshood@epa.gov>; Prince.Ruth@epa.gov; Pete Haid <phaid@tradepointatlantic.com>; Craven, Laura <lcraven@wcgrp.com>; Matthew Newman <mnewman@tradepointatlantic.com>
Subject: Re: Sub-Parcel B1-1 RDWP Addendum

Hi Matt and Pete,

I've reviewed this RDWP Addendum for B1-1, dated February 24, 2020, and I have the following question: it appears that an existing rail line within B4 will be disturbed to install this stormwater line. Is TPA Rail going to be replacing the track once the stormwater line is installed? At this point, we have not completed discussions related to construction of rail lines on portions of the site that are not included within specific RDWP's. It might be worth having a discussion to ensure that new rail line is being constructed in a way that could serve as an approved cap, if determined necessary in the future. At a minimum there needs to be details in this plan (or a response to this comment) regarding the rail line specifically within the construction LOD for this stormwater project.

MDE will want to be notified when work begins on this stormwater line. We may want to conduct a site visit to observe soil and groundwater conditions near the NAPL area.

Thank you,

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard

Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
Website | Facebook | Twitter

Click here to complete a three question customer experience survey.

On Tue, Feb 25, 2020 at 2:27 PM James Calenda <jcalenda@enviroanalyticsgroup.com> wrote:

> All,
>
> Please find attached the Sub-Parcel B1-1 Response and Development Work Plan Addendum. This document provides detail for the storm drain modification that will tie into the existing piping for Outfall 012, which is outside of the original development boundary. Hard copies of the document are being prepared and will be sent out later today. If anyone has questions or would like to discuss this document in more detail, please feel free to contact me directly.
>
> Thanks
>
> James
>
> ***James Calenda***
>
> ***Senior Project Manager***

(314) 620-3056 Direct

jcalenda@enviroanalyticsgroup.com

http://www.enviroanalyticsgroup.com

Click here to complete a three question customer experience survey.

Click here to complete a three question customer experience survey.

Click here to complete a three question customer experience survey.

Click here to complete a three question customer experience survey.

Keith Progin

From: Pete Haid <phaid@tradepointatlantic.com>
Sent: Sunday, February 2, 2020 8:36 PM
To: Barbara Brown -MDE-
Cc: Jennifer Sohns -MDE-; Matthew Newman; Keith Progin
Subject: RE: Interim Access Road - VW

Barbara:

In follow-up to our conversation of January 31, 2020, the VW RoRo access road will require some ground intrusive work (contrary to my original description). The storm drain system will be extended along the road to provide road drainage:

- The approved health and safety plan for the VW RDWP will be followed.
- The same contractor performing the work on the VW project will be performing this work.
- Environmental oversight will be provided by the same Environmental Professional monitoring the VW RDWP work.
- The approved soil management plan will be followed.
- Any abnormal conditions encountered will be reported to the MDE immediately.

Thanks again. I apologize for the confusion.

Pete

From: Barbara Brown -MDE- [mailto:barbara.brown1@maryland.gov]
Sent: Wednesday, January 29, 2020 2:24 PM
To: Pete Haid <phaid@tradepointatlantic.com>
Cc: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Subject: Re: Interim Access Road - VW

Hello Pete

The interim road specifications as proposed are acceptable. All work should be accomplished under the appropriate health and safety requirements.

Please let me know when work starts and is completed.

If you have any questions please contact either Jennifer Sohns or myself.

Barbara Brown
MDE Project Coordinator

On Thu, Jan 9, 2020 at 3:34 PM Pete Haid <phaid@tradepointatlantic.com> wrote:

> Good afternoon Barbara:
>
> I hope you are feeling better.

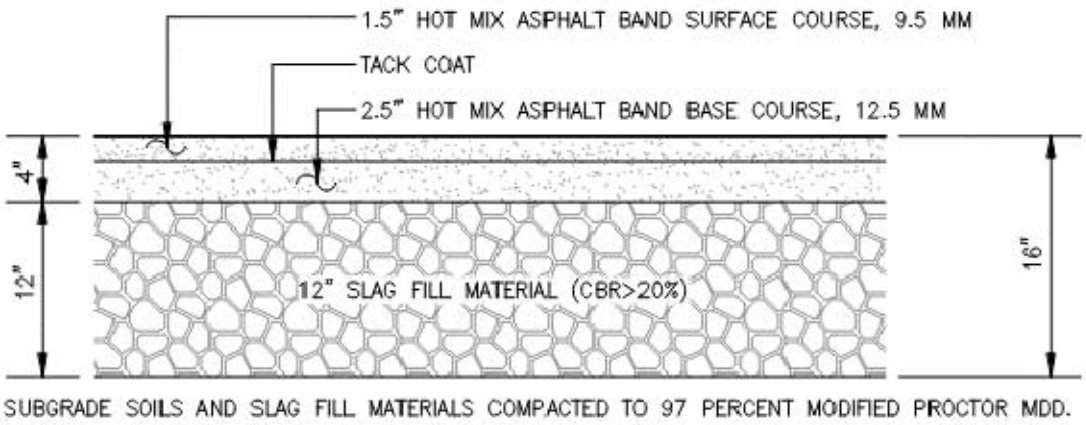
Over the holidays I had mentioned that TPA was proposing to pave an interim access road to VW. The road is depicted on the attached drawing. You had asked to see the road specifications; please see the paving section below.

No ground intrusive work will be performed. This road will be dedicated to the VW RoRo operations.

Please let me know if you require additional information.

Thanks.

Pete



--

Barbara H. Brown
Voluntary Cleanup Program Section Head
Land and Materials Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
Barbara.brown1@maryland.gov
410-537-3493 (O)
410-537-3212 (Direct)
Website | Facebook | Twitter

Click here to complete a three question customer experience survey.

Click here to complete a three question customer experience survey.

APPENDIX C

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW12-PZ001

General Project Information: 150300M-10-3

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: ~~Sub Parcel B1-1~~ Parcel B1

Abandonment Date: 6-24-19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → (Pulled) / Split / Perforated / Left-In-Place
2. Abandoned → (Grout) / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): Tyler Van Ness

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15	Depth to Water (TOC): 11.39 (about 4' removed
Measured: 13.37 (about 4' removed)	Depth to NAPL (TOC): —

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): _____

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW-060-MWS

General Project Information: 150300M-10-3

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: ~~Sub Parcel B14~~ Parcel B1

Abandonment Date: 6-24-19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → ~~Pulled~~ / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips caved in

Field Equipment: Geoprobe 7822DT

ARM Representative(s): Tyler Van Ness

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17	Depth to Water (TOC): 13.33
Measured: 19.00	Depth to NAPL (TOC): —

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): _____

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW-061-MWS

General Project Information: 150300M-10-3

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: ~~Sub-Parcel B1-1~~ Parcel B1

Abandonment Date: 6-24-19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. (PVC) → (Pulled) / Split / Perforated / Left-In-Place
2. Abandoned → (Grout) / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): Tyler Van Ness

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 16	Depth to Water (TOC): 9.90
Measured: 16.34	Depth to NAPL (TOC): —

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): _____

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW-062-MWS

General Project Information: 150300M-10-3

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: ~~Sub-Parcel B1-1~~ Parcel B1

Abandonment Date: 6-24-19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → (Pulled) / Split / Perforated / Left-In-Place
2. Abandoned → (Grout) / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): Tyler Van Ness

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15	Depth to Water (TOC): 11.46
Measured: 17.24	Depth to NAPL (TOC): —

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): _____

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW-063-MW5

General Project Information: 150300M-10-3

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: ~~Sub-Parcel B1+~~ Parcel B4

Abandonment Date: 6-24-19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → (Pulled) / Split / Perforated / Left-In-Place
2. Abandoned → (Grout) / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): Tyler Van Ness

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 14	Depth to Water (TOC): 7.68
Measured: PVC broken, couldn't gauge	Depth to NAPL (TOC): —

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): _____

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW-068-MWS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: B1

Abandonment Date: 3/21/19

Abandonment Contractor: Allied

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: Heron olw probe skid steer

ARM Representative(s): L. Perrin

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log):	Depth to Water (TOC): 10.11
Measured: 17.27	Depth to NAPL (TOC): None

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): _____

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: SW-031-MWS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: B5?

Abandonment Date: 03/17/2025

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → Pulled / Split / Perforated / Left-In-Place
2. Abandoned → Grout / Bentonite Chips

Field Equipment: heron dw, 7822NT, GS-1000

ARM Representative(s): DMG

Well Diameter: 2"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): ~14 bgs	Depth to Water (TOC): 6.73
Measured: 16.15	Depth to NAPL (TOC): none

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): Area B GW

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

s/u: 2.45' ags

ARM Group Inc.
Earth Resource Engineers and Consultants
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION
1800 Washington Blvd., Baltimore, Maryland 21230 (410) 537-3784

****

WATER WELL ABANDONMENT-SEALING REPORT FORM

****

SUBMIT COPIES OF COMPLETED FORM TO:
* COUNTY ENVIRONMENTAL AGENCY (contact MDE, WMA if address needed)
* WELL OWNER
* MDE, WATER MANAGEMENT ADMINISTRATION, WELL PROGRAM

DATE WELL ABANDONED: 6/19/2019 (month/day/year)

* PERMIT NUMBER OF ABANDONED WELL (if any) BA – 81 – 2742

* PERMIT NUMBER OF REPLACEMENT WELL: – n/a –

* PERSON ABANDONING WELL: Richard Schultes WELL DRILLER'S LICENSE NUMBER: 577

CIRCLE: (MWD) / MSD / MGD

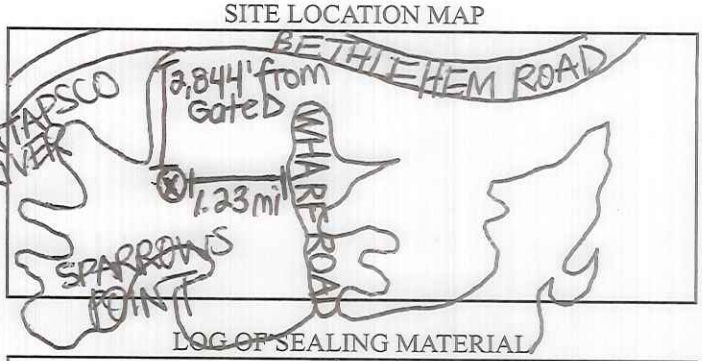
* OWNER'S NAME: Tradepoint Atlantic

* WELL LOCATION:
COUNTY: Baltimore
NEAREST TOWN: Sparrows Point
TAX MAP _____ BLOCK _____ PARCEL _____
SUBDIVISION: _____
SECTION: _____ LOT: _____
STREET ADDRESS: Riverside Drive, Sparrows Point

LATITUDE 39.219011

LONGITUDE 76.486626

SITE LOCATION MAP



LOG OF SEALING MATERIAL

MATERIAL	FEET FROM	FEET TO
Well gravel	674'	524'
Portland cement	524'	0'

VOLUME OF MATERIAL USED
(105) 50 lb bags of gravel
15 yards cement

* TYPE OF WELL BEING ABANDONED:
X DRILLED ____ JETTED
____ BORED ____ HAND DUG
____ OTHER (specify) _____

* USE CODE:
____ DOMESTIC ____ MUNICIPAL/PUBLIC
____ IRRIGATION X INDUSTRIAL
____ TEST/OBSERVATION ____ GEOTHERMAL

* TYPE OF CASING:
X STEEL ____ PLASTIC
____ CONCRETE X OTHER (specify) bronze

SIZE OF CASING: 12x10x8 INCHES IN DIAMETER

DEPTH OF WELL: 685 FEET DEEP

WAS ANY CASING REMOVED? ____ YES X NO
If yes, length removed, in feet: _____

WAS CASING RIPPED OR PERFORATED? ____ YES X NO

Pursuant to § 10-624 of the State Govt. Article of the Maryland Code, personal info requested on this form is used in processing this form pursuant to COMAR 26.04.04. Failure to provide the info may result in this form not being processed. You have the right to inspect, amend, or correct this form. The Maryland Department of the Environment is subject to the Maryland Public Information Act. This form may be made available on the Internet via MDE's website and is subject to inspection or copying, in whole or in part, by the public and other governmental agencies, if not protected by federal or State Law.

[signature] MWD597 (MWD) MSD / MGS 6/24/2019

SIGNATURE-MASTER WELL DRILLER OR SUPERVISING SANITARIAN LICENSE# CIRCLE ONE DATE

ORIGINAL

MARYLAND DEPARTMENT OF THE ENVIRONMENT, WATER MANAGEMENT ADMINISTRATION
1800 Washington Blvd., Baltimore, Maryland 21230 (410) 537-3784

****

WATER WELL ABANDONMENT-SEALING REPORT FORM

****

5/31/19 Mailed to HD JJ

SUBMIT COPIES OF COMPLETED FORM TO:
* COUNTY ENVIRONMENTAL AGENCY (contact MDE, WMA if address needed)
* WELL OWNER
* MDE, WATER MANAGEMENT ADMINISTRATION, WELL PROGRAM

DATE WELL ABANDONED: 5/7/2019 (month/day/year)

* PERMIT NUMBER OF ABANDONED WELL (if any): BA -81- 2741

* PERMIT NUMBER OF REPLACEMENT WELL: -n/a-

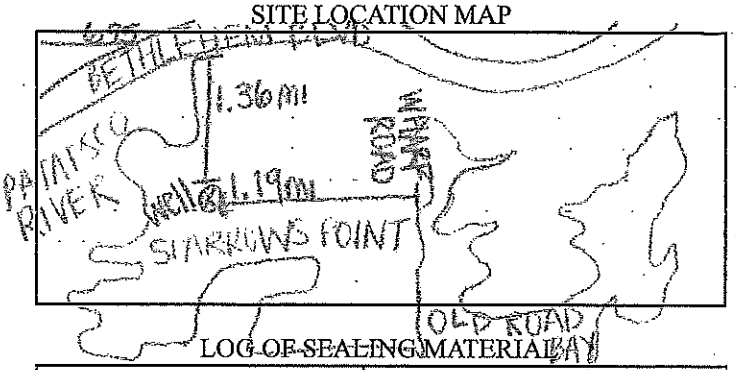
* PERSON ABANDONING WELL: Richard Schultes WELL DRILLER'S LICENSE NUMBER: MWD577
CIRCLE: MWD / MSD / MGD

* OWNER'S NAME: Tradepoint Atlantic

* WELL LOCATION:
COUNTY: Baltimore
NEAREST TOWN: Sparrows Pt.
TAX MAP _____ BLOCK _____ PARCEL _____
SUBDIVISION: _____
SECTION: _____ LOT: _____
STREET ADDRESS: _____

LATITUDE 39.218190
LONGITUDE 76.485567

SITE LOCATION MAP



LOG OF SEALING MATERIAL

MATERIAL	FEET FROM	FEET TO
Wellgravel	674	613
Portland cement	613	2

VOLUME OF MATERIAL USED
(1) super sack of well gravel
(18) Yards of cement

* TYPE OF WELL BEING ABANDONED:
X DRILLED ____ JETTED
____ BORED ____ HAND DUG
____ OTHER (specify) _____

* USE CODE:
____ DOMESTIC X MUNICIPAL/PUBLIC
____ IRRIGATION X INDUSTRIAL
____ TEST/OBSERVATION ____ GEOTHERMAL

* TYPE OF CASING:
____ STEEL ____ PLASTIC
____ CONCRETE X OTHER (specify) BRONZE

SIZE OF CASING: 12" x 10" INCHES IN DIAMETER

DEPTH OF WELL: 674 FEET DEEP

WAS ANY CASING REMOVED? X YES ____ NO
If yes, length removed, in feet: 14

WAS CASING RIPPED OR PERFORATED? ____ YES X NO

Pursuant to § 10-624 of the State Govt. Article of the Maryland Code, personal info requested on this form is used in processing this form pursuant to COMAR 26.04.04. Failure to provide the info may result in this form not being processed. You have the right to inspect, amend, or correct this form. The Maryland Department of the Environment is subject to the Maryland Public Information Act. This form may be made available on the Internet via MDE's website and is subject to inspection or copying, in whole or in part, by the public and other governmental agencies, if not protected by federal or State Law.

MWD597 — MWD / MSD / MGS — 5/30/2019
SIGNATURE-MASTER WELL DRILLER OR SUPERVISING SANITARIAN LICENSE# — CIRCLE ONE — DATE

OWNER

APPENDIX D

RESPONSE ACTION COMPLETION REPORT

AREA B: PARCEL B5
B5-098 RESPONSE AREA
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:

ENVIROANALYTICS GROUP
1650 Des Peres Road, Suite 230
Saint Louis, Missouri 63131

Prepared By:

ARM GROUP INC.
9175 Guilford Road
Suite 310
Columbia, Maryland 21046

ARM Project No. 160443M-10

Respectfully Submitted,

Melissa A. Replogle, E.I.T.
Project Engineer

Eric S. Magdar, P.G.
Vice President

Dave Gassert, P.E.
Director of Geotechnical Engineering Services

Revision 0 – July 12, 2019

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1.0 INTRODUCTION

1.1. BACKGROUND

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Response Action Completion Report to document the remedial response action performed on a portion of the Tradepoint Atlantic property that has been designated as Area B: Parcel B5 (the Site), which is shown on **Figure 1**. Parcel B5 comprises approximately 305 acres of the approximately 3,100-acre former steel mill property located in Sparrows Point, Maryland.

During the Phase II Investigation of Parcel B5, non-aqueous phase liquid (NAPL) was identified within the soil cores of soil boring locations B5-098-SB and B5-099-SB on January 7, 2016. In accordance with the Phase II Investigation Work Plan, the discovery of NAPL necessitated that additional delineation activities be performed in the vicinity of the borings. The completed delineation activities are described below in Section 1.2, and the results are summarized on **Figure 2** and **Figure 3**.

Ultimately, excavation of the NAPL containing soil was selected as the remedial response action to address the impacts in the vicinity of B5-098-SB (the Response Area). As shown on **Figure 4,** the majority of the Response Area lies within Sub-Parcel B1-1 with a small portion extending into the adjacent Sub-Parcel B1-2. Sub-Parcel B1-1, which consists of approximately 115 acres, is currently being developed under regulatory oversight of the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA). The response actions described herein were performed in support of the anticipated development as proposed in the Response and Development Work Plan (RADWP) – Area B: Sub-Parcel B1-1 (Revision 0 dated March 1, 2019). Following the conclusion of all development activities, a Development Completion report will be submitted.

This Response Action Completion Report describes the completed work performed in support of future site development.

1.2. NAPL DELINEATION

On January 7, 2016, while screening the soil cores associated with boring B5-098-SB during the Parcel B5 Phase II Investigation, elevated photoionization detector (PID) readings were recorded, strong petroleum odors were noted, and a small amount of visible NAPL was observed. The source of the NAPL is presumed to be a tank which was historically located outside of the former No. 3 Mould Yard and a locomotive/crane repair shop. Two soil borings completed during the Parcel B5 Phase II Investigation (B5-098-SB and B5-099-SB) targeted this former tank. Based on a review of historical drawings, the tank appears to have been an aboveground storage tank (AST) with secondary containment; however, the contents of the tank are unknown. The location of the former tank is shown on **Figure 2**.

To assess the potential mobility of the NAPL from soil to groundwater, a piezometer (B5-098-PZ) was installed. The piezometer was constructed with a screen interval from 2 to 12 feet below ground surface (bgs). NAPL was not detected in B5-098-PZ during the 0-hour, 48-hour, or 30-day gauging events. Groundwater was encountered at a depth of approximately 4.5 feet bgs. During a follow-up gauging event on November 7, 2017 that was performed prior to resubmitting the Parcel B5 Phase II Investigation Report, NAPL was identified with a thickness of 1.8 feet. In accordance with the standard protocols outlined in the approved Parcel B5 Phase II Investigation Work Plan (Revision 1), a total of 21 additional temporary piezometers (with screen intervals ranging between 2 and 15 feet bgs) were subsequently installed to delineate the extent of the NAPL. Another NAPL screening piezometer, B5-099-PZ, was retained as part of the delineation network due to its close proximity to B5-098-PZ (approximately 10 feet away).

NAPL was consistently detected (with varying thicknesses) at six piezometer locations (B5-098-PZ, B5-098B-PZ, B5-098D-PZ, B5-098E-PZ, B5-098G-PZ, and B5-098K-PZ). The results of the delineation are provided in the B5-098 Delineation Completion Report and Proposed Excavation Response Action Work Plan (Response Action Work Plan) dated February 27, 2019 and summarized on **Figure 2** and **Figure 3**. The delineation results indicated that the NAPL impacts in the vicinity of B5-098-PZ were adequately defined in order to implement the response action.

The future Sub-Parcel B1-1 development necessitated that the NAPL piezometer network in the vicinity of piezometer B5-098-PZ be abandoned. Three locations (B5-098C-PZ, B5-098H-PZ, and B5-098I-PZ) had already been abandoned on January 4, 2019 in accordance with the recently approved Logistics Centers Grading Plan for Logistics Centers XI & XII dated November 2, 2018. Permission to abandon the remaining delineation piezometers was granted by the MDE via email on March 15, 2019 following the submission of the Response Action Work Plan. No measurable NAPL was detected in any piezometer which was not previously determined to be impacted. The remaining piezometers were abandoned on March 20 and March 21, 2019.

2.0 SITE RESPONSE ACTIVITIES

The preliminary extent of the excavation required to remove NAPL-contaminated media, as presented in the Response Action Work Plan, was based on the NAPL gauging data from the delineation piezometers and NAPL observed in the soil cores. The proposed excavation boundary for the Response Area is shown on **Figure 2** through **Figure 5**. The actual extent of the excavation (**Figure 5**) was modified based on field observations (odors, staining, etc.), and the final excavation boundary was recorded using a hand-held GPS unit. When an excavation was limited laterally or vertically by below-grade metal structures, the structures were cleared of soil and left in place. Any erosion and sediment control measures that were disturbed during the response action will be reestablished as needed. The following sections provide detailed descriptions of the completed response action. A photographic log of the response action is included in **Appendix A**. All response activities were conducted in accordance with the property-wide Health and Safety Plan (HASP) provided as *Appendix C* of the Sub-Parcel B6-1 RADWP. Excavation work was performed by ACV Enviro (ACV). Response Action oversight was performed by an ARM Environmental Professional (EP).

2.1. HAUL ROAD

The majority of the proposed excavation boundary was located within Sub-Parcel B1-1 with a small portion extending east into the adjacent Sub-Parcel B1-2 (**Figure 4**). The portion of the boundary located within Sub-Parcel B1-2 consisted of an active haul road. In order to complete the required excavation, haul road traffic was rerouted away from the Response Area beginning on May 7, 2019. Following the completion of the excavation, it was backfilled with 2 to 3 inch graded slag aggregate to within 2.5 feet of the existing ground surface, as described in further detail below. On June 3, 2019, FCL Builders and DXI rebuilt the haul road above the slag aggregate backfill on Sub-Parcel B1-2 prior to the placement of geotextile and compacted soil. Thus, ARM was unable to observe or assess the backfill material in the easternmost portion of the Response Area, as indicated on **Figure 6**.

2.2. SOIL MANAGEMENT

Soil was excavated from the Response Area from April 16, 2019 to May 15, 2019. Excavated material was segregated into stockpiles located adjacent to the excavation based on field indications of contamination. Excavated soils from the Response Area which did not exhibit field indications of contamination were placed in a single stockpile to the northwest of the excavation, and soils which appeared to be impacted by NAPL were stockpiled to the north of the excavation. As stated in the agency-approved Excavation Plan, the criteria that triggered the need for segregation included observed NAPL or evidence of staining, and/or strong odors. The surface soils encountered during excavation were predominantly composed of materials placed during general grading and site preparation activities. These materials exhibited no evidence of NAPL

impacts. Soils in discrete areas or at depths which did not exhibit visual/olfactory evidence of NAPL contamination were stockpiled separately. The base of the excavation was a gray clay material with no evidence of NAPL contamination.

A total of approximately 5,700 cubic yards (bank) of soil were excavated from the Response Area. Impacted soil was stockpiled on polyethylene sheeting. Non-impacted soils were stockpiled on uncovered ground surface. Both the impacted and non-impacted stockpiles remained covered with polyethylene sheeting when the stockpiles were not actively being used and at the end of each day, in order to minimize dust and prevent run-on/runoff. A weighted cover system was used to keep the covers in place.

Composite samples, each containing 10 random aliquots, were collected from the impacted stockpiles and submitted to Caliber Analytical Services for laboratory testing at a rate of one sample for every 500 cubic yards of material. The composite samples were analyzed for TCLP Metals, TCLP volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), and PCBs to determine if the material needed to be disposed of at an off-site hazardous landfill or, if non-hazardous, at the on-site landfill (Greys). Laboratory results from this stockpile testing are included in **Appendix B**.

