RESPONSE AND DEVELOPMENT COMPLETION REPORT

AREA B: SUB-PARCEL B6-1
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:

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ARM Project No. 20010201

Respectfully Submitted,
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Revision 0 – December 11, 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 B6-1 (the Site). The Sub-Parcel B6-1 development area consists of approximately 69.4 acres, the majority of which is within the southwestern portion of Parcel B6 with an adjacent section through the southeastern portion of Parcel B22 (and less than 2.5 acres in the adjacent Parcel B3). 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 B6-1 in accordance with the following agency-approved Phase II Investigation Work Plans:

- Area B: Parcel B6 (Revision 2) dated May 12, 2016.
- Area B: Parcel B22 (Revision 1) dated June 2, 2016.
- Area B: Parcel B3 (Revision 1) dated May 17, 2017.
- 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 B6 (Revision 2) dated March 6, 2018.
- Area B: Parcel B22 (Revision 0) dated July 15, 2016.
- Area B: Parcel B3 (Revision 0) dated October 15, 2018.
- Area B Groundwater Investigation (Revision 0) dated September 30, 2016.

The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) (Revision 1) dated June 9, 2017 was approved for implementation by the Maryland Department of the Environment (MDE) on June 29, 2017. A subsequent revision of the RADWP (Revision 2) dated July 7, 2017 was approved by the United States Environmental Protection Agency (USEPA) on September 26, 2017. Non-aqueous phase liquid (NAPL) impacts at two locations within the Sub-Parcel B6-1 development area were delineated and excavated between June 8, 2017 and June 29, 2017, as documented in the Response Action Completion Report for the B22-128 and B6-011 Response Areas, dated December 20, 2019 and the associated Comment Response Letter dated July 20, 2020 (**Appendix C**). Details are provided in Section 2.2 below.

The development of Sub-Parcel B6-1 generally included grading, construction of a slab on-grade warehouse totaling 855,000 square feet, hot mix asphalt (HMA) paving surrounding the warehouse, landscaping, and installation (expansion) of stormwater basins.

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.

Parcel B6 comprises approximately 148.5 acres of the approximately 3,100-acre former steel mill (**Figure 1**) that operated for over one hundred years. Several iron and steel work processes were completed within the Sub-Parcel B6-1 Development Area formerly known as the Hot Strip Mills Area (primarily in Parcel B6) and part of the Finishing Mills Area (primarily in Parcel B22). The former facilities and processes in the Hot Strip Mill Area generally included heating and rolling hot bands of metal to a specific size and gauge, followed by cooling and coiling of the finished products for sale. The activities and facilities in the Finishing Mills Area were highly varied, but primarily included descaling/pickling, galvanizing, rolling, coiling, annealing, and plating within

the Tin Mill (to the west of the Sub-Parcel B6-1 Development Area) and in the Cold Sheet Mill. In 2012, steelmaking operations at the facility ceased. From 2013 to the present day, a demolition contractor has been demolishing the majority of the above-grade structures on the site-wide property.

The Site consists of approximately 69.4 acres in the southwestern portion of Parcel B6 (**Figure 2**), as well as a small corridor through the southeastern portion of Parcel B22 and less than 2.5 acres in the adjacent Parcel B3. The Site is zoned Manufacturing Heavy-Industrial Major (MH-IM), and was not occupied prior to the start of development activities. Prior to the start of development activities, all former buildings were demolished. Several pits and basements across the Site were filled in during the demolition process (see **Appendix D**). The concrete slabs remained on grade.

A detention pond was originally proposed in the southeastern portion of the Parcel B22, Phase 1 development area. Following approval of the Parcel B22, Phase 1 and Sub-Parcel B6-1 RADWPs, the responsibility for the final completion of the detention pond was transferred from the Parcel B22, Phase 1 General Contractor to Clayco, the General Contractor for Sub-Parcel B6-1 development. This transition occurred because the detention pond was used during construction on Sub-Parcel B6-1 for stormwater and was tied into the Sub-Parcel for stormwater management. The completion of this basin is addressed in this report. The revised development boundary for Sub-Parcel B6-1 is shown in **Figure 2**.

1.2.2. Historical Environmental Activities

Prior to demolition, the Phase 1 Development Area was almost entirely occupied by steel finishing buildings and associated processing equipment and operations. Several iron and steel work processes were completed within the Sub-Parcel B6-1 Development Area, formerly known as the Hot Strip Mill Area (primarily in Parcel B6) and part of the Finishing Mills Area (primarily in Parcel B22). The former facilities and processes in the Hot Strip Mill Area generally included heating and rolling hot bands of metal to a specific size and gauge, followed by cooling and coiling of the finished products for sale. The activities and facilities in the Finishing Mills Area were highly varied, but primarily included descaling/pickling, galvanizing, rolling, coiling, annealing, and plating within the Tin Mill (to the west of the Sub-Parcel B6-1 Development Area) and in the Cold Sheet Mill. More information regarding previous steel finishing activities can be found in the Phase II Investigation Report – Area B: Parcel B6 (Revision 2 dated March 16, 2018).