All waste characterization sample results indicated that the excavated materials in the impacted stockpiles were non-hazardous, and no off-site disposal was required. All excavated soils, from both the impacted and non-impacted stockpiles, were transported to Greys Landfill. A total of approximately 3,200 cubic yards of bulk non-impacted soil (approximately 2,400 cy bank) and 4,600 cubic yards of bulk impacted non-hazardous soil (approximately 3,500 cy bank) were disposed of in Greys Landfill.

2.3. WATER MANAGEMENT

Due to the NAPL impacts extending into and below the water table, groundwater was encountered during excavation activities. During the removal of water-saturated soil, the excavator operator allowed the excavator's bucket to drain excess water prior to placing the material in the dump truck. Groundwater and accumulated stormwater (along with any accumulated NAPL) were pumped from the excavations into a vacuum truck, and with permission from Tradepoint Atlantic personnel, transported to the Humphreys Creek Wastewater Treatment Plant (HCWWTP). Approximately 139,000 gallons of water were removed from the excavation and conveyed to the HCWWTP.

2.4. DUST MONITORING

A real-time dust meter (ThermoElectron Corporation Personal Data RAM 1000AN) was utilized to monitor the dust produced during excavation activities. Daily calibration of the real-time dust meter was required per the QAPP to ensure accurate readings by the instrument. Dust

concentrations were recorded in the field book by ARM's EP every 15 minutes during excavation activities. Dust monitor readings are provided in **Appendix C**. No dust concentrations exceeding 3.0 mg/m^3 were generated during excavation activities. Heavy truck traffic along the haul road adjacent to the Site produced some visible dust, but no levels exceeding 3.0 mg/m^3 were sustained in the Response Area.

2.5. SUBGRADE STRUCTURES

Buried concrete, brick, and metal structures were encountered during excavation activities. Several concrete footers and a buried brick structure filled with sand were removed. One metal structure along the southwestern edge of the excavation was left in place and cleared of all soil. Several wood railroad ties and a length of metal rail line were also removed from the eastern half of the excavation. Brick rubble was transported to Greys Landfill with the non-impacted soil. The concrete and metal rubble were collected from the Response Area by MCM Management Corp (MCM) and Owl Metals Inc., respectively. The railroad ties have been stockpiled on site for future disposal.

2.6. DEEP WELL ABANDONMENT

A deep production well was located in the western portion of the proposed excavation boundary. The deep well was abandoned by A.C. Schultes from May 2, 2019 to May 7, 2019. The water displaced from the well casing during grouting was pumped into a vacuum truck and transported to the HCWWTP. The grout was allowed to cure for 6 days before excavation resumed in the vicinity of the deep well. During excavation, the concrete well pad and approximately 10 feet of well casing were removed.

2.7. BACKFILLING

Following the completion of the remedial excavation, notification was provided to the MDE. Representatives from the MDE visited the Response Area on May 13, 2019 and gave approval to backfill following their instructions to excavate additional identified impacted material in a few small areas along the northern perimeter of the main excavation area.

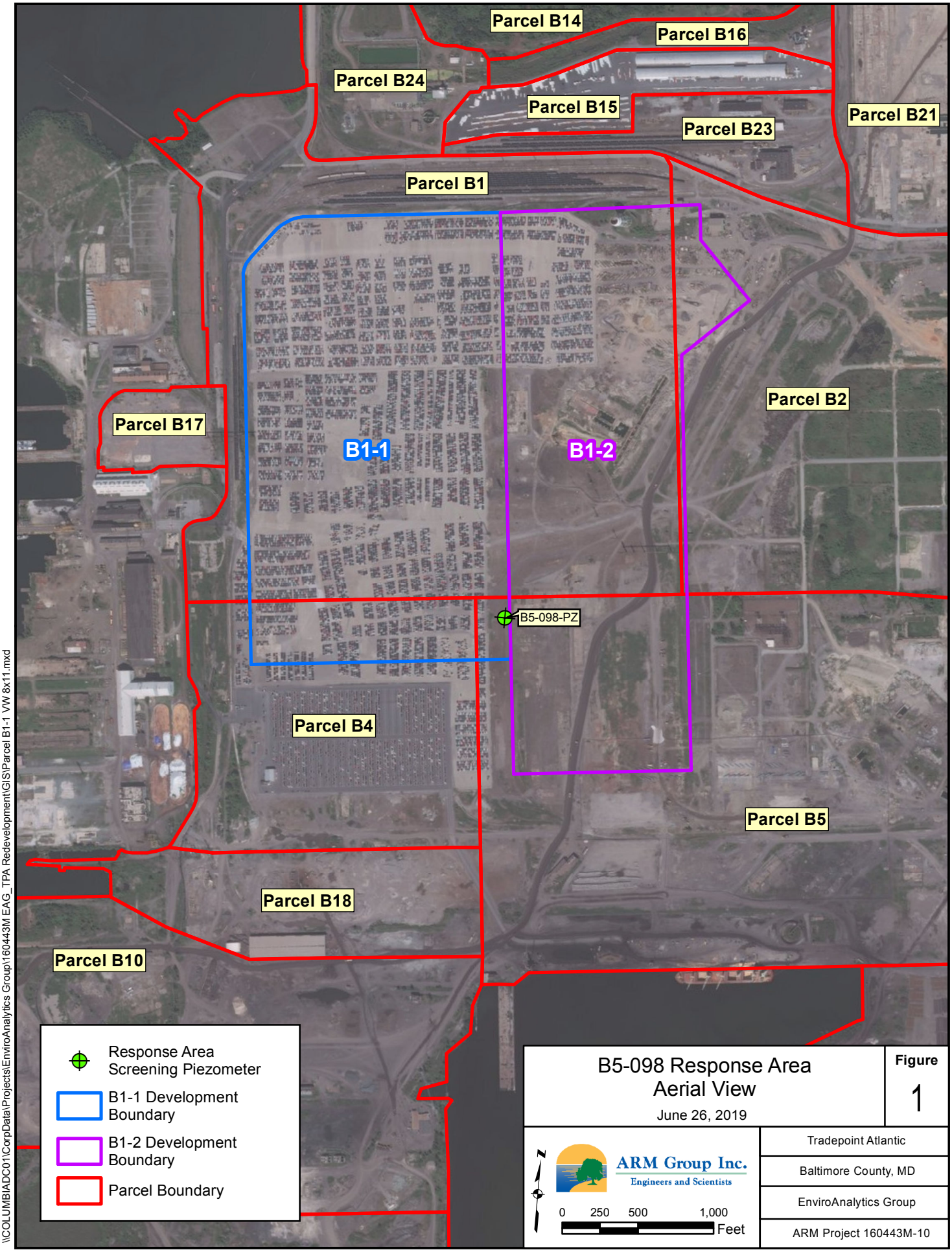
On May 23, 2019, backfilling of the excavation began using poorly graded coarse slag aggregate with a maximum particle size of approximately 3 inches (i.e. coarse slag) obtained from elsewhere on the Tradepoint Atlantic property. On May 28, 2019, at the request of Baltimore County, backfill operations were halted and the remaining portion of the deep well within the excavation was uncovered so it could be inspected by A.C. Schultes. A.C. Schultes observed that the well was sealed, and backfilling resumed. On June 5, 2019, the coarse slag placement within the excavation was completed to an approximate depth of 2.5 feet below the surrounding surface grades.

The remaining 2.5 feet depth was backfilled with three lifts of well-graded sand and aggregate (i.e. fine slag) sourced from elsewhere on the Tradepoint Atlantic property. ARM performed a laboratory gradation on the fine slag material. See the grain size distribution report for Sample SF-3, S-1 in **Appendix D** for details. No more than 12 inches of loose fine slag were placed for each lift prior to compaction. Prior to the placement of the fine slag, a layer of geotextile was placed atop the exposed coarse slag to reduce the potential for fine particle migration into the placed coarse slag during the compaction activities and beyond.

Compaction efforts were observed by ARM, and in-place moisture-density testing was completed for the backfilled materials. The Contractor compacted the fine slag backfill with three complete passes on each lift with a 10-ton (static weight) vibratory padfoot roller. To confirm consistency of material gradation and uniformity of compaction procedures, the EP measured the density and moisture of each lift of compacted backfill at 6 evenly spaced locations with a Troxler Model 3440 nuclear moisture-density gauge at a minimum frequency of 1 test per 2,500 square feet of backfill area. Acceptance of adequate compaction was based on visual observation of each completed lift to confirm non-movement during a proof-roll test.

The in-place moisture-density tests results and locations for each day of backfill placement are documented in **Appendix E**. Following the performance of in-place moisture-density tests for a given lift, the proof-roll procedure was performed across the entire footprint of each lift with a loaded off-road truck to identify potential areas of yielding and movement within the compacted fine and coarse slag backfill under the observation of the EP. Upon the completion of the proof roll and satisfactory observations of general “nonmovement” within the compacted lift’s footprint area, the lift was approved by the EP and placement of compacted slag fines for the subsequent lift commenced. This process was performed until the compacted backfill level matched the surrounding existing grades around the perimeter of the excavation. For all three placed lifts of compacted fine slag backfill, ARM’s EP did not observe movement or yielding of the compacted materials upon review of rolling with the vibratory roller or upon review of proof rolling with the off-road truck throughout each lift’s respective footprint. Proof roll results are presented in **Appendix E** along with the results of the moisture-density tests. While the acceptance of compaction of the backfill was based on non-movement, the moisture and density data has been included with this report to document material consistency and the actions taken in the field. Backfilling activities in this manner were concluded on June 7, 2019.

FIGURES



B5-098 Response Area
Aerial View

June 26, 2019

Figure
1

ARM Group Inc.
Engineers and Scientists

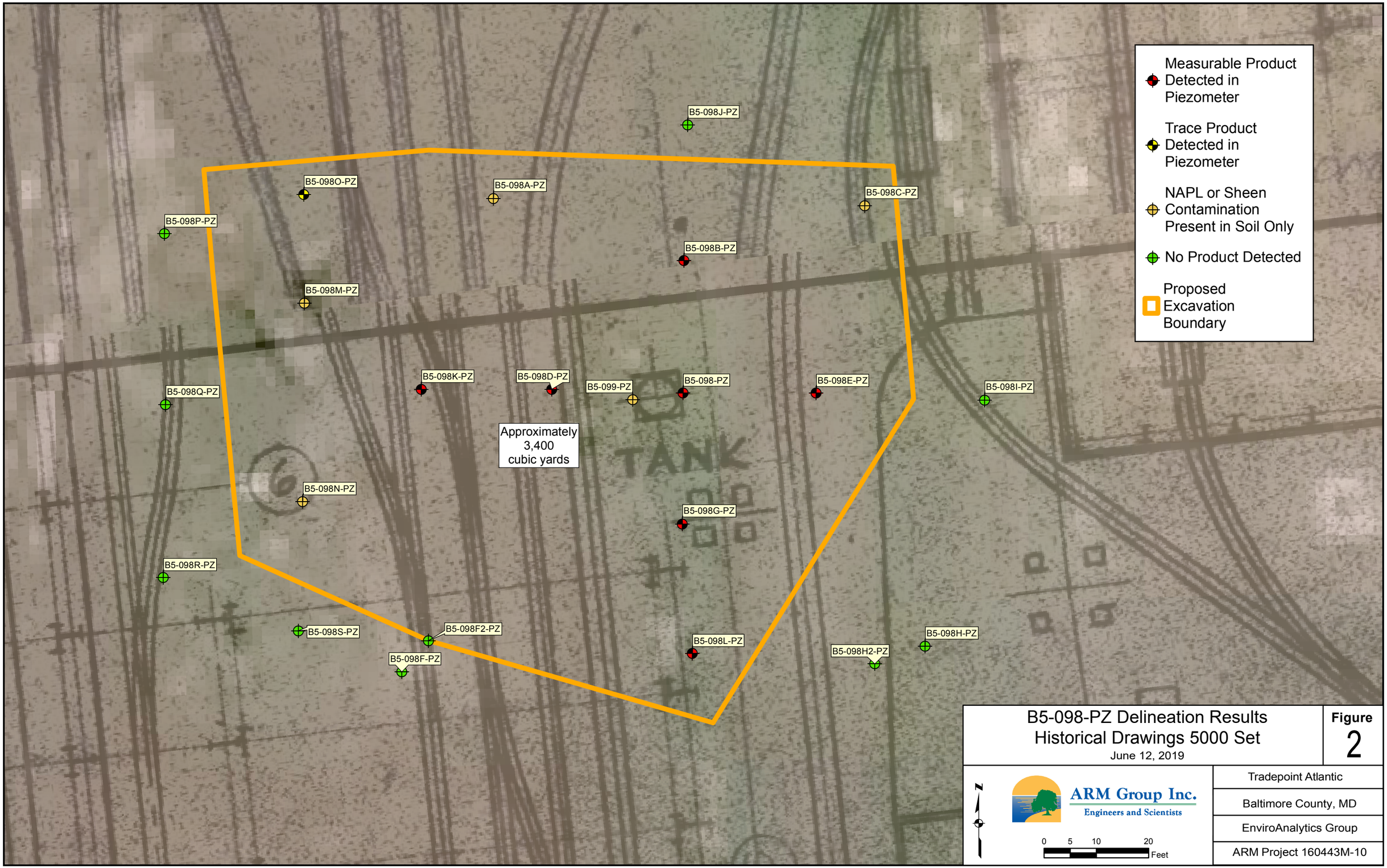
Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-10

\\COLUMBIADC01\CorpData\Projects\EnviroAnalytics Group\160443M EAG_TPA Redevelopment\GIS\Parcel B1-1 VW 8x11.mxd



B5-098-PZ Delineation Results
Historical Drawings 5000 Set

June 12, 2019

Figure 2

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-10

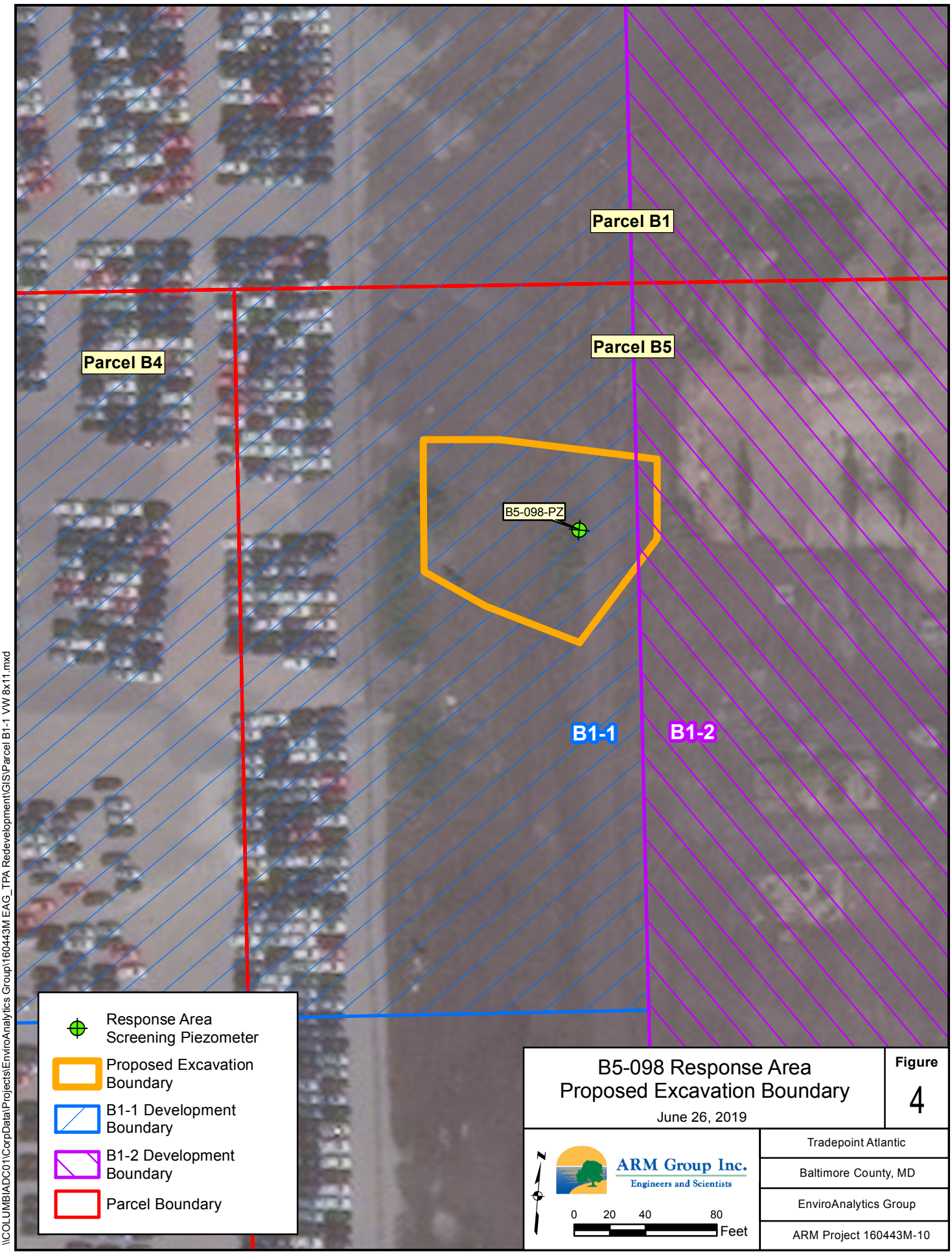
B5-098 Response Area Proposed Excavation Proposed Development Details

June 12, 2019

Figure 3

ARM Group Inc.
Engineers and Scientists

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-10



B5-098 Response Area
Proposed Excavation Boundary

June 26, 2019

Figure 4

ARM Group Inc.
Engineers and Scientists

0 20 40 80 Feet

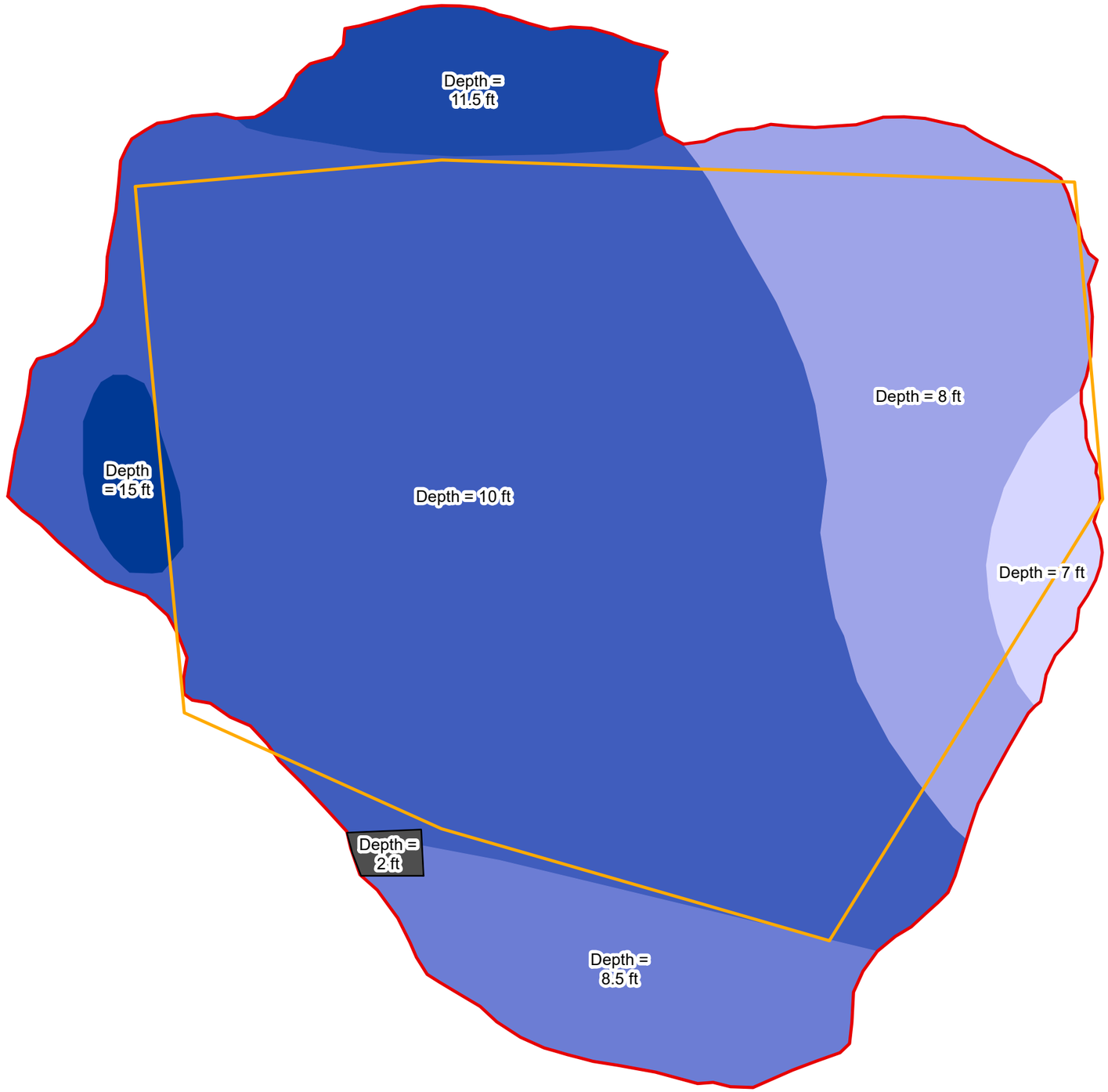
Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-10

\\COLUMBIADC01\CorpData\Projects\EnviroAnalytics Group\160443M EAG_TPA Redevelopment\GIS\Parcel B1-1 VW 8x11.mxd



Proposed Excavation Boundary

Final Excavation Boundary

Metal Platform

Depth (ft)	Area (ft^2)
7	450
8	3,000
8.5	1,450
10	9,840
11.5	910
15	290
Volume (ft^3)	152,690
Volume (yd^3)	5,655

Parcel B5: B5-098 Response Area Final Excavation Boundary

June 14, 2019

Figure 5

N

ARM Group Inc.
Engineers and Scientists

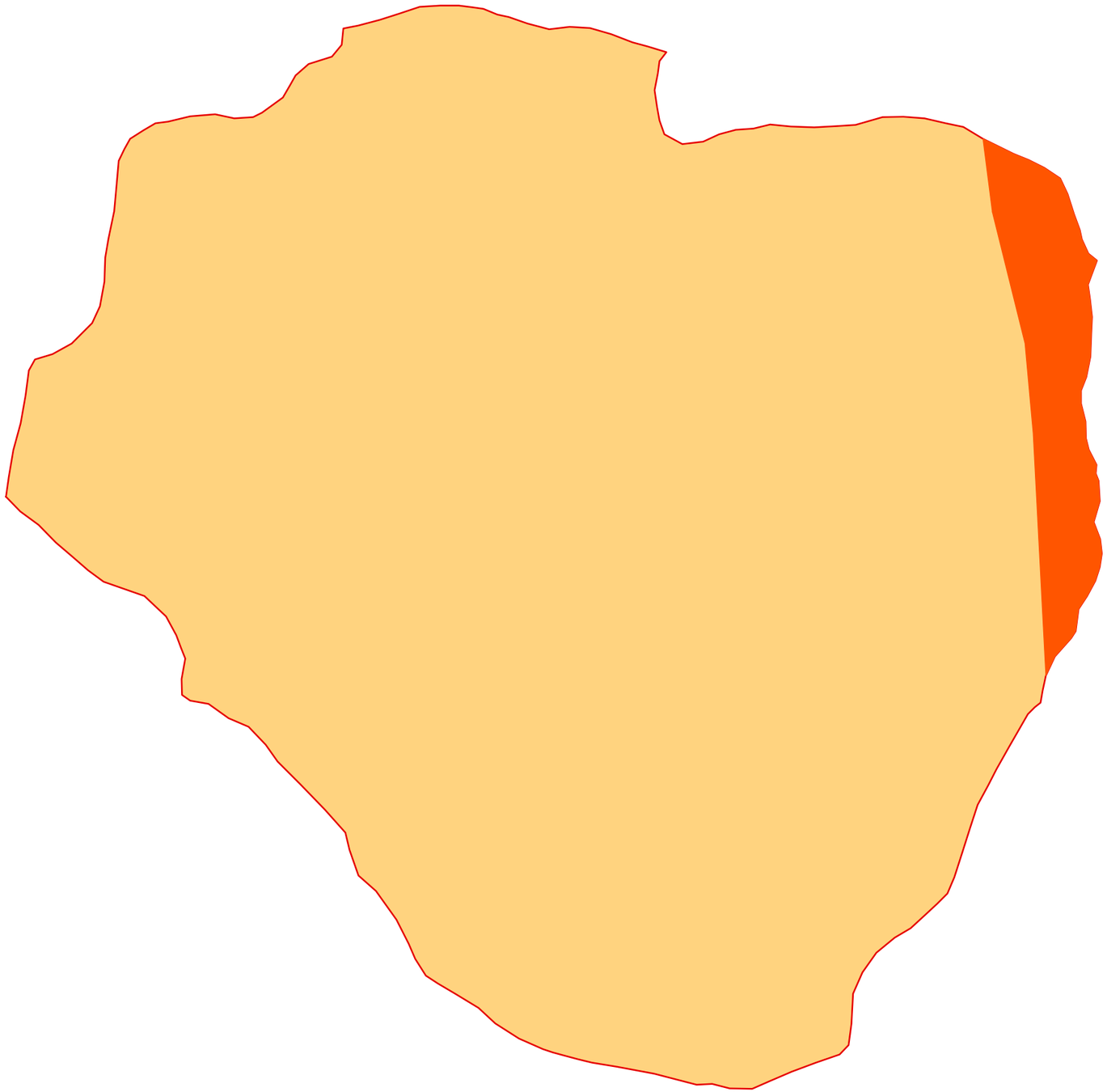
0 5 10 20
Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-10



Entire excavation backfilled with 2-3 inch graded slag aggregate to a depth of 2.5 feet below ground surface.