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 B6-1 RADWP (Revision 2 dated July 7, 2017).

The Phase I ESA identified the following Recognized Environmental Conditions (RECs) within the Sub-Parcel B6-1 boundaries:

- Hot Strip Mill Basins (3)/Hot Strip Mill Oil Skimmer System (RECs 1L/1N, Findings 27/29, also listed as SWMUs 62/64)
- Hot Strip Mill Waste Oil Tank (REC 1M, Finding 28, also listed as SWMU 63)
- Hot Strip Mill Cooling Tower (REC undesignated, Finding 30, also listed as SWMU 65)
- Hot Strip Mill Drum Handling Area (REC 1Y, Finding 60)

Relevant Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) were also identified as located in Figure 3-1 from the DCC Report. The SWMUs within Sub-Parcel B6-1 are cross-listed as RECs, and have been previously discussed. Several additional AOCs were identified within the sub-parcel as follows:

- Former 1991 PCB Spill Area (AOC A)
- Truck Dock #9 Former Diesel Spill and Diesel Fuel UST Area (AOC K)
- Former Spent Pickle Liquor Tanks (AOC V)

1.2.3. Phase II Investigation

Phase II Investigations specific to soil and groundwater conditions were performed for the areas surrounding Sub-Parcel B6-1 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 B6 (Revision 2) dated May 12, 2016.
- Area B: Parcel B22 (Revision 1) dated June 2, 2016.
- Area B: Parcel B3 (Revision 1) dated May 17, 2017.
- Finishing Mills Groundwater Investigation (Revision 1) dated July 7, 2016.

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 B6 (Revision 2) dated March 6, 2018.
- Area B: Parcel B22 (Revision 0) dated July 15, 2016.
- Area B: Parcel B3 (Revision 0) dated October 15, 2018.

- Finishing Mills Groundwater Investigation (Revision 0) dated November 30, 2016.

1.3. SITE DEVELOPMENT AND RESPONSE ACTIONS

The Site has been developed for use as a warehouse facility with development activities generally including grading, asphalt paving for a parking area, and expanded detention ponds, construction of a slab on grade warehouse building totaling 855,000 square feet, stormwater management and lighting and security improvements. Subsequent site use would involve indoor workers in the warehouse and associated offices, and truck drivers entering and leaving the Site with goods.

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. The placement of slag aggregate beneath the parking areas requires the entire sub-parcel to be subject to an environmental capping requirement.

2.0 RESPONSE ACTIVITIES

2.1. WELL ABANDONMENT

Permanent groundwater monitoring wells FM-008-PZI, FM-008-PZS, FM-009-PZI, FM-009-PZS, FM-014-PZI, FM-014-PZS, FM-015-PZI, and FM-015-PZS, which were located inside the Sub-Parcel B6-1 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on October 10, 2016; January 6, 2017; and January 10, 2017, prior to the start of development activities. An additional set of permanent monitoring wells (FM04-PZM009, FM04-PZM036, and FM04-PZM054) was found to be missing during a search on November 18, 2015 and presumed to have been destroyed.

A total of 15 temporary groundwater sampling points (piezometers) were installed in Sub-Parcel B6-1 during the Parcel B6 Phase II Investigation or during subsequent delineation activities. Two of the piezometers (B22-067-PZ, B22-129-PZ) were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on October 10 and 11, 2016, prior to the start of development activities. Two piezometers (B6-039-PZ, and B6-087-PZ) were found to be missing during a search on January 9, 2020 and presumed to have been destroyed. Piezometers B6-011-PZ, B22-128-PZ, and the 9 delineation piezometers in the vicinity of piezometer B22-128-PZ were removed during the remedial excavation documented in the Response Action Completion Report for Area B: Sub-Parcel B6-1, B22-128 and B6-011 Response Areas dated December 20, 2019 and the associated Comment Response Letter dated July 20, 2020 (**Appendix C**).

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

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

2.2. EXCAVATION ACTIVITIES

Two piezometers within the Sub-Parcel B6-1 development area had measurable NAPL accumulation and were excavated following the Parcel B6 and Parcel B22 Phase II Investigations. Impacted soils were excavated as documented in the report titled Response Action Completion Report for Area B: Sub-Parcel B6-1, B22-128 and B6-011 Response Areas dated December 20, 2019 and the associated Comment Response Letter dated July 20, 2020 (**Appendix C**). A total of approximately 5,100 cubic yards of bulk were removed during excavation. The NAPL-impacted soil was taken to the on-site industrial landfill (Greys Landfill). The removal of the impacted soil was approved by the MDE in an email dated June 5, 2017 (included in **Appendix B**). Approval to backfill the excavations was confirmed by the MDE during site visits on June 15 and July 6, 2017. Although confirmation samples were originally proposed in the Excavation Plans, the MDE gave approval to backfill the excavations without collecting confirmation samples for laboratory analysis.