Geotextile placed over slag aggregate

Placement and compaction of slag fines overseen by ARM

Section of haul road installed by FCL and DXI

No geotextile placed

Placement and compaction of slag fines not overseen by ARM

Parcel B5: B5-098 Response Area
Haul Road Installation

June 20, 2019

Figure
6

N

ARM Group Inc.
Engineers and Scientists

0 5 10 20
Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-10

APPENDIX A

04/16/19: View to the west of the impacted soil stockpile area.

04/16/19: View to the south of the start of excavation at the B5-098 Response Area.

04/17/19: View to the south of the excavation in progress.

04/18/19: View to the east of covered stockpiles of soil from the B5-098 excavation.

04/18/19: View to the northeast of the excavation in progress.

04/22/19: View to the east of concrete structure demolition in progress from the B5-098 excavation.

05/01/19: A.C. Schultes begins removing the pump from the western edge of the excavation site.

05/07/19: View to the north of the eastern boundary of the excavation site where a water drain line was exposed during the installation of the temporary silt fence.

05/09/19: View to the south of the railroad line that ran north-south within the eastern portion of the pit.

05/09/19: View to the southeast of the water level due to groundwater infiltration.

05/13/19: View to the southeast of the water level after a heavy rain event over a weekend from the previous photo. A sheen is present on the surface of the water.

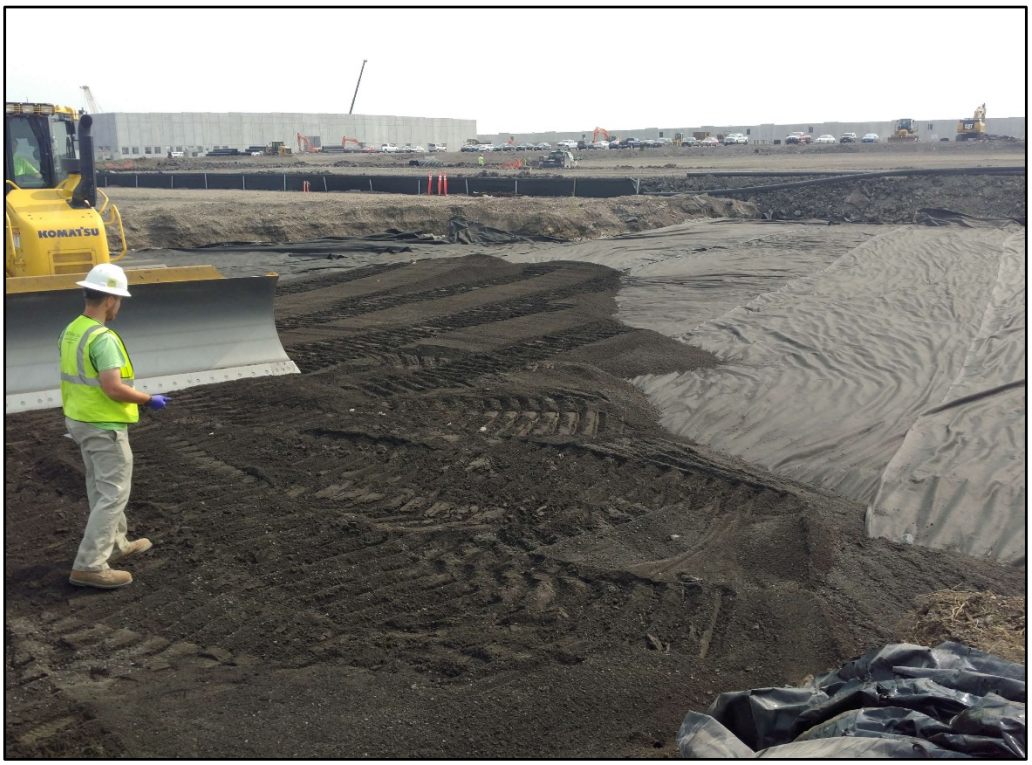
05/22/19: View to the west of the ramp that was constructed to allow for equipment to drive into the pit.

05/23/19: View to the northeast of the water level after dewatering was completed.

05/28/19: View of the uncovered deep well prior to inspection. The well was located directly beneath the ramp that led into the excavation.

06/03/19: View to the northeast of the final level of slag fill 2.5 feet below the surface.

06/03/19: View to the south of the eastern edge of the excavation pit after FCL Builders' operators removed the temporary silt fence and laid down slag for road construction.



06/05/19: Slag fines were used as the final backfill material. Geofabric was placed on top of the larger slag before the slag fines were added.

06/07/19: View to the south of the excavation site after all backfilling and compaction testing had been completed.

APPENDIX B

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/17/19 14:40
Date Received: 04/19/19 11:42
Date Issued: 04/23/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19041903

Field Sample ID: Cell 1-4/16/19 **Matrix: Soil** **Lab ID: 19041903-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22068
Percent Solids	**79**	%			SM2540G	04/19/19	04/22/19 10:12	AC
Polychlorinated Biphenyls							Batch:	22072
Aroclor 1016	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
Aroclor 1221	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
Aroclor 1232	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
Aroclor 1242	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
Aroclor 1248	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
Aroclor 1254	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
Aroclor 1260	ND	mg/kg	0.33	50	EPA 8082	04/22/19	04/22/19 16:45	DBS
TCLP Metals							Batch:	22069
Arsenic	ND	mg/L	0.5	5	1311/6020A	04/22/19	04/22/19 14:00	MEL
Barium	ND	mg/L	10	100	1311/6020A	04/22/19	04/22/19 14:00	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	04/22/19	04/22/19 14:00	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	04/22/19	04/22/19 14:00	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	04/22/19	04/22/19 14:00	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	04/22/19	04/22/19 14:00	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	04/22/19	04/22/19 14:00	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	04/22/19	04/22/19 14:00	MEL
TCLP Semi-Volatiles							Batch:	22071
2-Methylphenol	ND	ug/L	100	200000	1311/8270	04/22/19	04/22/19 16:05	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	04/22/19	04/22/19 16:05	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	04/22/19	04/22/19 16:05	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	04/22/19	04/22/19 16:05	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	04/22/19	04/22/19 16:05	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	04/22/19	04/22/19 16:05	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	04/22/19	04/22/19 16:05	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	04/22/19	04/22/19 16:05	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	04/22/19	04/22/19 16:05	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	04/22/19	04/22/19 16:05	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	04/22/19	04/22/19 16:05	GFH

8851 Orchard Tree Lane Towson, Maryland 21286 tel: 410.825.1151 fax: 410.825.2126 www.caslabs.net

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/17/19 14:40
Date Received: 04/19/19 11:42
Date Issued: 04/23/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19041903

Field Sample ID: Cell 1-4/16/19 **Matrix: Soil** **Lab ID: 19041903-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch:	22073
Benzene	ND	ug/L	24	500	1311/8260	04/23/19	04/23/19 12:17	GFH
Carbon Tetrachloride	ND	ug/L	24	500	1311/8260	04/23/19	04/23/19 12:17	GFH
Chloroform	ND	ug/L	24	6000	1311/8260	04/23/19	04/23/19 12:17	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	24	500	1311/8260	04/23/19	04/23/19 12:17	GFH
Tetrachloroethene	ND	ug/L	24	700	1311/8260	04/23/19	04/23/19 12:17	GFH
Vinyl Chloride	ND	ug/L	24	200	1311/8260	04/23/19	04/23/19 12:17	GFH
2-Butanone (MEK)	ND	ug/L	49	200000	1311/8260	04/23/19	04/23/19 12:17	GFH
Chlorobenzene	ND	ug/L	24	100000	1311/8260	04/23/19	04/23/19 12:17	GFH
1,4-Dichlorobenzene	ND	ug/L	24	7500	1311/8260	04/23/19	04/23/19 12:17	GFH
1,1-Dichloroethene	ND	ug/L	24	700	1311/8260	04/23/19	04/23/19 12:17	GFH
Trichloroethene	ND	ug/L	24	500	1311/8260	04/23/19	04/23/19 12:17	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Osher
QC Chemist

8851 Orchard Tree Lane Towson, Maryland 21286 tel: 410.825.1151 fax: 410.825.2126 www.caslabs.net

CALIBER ANALYTICAL SERVICES

8851 Orchard Tree Lane Towson, MD 21286
Phone: 410.825.1151
Fax: 410.825.2126
www.caslabs.net

Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	TMC - Stockpile Sampling (35-098 Excav.)
Project Number:	16043M-10-5
Site Location:	Sparrows Point, MD

SDG Number:	1904190J
Sampled by:	Bill Trentzsch
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	VOCs	SVOCs							Sampling Remarks/ Comments
	Cell1 - 4/16/19	4/17/19	1440	1	Soil		X	X	X	X							

Relinquished by:		Date/Time:	4/17/19 1645	Deliverables: I II III CLP EDD	Receipt Temperature: Temp:____ On Ice	Turnaround Time: STD Next Day 2-Day Other____
Received by:	Pamchee	Date/Time:	4/19/19 1142			
Relinquished by:		Date/Time:		Custody Seals: Sample Cooler Delivered by client CAS Courier	Comments/Special Instructions:	
Received by:		Date/Time:				
Relinquished by:		Date/Time:				
Received by:		Date/Time:				

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

[Quoted text hidden]

image002.jpg
1K

Andrea Castillo <amc@caslabs.net> Fri, Apr 19, 2019 at 12:36 PM
To: Gerald Walsh <gwalsh@armgroup.net>

Hi Gerald,

We just received the samples from yout B5-098 Excavation project. Please confirm turn around time. See attached COC.

Thanks,
Andrea
[Quoted text hidden]

2 attachments

image002.jpg
1K

19041903.pdf
957K

Gerald Walsh <gwalsh@armgroup.net> Fri, Apr 19, 2019 at 1:37 PM
To: Andrea Castillo <amc@caslabs.net>

Sorry about that. 2 day turn around.

Gerald Walsh, E.I.T.
Staff Engineer
ARM Group Inc.
Phone: 410-290-7775 x2015
Cell: 570-903-7540

From: Andrea Castillo <amc@caslabs.net>
Sent: Friday, April 19, 2019 12:37 PM
To: Gerald Walsh
Subject: Re: Sample Pickup

[Quoted text hidden]

Andrea Castillo <amc@caslabs.net> Fri, Apr 19, 2019 at 1:54 PM
To: Gerald Walsh <gwalsh@armgroup.net>

One more thing. Just to make sure, the SVOCs and VOCs are **not** TCLP?
[Quoted text hidden]

image002.jpg
1K

Gerald Walsh <gwalsh@armgroup.net> Fri, Apr 19, 2019 at 2:31 PM
To: Andrea Castillo <amc@caslabs.net>

Sorry, yes they are TCLP.

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/23/19 14:30
Date Received: 04/24/19 12:03
Date Issued: 04/26/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042401

Field Sample ID: Cell 2 - 4/17/19 **Matrix: Soil** **Lab ID: 19042401-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22088
Percent Solids	**83**	%			SM2540G	04/24/19	04/25/19 10:06	AC
Polychlorinated Biphenyls							Batch:	22082
Aroclor 1016	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
Aroclor 1221	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
Aroclor 1232	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
Aroclor 1242	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
Aroclor 1248	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
Aroclor 1254	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
Aroclor 1260	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 13:52	DBS
TCLP Metals							Batch:	22090
Arsenic	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:15	MEL
Barium	ND	mg/L	10	100	1311/6020A	04/25/19	04/26/19 11:15	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	04/25/19	04/26/19 11:15	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:15	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:15	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	04/25/19	04/26/19 11:15	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	04/25/19	04/26/19 11:15	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:15	MEL
TCLP Semi-Volatiles							Batch:	22091
2-Methylphenol	ND	ug/L	100	200000	1311/8270	04/25/19	04/25/19 17:40	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	04/25/19	04/25/19 17:40	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	04/25/19	04/25/19 17:40	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	04/25/19	04/25/19 17:40	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	04/25/19	04/25/19 17:40	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	04/25/19	04/25/19 17:40	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	04/25/19	04/25/19 17:40	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	04/25/19	04/25/19 17:40	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	04/25/19	04/25/19 17:40	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	04/25/19	04/25/19 17:40	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	04/25/19	04/25/19 17:40	GFH

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/23/19 14:30
Date Received: 04/24/19 12:03
Date Issued: 04/26/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042401

Field Sample ID: Cell 2 - 4/17/19 **Matrix: Soil** **Lab ID: 19042401-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch:	22067
Benzene	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:03	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:03	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	04/25/19	04/25/19 15:03	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:03	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	04/25/19	04/25/19 15:03	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	04/25/19	04/25/19 15:03	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	04/25/19	04/25/19 15:03	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	04/25/19	04/25/19 15:03	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	04/25/19	04/25/19 15:03	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	04/25/19	04/25/19 15:03	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:03	GFH

Approved by: Matt Osher
QC Chemist

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
Results reported on a dry weight basis.

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/23/19 14:40
Date Received: 04/24/19 12:03
Date Issued: 04/26/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042401

Field Sample ID: Cell 3 - 4/23/19 **Matrix: Soil** **Lab ID: 19042401-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22088
Percent Solids	**81**	%			SM2540G	04/24/19	04/25/19 10:06	AC
Polychlorinated Biphenyls							Batch:	22082
Aroclor 1016	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
Aroclor 1221	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
Aroclor 1232	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
Aroclor 1242	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
Aroclor 1248	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
Aroclor 1254	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
Aroclor 1260	ND	mg/kg	0.38	50	EPA 8082	04/25/19	04/25/19 14:19	DBS
TCLP Metals							Batch:	22090
Arsenic	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:38	MEL
Barium	ND	mg/L	10	100	1311/6020A	04/25/19	04/26/19 11:38	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	04/25/19	04/26/19 11:38	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:38	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:38	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	04/25/19	04/26/19 11:38	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	04/25/19	04/26/19 11:38	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	04/25/19	04/26/19 11:38	MEL
TCLP Semi-Volatiles							Batch:	22091
2-Methylphenol	ND	ug/L	100	200000	1311/8270	04/25/19	04/25/19 18:20	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	04/25/19	04/25/19 18:20	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	04/25/19	04/25/19 18:20	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	04/25/19	04/25/19 18:20	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	04/25/19	04/25/19 18:20	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	04/25/19	04/25/19 18:20	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	04/25/19	04/25/19 18:20	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	04/25/19	04/25/19 18:20	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	04/25/19	04/25/19 18:20	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	04/25/19	04/25/19 18:20	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	04/25/19	04/25/19 18:20	GFH

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/23/19 14:40
Date Received: 04/24/19 12:03
Date Issued: 04/26/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042401

Field Sample ID: Cell 3 - 4/23/19 **Matrix: Soil** **Lab ID: 19042401-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22067	
Benzene	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:34	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:34	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	04/25/19	04/25/19 15:34	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:34	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	04/25/19	04/25/19 15:34	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	04/25/19	04/25/19 15:34	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	04/25/19	04/25/19 15:34	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	04/25/19	04/25/19 15:34	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	04/25/19	04/25/19 15:34	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	04/25/19	04/25/19 15:34	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	04/25/19	04/25/19 15:34	GFH

Approved by: Matt Ochs
QC Chemist

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
Results reported on a dry weight basis.

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8851 Orchard Tree Lane Towson, MD 21286
Phone: 410.825.1151
Fax: 410.825.2126
www.caslabs.net

CALIBER ANALYTICAL SERVICES

Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	~~TMC~~ - Stockpile Sampling
Project Number:	160443M-10-5 B5-0715 excavation
Site Location:	Sparrows Point, MD

SDG Number:	19042401
Sampled by:	~~Bill Trentzsch~~ M. Ryder
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	TCLP VOC	TCLP SVOC								Sampling Remarks/ Comments
	Cell 2 - 4/17/19	4/23/19	1430	1	Soil		X	X	X	X								
	Cell 3 - 4/23/19	4/23/19	1440	1	Soil		X	X	X	X								

Relinquished by:	Mike Ryder	Date/Time:	4/23/19 1600
Received by:	Pam Chea	Date/Time:	4/24/19 1203
Relinquished by:		Date/Time:	
Received by:		Date/Time:	
Relinquished by:		Date/Time:	
Received by:		Date/Time:	

Deliverables: I II III CLP EDD

Custody Seals: Sample Cooler

Delivered by client

CAS Courier

Receipt Temperature: Temp: On Ice

Turnaround Time: STD Next Day 2-Day Other

Comments/Special Instructions:

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

CALIBER ANALYTICAL SERVICES

8851 Orchard Tree Lane Towson, MD 21286
Phone: 410.825.1151
Fax: 410.825.2126
www.caslabs.net

Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	TMC - Stockpile Sampling B5-098 Excav
Project Number:	160443M-10-5
Site Location:	Sparrows Point, MD

SDG Number:	19042402
Sampled by:	Bill Trenizsch
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP METALS	TCLP VOCs	TCLP SVOCs								Sampling Remarks/ Comments
	CELL 4 - 4/24/19	4/24/19	1450	1	Soil		X	X	X	X								

Relinquished by:	SCHRINER	Date/Time:	4/24/19 1523	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:		Date/Time:	4/24/19 16:00	I II III CLP EDD	Temp:_____ On Ice	STD Next Day 2-Day Other_____
Relinquished by:		Date/Time:	4/24/19 16:45	Custody Seals:	Comments/Special Instructions:	
Received by:		Date/Time:	4/24/19 1645	Sample Cooler		
Relinquished by:		Date/Time:		Delivered by client		
Received by:		Date/Time:		CAS Courier		

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/25/19 14:25
Date Received: 04/26/19 10:25
Date Issued: 05/03/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042602

Field Sample ID: Cell 5- 4/25/19 **Matrix: Soil** **Lab ID: 19042602-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22095
Percent Solids	**83**	%			SM2540G	04/26/19	04/29/19 10:23	AC
Polychlorinated Biphenyls							Batch:	22097
Aroclor 1016	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
Aroclor 1221	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
Aroclor 1232	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
Aroclor 1242	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
Aroclor 1248	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
Aroclor 1254	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
Aroclor 1260	ND	mg/kg	0.33	50	EPA 8082	04/29/19	04/29/19 15:06	DBS
TCLP Metals							Batch:	22102
Arsenic	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:35	MEL
Barium	ND	mg/L	10	100	1311/6020A	04/30/19	04/30/19 14:35	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	04/30/19	04/30/19 14:35	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:35	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:35	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	04/30/19	04/30/19 14:35	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	04/30/19	04/30/19 14:35	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:35	MEL
TCLP Semi-Volatiles							Batch:	22108
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/01/19	05/02/19 15:31	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/01/19	05/02/19 15:31	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/01/19	05/02/19 15:31	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/01/19	05/02/19 15:31	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/01/19	05/02/19 15:31	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/01/19	05/02/19 15:31	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/01/19	05/02/19 15:31	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/01/19	05/02/19 15:31	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/01/19	05/02/19 15:31	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/01/19	05/02/19 15:31	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/01/19	05/02/19 15:31	GFH

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/25/19 14:25
Date Received: 04/26/19 10:25
Date Issued: 05/03/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042602

Field Sample ID: Cell 5- 4/25/19 **Matrix: Soil** **Lab ID: 19042602-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch:	22123
Benzene	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 12:41	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 12:41	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/03/19	05/03/19 12:41	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 12:41	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/03/19	05/03/19 12:41	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/03/19	05/03/19 12:41	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/03/19	05/03/19 12:41	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/03/19	05/03/19 12:41	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/03/19	05/03/19 12:41	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/03/19	05/03/19 12:41	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 12:41	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by:

QC Chemist

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 04/25/19 14:27
Date Received: 04/26/19 10:25
Date Issued: 05/03/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042602

Field Sample ID: Cell 6- 4/25/19 **Matrix: Soil** **Lab ID: 19042602-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22095
Percent Solids	**84**	%			SM2540G	04/26/19	04/29/19 10:23	AC
Polychlorinated Biphenyls							Batch:	22097
Aroclor 1016	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
Aroclor 1221	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
Aroclor 1232	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
Aroclor 1242	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
Aroclor 1248	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
Aroclor 1254	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
Aroclor 1260	ND	mg/kg	5.9	50	EPA 8082	04/29/19	04/30/19 12:06	DBS
TCLP Metals							Batch:	22102
Arsenic	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:39	MEL
Barium	ND	mg/L	10	100	1311/6020A	04/30/19	04/30/19 14:39	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	04/30/19	04/30/19 14:39	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:39	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:39	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	04/30/19	04/30/19 14:39	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	04/30/19	04/30/19 14:39	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	04/30/19	04/30/19 14:39	MEL
TCLP Semi-Volatiles							Batch:	22108
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/01/19	05/02/19 16:10	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/01/19	05/02/19 16:10	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/01/19	05/02/19 16:10	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/01/19	05/02/19 16:10	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/01/19	05/02/19 16:10	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/01/19	05/02/19 16:10	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/01/19	05/02/19 16:10	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/01/19	05/02/19 16:10	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/01/19	05/02/19 16:10	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/01/19	05/02/19 16:10	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/01/19	05/02/19 16:10	GFH

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Suite 303
St. Louis, MO 63131

Date Sampled: 04/25/19 14:27
Date Received: 04/26/19 10:25
Date Issued: 05/03/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19042602

Field Sample ID: Cell 6- 4/25/19 **Matrix: Soil** **Lab ID: 19042602-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch:	22123
Benzene	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 13:12	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 13:12	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/03/19	05/03/19 13:12	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 13:12	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/03/19	05/03/19 13:12	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/03/19	05/03/19 13:12	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/03/19	05/03/19 13:12	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/03/19	05/03/19 13:12	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/03/19	05/03/19 13:12	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/03/19	05/03/19 13:12	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/03/19	05/03/19 13:12	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic
Results reported on a dry weight basis.

Approved by: Matt Ochs
QC Chemist

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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	~~TMC - Stockpile Sampling~~ 25-098 EXCAVATION
Project Number:	160443m-10-5
Site Location:	Sparrows Point, MD

SDG Number:	19042602
Sampled by:	~~Bill Trentzsch~~
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP METALS	TCLP VOCS	TCLP SVOCS							Sampling Remarks/ Comments
	CELL 5 - 4/25/19	4/25/19	1425	1	Soil												
	CELL 6 - 4/25/19	4/25/19	1427	1	Soil												

Relinquished by:	SCHRINER	Date/Time:	4/25/19 1526
Received by:	PamChee	Date/Time:	4/26/19 1025
Relinquished by:		Date/Time:	
Received by:		Date/Time:	
Relinquished by:		Date/Time:	
Received by:		Date/Time:	

Deliverables: I II III CLP EDD

Custody Seals: Sample Cooler

Delivered by client

CAS Courier

Receipt Temperature: Temp: ____ On Ice

Turnaround Time: STD Next Day 2-Day Other____

Comments/Special Instructions:

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

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St. Louis, MO 63131

Date Sampled: 05/01/19 13:55
Date Received: 05/03/19 12:52
Date Issued: 05/07/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050310

Field Sample ID: Cell 7 - 5/1/19 **Matrix: Soil** **Lab ID: 19050310-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22126
Percent Solids	**81**	%			SM2540G	05/03/19	05/07/19 12:11	DBS
Polychlorinated Biphenyls							Batch:	22134
Aroclor 1016	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
Aroclor 1221	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
Aroclor 1232	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
Aroclor 1242	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
Aroclor 1248	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
Aroclor 1254	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
Aroclor 1260	ND	mg/kg	3.4	50	EPA 8082	05/06/19	05/06/19 20:05	DBS
TCLP Metals							Batch:	22129
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/06/19	05/06/19 14:49	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/06/19	05/06/19 14:49	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/06/19	05/06/19 14:49	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/06/19	05/06/19 14:49	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/06/19	05/06/19 14:49	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/06/19	05/06/19 14:49	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/06/19	05/06/19 14:49	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/06/19	05/06/19 14:49	MEL
TCLP Semi-Volatiles							Batch:	22132
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/06/19	05/06/19 18:34	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/06/19	05/06/19 18:34	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/06/19	05/06/19 18:34	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/06/19	05/06/19 18:34	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/06/19	05/06/19 18:34	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/06/19	05/06/19 18:34	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/06/19	05/06/19 18:34	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/06/19	05/06/19 18:34	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/06/19	05/06/19 18:34	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/06/19	05/06/19 18:34	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/06/19	05/06/19 18:34	GFH

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/01/19 13:55
Date Received: 05/03/19 12:52
Date Issued: 05/07/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050310

Field Sample ID: Cell 7 - 5/1/19 **Matrix: Soil** **Lab ID: 19050310-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22137	
Benzene	ND	ug/L	25	500	1311/8260	05/07/19	05/07/19 12:17	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/07/19	05/07/19 12:17	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/07/19	05/07/19 12:17	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/07/19	05/07/19 12:17	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/07/19	05/07/19 12:17	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/07/19	05/07/19 12:17	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/07/19	05/07/19 12:17	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/07/19	05/07/19 12:17	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/07/19	05/07/19 12:17	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/07/19	05/07/19 12:17	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/07/19	05/07/19 12:17	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Osher
QC Chemist

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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	~~TMC - Stockpile Sampling~~ SS-058 Excav.
Project Number:	160443M-105
Site Location:	Sparrows Point, MD

SDG Number:	19050310
Sampled by:	Bill Trentzsch MR & PLG
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	TCLP VOC	TCLP SVOC							Sampling Remarks/ Comments
	Cell 7 -5/1/19	5/1/19	1355	1	Soil		X	X	X	X							

Relinquished by:	Mark Reed	Date/Time:	5/1/19 1615	Deliverables: I II III CLP EDD	Receipt Temperature: Temp: On Ice	Turnaround Time: STD Next Day 2-Day Other
Received by:	Pam Cahee	Date/Time:	5/3/19 1252			
Relinquished by:		Date/Time:		Custody Seals: Sample Cooler Delivered by client CAS Courier	Comments/Special Instructions:	
Received by:		Date/Time:				
Relinquished by:		Date/Time:				
Received by:		Date/Time:				

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

CALIBER ANALYTICAL SERVICES

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Date Sampled: 05/03/19 11:45
Date Received: 05/09/19 10:12
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050903

Field Sample ID: Cell 8 - 5/3/19 **Matrix: Soil** **Lab ID: 19050903-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22157
Percent Solids	**100**	%			SM2540G	05/09/19	05/10/19 9:37	DBS
Polychlorinated Biphenyls							Batch:	22160
Aroclor 1016	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
Aroclor 1221	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
Aroclor 1232	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
Aroclor 1242	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
Aroclor 1248	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
Aroclor 1254	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
Aroclor 1260	ND	mg/kg	2.7	50	EPA 8082	05/10/19	05/10/19 18:36	DBS
TCLP Metals							Batch:	22159
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:06	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/10/19	05/10/19 14:06	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:06	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:06	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:06	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/10/19	05/10/19 14:06	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:06	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:06	MEL
TCLP Semi-Volatiles							Batch:	22163
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/10/19	05/13/19 10:47	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/10/19	05/13/19 10:47	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 10:47	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/10/19	05/13/19 10:47	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 10:47	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 10:47	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/10/19	05/13/19 10:47	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/10/19	05/13/19 10:47	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/10/19	05/13/19 10:47	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 10:47	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/10/19	05/13/19 10:47	GFH

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
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St. Louis, MO 63131

Date Sampled: 05/03/19 11:45
Date Received: 05/09/19 10:12
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050903

Field Sample ID: Cell 8 - 5/3/19 **Matrix: Soil** **Lab ID: 19050903-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22161	
Benzene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:16	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:16	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/10/19	05/10/19 17:16	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:16	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 17:16	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/10/19	05/10/19 17:16	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/10/19	05/10/19 17:16	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/10/19	05/10/19 17:16	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/10/19	05/10/19 17:16	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 17:16	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:16	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Ochs
QC Chemist

8851 Orchard Tree Lane Towson, Maryland 21286 tel: 410.825.1151 fax: 410.825.2126 www.caslabs.net

CALIBER ANALYTICAL SERVICES
8851 Orchard Tree Lane Towson, MD 21286
Phone: 410.825.1151
Fax: 410.825.2126
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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	~~TMC - Stockpile Sampling~~
Project Number:	160443/1-10-5 85-098 ex cadmium
Site Location:	Sparrows Point, MD

SDG Number:	19050903
Sampled by:	Bill Trentzsch, M. Replogle
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	TCLP VOC	TCLP SVOC							Sampling Remarks/ Comments
	Cell 8-5/3/19	5/3/19	1145	1	soil		X	X	X	X							

Relinquished by:		Date/Time:	5/3/19 1530
Received by:	Pamahee	Date/Time:	5/9/19 1012
Relinquished by:		Date/Time:	
Received by:		Date/Time:	
Relinquished by:		Date/Time:	
Received by:		Date/Time:	

Deliverables: I II III CLP EDD

Receipt Temperature: Temp:____ On Ice

Turnaround Time: STD Next Day 2-Day Other____

Custody Seals: Sample Cooler

Delivered by client

CAS Courier

Comments/Special Instructions:

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/08/19 15:30
Date Received: 05/09/19 10:12
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050904

Field Sample ID: Cell 9 - 5/3/19 **Matrix: Soil** **Lab ID: 19050904-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22157
Percent Solids	**64**	%			SM2540G	05/09/19	05/10/19 9:38	DBS
Polychlorinated Biphenyls							Batch:	22160
Aroclor 1016	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
Aroclor 1221	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
Aroclor 1232	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
Aroclor 1242	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
Aroclor 1248	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
Aroclor 1254	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
Aroclor 1260	ND	mg/kg	4	50	EPA 8082	05/10/19	05/10/19 19:03	DBS
TCLP Metals							Batch:	22159
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:28	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/10/19	05/10/19 14:28	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:28	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:28	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:28	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/10/19	05/10/19 14:28	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:28	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:28	MEL
TCLP Semi-Volatiles							Batch:	22163
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/10/19	05/13/19 11:25	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/10/19	05/13/19 11:25	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 11:25	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/10/19	05/13/19 11:25	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 11:25	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 11:25	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/10/19	05/13/19 11:25	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/10/19	05/13/19 11:25	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/10/19	05/13/19 11:25	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 11:25	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/10/19	05/13/19 11:25	GFH

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Certificate of Analysis

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1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/08/19 15:30
Date Received: 05/09/19 10:12
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050904

Field Sample ID: Cell 9 - 5/3/19 **Matrix: Soil** **Lab ID: 19050904-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22161	
Benzene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:46	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:46	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/10/19	05/10/19 17:46	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:46	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 17:46	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/10/19	05/10/19 17:46	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/10/19	05/10/19 17:46	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/10/19	05/10/19 17:46	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/10/19	05/10/19 17:46	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 17:46	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 17:46	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Ochs
QC Chemist

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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	~~TMC - Stockpile Sampling~~
Project Number:	160437-10-5 B5-08 EXCN.
Site Location:	Sparrows Point, MD

SDG Number:	19050904
Sampled by:	~~Bill Trentzsch~~ M. Replogle
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	TCLP VOCs	TCLP SVOCs								Sampling Remarks/ Comments
	Cell 9-5/3/19	5/8/19	1530	1	Soil		X	X	X	X								

Relinquished by:	[signature]	Date/Time:	5/8/19	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:	Pam Cline	Date/Time:	5/9/19 1012	I II III CLP EDD	Temp: ____ On Ice	STD Next Day 2-Day Other
Relinquished by:		Date/Time:		Custody Seals:	Comments/Special Instructions:	
Received by:		Date/Time:		Sample Cooler		
Relinquished by:		Date/Time:		Delivered by client		
Received by:		Date/Time:		CAS Courier		

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/09/19 15:20
Date Received: 05/09/19 16:41
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050907

Field Sample ID: Cell 10 - 5/8/19 **Matrix: Soil** **Lab ID: 19050907-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22157
Percent Solids	**87**	%			SM2540G	05/09/19	05/10/19 9:38	DBS
Polychlorinated Biphenyls							Batch:	22160
Aroclor 1016	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
Aroclor 1221	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
Aroclor 1232	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
Aroclor 1242	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
Aroclor 1248	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
Aroclor 1254	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
Aroclor 1260	ND	mg/kg	3.7	50	EPA 8082	05/10/19	05/10/19 19:30	DBS
TCLP Metals							Batch:	22159
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:37	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/10/19	05/10/19 14:37	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:37	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:37	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:37	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/10/19	05/10/19 14:37	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:37	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:37	MEL
TCLP Semi-Volatiles							Batch:	22163
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/10/19	05/13/19 12:03	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/10/19	05/13/19 12:03	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 12:03	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/10/19	05/13/19 12:03	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 12:03	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 12:03	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/10/19	05/13/19 12:03	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/10/19	05/13/19 12:03	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/10/19	05/13/19 12:03	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 12:03	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/10/19	05/13/19 12:03	GFH

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/09/19 15:20
Date Received: 05/09/19 16:41
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050907

Field Sample ID: Cell 10 - 5/8/19 **Matrix: Soil** **Lab ID: 19050907-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch:	22161
Benzene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:16	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:16	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/10/19	05/10/19 18:16	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:16	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 18:16	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/10/19	05/10/19 18:16	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/10/19	05/10/19 18:16	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/10/19	05/10/19 18:16	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/10/19	05/10/19 18:16	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 18:16	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:16	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Ochs
QC Chemist

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EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/09/19 15:10
Date Received: 05/09/19 16:41
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050907

Field Sample ID: Cell 11 - 5/9/19 **Matrix: Soil** **Lab ID: 19050907-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22157
Percent Solids	**83**	%			SM2540G	05/09/19	05/10/19 14:35	DBS
Polychlorinated Biphenyls							Batch:	22160
Aroclor 1016	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
Aroclor 1221	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
Aroclor 1232	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
Aroclor 1242	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
Aroclor 1248	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
Aroclor 1254	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
Aroclor 1260	ND	mg/kg	3.3	50	EPA 8082	05/10/19	05/10/19 19:58	DBS
TCLP Metals							Batch:	22159
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:42	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/10/19	05/10/19 14:42	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:42	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:42	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:42	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/10/19	05/10/19 14:42	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/10/19	05/10/19 14:42	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/10/19	05/10/19 14:42	MEL
TCLP Semi-Volatiles							Batch:	22163
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/10/19	05/13/19 12:40	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/10/19	05/13/19 12:40	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 12:40	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/10/19	05/13/19 12:40	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/10/19	05/13/19 12:40	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 12:40	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/10/19	05/13/19 12:40	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/10/19	05/13/19 12:40	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/10/19	05/13/19 12:40	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/10/19	05/13/19 12:40	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/10/19	05/13/19 12:40	GFH

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Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/09/19 15:10
Date Received: 05/09/19 16:41
Date Issued: 05/13/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19050907

Field Sample ID: Cell 11 - 5/9/19 **Matrix: Soil** **Lab ID: 19050907-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22161	
Benzene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:47	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:47	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/10/19	05/10/19 18:47	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:47	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 18:47	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/10/19	05/10/19 18:47	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/10/19	05/10/19 18:47	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/10/19	05/10/19 18:47	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/10/19	05/10/19 18:47	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/10/19	05/10/19 18:47	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/10/19	05/10/19 18:47	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Ochs
QC Chemist

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CALIBER ANALYTICAL SERVICES

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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda / Melissa Replogle
Phone:	314-620-3056
Fax:	

mreplogle@amgroup.net

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	TMC - Stockpile Sampling
Project Number:	160443M-10-5 B5-098 excav.
Site Location:	Sparrows Point, MD

SDG Number:	1905907
Sampled by:	Bill Trentzsch M. Replogle
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	TCLP VOCs	TCLP SVOC							Sampling Remarks/ Comments
	Cell 10-5/8/19	5/9/19	15:20	1	soil		X	X	X	X							
	Cell 11-5/9/19	5/9/19	15:10	1	soil		X	X	X	X							

Relinquished by:		Date/Time:	5/9/19 1641	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:		Date/Time:	5/9/19 1641	I II III CLP EDD	Temp: On Ice	STD Next Day 2-Day Other
Relinquished by:		Date/Time:		Custody Seals:	Comments/Special Instructions:	
Received by:		Date/Time:		Sample Cooler		
Relinquished by:		Date/Time:		Delivered by client		
Received by:		Date/Time:		CAS Courier		

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/13/19 14:55
Date Received: 05/14/19 11:16
Date Issued: 05/16/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19051408

Field Sample ID: Cell 12 - 5/13/19 **Matrix: Soil** **Lab ID: 19051408-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22181
Percent Solids	**79**	%			SM2540G	05/14/19	05/15/19 14:00	AC
Polychlorinated Biphenyls							Batch:	22190
Aroclor 1016	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
Aroclor 1221	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
Aroclor 1232	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
Aroclor 1242	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
Aroclor 1248	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
Aroclor 1254	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
Aroclor 1260	ND	mg/kg	3.2	50	EPA 8082	05/16/19	05/16/19 12:44	DBS
TCLP Metals							Batch:	22183
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/15/19	05/15/19 14:11	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/15/19	05/15/19 14:11	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/15/19	05/15/19 14:11	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/15/19	05/15/19 14:11	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/15/19	05/15/19 14:11	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/15/19	05/15/19 14:11	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/15/19	05/15/19 14:11	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/15/19	05/15/19 14:11	MEL
TCLP Semi-Volatiles							Batch:	22186
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/15/19	05/16/19 10:01	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/15/19	05/16/19 10:01	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/15/19	05/16/19 10:01	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/15/19	05/16/19 10:01	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/15/19	05/16/19 10:01	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/15/19	05/16/19 10:01	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/15/19	05/16/19 10:01	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/15/19	05/16/19 10:01	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/15/19	05/16/19 10:01	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/15/19	05/16/19 10:01	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/15/19	05/16/19 10:01	GFH

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/13/19 14:55
Date Received: 05/14/19 11:16
Date Issued: 05/16/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19051408

Field Sample ID: Cell 12 - 5/13/19 **Matrix: Soil** **Lab ID: 19051408-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22184	
Benzene	ND	ug/L	25	500	1311/8260	05/15/19	05/15/19 19:55	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/15/19	05/15/19 19:55	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/15/19	05/15/19 19:55	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/15/19	05/15/19 19:55	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/15/19	05/15/19 19:55	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/15/19	05/15/19 19:55	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/15/19	05/15/19 19:55	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/15/19	05/15/19 19:55	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/15/19	05/15/19 19:55	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/15/19	05/15/19 19:55	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/15/19	05/15/19 19:55	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by:

QC Chemist

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CALIBER ANALYTICAL SERVICES

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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda / Melissa Replogle
Phone:	314-620-3056
Fax:	

mreplogle@armgroup.net

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	~~TMC - Stockpile Sampling~~
Project Number:	
Site Location:	Sparrows Point, MD

SDG Number:	1905140
Sampled by:	~~Bill Trentzsch~~
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP metals	TCLP VOCs	TCLP SVOC								Sampling Remarks/ Comments
	Cell 12 5/13/19	5/13/19	1455	1	soil		X	X	X	X								

Relinquished by:	[signature]	Date/Time:	5/13/19	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:	[signature]	Date/Time:	5/14/19 1116	I II III CLP EDD	Temp: ___ On Ice	STD Next Day 2-Day Other
Relinquished by:		Date/Time:		Custody Seals:	Comments/Special Instructions:	
Received by:		Date/Time:		Sample Cooler		
Relinquished by:		Date/Time:		Delivered by client		
Received by:		Date/Time:		CAS Courier		

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/28/19 15:10
Date Received: 05/28/19 16:27
Date Issued: 05/31/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19052806

Field Sample ID: Cell 13 - 5/28/19 **Matrix: Soil** **Lab ID: 19052806-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids							Batch:	22242
Percent Solids	**87**	%			SM2540G	05/28/19	05/29/19 11:04	DBS
Polychlorinated Biphenyls							Batch:	22249
Aroclor 1016	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
Aroclor 1221	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
Aroclor 1232	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
Aroclor 1242	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
Aroclor 1248	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
Aroclor 1254	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
Aroclor 1260	ND	mg/kg	3.7	50	EPA 8082	05/29/19	05/29/19 18:59	DBS
TCLP Metals							Batch:	22244
Arsenic	ND	mg/L	0.5	5	1311/6020A	05/29/19	05/29/19 12:51	MEL
Barium	ND	mg/L	10	100	1311/6020A	05/29/19	05/29/19 12:51	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	05/29/19	05/29/19 12:51	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	05/29/19	05/29/19 12:51	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	05/29/19	05/29/19 12:51	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	05/29/19	05/29/19 12:51	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	05/29/19	05/29/19 12:51	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	05/29/19	05/29/19 12:51	MEL
TCLP Semi-Volatiles							Batch:	22251
2-Methylphenol	ND	ug/L	100	200000	1311/8270	05/30/19	05/30/19 12:44	GFH
3+4-Methylphenol	ND	ug/L	200	200000	1311/8270	05/30/19	05/30/19 12:44	GFH
2,4-Dinitrotoluene	ND	ug/L	100	130	1311/8270	05/30/19	05/30/19 12:44	GFH
Hexachloroethane	ND	ug/L	100	3000	1311/8270	05/30/19	05/30/19 12:44	GFH
Hexachlorobenzene	ND	ug/L	100	130	1311/8270	05/30/19	05/30/19 12:44	GFH
Nitrobenzene	ND	ug/L	100	2000	1311/8270	05/30/19	05/30/19 12:44	GFH
Pentachlorophenol	ND	ug/L	500	100000	1311/8270	05/30/19	05/30/19 12:44	GFH
Pyridine	ND	ug/L	100	5000	1311/8270	05/30/19	05/30/19 12:44	GFH
2,4,5-Trichlorophenol	ND	ug/L	100	400000	1311/8270	05/30/19	05/30/19 12:44	GFH
2,4,6-Trichlorophenol	ND	ug/L	100	2000	1311/8270	05/30/19	05/30/19 12:44	GFH
Hexachlorobutadiene`	ND	ug/L	100	500	1311/8270	05/30/19	05/30/19 12:44	GFH

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

EnviroAnalytics Group, LLC
1650 Des Peres Rd.
Suite 303
St. Louis, MO 63131

Date Sampled: 05/28/19 15:10
Date Received: 05/28/19 16:27
Date Issued: 05/31/19

Project: B5-098 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-10-5

SDG Number: 19052806

Field Sample ID: Cell 13 - 5/28/19 **Matrix: Soil** **Lab ID: 19052806-01**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
TCLP Volatiles							Batch: 22252	
Benzene	ND	ug/L	25	500	1311/8260	05/30/19	05/30/19 18:01	GFH
Carbon Tetrachloride	ND	ug/L	25	500	1311/8260	05/30/19	05/30/19 18:01	GFH
Chloroform	ND	ug/L	25	6000	1311/8260	05/30/19	05/30/19 18:01	GFH
1,2-Dichloroethane (EDC)	ND	ug/L	25	500	1311/8260	05/30/19	05/30/19 18:01	GFH
Tetrachloroethene	ND	ug/L	25	700	1311/8260	05/30/19	05/30/19 18:01	GFH
Vinyl Chloride	ND	ug/L	25	200	1311/8260	05/30/19	05/30/19 18:01	GFH
2-Butanone (MEK)	ND	ug/L	50	200000	1311/8260	05/30/19	05/30/19 18:01	GFH
Chlorobenzene	ND	ug/L	25	100000	1311/8260	05/30/19	05/30/19 18:01	GFH
1,4-Dichlorobenzene	ND	ug/L	25	7500	1311/8260	05/30/19	05/30/19 18:01	GFH
1,1-Dichloroethene	ND	ug/L	25	700	1311/8260	05/30/19	05/30/19 18:01	GFH
Trichloroethene	ND	ug/L	25	500	1311/8260	05/30/19	05/30/19 18:01	GFH

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
REGL - RCRA Regulatory Limit. For TCLP reference 40CFR, Part 261.24, Table 1 - Maximum Concentration of Contaminants for the Toxicity Characteristic

Approved by: Matt Ochs
QC Chemist

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8891 Orchard Tree Lane
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Chain of Custody Record

Customer:	EnviroAnalytics Group
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	mreplogle@amgroup.net jcalenda@enviroanalyticsgroup.com
Project Name:	TMC - Stockpile Sampling BS-098 Excavation
Project Number:	160443M-105
Site Location:	Sparrows Point, MD

SDG Number:	19052806
Sampled by:	Bill Trentzsch
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	PCBs 8082	TCLP VOC	TCL PSVOC	TCLP metals								Sampling Remarks/ Comments
	BS-098 Cell 13-5/28/19	5/28/19	1510	1	Soil		X	X	X	X								

Relinquished by:		Date/Time:	5-28-19 1627
Received by:		Date/Time:	5/28/19 1627
Relinquished by:		Date/Time:	
Received by:		Date/Time:	
Relinquished by:		Date/Time:	
Received by:		Date/Time:	

Deliverables: I II III CLP EDD

Custody Seals: Sample Cooler

Delivered by client

CAS Courier

Receipt Temperature: Temp. On Ice

Turnaround Time: STD Next Day 2-Day Other

Comments/Special Instructions:

* W = Water; WW = Wastewater; GW = Groundwater; S = Soil; SL = Sludge

APPENDIX C

B5-098 Response Area
Dust Monitor Readings

Date and Time	Dust Reading (mg/m³)
4/16/2019 9:45	0.018
4/16/2019 10:00	0.040
4/16/2019 10:15	0.007
4/16/2019 10:30	0.003
4/16/2019 10:45	0.021
4/16/2019 11:00	0.014
4/16/2019 11:15	0.274
4/16/2019 11:30	0.013
4/17/2019 9:15	0.090
4/17/2019 9:30	0.177
4/17/2019 9:45	0.134
4/17/2019 10:00	0.117
4/17/2019 10:15	0.515
4/17/2019 10:30	1.121
4/17/2019 10:45	0.048
4/17/2019 11:00	0.696
4/17/2019 11:15	0.645
4/17/2019 11:30	0.183
4/17/2019 11:45	0.777
4/17/2019 12:00	0.492
4/17/2019 12:15	0.292
4/17/2019 12:30	0.309
4/17/2019 13:15	0.173
4/17/2019 13:30	0.553
4/17/2019 13:45	0.167
4/17/2019 14:00	0.134
4/17/2019 14:15	0.165
4/17/2019 14:30	0.585
4/17/2019 14:45	0.155
4/17/2019 15:00	0.121
4/17/2019 15:15	0.075
4/17/2019 15:30	0.197
4/17/2019 15:45	0.382
4/18/2019 8:30	0.122
4/18/2019 8:45	0.057
4/18/2019 9:00	0.119
4/18/2019 9:15	0.067
4/18/2019 9:30	0.049
4/18/2019 9:45	0.060
4/18/2019 10:00	0.058
4/18/2019 10:15	0.055
4/18/2019 10:30	0.067
4/18/2019 10:45	0.050
4/18/2019 11:00	0.048
4/18/2019 11:15	0.043
4/18/2019 11:30	0.049
4/18/2019 11:45	0.037
4/18/2019 12:00	0.034
4/18/2019 12:15	0.093
4/18/2019 12:30	0.056
4/18/2019 12:45	0.076
4/22/2019 7:15	0.049
4/22/2019 7:30	0.006
4/22/2019 7:45	0.026
4/22/2019 8:00	0.014
4/22/2019 8:15	0.044
4/22/2019 8:30	0.031
4/22/2019 8:45	0.019
4/22/2019 9:00	0.037
4/22/2019 9:30	0.276
4/22/2019 9:45	0.044
4/22/2019 10:00	0.028
4/22/2019 10:15	0.037
4/22/2019 10:30	0.026
4/22/2019 10:45	0.018
4/22/2019 11:00	0.045
4/22/2019 11:15	0.028
4/22/2019 11:30	0.020
4/22/2019 11:45	0.056
4/22/2019 12:00	0.034
4/22/2019 12:15	0.020
4/22/2019 12:30	0.028
4/22/2019 12:45	0.044
4/22/2019 13:00	0.094
4/22/2019 13:15	0.087
4/22/2019 13:30	0.008
4/22/2019 14:00	0.581
4/22/2019 14:15	0.042
4/22/2019 14:30	0.512
4/22/2019 14:45	0.045
4/22/2019 15:00	0.117
4/22/2019 15:15	0.031
4/23/2019 7:45	0.018
4/23/2019 8:00	0.071
4/23/2019 8:15	0.073
4/23/2019 8:30	0.025
4/23/2019 8:45	0.027
4/23/2019 9:00	0.041
4/23/2019 9:15	0.033
4/23/2019 9:30	0.023
4/23/2019 9:45	0.003
4/23/2019 10:00	0.004
4/23/2019 10:15	0.009
4/23/2019 10:30	0.028
4/23/2019 10:45	0.077
4/23/2019 11:00	0.061
4/23/2019 11:15	0.026
4/23/2019 11:30	0.051
4/23/2019 11:45	0.307
4/23/2019 12:00	0.024
4/23/2019 12:15	0.073
4/24/2019 7:00	0.140
4/24/2019 7:15	0.297
4/24/2019 7:30	0.023
4/24/2019 7:45	0.040
4/24/2019 8:00	0.055
4/24/2019 8:15	0.001
4/24/2019 8:30	0.034
4/24/2019 8:45	0.216
4/24/2019 9:00	0.443
4/24/2019 9:15	0.017
4/24/2019 9:30	0.327
4/24/2019 9:45	0.576
4/24/2019 10:00	0.272
4/24/2019 10:15	0.114
4/24/2019 10:30	0.016
4/24/2019 10:45	0.221
4/24/2019 11:00	0.062
4/24/2019 11:15	0.021
4/24/2019 11:30	0.137
4/24/2019 11:45	0.128
4/24/2019 12:00	0.591
4/24/2019 12:15	0.041
4/24/2019 12:30	0.491
4/24/2019 12:45	0.752
4/24/2019 13:00	0.420
4/24/2019 13:15	0.724
4/24/2019 13:30	0.083
4/25/2019 8:30	0.079