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 B6-1 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 October 2017 with Clayco 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 F**) states that the environmental cap was constructed in general accordance with the Sub-Parcel B6-1 RADWP. Select Daily Field Reports prepared by the EP are included in **Appendix G**. One notable occurrence occurred during development on January 26, 2018 and is discussed in further detail in Section 3.10. Only those field reports from notable occurrences have been included. Select photos from general development activities are included in **Appendix H**.

One sediment basin originally from the development at Parcel B22, Phase 1 was used for dewatering during the development of Sub-Parcel B6-1 and site stormwater management. Due to its use on Sub-Parcel B6-1, the responsibility for the final completion of this basin was transferred to Clayco, the General Contractor for Sub-Parcel B6-1 development after the Parcel B22, Phase 1 development was complete.

Site development activities are discussed in the Quarterly Development Status Updates for the third and fourth quarters of 2017, the first, second, third, and fourth quarters of 2018, and in the Responses to Agency Comments dated January 29, 2018 and July 17, 2018 (**Appendix I**). The following sections provide information not covered in the Quarterly Development Status Updates or in the associated Responses to Agency Comments.

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 J**.

3.2. GRADING AND SITE PREPARATION

Processed 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 under the Sub-Parcel B6-1 RADWP. Materials that did not exhibit evidence of impacts that were removed during grading activities and during the excavation of the western sediment

basin 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.

3.3. UTILITY INSTALLATION

Excavated material that did not exhibit evidence of impacts was placed on-site under capped areas. Materials excavated from utility trenches were replaced inside the trenches as backfill. Processed blast furnace slag was also used as utility trench backfill. Utility trenches were completed in accordance with the Utility Trench Section Detail Included in **Appendix K**.

3.4. FILL MATERIALS

During the excavation of the basin in the southwestern corner of the site, a sandy clay material with no evidence of staining, odors, or elevated PID readings was encountered. Due to the Contractor's desire to reuse the material as clean fill, two preliminary samples were collected on January 18, 2018, and a Work Plan for additional sampling was submitted to the MDE by HCEA. Four additional samples were collected on February 22, 2018. The laboratory results were provided to the MDE and the excavated soil was approved by MDE on March 5, 2018 for use as clean fill above the geotextile maker fabric in landscaped areas (**Appendix B**).

In addition to the basin soil approved as clean fill, the following fill materials were used during the development of Sub-Parcel B6-1:

- Clean fill from Old Court Road, approved by the MDE via email on May 30, 2018;
- Clean fill from Back River, provided by MCM Management Corp, approved by the MDE via email on April 21, 2015;
- Sand from York Building Products, approved by the MDE via email on November 8, 2017;
- #57 Stone, approved by the MDE via email on May 14, 2018;
- #2 Washed Gravel. approved by the MDE via email on August 23, 2018; and
- Topsoil from Old Court Road, approved by the MDE via email on May 25, 2018.

Clean fill approval documentation is provided in **Appendix L**.

3.5. PLACEMENT OF SUB-BASE

Processed slag aggregate from elsewhere on the Tradepoint Atlantic property was used as structural fill beneath the building pad foundation and beneath parking areas which were not originally designated as capped areas in the RADWP. The placement of slag aggregate beneath the parking areas requires the entire sub-parcel to be subject to an environmental capping requirement.

3.6. SOIL SAMPLING AND DISPOSAL

Details regarding the sampling and disposal of excavated materials are presented in the Quarterly Status Updates for the third and fourth quarter of 2017 and first, second, third, and fourth quarters of 2018 as well as the associated comment response letters (**Appendix I**). MDE email approvals of the results of stockpile sample laboratory testing for all excavated materials tested during the duration of the Sub-Parcel B6-1 development are included in **Appendix M**. All impacted soil generated during the development of Sub-Parcel B6-1 was spread in an area north of the Parcel B22, Phase 1 Development Area, as approved by the MDE following receipt of analytical results.

3.7. 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. The Contractor utilized a water truck to mitigate dust generation during the development work operations. After electronic dust monitoring was terminated, the EP continued to monitor for visible dust.

3.8. WATER MANAGEMENT

During the development of Sub-Parcel B6-1, all dewatering was pumped into a storm drain for the Tin Mill Canal stormwater area which discharges at the on-site Humphrey's Creek Wastewater Treatment Plant at the direction of Tradepoint Atlantic personnel. On January 26, 2018, a water line was damaged during the installation of a storm drain in the southwest portion of the Site. A channel was dug to divert the water into a sediment basin. The water was observed to be clear with no sheen or odors during the de-watering. No aqueous samples were collected during the development of Sub-Parcel B6-1.

3.9. 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. The acknowledgement form signed by the site contractor is provided in **Appendix N**.

3.10. NOTABLE OCCURRENCES

On January 26, 2018, a water line was damaged during the installation of a storm drain in the Southwest portion of the Site. A channel was dug to divert the water into a sediment basin. The water was observed to be clear with no sheen or odors during the de-watering.

The relevant Daily Field Report for January 26, 2018 is provided in **Appendix G**.

3.11. PAVING

As stated in the Notice of Completion of Remedial Actions prepared by HCEA (**Appendix F**), the environmental cap installed during the Sub-Parcel B6-1 development meets the required thicknesses specified in the RADWP and Addendum.