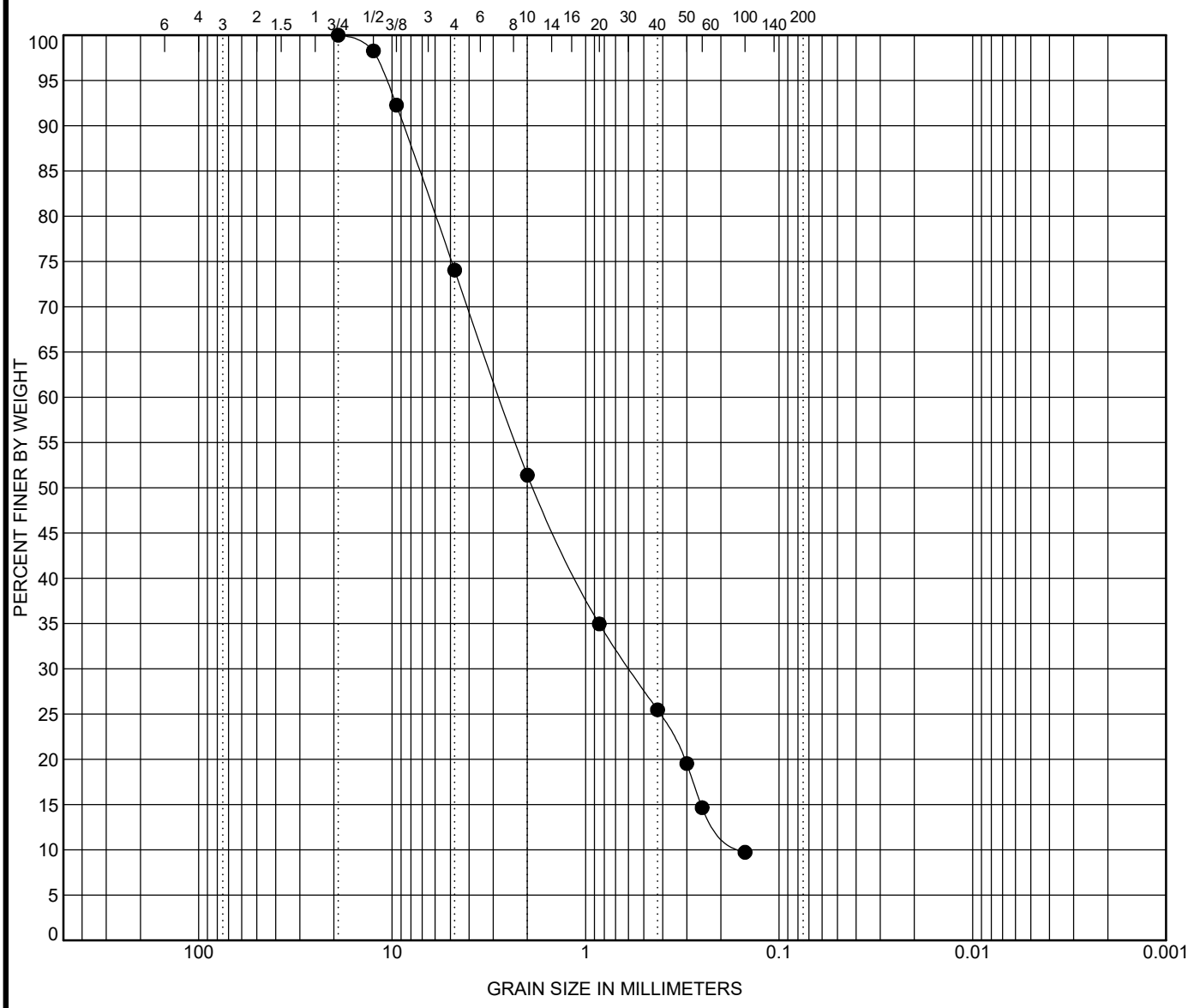
B5-098 Response Area
Dust Monitor Readings

Date and Time	Dust Reading (mg/m³)
4/25/2019 8:45	0.047
4/25/2019 9:00	0.031
4/25/2019 9:15	0.376
4/25/2019 9:30	0.020
4/25/2019 9:45	0.050
4/25/2019 10:00	0.081
4/25/2019 10:15	0.050
4/25/2019 10:30	0.030
4/25/2019 11:00	0.005
4/25/2019 11:15	0.026
4/25/2019 11:30	0.028
4/25/2019 11:45	0.079
4/25/2019 12:00	0.102
4/25/2019 12:45	0.029
4/25/2019 13:00	0.024
4/25/2019 13:15	0.029
4/25/2019 13:30	0.372
4/25/2019 13:45	0.075
4/25/2019 14:00	0.043
5/1/2019 7:30	0.385
5/1/2019 7:45	0.045
5/1/2019 8:00	0.077
5/1/2019 8:15	0.039
5/1/2019 8:30	0.048
5/1/2019 8:45	0.017
5/1/2019 9:00	0.060
5/1/2019 9:15	0.037
5/1/2019 9:30	0.751
5/1/2019 9:45	0.067
5/1/2019 10:00	0.034
5/1/2019 10:15	0.071
5/1/2019 10:30	0.114
5/1/2019 10:45	0.039
5/1/2019 11:00	0.042
5/1/2019 11:15	0.044
5/1/2019 11:30	0.053
5/1/2019 11:45	0.136
5/3/2019 7:30	0.085
5/3/2019 7:45	0.063
5/3/2019 8:00	0.412
5/3/2019 8:15	0.155
5/3/2019 8:30	0.058
5/3/2019 8:45	0.055

Date and Time	Dust Reading (mg/m³)
5/3/2019 9:00	0.205
5/3/2019 9:15	0.065
5/3/2019 9:30	0.157
5/3/2019 9:45	0.094
5/3/2019 10:00	0.102
5/3/2019 10:15	0.089
5/3/2019 10:30	0.120
5/3/2019 10:45	0.168
5/3/2019 11:00	0.122
5/3/2019 11:15	0.111
5/8/2019 9:30	0.039
5/8/2019 9:45	0.037
5/8/2019 10:00	0.529
5/8/2019 10:15	0.167
5/8/2019 10:30	0.124
5/8/2019 10:45	0.064
5/8/2019 11:00	0.109
5/8/2019 11:15	0.143
5/8/2019 11:30	0.095
5/8/2019 11:45	0.184
5/8/2019 12:00	0.226
5/8/2019 12:15	0.323
5/8/2019 12:30	0.788
5/8/2019 14:00	0.719
5/8/2019 14:15	0.242
5/8/2019 14:30	0.151
5/8/2019 14:45	0.155
5/8/2019 15:00	0.127
5/8/2019 15:15	0.159
5/9/2019 7:30	0.125
5/9/2019 7:45	0.101
5/9/2019 8:00	0.115
5/9/2019 8:15	0.123
5/9/2019 8:30	0.146
5/9/2019 8:45	0.136
5/9/2019 9:00	0.138
5/9/2019 9:15	0.169
5/9/2019 9:30	0.166
5/9/2019 9:45	0.165
5/9/2019 10:00	0.162
5/9/2019 10:15	0.157
5/9/2019 10:30	0.169
5/9/2019 10:45	0.167

Date and Time	Dust Reading (mg/m³)
5/9/2019 11:00	0.155
5/9/2019 11:15	0.165
5/9/2019 11:30	0.172
5/9/2019 11:45	0.352
5/9/2019 12:00	0.192
5/9/2019 12:15	0.205
5/9/2019 13:15	0.202
5/9/2019 13:30	0.209
5/9/2019 13:45	0.211
5/9/2019 14:00	0.210
5/9/2019 14:15	0.229
5/9/2019 14:30	0.216
5/13/2019 9:00	0.050
5/13/2019 9:15	0.002
5/13/2019 9:30	0.000
5/13/2019 9:45	0.000
5/13/2019 10:00	0.000
5/13/2019 10:15	0.000
5/13/2019 10:30	0.000
5/13/2019 10:45	0.000
5/13/2019 11:00	0.000
5/13/2019 11:15	0.034
5/13/2019 11:30	0.030
5/13/2019 11:45	0.021
5/13/2019 12:00	0.032
5/13/2019 12:30	0.079
5/13/2019 12:45	0.029
5/13/2019 13:00	0.018
5/13/2019 13:15	0.022
5/13/2019 13:30	0.031
5/13/2019 13:45	0.019
5/13/2019 14:00	0.028
5/13/2019 14:15	0.026

APPENDIX D



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	LL	PL	PI	Cc	Cu
●	SF-3	S-1					0.82	18.00

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	% Fines
●	SF-3	S-1	19	2.778	0.592	0.154	26.0		

Geo-Science Engineering
& Testing, LLC
1252 Mid-Valley Drive
Jessup, PA 18434
Telephone: (570) 489-8717

GRAIN SIZE DISTRIBUTION

Project: Sparrow Point

Location:

Number:

APPENDIX E

Field Compaction Test Log

ARM Group Inc.

Project Name : EAG B5-098 Excavation Backfill

Test Location : Backfill Operations

Weather : Cloudy - 86° F

Project No.: 160443-10-5

Tested by : Craig Schriner/ Tyler Van Ness

Date : 6/6/2019

Test No.	Test Depth	Soil ID No.	Location (Latitude / Longitude)	Elevation	Max Dry Density (pcf)/ Opt. Moisture (%)	Water Content (%)	Wet Density (pcf)	Dry Density (pcf)	Percent Compaction	Comments
1	6"	SF-3 (corrected)	39.21816, -76.48512	1.5'<SG	133.2 / 10	9.5	152.3	139.1	N/A	Passed Proofroll
2	6"	SF-3 (corrected)	39.2182, -76.48523	1.5'<SG	133.2 / 10	9.3	147.7	135.1	N/A	Passed Proofroll
3	6"	SF-3 (corrected)	39.21823, -76.48539	1.5'<SG	133.2 / 10	9.2	152.9	140.0	N/A	Passed Proofroll
4	6"	SF-3 (corrected)	39.21823, -76.48561	1.5'<SG	133.2 / 10	9.4	150.6	137.6	N/A	Passed Proofroll
5	6"	SF-3 (corrected)	39.21809, -76.48548	1.5'<SG	133.2 / 10	9.5	148.7	135.9	N/A	Passed Proofroll
6	6"	SF-3 (corrected)	39.21807, 76.48545	1.5'<SG	133.2 / 10	9.5	152.1	138.9	N/A	Passed Proofroll
7	6"	SF-3 (corrected)	39.21806, -76.4854	1.5'<SG	133.2 / 10	8.9	152.1	139.6	N/A	Passed Proofroll

NOTES:

Test performed per ASTM D2922-41 and ASTM D3017-88(93)
Water content : Percent of Dry Weight
Percent Compaction: Based on the maximum dry density obtained on sample indicated by Soil ID number

SOIL ID:
SF-3 (corrected) Slag Fines
SF-3 (uncorrected) Slag Fines

MDD (Specs Min.) / OM% (Tolerance)
133.2 (126.54) / 10.0 (±3%)
126.8(120.46) / 12.2 (±3%)

COMMENTS:
A Test results comply with specifications
B Percent compaction does not comply with specifications
C Retest of previous test
D Moisture in excess of specifications
E Moisture below specification

ARM Group Inc.

Field Compaction Test Log

Project Name : EAG B5-098 Excavation Backfill

Project No.: 160443-10-5

Test Location : Backfill Operations

Tested by : Craig Schriner/ Tyler Van Ness

Weather : Mostly Cloudy - 81° F

Date : 6/7/2019

Test No.	Test Depth	Soil ID No.	Location (Latitude / Longitude)	Elevation	Max Dry Density (pcf)/ Opt. Moisture (%)	Water Content (%)	Wet Density (pcf)	Dry Density (pcf)	Percent Compaction	Comments
8	6"	SF-3 (corrected)	39.21825, -76.48533	0.5'<SG	133.2 / 10	10.5	143.9	130.2	N/A	Passed Proofroll
9	6"	SF-3 (corrected)	39.21824, -76.48539	0.5'<SG	133.2 / 10	8.9	147.3	135.3	N/A	Passed Proofroll
10	6"	SF-3 (corrected)	39.21824, -76.48543	0.5'<SG	133.2 / 10	9.1	154.3	141.4	N/A	Passed Proofroll
11	6"	SF-3 (corrected)	39.2181, -76.48563	0.5'<SG	133.2 / 10	10.2	144.6	131.2	N/A	Passed Proofroll
12	6"	SF-3 (corrected)	39.21802, -6.48535	0.5'<SG	133.2 / 10	8.5	150.0	138.3	N/A	Passed Proofroll
13	6"	SF-3 (corrected)	39.21804, -76.48534	0.5'<SG	133.2 / 10	9.5	145.0	132.5	N/A	Passed Proofroll
14	6"	SF-3 (corrected)	39.21798, -76.48527	0.5'<SG	133.2 / 10	9.0	154.0	141.2	N/A	Passed Proofroll
15	4"	SF-3 (corrected)	39.21828, -76.48522	0'<SG	133.2 / 10	8.9	144.3	132.6	N/A	Passed Proofroll
16	4"	SF-3 (corrected)	39.21823, -76.48535	0'<SG	133.2 / 10	10.3	142.2	128.9	N/A	Passed Proofroll
17	4"	SF-3 (corrected)	39.21827, -76.48554	0'<SG	133.2 / 10	10.3	144.3	130.7	N/A	Passed Proofroll
18	4"	SF-3 (corrected)	39.21816, -76.4855	0'<SG	133.2 / 10	9.4	143.7	131.3	N/A	Passed Proofroll
19	4"	SF-3 (corrected)	39.21801, -76.48533	0'<SG	133.2 / 10	9.7	142.7	130.0	N/A	Passed Proofroll
20	4"	SF-3 (corrected)	39.21807, -76.48523	0'<SG	133.2 / 10	9.4	143.7	131.4	N/A	Passed Proofroll

NOTES:

Test performed per ASTM D2922-41 and ASTM D3017-88(93)
Water content : Percent of Dry Weight
Percent Compaction: Based on the maximum dry density obtained on sample indicated by Soil ID number

SOIL ID:
SF-3 (corrected) Slag Fines
SF-3 (uncorrected) Slag Fines

MDD (Specs Min.) / OM% (Tolerance)
133.2 (126.54) / 10.0 (±3%)
126.8(120.46) / 12.2 (±3%)

COMMENTS:
A Test results comply with specifications
B Percent compaction does not comply with specifications
C Retest of previous test
D Moisture in excess of specifications
E Moisture below specification

N/A: Not Applicable

ARM Group Inc.
Engineers and Scientists

July 12, 2019

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Test Pitting Completion Letter: B5-161-SB
Area B: Parcel B5
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Test Pitting Completion Letter to document the supplemental investigation performed on a portion of the Tradepoint Atlantic property that has been designated as Area B: Parcel B5 (the Site). Parcel B5 comprises approximately 305 acres of the approximately 3,100-acre former steel mill property located in Sparrows Point, Maryland. During the Phase II Investigation, the maximum detection of total petroleum hydrocarbons diesel range organics (TPH-DRO) at the Site was identified in sample B5-161-SB-4, with a concentration of 17,900 mg/kg. Elevated concentrations of several polynuclear aromatic hydrocarbons (PAHs) were also identified at the same soil boring location. Despite the elevated analytical detections of TPH-DRO and PAHs, there was no physical evidence of non-aqueous phase liquid (NAPL) identified in the soil cores. The location of B5-161-SB is shown on **Figure 1**.

Even though there was no physical evidence of NAPL, a screening piezometer was installed at B5-161-SB to determine the potential presence of any mobile NAPL associated with the elevated analytical detections (specifically the detection of TPH-DRO in the low percentage range). B5-161-PZ was installed on April 26, 2017 with a screen interval from 7 to 17 feet below ground surface (bgs). During the typical 0-hour, 48-hour, and 30-day gauging events at location B5-161-PZ, groundwater was observed at approximately 5.25 feet bgs, and NAPL was not detected. NAPL was not identified during any supplemental gauging events through November 7, 2017 (discussed in the Parcel B5 Phase II Investigation Report), nor during a follow-up gauging event on February 21, 2018, approximately 10 months after installation.

The position of B5-161-SB is shown in relation to the development plan for this area of Sub-Parcel B1-1 on **Figure 2**. The Maryland Department of Environment (MDE) specified that additional investigation would be required at location B5-161-SB due to the elevated concentrations of TPH-

DRO and PAHs documented at this soil boring location, reiterating that "the purpose of the Phase II Investigation is not only to identify risk to Construction and Composite Workers but also to identify potential sources of significant soil and/or groundwater contamination on-site, i.e., the elevated PAH detection needs to be delineated to determine if this is isolated or part of larger issue that would require remediation and not just capping." The MDE also requested that a groundwater sample be collected from B5-161-PZ prior to its abandonment.

This work was conducted in accordance with the B5-161 Test Pit Work Plan (Revision 1) dated May 8, 2019, which was approved by the MDE on May 10, 2019. All field protocols were conducted in accordance with the Standard Operating Procedures (SOPs) and requirements given in the property-wide Quality Assurance Project Plan (QAPP). The investigation was conducted under the property-wide Health and Safety Plan (HASP). Test pitting was conducted in accordance with the methods specified in QAPP Worksheet 21 – Field SOPs, SOP No. 015 – Test Pitting, with oversight performed by an ARM Environmental Professional (EP). Given the unknown extent of contamination, test pits surrounding B5-161-SB were completed at four locations (**Figure 2**) on May 15, 2019 to attempt to identify any grossly contaminated material (i.e., NAPL). Each test pit was located 25 feet to the north, south, east, and west of B5-161-SB, completed to approximate dimensions of 10 feet by 5 feet and a planned maximum depth of 10 feet bgs. A photograph log documenting the completed test pitting activities is provided as **Attachment 1** to this letter.

A real-time dust meter (ThermoElectron Corporation Personal Data RAM 1000AN) was utilized to monitor the dust produced during excavation activities. Dust concentrations were recorded in the field book by ARM's EP every 15 minutes during excavation activities. Dust monitor readings are provided in **Attachment 2**. No dust concentrations exceeding 3.0 mg/m^3 were generated during excavation activities. Some dust was produced by truck traffic along the haul road adjacent to the Site, but no sustained dust monitor readings above 3.0 mg/m^3 were recorded.

As material was removed from the test pits, it was screened using a hand-held photoionization detector (PID) as well as visual and olfactory methods to determine if there was evidence of potential NAPL contamination. While a gray clay material was encountered at the bottom of the test pits, materials excavated from the pits consisted of slag ranging in size from silt to gravel. No visual or olfactory evidence of NAPL was observed in the excavated soil or groundwater that entered the test pits. All infiltrated groundwater was removed from the test pits with a vacuum truck and transported to the Humphreys Creek Wastewater Treatment Plant with permission from Tradepoint Atlantic personnel. All excavated material from each test pit was managed in accordance with the requirements established by the Response Action Work Plan for the Proposed Excavation of NAPL at B5-098-SB (dated February 27, 2019). The response actions at B5-098-SB were completed in close proximity to B5-161-SB, and materials management between these two areas were addressed concurrently.

Since grossly contaminated material was not observed during the test pitting activities, ARM collected a series of analytical confirmation samples from the test pits to determine whether the concentrations of constituents in the soil may be left in place and potentially capped by the future development of Sub-Parcel B1-1. Two analytical samples were collected from each of the four test pits on May 15 and May 17, 2019. These samples were collected from the eastern and western sidewalls of the test pits located to the north and south of piezometer B5-161-PZ, and from the northern and southern sidewalls of the test pits located to the east and west of piezometer B5-161-PZ. The samples were selected from areas of the sidewalls exhibiting the highest levels of contamination via field screening methods. The samples were submitted to Pace Analytical Services, Inc. (PACE) and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), diesel range organics (TPH-DRO), gasoline range organics (TPH-GRO), and Oil & Grease. The laboratory reports for the test pit confirmation samples, as well as for the original Phase II soil sample at location B5-161-SB, are included as electronic attachments. **Table 1** provides a summary of the detected organic and inorganic compounds in the soil samples submitted for laboratory analysis. While several compounds exceeded the respective Project Action Limits (PALs), when the data were included in the Sub-Parcel B1-1 Screening Level Risk Assessment (SLRA) for Composite Workers in the respective exposure unit (EU), the results indicated that capping of the EU would be an acceptable final remedy. Further details are provided in the Sub-Parcel B1-1 Response and Development Work Plan (RADWP).

The test pits were backfilled on May 24, 2019. Each test pit was backfilled with 2-3 inch slag aggregate. Soil excavated from the surface of the test pits was used to cover the top of the slag aggregate backfill. The soil was compacted with several passes of the excavator.

As requested by the MDE, a groundwater sample was collected from piezometer B5-161-PZ for laboratory analysis on May 10, 2019, shortly before the abandonment date. The sample was submitted to PACE and analyzed for SVOCs, TPH-DRO, TPH-GRO, total metals, and mercury. **Table 2** provides a summary of the detected organic and inorganic compounds in the groundwater sample. Although some compounds exceeded the respective PALs, none of the exceedances were significnalty elevated. Because groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized), no additional action with respect to groundwater in the vicinity of B5-161-PZ is proposed at this time. The analytical results from this location have been incorporated into the Sub-Parcel B1-1 RADWP. The laboratory report is provided as an electronic attachment. In accordance with the Test Pitting Work Plan, piezometer B5-161-PZ was abandoned on June 24, 2019. In accordance with standard methods, the piezometer was gauged a final time on the abandonment date, and no accumulated NAPL was observed. The abandonment record is provided as **Attachment 3**.

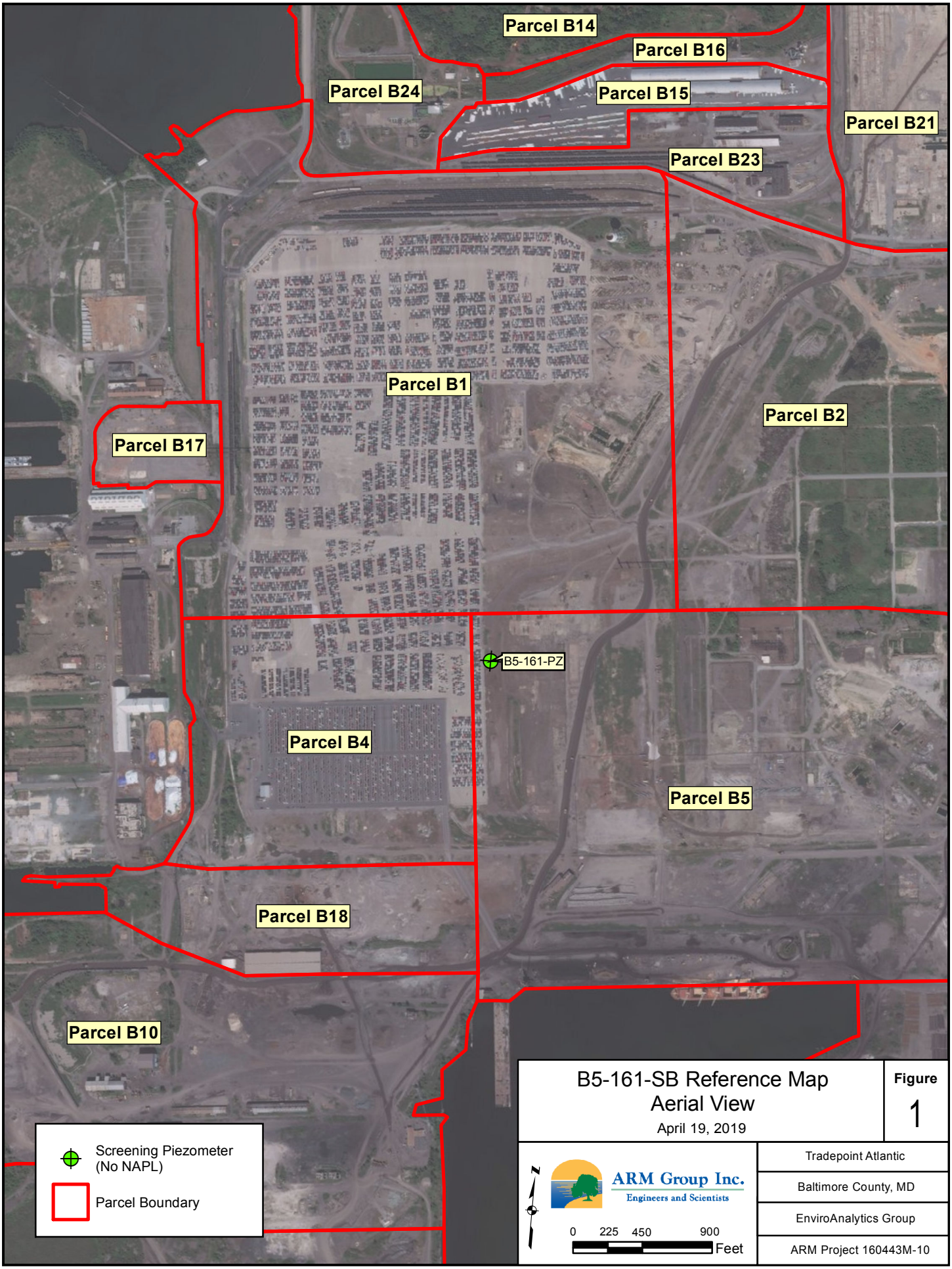
If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully Submitted,
ARM Group Inc.