3.12. LANDSCAPED AREAS

As stated in the Notice of Completion of Remedial Actions (**Appendix F**), capping in the landscaped areas was installed to meet the specifications established in the Sub-Parcel B6-1 RADWP. As discussed above in Section 3.4 (Fill Materials), the materials used in landscaped areas were approved by the MDE (**Appendix L**).

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

A detention pond was originally proposed in the southeastern portion of the Parcel B22, Phase 1 development area. Following approval of the Parcel B22, Phase 1 and Sub-Parcel B6-1 RADWPs, the responsibility for the final completion of the detention pond was transferred from the Parcel B22, Phase 1 General Contractor to Clayco, the General Contractor for Sub-Parcel B6-1 development. The detention pond was constructed and lined in accordance with the Parcel B22, Phase 1 RADWP.

Capping in two small break areas was modified with permission from the MDE given via email on June 18, 2019 (see **Appendix B**). The break areas, shown in **Appendix P** were capped with four inches of clean fill and two inches of porous concrete pavement (see specification in **Appendix P**) instead of six inches of river rocks as originally proposed.

3.13. 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.
- 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 and groundwater use restrictions.

3.14. 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 B6-1, 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 dated (December 11, 2020). 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 June 2017 and November 2018, response and development actions were conducted as part of the redevelopment of the Site identified as Sub-Parcel B6-1. The remedial actions specified in the RADWP included: soil delineation and excavations of contaminated soil; 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 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

B6-1 Development 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
B6-1
Parcel B16
Parcel B24
Parcel B15
Parcel B23
Parcel B7
Parcel B25
Parcel B1
Parcel B2
Parcel B3
Parcel B17
Parcel B19
Parcel B4
Parcel B5
Parcel B9
Parcel B18
Parcel B10
Parcel B13
Parcel B20
Parcel B11
Parcel B12

Tradepoint Atlantic
Area A and Area B Parcels

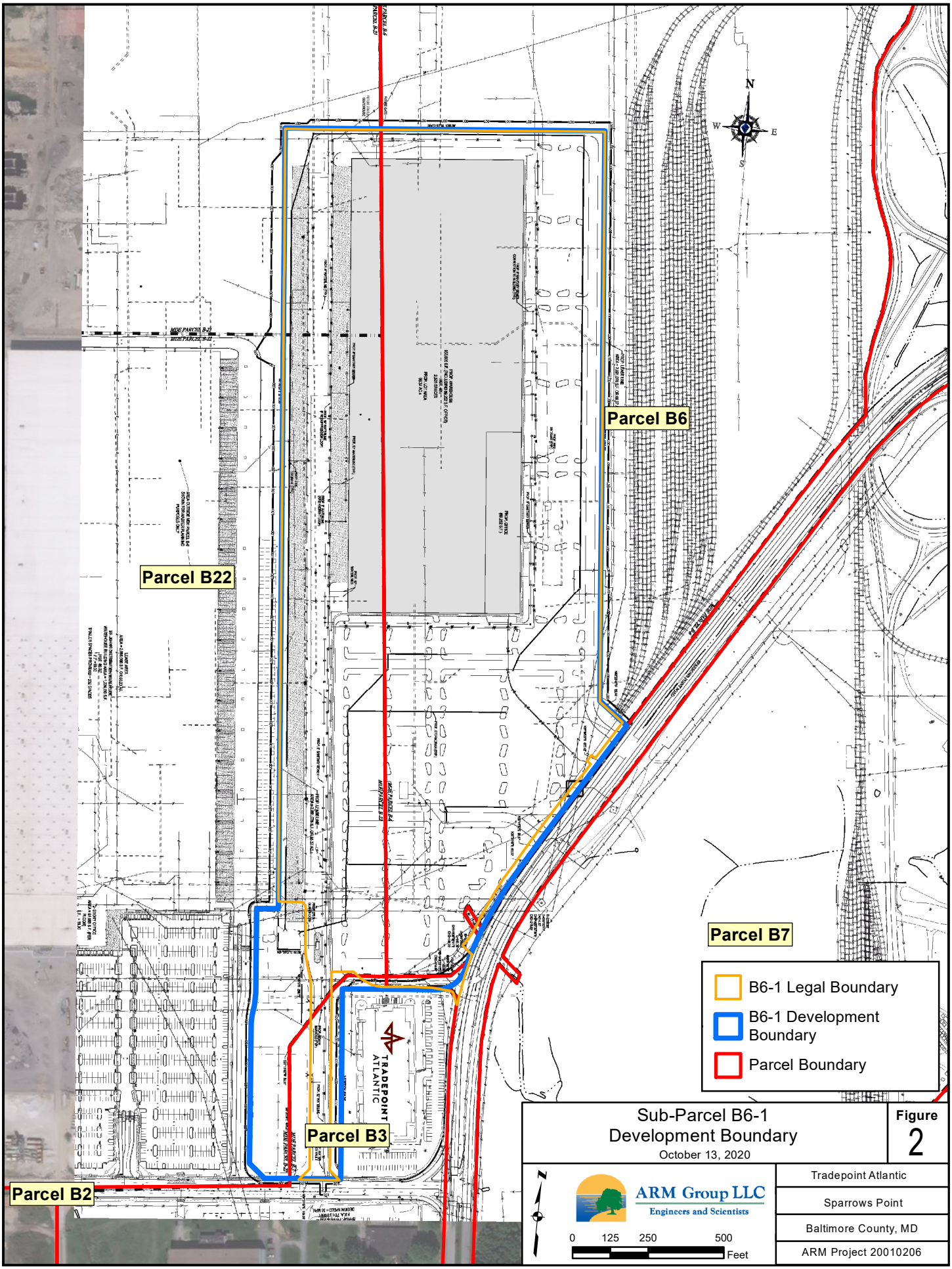
October 13, 2020

Figure 1

ARM Group LLC
Engineers and Scientists

0 500 1,000 2,000 Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
Area A: Project 200101
Area B: Project 200102
B6-1: Project 20010206



Sub-Parcel B6-1
Development Boundary
October 13, 2020

Figure
2

ARM Group LLC
Engineers and Scientists

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 20010206

APPENDIX A

Reference List

Sub-Parcel B6-1

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

ARM Group, Inc. (2016). *Phase II Investigation Work Plan, Area B Groundwater.* Revision 3. October 6, 2015.

ARM Group, Inc. (2016). *Phase II Investigation Work Plan, Area B: Parcel B6.* Revision 2. May 12, 2016.

ARM Group, Inc. (2016). *Phase II Investigation Work Plan, Area B: Parcel B22.* Revision 1. June 2, 2016.

ARM Group, Inc. (2016). *Phase II Investigation Report, Area B Groundwater.* Revision 0. September 30, 2016.

ARM Group, Inc. (2017). *Phase II Investigation Work Plan, Area B: Parcel B3.* Revision 1. May 17, 2017.

ARM Group, Inc. (2017). *Phase II Investigation Preliminary Report Area B: Parcel B22.* Revision 0. July 15, 2017.

(The Parcel B22 Phase II Investigation Preliminary Report was attached to the Response and Development Work Plan for Area B: Parcel B22, Phase 1, Revision 5, dated March 28, 2017, updated March 30, 2017 and April 11, 2017.)

ARM Group, Inc. (2018). *Phase II Investigation Report Area B: Parcel B6.* Revision 2. March 6, 2018.

ARM Group, Inc. (2018). *Phase II Investigation Report Area B: Parcel B3.* Revision 0. October 15, 2018.

ARM Group, Inc. (2017). *Response and Development Work Plan Area B: Sub-Parcel B6-1.* Revision 1. June 9, 2017.

ARM Group, Inc. (2017). *Response and Development Work Plan Area B: Sub-Parcel B6-1.* Revision 2. July 7, 2017.

(Approval to proceed with development was given following review of Revision 1, and final approval of the RADWP was given following review of Revision 2.)

ARM Group, Inc. (2017). *Utility Excavation NAPL Contingency Plan.* Revision 4. June 19, 2017.

Reference List

Sub-Parcel B6-1

ARM Group, Inc. (2017). *Quarterly Development Status Update: Third Quarter 2017, Area B: Sub-Parcel B6-1*. October 27, 2017.

ARM Group, Inc. (2018). *Responses to Agency Comments: Quarterly Development Status Update: Third and Fourth Quarter 2017, Area A: Sub-Parcel A3-1; Area B: Sub-Parcel B5-1; Sub-Parcel B6-1; Parcel B22, Phase 1*. January 29, 2018.

ARM Group, Inc. (2018). *Quarterly Development Status Update: Fourth Quarter 2017, Area B: Sub-Parcel B6-1*. January 29, 2018.

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APPENDIX B

Melissa Replogle Hritz

From: Taylor Smith
Sent: Tuesday, January 15, 2019 10:45 AM
To: Melissa Replogle
Subject: B6-011/B22-128 NAPL Excavation Plan Approval

Follow Up Flag: Follow up
Flag Status: Flagged

B6-011/B22-128 NAPL Excavation Plan Approval

Taylor R. Smith
Project Engineer

ARM Group Inc.
Phone: 410-290-7775 (x 2007)
Cell: 443-340-1248

From: James Calenda <jcalenda@enviroanalyticsgroup.com>
Sent: Monday, June 05, 2017 3:40 PM
To: Neil Peters <npeters@armgroup.net>; Eric Magdar <emagdar@armgroup.net>; Taylor Smith <tsmith@armgroup.net>; Nicholas Kurtz <nkurtz@armgroup.net>
Subject: FW: Parcel B-6 NAPL Excavation Work Plans Revised

FYI – we have the greenlight to proceed.