Melissa Replogle, E.I.T.
Project Engineer

Eric S. Magdar, P.G.
Vice President

FIGURES



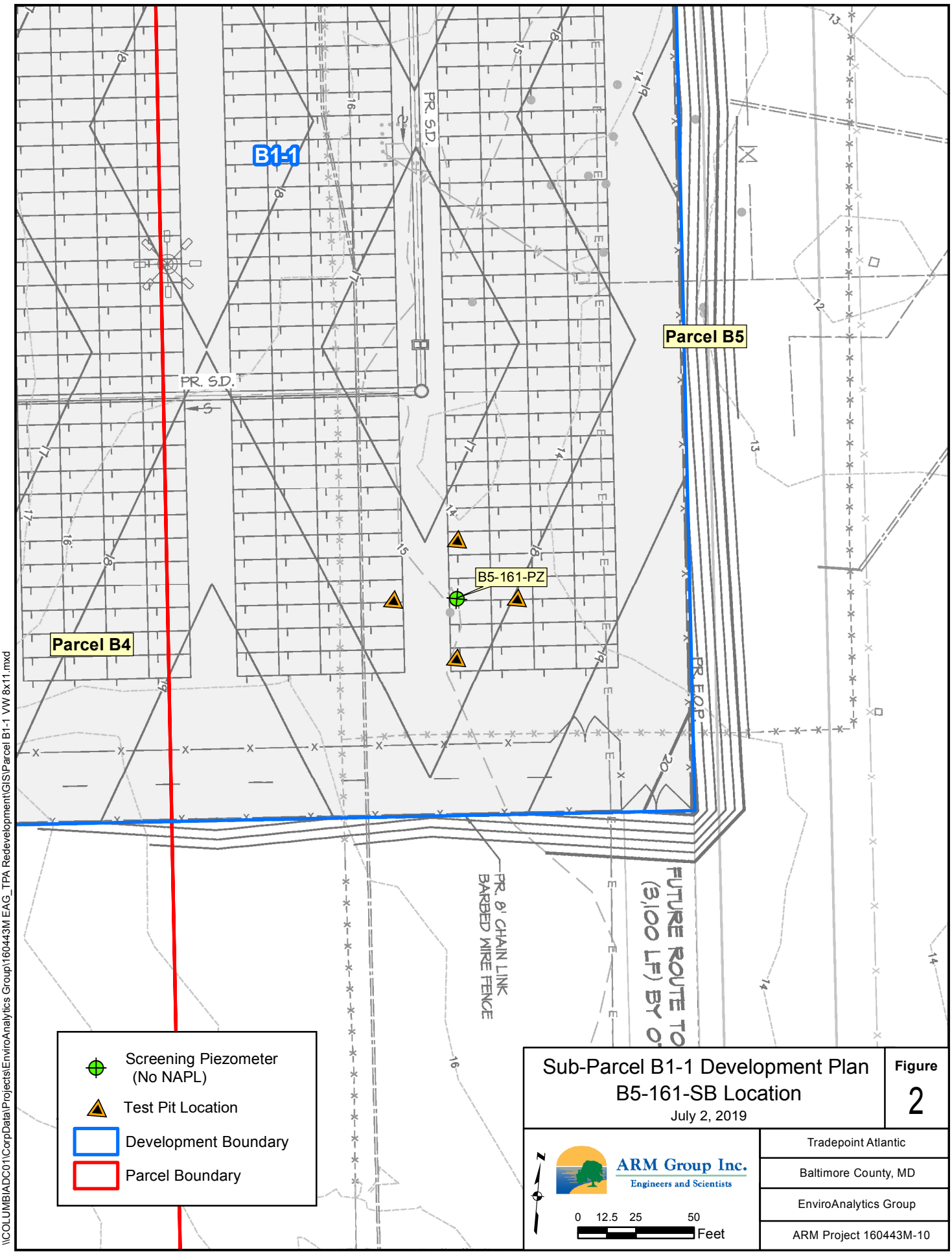
B5-161-SB Reference Map
Aerial View
April 19, 2019

Figure 1

ARM Group Inc.
Engineers and Scientists

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-10

\\COLUMBIADC01\CorpData\Projects\EnviroAnalytics Group\160443M EAG_TPA Redevelopment\GIS\Parcel B1-1 VW 8x11.mxd



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Sub-Parcel B1-1 Development Plan
B5-161-SB Location

July 2, 2019

Figure 2

ARM Group Inc.
Engineers and Scientists

0 12.5 25 50
Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-10

TABLES

Table 1
Summary of Organics and Inorganics Detected in Soil
Parcel B5
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	B5-161-SB-1	B5-161-SB-4	B5-161-SB-10	B5-161 TPN-W	B5-161 TPN-E	B5-161 TPE-N	B5-161 TPE-S	B5-161 TPS-E	B5-161 TPS-W	B5-161 TPW-S	B5-161 TPW-N
Volatile Organic Compounds													
Acetone	mg/kg	670,000	**0.069**	0.71 U	N/A	0.011 U	0.012 U	**0.035**	**0.02**	**0.011**	0.01 U	0.0095 U	0.012 U
Benzene	mg/kg	5.1	**0.004 J**	**0.26 J**	N/A	0.0055 U	0.0059 U	0.0067 U	0.0062 U	0.0049 U	0.0051 U	0.0047 U	0.006 U
Ethylbenzene	mg/kg	25	0.0049 U	0.35 U	N/A	0.0055 U	**0.0077**	0.0067 U	0.0062 U	0.0049 U	0.0051 U	0.0047 U	0.006 U
Styrene	mg/kg	35,000	0.0049 U	**0.19 J**	N/A	0.0055 U	**0.0035 J**	0.0067 U	0.0062 U	0.0049 U	0.0051 U	0.0047 U	0.006 U
Toluene	mg/kg	47,000	**0.0021 J**	**0.28 J**	N/A	0.0055 U	**0.0078**	0.0067 U	0.0062 U	0.0049 U	0.0051 U	0.0047 U	0.006 U
Xylenes	mg/kg	2,800	0.015 U	**0.26 J**	N/A	0.017 U	**0.047**	0.02 U	0.019 U	0.015 U	0.015 U	0.014 U	0.018 U
Semi-Volatile Organic Compounds^													
1,1-Biphenyl	mg/kg	200	7.1 U	**26.8**	N/A	0.83 U	0.72 U	0.091 U	**0.021 J**	73.6 U	0.77 U	7.6 U	7.7 U
2,4-Dimethylphenol	mg/kg	16,000	7.1 U	**2.4 J**	N/A	0.83 U	0.72 U	0.091 U	0.091 U	73.6 U	0.77 U	7.6 U	7.7 U
2-Methylnaphthalene	mg/kg	3,000	**0.35**	**25.4**	**0.051**	**0.91**	**0.5**	**0.016**	**0.039**	**0.95**	**0.25 J**	**1.6 J**	**16.8**
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	14.2 U	**2.2 J**	N/A	1.7 U	1.4 U	0.18 U	0.18 U	147 U	1.5 U	15.2 U	15.4 U
3,3'-Dichlorobenzidine	mg/kg	5.1	0.18 U	1.9 U	N/A	0.83 U	0.72 U	0.091 U	0.091 U	73.6 U	0.77 U	7.6 U	7.7 U
Acenaphthene	mg/kg	45,000	**0.2**	**28.9**	**0.044**	**0.23**	**0.52**	**0.0024 J**	**0.0086 J**	**9.4**	**0.13 J**	**3.8 J**	**23.6**
Acenaphthylene	mg/kg	45,000	**1.2**	**29.5**	**0.039**	**0.25**	**0.68**	**0.057**	**0.13**	**2.2**	**0.68 J**	**7.6**	**46**
Anthracene	mg/kg	230,000	**26**	**192**	**0.28**	**3.5**	**3**	**0.035**	**0.13**	**90.1**	**2.2**	**49.5**	**231**
Benz[a]anthracene	mg/kg	21	**279**	**563**	**0.34**	**29**	**29.4**	**0.27**	**1.1**	**884**	**21.4**	**34.2**	**63.6**
Benzo[a]pyrene	mg/kg	2.1	**158**	**215**	**0.35**	**23.8**	**28.1**	**0.25**	**0.92**	**745**	**33**	**104**	**362**
Benzo[b]fluoranthene	mg/kg	21	**521**	**307**	**0.54**	**66.1**	**73.1**	**0.36**	**1.3**	**1,790**	**81.7**	**211**	**734**
Benzo[g,h,i]perylene	mg/kg		**53.2**	**105**	**0.073**	**8.2**	**13**	**0.19**	**0.59**	**285**	**14.7**	**35**	**114**
Benzo[k]fluoranthene	mg/kg	210	**270**	**136**	**0.28**	**57.5**	**63.5**	**0.15**	**0.55**	**596**	**71.1**	**184**	**638**
Carbazole	mg/kg		**8.6**	**233**	N/A	**0.88**	**1.2**	0.091 U	**0.038 J**	73.6 U	**0.23 J**	**2.7 J**	**5.5 J**
Chrysene	mg/kg	2,100	**292**	**248**	**0.33**	**25.7**	**28.1**	**0.27**	**0.91**	**690**	**21.5**	**92.4**	**335**
Dibenz[a,h]anthracene	mg/kg	2.1	**25.2**	**44.6**	**0.035**	**3.6**	**7.8**	**0.068**	**0.24**	**75**	**5.5**	**12.8**	**45.8**
Fluoranthene	mg/kg	30,000	**508**	**745**	**1**	**36**	**35.5**	**0.41**	**1.5**	**1,330**	**18.4**	**184**	**809**
Fluorene	mg/kg	30,000	**1.2**	**194**	**0.27**	**0.16**	**0.2**	**0.0062 J**	**0.016**	**9.8**	**0.15 J**	**12.6**	**135**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**75.3**	**122**	**0.077**	**9**	**13.4**	**0.17**	**0.57**	**321**	**15.1**	**33.4**	**123**
Naphthalene	mg/kg	17	**1.5**	**54.4**	**0.14**	**0.81**	**2.9**	**0.035**	**0.12**	**2.5**	**0.53 J**	**5.5 J**	**35.8**
N-Nitroso-di-n-propylamine	mg/kg	0.33	0.071 U	0.77 U	N/A	0.83 U	0.72 U	0.091 U	0.091 U	73.6 U	0.77 U	7.6 U	7.7 U
Pentachlorophenol	mg/kg	4	0.18 U	1.9 U	N/A	2.1 U	1.8 U	0.23 U	0.23 U	185 U	1.9 U	19 U	19.4 U
Phenanthrene	mg/kg		**240**	**809**	**1**	**12.5**	**13.6**	**0.15**	**0.42**	**597**	**4**	**95**	**770**
Pyrene	mg/kg	23,000	**407**	**518**	**0.71**	**33**	**31.6**	**0.33**	**1.2**	**1,070**	**16.7**	**142**	**553**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
^PAH compounds were analyzed via SIM
N/A indicates that the parameter was not analyzed for this sample
U: This analyte was not detected in the sample. The numeric value respresents the sample quantitation/detection limit.
J: The positive result for this analyte is a quantitative estimate.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.

Table 1
Summary of Organics and Inorganics Detected in Soil
Parcel B5
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	B5-161-SB-1	B5-161-SB-4	B5-161-SB-10	B5-161 TPN-W	B5-161 TPN-E	B5-161 TPE-N	B5-161 TPE-S	B5-161 TPS-E	B5-161 TPS-W	B5-161 TPW-S	B5-161 TPW-N
TPH/Oil and Grease													
Diesel Range Organics	mg/kg	6,200	**3,370**	**17,900**	N/A	**231**	**345**	**41.1**	**47.4**	**2,500**	**91.9**	**1,040**	**1,210**
Gasoline Range Organics	mg/kg	6,200	11.2 U	297 U	N/A	12.5 U	12.8 U	13.7 U	11.2 U	9.8 U	11.2 U	11.1 U	11.9 U
Oil and Grease	mg/kg	6,200	N/A	N/A	N/A	**1,730**	**1,700**	**1,910**	**1,870**	**5,390**	**534**	**2,440**	**2,210**
Metals													
Aluminum	mg/kg	1,100,000	**7,900**	**8,610**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	mg/kg	3	**13.8**	**14.5**	**4.2**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Barium	mg/kg	220,000	**80.8**	**53.3**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium	mg/kg	2,300	**0.69 J**	**0.39 J**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	mg/kg	980	1.6 B	1.9 B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium	mg/kg	120,000	**146**	**122**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium VI	mg/kg	6.3	**0.22 J**	1.1 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cobalt	mg/kg	350	**13.1**	**16.8**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper	mg/kg	47,000	**167**	**130**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	mg/kg	820,000	**134,000**	**105,000**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead	mg/kg	800	**91.3**	**247**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	mg/kg	26,000	**4,460**	**2,010**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury	mg/kg	350	**0.013 J**	**0.042 J**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel	mg/kg	22,000	**51.4**	**45.7**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver	mg/kg	5,800	**1.4 J**	**1.2 J**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	mg/kg	5,800	**192**	**285**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	mg/kg	350,000	**222**	**365**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other													
Cyanide	mg/kg	150	**0.1 J**	**0.2 J**	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
^PAH compounds were analyzed via SIM
N/A indicates that the parameter was not analyzed for this sample
U: This analyte was not detected in the sample. The numeric value respresents the sample quantitation/detection limit.
J: The positive result for this analyte is a quantitative estimate.
B: The analyte was not detected substantially above the level of the associated method blank or field blank.

Table 2
Summary of Organics and Inorganics Detected in Groundwater
Parcel B5
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	B5-161-PZ
Semi-Volatile Organic Compounds^			
Anthracene	µg/L	1,800	0.15
Benz[a]anthracene	µg/L	0.03	**0.65**
Benzo[a]pyrene	µg/L	0.2	**0.53**
Benzo[b]fluoranthene	µg/L	0.25	**0.98**
Benzo[g,h,i]perylene	µg/L		0.47
Benzo[k]fluoranthene	µg/L	2.5	0.42
Chrysene	µg/L	25	0.61
Dibenz[a,h]anthracene	µg/L	0.025	**0.17**
Fluoranthene	µg/L	800	0.91
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	**0.44**
Naphthalene	µg/L	0.17	**0.24**
Phenanthrene	µg/L		0.28
Pyrene	µg/L	120	0.88
TPH/Oil and Grease			
Diesel Range Organics	µg/L	47	**97.8 J**
Metals			
Aluminum	µg/L	20,000	150
Arsenic	µg/L	10	5.1
Barium	µg/L	2,000	44.3
Chromium	µg/L	100	0.43 J
Iron	µg/L	14,000	2,290
Manganese	µg/L	430	**923**
Zinc	µg/L	6,000	5.8 J

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
^PAH compounds were analyzed vis SIM
J: The positive result reported for this analyte is a quantitative estimate

ATTACHMENT 1

05/15/19: View of the northern test pit.

05/15/19: View of the eastern test pit.

05/15/19: View of the southern test pit.

05/15/19: View of the western test pit.

05/24/19: View to the east of B5-161-PZ after the surrounding test pits were backfilled.

ATTACHMENT 2

B5-161 Response Area
Dust Monitor Readings

Date and Time	Dust Reading (mg/m^3)
5/15/2019 10:30	0.032
5/15/2019 10:45	0.014
5/15/2019 11:00	0.034
5/15/2019 11:15	0.042
5/15/2019 11:30	0.031
5/15/2019 11:45	0.056
5/15/2019 12:00	0.054
5/15/2019 12:15	0.019

ATTACHMENT 3

Well/Piezometer Abandonment Form

Well/Piezometer ID: B5-161-P2

General Project Information: 150300M-3-3

Client: EAG

Site Location: Sparrows Point, MD

Parcel ID: Parcel B5

Abandonment Date: 6-24-19

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

1. PVC → (Pulled) / Split / Perforated / Left-In-Place
2. Abandoned → (Grout) / Bentonite Chips

Field Equipment: Geoprobe 7822DT

ARM Representative(s): Tyler Van Ness

Well Diameter: 1"

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.21'	Depth to Water (TOC): 8.94'
Measured: Not recorded 20.21'	Depth to NAPL (TOC): —

Please note if this abandonment is for a known NAPL delineation/monitoring area or individual NAPL screening piezometer and identify the name of the delineation area (e.g., B6-066 NAPL Area or B5-144 Screening Piezometer): B5-161-P2 screening piezometer

Please Note: If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.

Additional Comments (if any):

ARM Group Inc.
Engineers and Scientists
9175 Guilford Road - Suite 310
Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

APPENDIX E

HILLIS-CARNES
ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A
Annapolis Junction, MD 20701
Phone (410) 880-4788
Fax (410) 880-4098
www.hcea.com

June 15, 2020

Mr. Pete Haid
Tradepoint Atlantic
1600 Sparrows Point Boulevard
Baltimore, Maryland 21219

RE: Notice of Completion of Remedial Actions
Area B: Sub-Parcel B1-1
Baltimore County, Maryland
HCEA Project Number 19564A

Dear Mr. Haid:

Hillis-Carnes Engineering Associates, Inc. (HCEA) is pleased to provide this Notice of Completion of Remedial Actions (Notice) for Area B: Sub-Parcel B1-1 in the Sparrows Point area of Baltimore County, Maryland (Site).

In conjunction with HCEA's environmental services at the Site, HCEA was provided with the Response and Development Work Plan (RADWP) for Area B: Sub-Parcel B1-1 (dated March 1, 2019) and RADWP Addendum dated February 24, 2020. Based on observations made during HCEA's environmental monitoring at the Site, to the best of our knowledge, understanding, and belief, the environmental cap installed at the Site (e.g., pavement thickness, use of geotextile fabric, VCP-approved clean fill thickness) was installed in general accordance with the RADWP.

This Notice has been prepared for the exclusive use of the Client pursuant to the agreement between the Client and HCEA, dated August 1, 2019, in accordance with generally accepted industry practices. All terms and conditions set forth in the agreement are incorporated herein. No warranty, express or implied, is made herein. Use and reproduction of this Notice by any other person is unauthorized.

HCEA appreciates the opportunity to have been of assistance on this project. If you have any questions regarding this Notice, please feel free to contact us at 410-880-4788.

Sincerely,
HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

Christopher J. Hillis, P.E.
Project Engineer
chillis@hcea.com

Keith M. Progin
Senior Environmental Project Manager
kprogin@hcea.com

APPENDIX F

HILLIS-CARNES
ENGINEERING ASSOCIATES

FIELD REPORT

Project No.: 19564A **Report No.:** **Date:** January 31, 2020

Project Name: SPT - Sub-Parcel B1-1 **Weather/Temp:** Clear, 40°

Client: Tradepoint Atlantic **Travel Time:** hr **Lunch Time:** hr

Contractor: **On Site Time:** hr **Total Time:** hr

A. Description of Work:

Prevailing wind direction was generally from the N to S. One perimeter dust monitor was placed on the upwind side of the parcel (N), one was placed on the downwind side of the parcel (S), and one was placed downwind of the contractor's work zone. The downwind monitor did not exceed the action limit of 3.0 milligrams per cubic meter (mg/m^3), and had a maximum fifteen minute concentration of 0.018 mg/m^3. The upwind monitor did not exceed the action limit of 3.0 mg/m^3 and had a maximum fifteen minute concentration of 0.016 mg/m^3. The work zone monitor did not exceed the action limit of 3.0 mg/m^3 and had a maximum fifteen minute concentration of 0.072 mg/m^3. No visible dust migration was observed on the date.

Dixi excavated a trench South of the site in preparation for storm drain work. Excavated material was stockpiled adjacent to the site of the excavation. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

Dixi worked on demo and excavation of material south of B1-1 checking for obstructions for the stormdrain line. Excavated material was temporarily stockpiled adjacent to the site of excavation, and then placed back into the site. Soils exhibiting elevated PID readings and odors were encountered in one location. In addition, possible free product was detected in groundwater entering the excavation. Informed the contractor to discontinue work in this area until investigated further. Also instructed contractor to not pump water from the excavation.

Dixi brought in slag material and continued grading on the Western and Southern portions of the site for the parking lot. Slag material on the Southern portion of the site was excavated along the border was taken off site to make room for clean fill to be place in the future. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings.

Miller Pipeline was on site working on installation of a gas line on the middle portion of the site. Excavated material was stockpiled and later removed from site. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

D.C. contractor was on site putting down clean fill on the Eastern portion of the site.

Trac Systems continued working on rail work in the Northern portion of the site.

In addition, tubing was attached to the PID and the end of the tube was generally placed in the breathing zone of each excavation. There were no PID readings greater than 5 metered units.

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A. Description of Work (continued):

(Intentionally Blank)

B. Tests Performed/Testing Equipment Used

Dust Monitoring, Soil Monitoring with Photo Ionization Detector(PID)

C: Problems **Non-Compliance** ☐

D. Referenced Plans/Drawings

Verification _____ **Reviewed By:** _____ **Technician:** Martin Stringer

HILLIS-CARNES
ENGINEERING ASSOCIATES

FIELD REPORT

Project No.: 19564A **Report No.:** **Date:** February 4, 2020

Project Name: SPT - Sub-Parcel B1-1 **Weather/Temp:** Showers, 50°

Client: Tradepoint Atlantic **Travel Time:** hr **Lunch Time:** hr

Contractor: **On Site Time:** hr **Total Time:** hr

A. Description of Work:

Hillis-Carnes Engineering Associates (HCEA) technician arrived on site per client request for soil and dust monitoring services.

Dust monitors were not set up on this date due to today's rain event.

Miller Pipeline was on site working on installation of a gas line on the middle portion of the site. Excavated material was stockpiled and later removed from site. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

Dixi worked on putting down clean fill on the Southern portion of the site.

Dixi worked on excavation of a trench South of the site for the installation of storm-drain work. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

Terkins was on site working on utility work inside of a previously excavated trench. This work took place in an area of the site designated to receive a pavement cap. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

W.G. Tomiko was on site working on an excavation for utility work in the middle portion of the site. This work took place in an area set to receive a pavement cap. 57 stone was used as backfill. HCEA screened material with PID and there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

HCEA technician monitored the area of concern South of the site, where free product had previously been spotted and remediated. The water appears clean and no signs of additional free product or sheens have been seen entering the work area.

Trac Systems continued working on rail work in the Northern portion of the site.

In addition, tubing was attached to the PID and the end of the tube was generally placed in the breathing zone of each excavation. There were no PID readings greater than 5 metered units.

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A. Description of Work (continued):

(Intentionally Blank)

B. Tests Performed/Testing Equipment Used

Dust Monitoring, Soil Monitoring with Photo Ionization Detector(PID)

C: Problems **Non-Compliance** ☐

D. Referenced Plans/Drawings

Verification _____ **Reviewed By:** _____ **Technician:** Martin Stringer

HILLIS-CARNES
ENGINEERING ASSOCIATES

FIELD REPORT

Project No.: 19564A **Report No.:** **Date:** February 5, 2020

Project Name: SPT - Sub-Parcel B1-1 **Weather/Temp:** Cloudy, 40°

Client: Tradepoint Atlantic **Travel Time:** hr **Lunch Time:** hr

Contractor: **On Site Time:** hr **Total Time:** hr

A. Description of Work:

Hillis-Carnes Engineering Associates (HCEA) technician arrived on site per client request for soil and dust monitoring services.

Prevailing wind direction was generally from the N to S. One perimeter dust monitor was placed on the upwind side of the parcel (N), one was placed on the downwind side of the parcel (S), and one was placed downwind of the contractor's work zone. The downwind monitor did not exceed the action limit of 3.0 milligrams per cubic meter (mg/m^3), and had a maximum fifteen minute concentration of 0.011 mg/m^3. The upwind monitor did not exceed the action limit of 3.0 mg/m^3 and had a maximum fifteen minute concentration of 0.012 mg/m^3. The work zone monitor did not exceed the action limit of 3.0 mg/m^3 and had a maximum fifteen minute concentration of 0.016 mg/m^3. No visible dust migration was observed on the date.

Miller Pipeline was on site working on installation of a gas line on the middle portion of the site. Excavated material was stockpiled and later removed from site. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

Dixi worked on putting down clean fill on the Southern portion of the site.

Dixi worked on water line work on the middle portion of the site. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

Terkins was on site working on utility work inside of a previously excavated trench. This work took place in an area of the site designated to receive a pavement cap. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

HCEA technician continued to monitor the area of concern South of the site, where free product had previously been observed. The water appears clean and no signs of additional free product or sheens have been seen entering the work area. In addition, per the request of the MDE, additional material was removed from the western wall of the excavation. Further, test pits were excavated south and east of the excavation. No evidence of NAPL was observed and no evidence of free product was observed on the groundwater.

In addition, tubing was attached to the PID and the end of the tube was generally placed in the breathing zone of each excavation. There were no PID readings greater than 5 metered units.

cont' on 2nd page

A. Description of Work (continued):

(Intentionally Blank)

B. Tests Performed/Testing Equipment Used

Dust Monitoring, Soil Monitoring with Photo Ionization Detector(PID)

C: Problems **Non-Compliance** ☐

D. Referenced Plans/Drawings

Verification _____ **Reviewed By:** _____ **Technician:** Martin Stringer

HILLIS-CARNES
ENGINEERING ASSOCIATES

FIELD REPORT

Project No.: 19564A **Report No.:** **Date:** February 6, 2020

Project Name: SPT - Sub-Parcel B1-1 **Weather/Temp:** Rain, 40°

Client: Tradepoint Atlantic **Travel Time:** hr **Lunch Time:** hr

Contractor: **On Site Time:** hr **Total Time:** hr

A. Description of Work:

Hillis-Carnes Engineering Associates (HCEA) technician arrived on site per client request for soil and dust monitoring services.

Dust monitors were not set up on this date due to today's rain event.

Dixi worked on water line work on the middle portion of the site. HCEA technician used PID to screen excavated spoils and slag; there was no evidence of staining, odors, or elevated PID readings. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

Terkins was on site working on utility work inside of a previously excavated trench. This work took place in an area of the site designated to receive a pavement cap. HCEA monitored the PPE of one total personnel entering the excavation and all persons were wearing the appropriate Modified Level D PPE.

HCEA technician continued to monitor the area of concern South of the site, where free product had previously been observed. The water appears clean and no signs of additional free product or sheens have been seen entering the work area.

In addition, tubing was attached to the PID and the end of the tube was generally placed in the breathing zone of each excavation. There were no PID readings greater than 5 metered units.

cont' on 2nd page

A. Description of Work (continued):

(Intentionally Blank)

B. Tests Performed/Testing Equipment Used

Dust Monitoring, Soil Monitoring with Photo Ionization Detector(PID)

C: Problems **Non-Compliance** ☐

D. Referenced Plans/Drawings

Verification _____ **Reviewed By:** _____ **Technician:** Martin Stringer

APPENDIX G

Photo 1: Clean fill placement

Photo 2: Clean fill placement over geotextile

Photo 3: Stockpiled soil that exhibited evidence of contamination

Photo 4: Stockpiled soil that exhibited evidence of contamination

Photo 5: Natural Gas line installation with CR6 backfill

Photo 6: New rail line installation

Photo 7: Paving in progress

Photo 8: Storm drain installation

Photo 9: Accumulated water several days after removal of product with absorbent pads. Test pit excavation was completed in work area covered by RADWP addendum.

Photo 10: Water line installation

APPENDIX H

ARM Group Inc.
Engineers and Scientists

October 30, 2019

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Quarterly Development Status Update
Third Quarter 2019
Area B: Sub-Parcel B1-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel B1-1 during the third quarter of 2019. The Sub-Parcel B1-1 Response and Development Work Plan (RADWP), Revision 1, was submitted to the agencies on August 30, 2019. A previous version (Revision 0 dated March 1, 2019) was approved for implementation on July 30, 2019. The overall development of Sub-Parcel B1-1 generally includes grading, placement of subbase, installation of underground utilities, construction of minor support structures, paving, landscape capping, and railway capping.

Well Abandonment

Permanent groundwater monitoring wells SW-12-PZP001, SW-060-MWS, SW-061-MWS, SW-062-MWS, SW-063-MWS, and SW-068-MWS, which were located inside the Sub-Parcel B1-1 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on March 21, 2019 and on June 24, 2019, prior to the start of development activities.

Deep production wells #1: BA-81-2742 and #2A: BA-81-2741 were abandoned in May 2019 by A.C. Schultes, contracted by Tradepoint Atlantic.

There are no remaining wells (or piezometers) on the sub-parcel. Abandonment record for the permanent monitoring wells will be provided in the Sub-Parcel B1-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities.

Development Progress

Development activities began in August 2019 with Dixie as the General Contractor. Work performed to date has included mass grading, drilling of pile foundations, construction of a fence, and excavation for conduit lines and vaults.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors in the third quarter of 2019. Dust control measures would be implemented if a sustained level above 3.0 mg/m^3 was observed. In August 2019, two exceedances of the 3.0 milligrams per cubic meter (mg/m^3) action level was observed (August 21, 2019 and August 29, 2019), but neither lasted more than a minute. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

The EP screened material excavated during pile foundation and conduit line excavations with a MultiRAE photoionization detector (PID). No elevated PID readings, odors, or staining were detected in any of the soils inspected during the third quarter of 2019. Therefore, no materials segregation, material stockpiling, or offsite removal of soils to Greys Landfill or elsewhere were required. In the third quarter of 2019, screened soils which exhibited no evidence of contamination were replaced as trench backfill.

Water Management

In the third quarter of 2019, dewatering was conducted with water discharged to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) via the Tin Mill Canal. All dewatering discharges were pumped through filter bags prior to conveyance to the Tin Mill Canal.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group Inc. at (410) 290-7775.

Respectfully Submitted,
ARM Group Inc.

Melissa A. Replogle, E.I.T.
Project Engineer

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

ARM Group LLC
Engineers and Scientists

January 27, 2020

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Quarterly Development Status Update
Fourth Quarter 2019
Area B: Sub-Parcel B1-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel B1-1 during the fourth quarter of 2019. The Sub-Parcel B1-1 Response and Development Work Plan (RADWP), Revision 1, was submitted to the agencies on August 30, 2019. A previous version (Revision 0 dated March 1, 2019) was approved for implementation on July 30, 2019. The overall development of Sub-Parcel B1-1 generally includes grading, placement of subbase, installation of underground utilities, construction of minor support structures, paving, landscape capping, and railway capping. Development work completed on Sub-Parcel B1-1 prior to October 1, 2019 is discussed in the previously submitted Quarterly Development Status Update (October 30, 2019).

Well Abandonment

Permanent groundwater monitoring wells SW-12-PZP001, SW-060-MWS, SW-061-MWS, SW-062-MWS, SW-063-MWS, and SW-068-MWS, which were located inside the Sub-Parcel B1-1 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on March 21, 2019 and on June 24, 2019, prior to the start of development activities.

Deep production wells #1: BA-81-2742 and #2A: BA-81-2741 were abandoned in May 2019 by A.C. Schultes, contracted by Tradepoint Atlantic.

9175 Guilford Road • Suite 310 • Columbia, MD 21046
voice: (410) 290 – 7775 • fax: (410) 290 – 7776 • www.armgroup.net

There are no remaining wells (or piezometers) on the sub-parcel. Abandonment records for the permanent monitoring wells and deep production wells will be provided in the Sub-Parcel B1-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities.

Development Progress

Development activities began prior to the fourth quarter of 2019 with ARCO as the General Contractor. Work performed to date has included mass grading, drilling of pile foundations; construction of a fence; and excavation for stormwater, water lines, conduit lines, sewers, footers, and vaults; and paving.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors in the fourth quarter of 2019. Dust control measures would be implemented if a sustained level above 3.0 mg/m^3 was observed. In October 2019, two exceedances of the 3.0 milligrams per cubic meter (mg/m^3) action level was observed (October 4, 2019 and October 22, 2019), but neither lasted more than a minute. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

The EP screened material excavated during pile foundation and conduit line excavations with a MultiRAE photoionization detector (PID). No elevated PID readings, odors, or staining were detected in any of the soils inspected during the fourth quarter of 2019. Therefore, no materials segregation, material stockpiling, or offsite removal of soils were required. In the fourth quarter of 2019, screened soils were replaced as trench backfill.

Water Management

In the fourth quarter of 2019, dewatering was conducted with water discharged to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) via the Tin Mill Canal. All dewatering discharges were pumped through filter bags prior to conveyance to the Tin Mill Canal.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group LLC at (410) 290-7775.

Respectfully Submitted,
ARM Group LLC

Melissa A. Replogle, E.I.T.
Project Engineer

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

ARM Group LLC
Engineers and Scientists

April 27, 2020

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Quarterly Development Status Update
First Quarter 2020
Area B: Sub-Parcel B1-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel B1-1 during the first quarter of 2020. The Sub-Parcel B1-1 Response and Development Work Plan (RADWP), Revision 1, was submitted to the agencies on August 30, 2019. A previous version (Revision 0 dated March 1, 2019) was approved for implementation on July 30, 2019. The overall development of Sub-Parcel B1-1 generally includes grading, placement of subbase, installation of underground utilities, construction of minor support structures, paving, landscape capping, and railway capping. Development work completed on Sub-Parcel B1-1 prior to January 1, 2020 is discussed in the previously submitted Quarterly Development Status Updates (October 30, 2019 and January 27, 2020).

Well Abandonment

There were no wells installed or abandoned during the first quarter of 2020.

Permanent groundwater monitoring wells SW-12-PZP001, SW-060-MWS, SW-061-MWS, SW-062-MWS, SW-063-MWS, and SW-068-MWS, which were located inside the Sub-Parcel B1-1 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on March 21, 2019 and on June 24, 2019, prior to the start of development activities.

Deep production wells #1: BA-81-2742 and #2A: BA-81-2741 were abandoned in May 2019 by A.C. Schultes, contracted by Tradepoint Atlantic.

There are no remaining wells (or piezometers) on the sub-parcel. Abandonment records for the permanent monitoring wells and deep production wells will be provided in the Sub-Parcel B1-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities.

Development Progress

Development activities began prior to the first quarter of 2020 with ARCO as the General Contractor. Work performed to date has included mass grading, drilling of pile foundations; construction of a fence; excavation for stormwater, water lines, conduit lines, sewers, footers, and vaults; placement of clean fill; and paving.

Work in the first quarter of 2020 consisted of grading, paving, clean fill placement, and excavation for storm drain, water lines, electric lines, gas lines, sewer, and foundations. During the first quarter of 2020, grading as well as excavation and installation of storm drain began on Berth Road.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors in the fourth quarter of 2019. During the first quarter of 2020, there were no exceedances of the 3.0 mg/m^3 action level. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

The EP screened material excavated with a MultiRAE photoionization detector (PID). Soil exhibiting elevated PID readings was observed on a total of six days (February 17, February 18, February 21, February 24, February 28, and March 2) during the first quarter of 2020. The highest observed PID reading was 50 parts per million (ppm).

On January 31, 2020, soil exhibiting odors and elevated PID readings as well as free product were detected during storm drain test pit excavation in the southern portion of the sub-parcel (designated as the B1-1 extension). Additional information is provided below in the Notable Occurrences section.

A total of approximately 400 cubic yards of material were segregated during the first quarter of 2020. In the first quarter of 2020, screened soils that did not exhibit evidence of contamination

were replaced as trench backfill or were placed beneath planned paved parking areas. Documentation for all clean fill placed on the sub-parcel will be provided in the Sub-Parcel B1-2 Development Completion Report.

Water Management

In the first quarter of 2020, dewatering was conducted with water discharged to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) via the Tin Mill Canal. All dewatering discharges were pumped through filter bags prior to conveyance to the Tin Mill Canal. Water management related to the observation of free product on January 31, 2020 is discussed below.

Notable Occurrences

On January 31, 2020, soil exhibiting odors and elevated PID readings as well as free product were detected during storm drain test pit excavation in the southern portion of the sub-parcel (designated as the B1-1 extension). Work in the area was stopped, and the MDE was notified by Tradepoint Atlantic. On February 3, 2020, HCEA used absorbent pads to remove any potential free product from the groundwater. The MDE visited the site on February 3, 2020 to observe the test pit and requested that additional material be removed from the western side of the excavation. The MDE also requested that test pits be excavated south and east of the area. The requested test pits, as well as the removal of additional soils from the western portion of the area, were performed on February 5, 2020. No evidence of NAPL was detected during the additional excavation activities. HCEA continued to monitor groundwater in the excavation and no reoccurring sheen or product was detected inside the pit. The apparent source of the contamination was a concrete obstruction that was removed from the ground.

Following the observation of free product on January 31, 2020, all potential product was removed with absorbent pads. HCEA continued to monitor the water, and after several days with no product reappearing in the excavation, approval was granted by Tradepoint Atlantic to pump the water to the HCWWTP.

If you have questions regarding any information covered in this document, please feel free to contact ARM Group LLC at (410) 290-7775.

Respectfully Submitted,
ARM Group LLC

Melissa A. Replogle, E.I.T.
Project Engineer

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

ARM Group LLC
Engineers and Scientists

July 31, 2020

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230

Re: Quarterly Development Status Update
Second Quarter 2020
Area B: Sub-Parcel B1-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel B1-1 during the second quarter of 2020. The Sub-Parcel B1-1 Response and Development Work Plan (RADWP), Revision 1, was submitted to the agencies on August 30, 2019. A previous version (Revision 0 dated March 1, 2019) was approved for implementation on July 30, 2019. The overall development of Sub-Parcel B1-1 generally includes grading, placement of subbase, installation of underground utilities, construction of minor support structures, paving, landscape capping, and railway capping. Development work completed on Sub-Parcel B1-1 prior to April 1, 2020 is discussed in the previously submitted Quarterly Development Status Updates (October 30, 2019, January 27, 2020, and April 27, 2020).

Well Abandonment

There were no wells installed or abandoned during the second quarter of 2020.

Permanent groundwater monitoring wells SW12-PZP001, SW-060-MWS, SW-061-MWS, SW-062-MWS, SW-063-MWS, and SW-068-MWS, which were located inside the Sub-Parcel B1-1 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on March 21, 2019 and on June 24, 2019, prior to the start of development activities.

Deep production wells #1: BA-81-2742 and #2A: BA-81-2741 were abandoned in May 2019 by A.C. Schultes, contracted by Tradepoint Atlantic.

There are no remaining wells (or piezometers) on the sub-parcel. Abandonment records for the permanent monitoring wells and deep production wells will be provided in the Sub-Parcel B1-1 Development Completion Report.

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during intrusive development activities. In addition to general oversight to ensure compliance with environmental regulations and the development plans, the EP was responsible for performing dust monitoring and soil screening services during intrusive activities. Development work terminated on May 15, 2020.

Development Progress

Development activities began prior to the second quarter of 2020 with ARCO as the General Contractor. Work performed to date has included mass grading, drilling of pile foundations; construction of a fence; excavation for stormwater, water lines, conduit lines, sewers, footers, and vaults; placement of clean fill; and paving.

Work in the second quarter of 2020 consisted of grading, paving, and clean fill placement. During the second quarter of 2020, grading, paving, and storm drain installation were performed on Berth Road.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors in the second quarter of 2020. During the second quarter of 2020, there were no exceedances of the 3.0 mg/m^3 action level. When dust generation was anticipated due to site conditions and planned development work, the General Contractor utilized a water truck to suppress dust. Electronic dust monitoring was terminated on April 17, 2020 because the majority of the site was capped and activities were limited. After that time, the EP continued to visually monitor the site for excessive dust.

Soil Management

The EP screened material excavated with a MultiRAE photoionization detector (PID). No elevated PID readings, odors, or staining were detected in any of the soils inspected during the second quarter of 2020. Therefore, no materials segregation, material stockpiling, or offsite removal of soils were required. A stockpile of approximately 400 cubic yards of impacted soil generated during the first quarter of 2020 remains on the sub-parcel. In the second quarter of 2020, screened soils that did not exhibit evidence of contamination were replaced as excavation backfill or were placed beneath planned paved parking areas. Approximately 1,000 cubic yards of unimpacted soil generated during the first and second quarters of 2020 that could not be reused due to unsuitable geotechnical properties has been stockpiled on Parcel B18. Clean fill was brought to the Site and

placed during the second quarter of 2020. Documentation for all clean fill placed on the sub-parcel will be provided in the Sub-Parcel B1-1 Development Completion Report.

Water Management
No dewatering was performed during the second quarter of 2020.

Notable Occurrences
None

If you have questions regarding any information covered in this document, please feel free to contact ARM Group LLC at (410) 290-7775.

Respectfully Submitted,
ARM Group LLC

Melissa Replogle Hritz, E.I.T.
Project Engineer

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

APPENDIX I

HILLIS-CARNES
ENGINEERING ASSOCIATES

Memo

To: Mr. Peter Haid – Tradepoint Atlantic

From: Mr. Keith Progin

Date: May 21, 2019

Re: Sub-Parcel B1-1 - Pre-Construction Meeting

On May 21, 2019, a pre-construction meeting for Sub-Parcel B1-1 was held at the Tradepoint office at 1600 Sparrows Point Boulevard. In attendance were:

- Mr. Matthew Newman –Tradepoint Atlantic
- Mr. John Martin – Tradepoint Atlantic
- Mr. Mark Buerck – ARCO
- Mr. David Wiedemann - ARCO
- Mr. DJ Cox - DXI
- Mr. Keith Progin – Hillis-Carnes

During this meeting, the Environmental Professional roles that will be performed by Hillis-Carnes during the applicable portions of the development project were discussed. The roles generally include: a) monitoring of excavated soil; b) air monitoring for particulate dust; c) monitoring of dewatering activity; d) documentation; and e) PPE. A summary of these roles was provided to the attendees.

APPENDIX J

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Monday, March 20, 2017 8:21 AM
To: Keith Progin; Jennifer Sohns -MDE-
Cc: Gina L. Galimberti
Subject: Re: SPT-Tradpoint Avenue-Clean Fill Cert for Industrial Water Line

Hello All

The virgin stone material as noted in the certification from BlueGrass Materials from the Churchville Quarry is acceptable for use as fill material for the utility lines. The recycled concrete I will need to discuss further when I'm back in the office from a site visit later this afternoon.

Barbara Brown

On Fri, Mar 17, 2017 at 11:47 AM, Keith Progin <kprogin@hcea.com> wrote:

> Barbara – please see the attached clean fill certifications for RC-6 and 57 stone that will be imported for use as backfill for the industrial water line utility.
>
> Please let me know if you need anything else.
>
> Thanks!
>
> **Keith Progin | Project Manager, Environmental Division**
> **HILLIS-CARNES ENGINEERING ASSOCIATES**
>
> Cell (443) 250-9467
> Phone +1 (410) 880-4788 X1145
> Fax +1 (410) 880-4098

--
Barbara Brown
MDE-LRP-VCP Section Head
direct 410 537 3212
general 410 537 3493

Click here to complete a three question customer experience survey.

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Wednesday, October 30, 2019 8:40 AM
To: Keith Progin
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: TPA_Gotham Greens_CR-6 Clean Fill Request

Hello Keith

The material from Martin Marietta as described in the certification letter is acceptable for use as clean fill at the Gotham Greens site and the rest of Sparrows Point.

On Wed, Oct 30, 2019 at 8:23 AM Keith Progin <kprogin@hcea.com> wrote:

> Please see the revised letter from Martin Marietta attached.
>
> Thanks!
>
> **Keith Progin | Senior Environmental Project Manager**
> **HILLIS-CARNES ENGINEERING ASSOCIATES**
>
> Cell (443) 250-9467
> Phone +1 (410) 880-4788 X1145
> Fax +1 (410) 880-4098
>
> **From:** Barbara Brown -MDE- <barbara.brown1@maryland.gov>
> **Sent:** Tuesday, October 29, 2019 9:53 AM
> **To:** Keith Progin <kprogin@hcea.com>
> **Cc:** Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov) <jennifer.sohns@maryland.gov>
> **Subject:** Re: TPA_Gotham Greens_CR-6 Clean Fill Request
>
> Hi Keith
>
> Getting closer-letter needs to say its virgin material quarried there and not recycled...
>
> On Tue, Oct 29, 2019 at 9:47 AM Keith Progin <kprogin@hcea.com> wrote:
>
> > Barbara,

Please see the attached clean fill request for CR-6 from Martin Marietta to be used beneath the asphalt accessway at Gotham Greens.

Thanks!

Keith Progin | Senior Environmental Project Manager

HILLIS-CARNES ENGINEERING ASSOCIATES

Corporate Headquarters
10975 Guilford Road, Suite A
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Website www.hcea.com

LinkedIn

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Barbara Brown

MDE-LRP-VCP Section Head

direct 410 537 3212

general 410 537 3493

Click here to complete a three question customer experience survey.

--

Barbara Brown
MDE-LRP-VCP Section Head
direct 410 537 3212
general 410 537 3493

Click here to complete a three question customer experience survey.

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Monday, September 9, 2019 9:55 AM
To: Keith Progin
Cc: Jennifer Sohns -MDE-; Pete Haid; Matthew Newman
Subject: Re: TPA_Logistic Center X_Clean Fill_Tables

Hello Keith

As discussed, the material from the clean fill sampling at Logistics Center X may be used for clean fill for industrial use except for the material sampled from CF-3 with the oil and grease of approximately 900 pm.
I will meet you on Weds at 9:30 to visually observe the material from CF-3.

If you have any questions please contact me.

Barbara Brown

On Tue, Aug 20, 2019 at 6:24 PM Keith Progin <kprogin@hcea.com> wrote:

> Barbara,
>
> Per our conversation, I've attached the laboratory's EDD for CF-1 through CF-4 and CF-8 through CF-10. Hope this is helpful. Let me know if you need something else.
>
> Thanks!
>
> **Keith Progin | Project Manager, Environmental Division**
>
> **HILLIS-CARNES ENGINEERING ASSOCIATES**
>
> Corporate Headquarters
> 10975 Guilford Road, Suite A
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--

Barbara Brown
MDE-LRP-VCP Section Head
direct 410 537 3212
general 410 537 3493

Click here to complete a three question customer experience survey.

Keith Progin

From: Keith Progin
Sent: Friday, October 18, 2019 3:21 PM
To: DJ Cox (DCox@dxiconstruction.com)
Subject: FW: Port Covington Topsoil Sampling

DJ – email below from the MDE approving the topsoil from Port Covington for use at commercial or industrial properties.

Keith Progin | Senior Environmental Project Manager
HILLIS-CARNES ENGINEERING ASSOCIATES

Cell (443) 250-9467
Phone +1 (410) 880-4788 X1145
Fax +1 (410) 880-4098

From: Daly, Kristen <KDaly@gtaeng.com>
Sent: Tuesday, September 24, 2019 11:51 AM
To: Keith Progin <kprogin@hcea.com>
Cc: Plocek, Kevin <KPlocek@gtaeng.com>; Hayden, Paul <PHayden@gtaeng.com>
Subject: FW: Port Covington Topsoil Sampling

Hi Keith – below is the email approval for one of our topsoil stockpiles at Port Covington, with samples from the two others pending. Let me know if anyone over there has a need for topsoil! Thanks!

Kristen Daly
Senior Project Scientist

GEO-TECHNOLOGY ASSOCIATES, INC.
1414 Key Highway
Baltimore, MD 21230
Cell: 202-680-3997

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Tuesday, September 24, 2019 11:17 AM
To: Plocek, Kevin <KPlocek@gtaeng.com>
Cc: Chris Hartman -MDE- (christopher.hartman@maryland.gov) <christopher.hartman@maryland.gov>; Daly, Kristen <KDaly@gtaeng.com>
Subject: Re: Port Covington Topsoil Sampling

Hello All

The MDE-LRP has reviewed the results from stockpile 1-as represented by samples GTA-CFPC-1 and GTA-CFPC-2, as previously indicated the topsoil material from stockpile 1 has passed for residential usage and can be transported to Sparrows Point for use at either commercial or industrial land use sites. This approval is limited to this particular stockpile and is void if additional material has been added to Stockpile 1 since sampling occurred.

There have been 2 additional stockpiles generated from the topsoil material represented by GTA-CFPC-3 which was sampled in-situ.
Each approximately 500 cy stockpile has or will be sampled as was previously completed for GTA-CFPC-3. The MDE-LRP will evaluate the results from the additional stockpile sampling to determine if the material is suitable for transport to Sparrows Point.

If you have any questions regarding this email please contact me.