From: Barbara Brown -MDE- [mailto:barbara.brown1@maryland.gov]
Sent: Monday, June 05, 2017 3:38 PM
To: James Calenda <jcalenda@enviroanalyticsgroup.com>
Cc: Mark Mank -MDE- <mark.mank@maryland.gov>; Erich Weissbart <Weissbart.Erich@epa.gov>; Prince, Ruth <Prince.Ruth@epa.gov>; Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>; Craven, Laura <lcraven@wcgrp.com>; Pete Haid <phaid@tradepointatlantic.com>; Dorgan, Doug <ddorgan@wcgrp.com>; Russ Becker <rbecker@enviroanalyticsgroup.com>
Subject: Re: Parcel B-6 NAPL Excavation Work Plans Revised

Hello James

You may proceed with the implementation of the revised work plans dated June 1, 2017 for NAPL Excavation at the locations identified at B-6 and B-22.

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

On Fri, Jun 2, 2017 at 3:41 PM, James Calenda <jcalenda@enviroanalyticsgroup.com> wrote:

> Barbara,

Attached please find revised versions of the two NAPL excavation work plans for Parcel B-6 and a comment and response document. The work plans have been revised to address comments that were received from MDE yesterday afternoon. If you have any further comments on either of these work plans please let me know.

Thanks
James

James Calenda
Senior Project Manager
EnviroAnalytics Group, LLC
Direct: 314-620-3056

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

Melissa Replogle Hritz

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Monday, March 5, 2018 12:42 PM
To: Keith Progin
Cc: Jennifer Sohns -MDE-; Nick Stella; Pete Haid
Subject: Re: B6-1 Sediment Basin Sampling

Hello Keith

Based upon a review of the recent sampling results provided with your March 5, 2018 email and previous testing conducted, the material sampled from the B6-1 sediment basin may be used as clean fill above the geotextile at B6-1. This clean fill approval is only for Sparrows Point sites with proposed industrial land use.

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

Barbara Brown
MDE Project Coordinator

On Mon, Mar 5, 2018 at 11:32 AM, Keith Progin <kprogin@hcea.com> wrote:

> Please see the attached laboratory results for the sandy clay material that was excavated from the expanded Sediment Basin at B6-1. Again, the contractor is planning on using this material as Clean fill above the geotextile marker fabric in landscaped areas at B6-1. Please let me know if the material is approved for use.
>
> I should note that by the time we sampled the material, they had completed the excavation within the basin. Therefore, all 4 composite samples were collected from the stockpile. An excavator was utilized to allow us to grab our 10 point grabs from deeper depths within the stockpile.
>
> 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
>
> **From:** Jennifer Sohns -MDE- [mailto:jennifer.sohns@maryland.gov]
> **Sent:** Thursday, February 15, 2018 10:20 AM
> **To:** Keith Progin
> **Cc:** Barbara Brown -MDE-
> **Subject:** B6-1 Sediment Basin Sampling

Hi Keith,

This is a followup to our phone call today. You stated that approximately half of the sandy/clay soils in the sediment basin extension area were removed and stockpiled on the site in order to allow for some development work that needed to move forward. An environmental contractor has been on-site screening soils during the removal and no indications of contamination have been identified. I approved collecting two 10-pt composite samples from this stockpiled soil and the remaining two samples will be collected from soils that remain in-situ, as proposed. Also, it was noted that the slag layer has been removed and stockpiled on the parcel.

Let me know if you have any questions or comments.

Thank you,

--

Jennifer Sohns

--

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.

Melissa Replogle Hritz

From: Melissa Replogle Hritz
Sent: Monday, October 19, 2020 2:19 PM
To: Melissa Replogle Hritz
Subject: FW: Sub-Parcel B6-1 / Landscape Modification

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Tuesday, June 18, 2019 10:30 AM
To: Matthew Newman <mnewman@tradepointatlantic.com>
Cc: Pete Haid <phaid@tradepointatlantic.com>; Keith Progin <kprogin@hcea.com>; Jennifer Sohns -MDE- <jennifer.sohns@maryland.gov>
Subject: Re: Sub-Parcel B6-1 / Landscape Modification

Hello Matthew

The modification is approved for implementation. Please provide a construction schedule.
Please provide all documentation as an addendum to the completion report.

If you have any questions please contact me.

Barbara Brown

On Mon, Jun 17, 2019 at 1:42 PM Matthew Newman <mnewman@tradepointatlantic.com> wrote:

> Barbara,
>
> Amazon has proposed to modify two of their landscaped, exterior break areas currently filled with six inches of river rocks to install porous pave concrete in that area. The six inches of river rock would be replaced with four inches of clean fill and two inches of the porous pave concrete. Clean fill will be approved through the current process with Hillis-Carnes and the MDE prior to placement. Please find attached a map of the area where the work is to be completed, a cross section showing the proposed layout, and a detail sheet for the porous pave concrete.
>
> Please let us know if you have any questions or would like additional information.
>
> Thank you.
>
> -Matt Newman
>
> **Matthew Newman, P.E.**

Environmental Manager

TRADEPOINT ATLANTIC

1600 Sparrows Point Boulevard

Baltimore, Maryland 21219

T 410.709.1312 **D** 443.649.5063 **C** 443.791.9046

mnewman@tradepointatlantic.com

--
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.

APPENDIX C

RESPONSE ACTION COMPLETION REPORT

AREA B: SUB-PARCEL B6-1
B22-128 AND B6-011 RESPONSE AREAS
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:

ENVIROANALYTICS GROUP
1515 Des Peres Road, Suite 300
Saint Louis, Missouri 63131

Prepared By:

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

ARM Project No. 160443M-6

Respectfully Submitted,

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

Eric S. Magdar, P.G.
Vice President

Revision 0 – December 20, 2019

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FIGURES

APPENDICES

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 remediation activities performed on a portion of the Tradepoint Atlantic property that has been designated as Area B: Sub-Parcel B6-1 (the Site), which is shown on **Figure 1**. Sub-Parcel B6-1 is currently being developed under regulatory oversight of the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA). Sub-Parcel B6-1 consists of approximately 69.4 acres. The majority of the Site is within the southwestern portion of Parcel B6 with an adjacent section in Parcel B22 (and less than 2.5 acres in the adjacent Parcel B3). Response actions performed in support of the proposed development were proposed in the Response and Development Work Plan (RADWP) – Area B: Sub-Parcel B6-1 (Revision 2 dated July 7, 2017; prior revision approved by the MDE on June 29, 2017; approved by the USEPA on September 26, 2017). Following the conclusion of all development activities, a Development Completion report will be submitted.

During the Phase II Investigations of Parcels B6 and B22, non-aqueous phase liquid (NAPL) was identified within the soil cores of soil boring locations B22-128-SB and B6-011-SB on June 2 and June 15, 2016, respectively. Soil boring B22-128-SB, which targeted the Hot Strip Mill Drum Handling Area, is located in the southeastern section of Parcel B22 as shown on **Figure 2**. Soil boing B6-011-SB, which was installed to investigate potential impacts related to the operation/storage of potential equipment containing polychlorinated biphenyls (PCBs), is located in the southwestern section of Parcel B6 as shown on **Figure 3**. In accordance with the RADWP, the discovery of NAPL necessitated that additional delineation activities be performed in the vicinity of each boring location. The completed delineation activities are described below in Section 1.2. Ultimately, excavation of the NAPL containing soil was selected as the remedial response action to address the impacts in the vicinity of B22-128-SB (the B22-128 Response Area) and in the vicinity of B6-011-SB (the B6-011 Response Area). This Response Action Completion Report describes the completed work performed in both Response Areas in support of future site development.

1.2. NAPL DELINEATION

Following the completion of the Phase II Investigations on Parcels B6 and B22, additional delineation activities were performed to determine the extent of NAPL in the vicinity of soil boring locations B22-128-SB and B6-011-SB as described in detail within the separate Excavation Plans (Delineation Activities and Proposed Excavation of NAPL at B22-128-SB and B6-011-SB), both dated June 2, 2017. A brief summary of the delineation activities performed in each Response Area is reiterated below.

1.2.1. B22-128 Response Area

During the Parcel B22 Phase II Investigation, a temporary shallow piezometer (B22-128-PZ) was installed on June 6, 2016 to evaluate the presence of potentially mobile NAPL at location B22-128-SB. The piezometer was warranted based on evidence of NAPL contamination which had been identified in the soil core. The piezometer was constructed with a screen interval from 3 to 10 feet below ground surface (bgs). Once NAPL was confirmed to be present in B22-128-PZ, four additional temporary piezometers were installed to delineate the extent of the NAPL. Three of the piezometers were installed with screen intervals from 5 to 20 feet bgs; the fourth (B22-128-PZ-S) was installed with a screen interval from 3 to 10 feet bgs. Measurable NAPL was detected in two delineation piezometers on July 22, 2016. As a result of the accumulation of measurable NAPL in these two delineation piezometers, five additional piezometers were installed in the vicinity of B22-128-PZ with screen intervals from 5 to 20 feet bgs on July 26 and July 27, 2016. The delineation results (observations of accumulated NAPL) for the piezometers in the B22-128 Response Area are shown on **Figure 2**. Piezometer B22-128-PZ and the surrounding delineation piezometers were last gauged on May 30, 2017 and abandoned during excavation. These piezometers were abandoned prior to the directive from the MDE received in an email on June 22, 2017 to gauge piezometers a final time prior to abandonment. ARM has implemented this requirement for subsequent piezometer abandonments.

Due to the confirmed presence of potentially mobile NAPL, remediation via excavation was determined to be appropriate in the vicinity of B22-128-PZ. To provide additional characterization data and to further define the limits of the excavation, three soil samples were collected between March 17 and March 20, 2017 from varying depths at seven of the previously completed piezometer locations. All of the soil samples were submitted for analysis of Oil & Grease, and each had a detection below the Project Action Limit (PAL) of 6,200 mg/kg. The analytical results and laboratory reports for these samples were included in the B22-128-SB Excavation Plan.