Barbara Brown

On Fri, Sep 20, 2019 at 11:33 AM Plocek, Kevin <KPlocek@gtaeng.com> wrote:

> Barbara/Chris,
>
> Our first destination for the topsoil from Port Covington is not going to work out and we are looking into some alternatives. So far it looks like most destination locations will either be commercial or industrial. Could you please take another look at the clean fill sampling results for the Port Covington topsoil and let Kristen and I know if it is acceptable at a VCP commercial property as capping material. I have attached a data table and the raw lab results (inclusive of hex chrome analysis). Let us know if you need anything further.
>
> Thanks,
>
> _____
>
> **Kevin Plocek | Associate**
>
> **GEO-TECHNOLOGY ASSOCIATES, INC.**
> 14280 Park Center Drive, Suite A, Laurel, MD 20707
>
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--
Barbara Brown

MDE-LRP-VCP Section Head
direct 410 537 3212
general 410 537 3493

Click here to complete a three question customer experience survey.

Keith Progin

From: Matthew Newman <mnewman@tradepointatlantic.com>
Sent: Friday, February 14, 2020 3:01 PM
To: Keith Progin
Subject: FW: Development Status Updates Quarter 3 2019

Matthew Newman, P.E.
Environmental Manager
TRADEPOINT ATLANTIC
1600 Sparrows Point Boulevard
Baltimore, Maryland 21219
T 410.709.1286 **D** 443.649.5063 **C** 443.791.9046
mnewman@tradepointatlantic.com

From: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Sent: Monday, February 3, 2020 9:30 AM
To: Matthew Newman <mnewman@tradepointatlantic.com>
Cc: James Calenda <jcalenda@enviroanalyticsgroup.com>; Pete Haid <phaid@tradepointatlantic.com>; barbara.brown1@maryland.gov; Craven, Laura <lcraven@wcgrp.com>
Subject: Re: Development Status Updates Quarter 3 2019

Matt,
Thank you for this clarification.

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
Website | Facebook | Twitter

Click here to complete a three question customer experience survey.

On Thu, Jan 23, 2020 at 3:37 PM Matthew Newman <mnewman@tradepointatlantic.com> wrote:

> Jennifer,

Both the ballast and sub-ballast at B1-1 (Volkswagon) and B1-2 (Home Depot) are planned to be built from the same material (virgin 57 stone from Vulcan). Please find attached copies of the approvals of the materials as ballast.

I apologize for any confusion.

Thank you,

-Matt Newman

Matthew Newman, P.E.

Environmental Manager

TRADEPOINT ATLANTIC

1600 Sparrows Point Boulevard

Baltimore, Maryland 21219

T 410.709.1286 **D** 443.649.5063 **C** 443.791.9046

mnewman@tradepointatlantic.com

From: Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Sent: Tuesday, January 21, 2020 2:03 PM
To: James Calenda <jcalenda@enviroanalyticsgroup.com>; Pete Haid <phaid@tradepointatlantic.com>; Matthew Newman <mnewman@tradepointatlantic.com>
Cc: barbara.brown1@maryland.gov; Craven, Laura <lcraven@wcgrp.com>
Subject: Re: Development Status Updates Quarter 3 2019

Hey all,

I just to clarify that B1-1 is the Volkswagen development, not Home Depot as stated above. Both parcels B1-1 and B1-2 have rail lines that have been constructed or are in the process of being constructed. Sub-ballast documentation is outstanding for material used on both parcels.

Hope that clears that error up.

Thanks,

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
Website | Facebook | Twitter

Click here to complete a three question customer experience survey.

On Tue, Jan 21, 2020 at 1:48 PM Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov> wrote:

James,

MDE has completed review of the 3rd Quarter 2019 Development Status Report, dated October 30, 2020, for Parcel B1-1. There are no comments at this time. I do believe there is an outstanding question regarding rail line sub-ballast sources. MDE received the required documentation for the ballast brought onto Parcel B1-1 (Home Depot), however, sub-ballast approval documentation has still not been submitted.

Thank you,

Jennifer Sohns
Project Manager
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, Maryland 21230
jennifer.sohns@maryland.gov
410-537-4472 (O)
Website | Facebook | Twitter

Click here to complete a three question customer experience survey.

On Fri, Nov 1, 2019 at 4:59 PM James Calenda <jcalenda@enviroanalyticsgroup.com> wrote:

> All,
>
> Attached please find the development progress reports for the third quarter of 2019. These reports detail the progress made on all active development projects at the TPA site during Q3 2019. Hard copies will be prepared and sent out this week for delivery early next week. If anyone has questions or would like to discuss any of the reports in more detail, please feel free to contact me directly.
>
> Thanks
>
> James
>
> ***James Calenda***
>
> ***Senior Project Manager***
>
> EnviroAnalytics Group

(314) 620-3056 Direct

jcalenda@enviroanalyticsgroup.com

http://www.enviroanalyticsgroup.com

Click here to complete a three question customer experience survey.

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APPENDIX K

Maryland spectral Services

Analytical Chemistry Services

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com
VELAP ID 460040

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

12 June 2020

Keith Progin
Hillis-Carnes Engineering Associates
10975 Guilford Rd
Annapolis Junction, MD 20701
RE: TPA VW

Enclosed are the results of analyses for samples received by the laboratory on 05/27/20 15:30.

Maryland Spectral Services, Inc. is a TNI 2009 Standard accredited laboratory and as such, all analyses performed at Maryland Spectral Services included in this report are 2009 TNI certified except as indicated at the end of this report. Please visit our website at www.mdspectral.com for a complete listing of our TNI 2009 Standard accreditations.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Will Brewington
President

Maryland spectral Services

Analytical Chemistry Services

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Baltimore MD 21227
410-247-7600
www.mdspectral.com

Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

Client Sample ID	Alternate Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
I-1		0052718-01	Soil	05/27/20 12:00	05/27/20 15:30
I-1A		0052718-02	Soil	05/27/20 12:00	05/27/20 15:30
I-1B		0052718-03	Soil	05/27/20 12:00	05/27/20 15:30

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Will Brewington, President

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Maryland spectral Services

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

I-1

0052718-01 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatile Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS									
Acetone	ND		ug/kg dry	11.6	11.6	1	05/29/20	05/29/20 12:01	GM
tert-Amyl alcohol (TAA)	ND		ug/kg dry	58.1	58.1	1	05/29/20	05/29/20 12:01	GM
tert-Amyl methyl ether (TAME)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Benzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Bromobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Bromochloromethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Bromodichloromethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Bromoform	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Bromomethane	ND		ug/kg dry	5.8	5.8	1	05/29/20	05/29/20 12:01	GM
tert-Butanol (TBA)	ND		ug/kg dry	58.1	58.1	1	05/29/20	05/29/20 12:01	GM
2-Butanone (MEK)	ND		ug/kg dry	11.6	11.6	1	05/29/20	05/29/20 12:01	GM
n-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
sec-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
tert-Butylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Carbon disulfide	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Carbon tetrachloride	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Chlorobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Chloroethane	ND		ug/kg dry	5.8	5.8	1	05/29/20	05/29/20 12:01	GM
Chloroform	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Chloromethane	ND		ug/kg dry	5.8	5.8	1	05/29/20	05/29/20 12:01	GM
2-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
4-Chlorotoluene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2-Dibromo-3-chloropropane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Dibromochloromethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2-Dibromoethane (EDB)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Dibromomethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,3-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,4-Dichlorobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Dichlorodifluoromethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2-Dichloroethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM

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www.mdspectral.com

Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

I-1

0052718-01 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatile Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
cis-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
trans-1,2-Dichloroethene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Dichlorofluoromethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,3-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
2,2-Dichloropropane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
cis-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
trans-1,3-Dichloropropene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Diisopropyl ether (DIPE)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Ethyl tert-butyl ether (ETBE)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Ethylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Hexachlorobutadiene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
2-Hexanone	ND		ug/kg dry	11.6	11.6	1	05/29/20	05/29/20 12:01	GM
Isopropylbenzene (Cumene)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
4-Isopropyltoluene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
4-Methyl-2-pentanone	ND		ug/kg dry	11.6	11.6	1	05/29/20	05/29/20 12:01	GM
Methylene chloride	**27.4**	L	ug/kg dry	23.3	23.3	1	05/29/20	05/29/20 12:01	GM
Naphthalene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
n-Propylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Styrene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1,1,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1,2,2-Tetrachloroethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Tetrachloroethene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Toluene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2,3-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2,4-Trichlorobenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1,1-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,1,2-Trichloroethane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Trichloroethene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Trichlorofluoromethane (Freon 11)	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,2,3-Trichloropropane	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM

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Will Brewington, President

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Maryland spectral Services

Analytical Chemistry Services

1500 Caton Center Dr Suite G
Baltimore MD 21227
410-247-7600
www.mdspectral.com

Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

I-1

0052718-01 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
Volatile Organics by EPA 8260B (GC/MS) Prepared by 5030-GCMS (continued)									
1,2,4-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
1,3,5-Trimethylbenzene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Vinyl chloride	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
o-Xylene	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
m- & p-Xylenes	ND		ug/kg dry	5.8	2.3	1	05/29/20	05/29/20 12:01	GM
Surrogate: 1,2-Dichloroethane-d4			*70-130*	*100 %*		*05/29/20*		*05/29/20 12:01*	
Surrogate: Toluene-d8			*75-120*	*96 %*		*05/29/20*		*05/29/20 12:01*	
Surrogate: 4-Bromofluorobenzene			*65-120*	*96 %*		*05/29/20*		*05/29/20 12:01*	
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	**86**		%			1	05/28/20	05/29/20 09:33	MH
POLYCHLORINATED BIPHENYLS BY EPA 8082A (GC/ECD) Prepared by 3540-GC(Soxhlet) ClPestPCB									
Aroclor-1016	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1221	ND		ug/kg dry	198	198	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1232	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1242	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1248	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1254	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1260	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1262	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Aroclor-1268	ND		ug/kg dry	96.5	96.5	1	05/28/20	05/29/20 17:57	SJA
Surrogate: Tetrachloro-m-xylene			*40-150*	*75 %*		*05/28/20*		*05/29/20 17:57*	
Surrogate: Decachlorobiphenyl			*40-150*	*67 %*		*05/28/20*		*05/29/20 17:57*	

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

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I-1

0052718-01 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
TOTAL METALS ANALYSIS BY EPA 3050B/6020A Prepared by 3050B-Metals Digestion									
Antimony	**0.403**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Arsenic	**4.43**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Beryllium	**0.829**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Cadmium	**1.03**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Chromium	**61.3**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Copper	**25.0**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Lead	**89.1**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Manganese	**1580**		mg/kg dry	5.81	5.81	20	05/27/20	05/28/20 17:29	KD
Mercury	**0.618**		mg/kg dry	0.0145	0.0145	1	05/27/20	05/28/20 15:35	KD
Nickel	**35.3**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Selenium	**1.36**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Silver	**0.359**		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Thallium	ND		mg/kg dry	0.291	0.291	1	05/27/20	05/28/20 15:35	KD
Zinc	**222**		mg/kg dry	1.45	1.45	1	05/27/20	05/28/20 15:35	KD
HEXANE EXTRACTABLE MATERIALS BY EPA 9071B-MODIFIED Prepared by 9071/1664									
Oil and Grease	**1760**		mg/kg dry	93.0	93.0	1	05/28/20	06/02/20 11:05	GEM
EPA 7196A Performed at Pace Analytical Services, Inc. - Melville NY Lab									
Chromium, Hexavalent	ND		mg/kg dry	1.2	0.23	1	06/11/20	06/11/20 10:47	KM1

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Will Brewington, President

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

I-1A

0052718-02 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	**0.21**		mg/kg dry	0.12	0.12	1	05/30/20	05/30/20 01:34	GM
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	**2180**		mg/kg dry	930	930	100	05/28/20	05/29/20 21:35	SJA
Surrogate: o-Terphenyl			*70-130*	*%*	*05/28/20*		*05/29/20 21:35*		*S-01*
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	**86**		%			1	05/28/20	05/29/20 09:33	MH

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

I-1B

0052718-03 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
DIESEL RANGE ORGANICS BY EPA 3540/8015C Prepared by 3540-GC(Soxhlet)									
Diesel-Range Organics	**6590**		mg/kg dry	952	952	100	05/28/20	05/29/20 22:00	SJA
Surrogate: o-Terphenyl			*70-130*	*%*		*05/28/20*		*05/29/20 22:00*	*S-01*
PERCENT SOLIDS BY ASTM D2216-05 Prepared by Percent Solids									
Percent Solids	**84**		%			1	05/28/20	05/29/20 09:33	MH

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Maryland spectral Services

Analytical Chemistry Services

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

I-1B

0052718-03RE1 (Soil)
Sample Date: 05/27/20

Analyte	Result	Notes	Units	Reporting Limit (MRL)	Detection Limit (LOD)	Dilution	Prepared	Analyzed	Analyst
GASOLINE RANGE ORGANICS BY EPA 5030/8015C Prepared by 5030-GC									
Gasoline-Range Organics	**0.30**		mg/kg dry	0.12	0.12	1	06/03/20	06/03/20 15:29	GM

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

Maryland Spectral Services does not maintain certification for the following analytical parameters:

Maryland Spectral Services

Matrix , Method , Analyte

Soil | 8260 (Full List) | Hexachlorobutadiene

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Analytical Results

Project: TPA VW

Project Number: 19564A
Project Manager: Keith Progin

Reported:
06/12/20 09:38

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

Notes and Definitions

S-06	Surrogate recovery outside control limits due to sample matrix effect as confirmed by reanalysis.
S-01	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
QM-06	Due to noted non-homogeneity of the QC sample matrix, the MS/MSD or MS/DUP did not provide reliable results for accuracy and precision. Sample results for the QC batch were accepted based on LCS percent recoveries.
L	Analyte is a possible laboratory contaminant
J	Detected but below the reporting limit; therefore, result is an estimated concentration (CLP J-Flag).
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate (CLP E-flag).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
%-Solids	Percent Solids is a supportive test and as such does not require accreditation

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Will Brewington, President

All analyses performed at Maryland Spectral Services included in the report are TNI certified except as indicated at the end of the report.

CHAIN-OF-CUSTODY RECORD

Maryland Spectral Services, Inc.
1500 Caton Center Drive, Suite G
Baltimore, MD 21227
410-247-7600 • Fax 410-247-7602
labman@mdspectral.com

Matrix Codes: NW (nonpotable water)
PW (potable water)

Company Name:	Project Manager:
H.Wiss-Carnes (HCEA)	Keith Progin kProgin@HCEA.com
Project Name:	**Project ID:**
TPA VW	19564A
Sampler(s):	**P.O. Number:**
Nick Stella	

Field Sample ID	Date	Time	Water	Soil	Other	No. of Containers	PCBs	Priority Pollutant Metals	Manganese	Oil & Grease	VOCs	TPH-DRO	TPH-GRO	Preservative: 1+ 1 HCL, H_2SO_4, Methanol, $Na_2S_2O_3$, $NaHCO_3$	Field pH, Residual Chlorine, QC Request, Trip Blank, Field Blank	MSS Lab ID
I-1	5/27/20	12:00p		X		3	X	X	X	X	X					0052718-01
I-1A	"	"		X		1						X	X			-02
I-1B	"	"		X		1						X	X			-03

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Nick Stella	5/27/20				
(Printed) Nick Stella		(Printed)	(Printed)		(Printed)
Relinquished by: (Signature)	Date/Time	Received by Lab: (Signature)			
	5/27/20 15:30	Rachel Horner			
(Printed)		(Printed) Rachel Horner			

Turn Around Time:

- [x] Normal (~~7 day~~) 5 Day
- [ ] 5 day
- [ ] 4 day
- [ ] 3 day
- [ ] Rush (2 day)
- [ ] Next Day
- [ ] Other: _____
- [ ] Specific Due Date: _____

Lab Use:

Temp: 6.0 °C

- [x] Received on Ice
- [x] Received same day
- [ ] Preservation Appropriate

Sample Disposal:

- [ ] Return to Client
- [ ] Disposal by lab
- [ ] Archive for _____ days

Delivery Method:

- [ ] Courier
- [x] Client
- [ ] UPS
- [ ] FedEx
- [ ] USPS
- [ ] Other: _____

Special Instructions/QC Requirements & Comments:

SUBCONTRACT ORDER
Maryland Spectral Services

0052718

SENDING LABORATORY:

Maryland Spectral Services
1500 Caton Center Dr. Suite G
Halethorpe, MD 21227
Phone: 410.247.7600
Project Manager: Cory Koons

Reports Email: Reporting@mdspectral.com

RECEIVING LABORATORY:

Pace Labs-NY
575 Broad Hollow Rd
Melville, NY 11747
Phone :(631) 694-3040
Fax:

WO# : 70133787

70133787

Due 4:00 PM 06/11/20

				Laboratory ID	Comments
Sample ID: 0052718-01	**I-1**	**Soil**	**Sampled:05/27/20 12:00**		

7199-(Chromium6)

Containers Supplied:
Glass Jar, 4 oz (C)

Report revised to include Cr VI results for sample I-1. Original report ID 0052718 06 03 20 1544

Relinquished By	6/8/20 16:45 Date	Received By	GMB/PACE	5/8/20	16:25 Date
Relinquished By	GMB/PACE 5/8/20 18:50 Date	Received By	Pace	10/9/20	10:45 Date

(W) 1.3

Page 1 of 1

APPENDIX L

Modified Level D Contractor Certification
Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B1-1, Revision 1* dated August 30, 2019, Section 3.3.2, *Sub-Parcel B1-1 SLRA Results and Risk Characterization*, a site-specific ground intrusive work exposure durations of 100, 90, and 1.5 work days for EU1-EXP, EU2, and EU3, respectively were established. In lieu of tracking exposure days for each employee, the RDWP allows for the employment of Modified Level D personal protective equipment (PPE) or equivalent elevated PPE as required by Site conditions. Modified Level D is defined below. For this project the contractor adopted Modified Level D PPE upon commencement of work (Day 1).

Project Statement:

Prior to the start of the project ARCO and their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work to the extent required by the RDP. Contractor required modified Level D to be used from Day 1 of the project by all personnel involved in ground intrusive work as required by the RDP.

Statement Certification:

Company: ARCO National Construction LLC

Name: Mark Buerck

Title: Project Manager

Signature: [signature]

Date: 6/30/20

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.

Modified Level D Contractor Certification
Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B1-1, Revision 1* dated August 30, 2019, Section 3.3.2, *Sub-Parcel B1-1 SLRA Results and Risk Characterization*, a site-specific ground intrusive work exposure durations of 100, 90, and 1.5 work days for EU1-EXP, EU2, and EU3, respectively were established. In lieu of tracking exposure days for each employee, the RDWP allows for the employment of Modified Level D personal protective equipment (PPE) or equivalent elevated PPE as required by Site conditions. Modified Level D is defined below. For this project the contractor adopted Modified Level D PPE upon commencement of work (Day 1).

Project Statement:

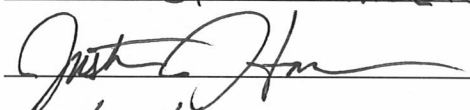
Prior to the start of the project ARCO and their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work.

Statement Certification:

Company: TEKRINS, INC.

Name: JUSTEN HANNA

Title: PROJECT MANAGER

Signature: 

Date: 6/15/2020

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.

Modified Level D Contractor Certification
Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B1-1, Revision 1* dated August 30, 2019, Section 3.3.2, *Sub-Parcel B1-1 SLRA Results and Risk Characterization*, a site-specific ground intrusive work exposure durations of 100, 90, and 1.5 work days for EU1-EXP, EU2, and EU3, respectively were established. In lieu of tracking exposure days for each employee, the RDWP allows for the employment of Modified Level D personal protective equipment (PPE) or equivalent elevated PPE as required by Site conditions. Modified Level D is defined below. For this project the contractor adopted Modified Level D PPE upon commencement of work (Day 1).

Project Statement:

Prior to the start of the project ARCO and their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work.

Statement Certification:

Company: W.G. Tomko, Inc.

Name: Hillary Ahlquist

Title: Director of Compliance

Signature: [signature]

Date: 4/10/2020

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.

Modified Level D Contractor Certification
Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B1-1, Revision 1* dated August 30, 2019, Section 3.3.2, *Sub-Parcel B1-1 SLRA Results and Risk Characterization*, a site-specific ground intrusive work exposure durations of 100, 90, and 1.5 work days for EU1-EXP, EU2, and EU3, respectively were established. In lieu of tracking exposure days for each employee, the RDWP allows for the employment of Modified Level D personal protective equipment (PPE) or equivalent elevated PPE as required by Site conditions. Modified Level D is defined below. For this project the contractor adopted Modified Level D PPE upon commencement of work (Day 1).

Project Statement:

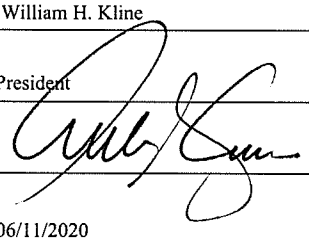
prior to the start of the project ARCO and their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. To the best Subcontractor's knowledge, Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work.

Statement Certification:

Company: Precision Concrete Construction Co., Inc.

Name: William H. Kline

Title: President

Signature: 

Date: 06/11/2020

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.

Modified Level D Contractor Certification
Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B1-1, Revision 1* dated August 30, 2019, Section 3.3.2, *Sub-Parcel B1-1 SLRA Results and Risk Characterization*, a site-specific ground intrusive work exposure durations of 100, 90, and 1.5 work days for EU1-EXP, EU2, and EU3, respectively were established. In lieu of tracking exposure days for each employee, the RDWP allows for the employment of Modified Level D personal protective equipment (PPE) or equivalent elevated PPE as required by Site conditions. Modified Level D is defined below. For this project the contractor adopted Modified Level D PPE upon commencement of work (Day 1).

Project Statement:

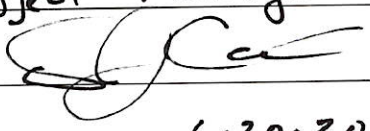
Prior to the start of the project ARCO and their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work.

Statement Certification:

Company: DXI Construction

Name: D.J. Cox

Title: Project Manager

Signature: 

Date: 6.30.20

Modified Level D PPE

Modified Level D PPE will include, at a minimum, overalls such as polyethylene-coated Tyvek or clean washable cloth overalls, latex (or similar) disposable gloves (when working in wet/chemical surroundings) or work gloves, steel-toe/steel-shank high ankle work boots with taped chemical-protective over-boots (as necessary), dust mask, hard hat, safety glasses with side shields, and hearing protection (as necessary). If chemical-protective over-boots create increased slip/trip/fall hazardous, then standard leather or rubber work boots could be used, but visible soils from the sides and bottoms of the boots must be removed upon exiting the Exclusion Zone.

APPENDIX M

GEOTEX®

Product Data

GEOTEX® 801

GEOTEX® 801 is a polypropylene, staple fiber, needle-punched nonwoven geotextile produced by Propex, and will meet the following Minimum Average Roll Values (MARV) when tested in accordance with the methods listed below. The fibers are needled to form a stable network that retains dimensional stability relative to each other. The geotextile is resistant to ultraviolet degradation and to biological and chemical environments normally found in soils.

GEOTEX® 801 conforms to the property values listed below[1]. Propex performs internal Manufacturing Quality Control (MQC) tests that have been accredited by the Geosynthetic Accreditation Institute – Laboratory Accreditation Program (GAI-LAP). This product is NTPEP approved for AASHTO standards.

		MARV[2]	
PROPERTY	TEST METHOD	ENGLISH	METRIC
ORIGIN OF MATERIALS			
% U.S. Manufactured		100%	100%
MECHANICAL			
Grab Tensile Strength	ASTM D-4632	205 lbs	912 N
Grab Elongation	ASTM D-4632	50%	50%
CBR Puncture	ASTM D-6241	535 lbs	2380 N
Trapezoidal Tear	ASTM D-4533	80 lbs	356 N
ENDURANCE			
UV Resistance at 500 hrs	ASTM D-4355	70%	70%
HYDRAULIC			
Apparent Opening Size (AOS)[3]	ASTM D-4751	80 US Std. Sieve	0.180 mm
Permittivity	ASTM D-4491	1.4 sec^{-1}	1.4 sec^{-1}
Water Flow Rate	ASTM D-4491	100 gpm/ft^2	4074 $l/min/m^2$

ROLL SIZES[4]	12.5 ft x 360 ft 15 ft x 300 ft	3.81 m x 109.8 m 4.57 m x 91.5 m

NOTES:

1. The property values listed above are effective 04/03/2017 and are subject to change without notice.

2. Values shown are in weaker principal direction. Minimum average roll values (MARV) are calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

3. Maximum average roll value.

4. Contact your local Territory Business Manager (TBM) for custom widths and colors. Lead times may vary depending on customer requirements and volume requested.

Propex® GEOSOLUTIONS

ENGINEERED EARTH SOLUTIONS™

www.propexglobal.com

Propex Operating Company, LLC · 4019 Industry Drive Chattanooga, TN 37416 · ph 800 621 1273 · ph 423 855 1466