1.2.2. B6-011 Response Area

During the Parcel B6 Phase II Investigation, diesel range organics (DRO) were detected at a concentration of 7,340 mg/kg in sample B6-011-SB-8, which is above the PAL of 6,200 mg/kg. There was no concentration data available for Oil & Grease in the same sample, because Oil & Grease analysis was not specified in the approved Work Plan at the time that the Parcel B6 Phase II Investigation was completed. In addition, evidence of NAPL was detected in the soil core. The impacts noted in this sample were possibly associated with the former No. 6 oil pump house located to the west of B6-011-SB. Due to the elevated analytical detection and visual observation of NAPL in the soil core, a temporary shallow piezometer (B6-011-PZ) was installed on June 15, 2016 to evaluate the presence of potentially mobile NAPL at location B6-011-SB. The piezometer was constructed with a screen interval from 5 to 15 feet bgs. A trace amount of

NAPL was observed in the piezometer during a gauging event that occurred approximately two months after installation on August 26, 2016. A subsequent gauging event on March 15, 2017 indicated the accumulation of measurable NAPL.

Due to the confirmed presence of potentially mobile NAPL, remediation via excavation in the vicinity of B6-011-PZ was determined to be an appropriate response action. To delineate the extent of the NAPL contamination in the vicinity of B6-011-PZ and to define the limits of the excavation, 17 additional soil borings were installed surrounding this piezometer between March 16 and April 26, 2017. Three soil samples from varying depths were collected from each of these borings, as further described in the B6-011-SB Excavation Plan. Each of the soil samples was submitted for the analysis of Oil & Grease and DRO. Several samples had detections above the Oil & Grease PAL (6,200 mg/kg); none of the detections of DRO exceeded the PAL. The analytical results and laboratory reports for these samples were included in the B6-011-SB Excavation Plan. The delineation results (field observations of NAPL in soil cores and Oil & Grease PAL exceedances) for the delineation soil borings installed in B6-011 Response Area are shown on **Figure 3**. Piezometer B6-011-PZ, which was previously documented as containing measurable NAPL, was abandoned during excavation. These piezometers were abandoned prior to receipt of the final gauging directive from the MDE; however, ARM has implemented the directive for subsequent piezometer abandonments.

2.0 SITE RESPONSE ACTIVITIES

The preliminary extents of the excavations required to remove NAPL-contaminated media, as presented in the B22-128-SB and B6-011-SB Excavation Plans, were based on the NAPL gauging data from the delineation piezometers and/or analytical data from delineation soil borings. A summary of the B22-128 Response Area piezometer gauging, and the resulting proposed excavation boundary, are shown on **Figure 4**. The proposed excavation boundary for the B6-011 Response Area, which is shown on **Figure 5**, is based on NAPL observed in the soil cores and analytical results that exceeded the soil PAL. The actual extents of each excavation (**Figure 6** and **Figure 7**) were modified based on field observations (odors, staining, etc.), and the final excavation boundaries were recorded using a hand-held GPS unit. When an excavation was limited laterally or vertically by concrete, the concrete was cleared of soil and left in place.

The following sections provide detailed descriptions of the completed response actions. Photographic logs of the response actions in the B22-128 and B6-011 Response Areas are included in **Appendix B** and **Appendix C**, respectively.

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. Hillis-Carnes Engineering Associates (HCEA), the on-site contractor for Tradepoint Atlantic, provided oversight and approvals for all backfilling, geotechnical, and engineering aspects of both Response Areas.

2.1. SOIL MANAGEMENT

Soil was excavated from the B22-128 Response Area from June 8 to June 13, 2017, and from the B6-011 Response Area from June 13 to June 29, 2017. Excavated material was segregated into stockpiles located adjacent to the excavations based on field indications of contamination. Excavated soils from both Response Areas which did not exhibit field indications of contamination were stockpiled adjacent to the B6-011 excavation, and soils which appeared to be impacted by NAPL were separated by Response Area. As stated in the agency-approved Excavation Plans, the criteria that triggered the need for segregation included observed NAPL or evidence of staining, and/or strong odors. The overburden soil in both Response Areas was 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 from the impacted material to be used as on-site backfill.

Approximately 1,300 cubic yards of bank soil were excavated from the B22-128 Response Area, and approximately 3,800 cubic yards of bank soil were excavated from the B6-011 Response Area. Excavated soils were stockpiled on polyethylene sheeting, and the stockpiles remained

covered when they were not 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, PCBs, Oil & Grease, and DRO (*see Note below*) to determine if the material could be used as on-site backfill or if it needed to be disposed of at an off-site hazardous landfill or, if non-hazardous, at the on-site landfill (Greys). If no TCLP exceedances were reported and the material was considered by the geotechnical contractor (HCEA) to be of an appropriate moisture content and soil type, the soil would be eligible for use as on-site backfill. Laboratory results from this stockpile testing are included in **Appendix D**.

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 the B22-128 Response Area were transported to Greys Landfill. Seven of the 13 stockpiles from the B6-011 Response Area excavation were acceptable for on-site reuse based on the analytical results and lack of visual NAPL impacts. Soil from these acceptable stockpiles was either used as backfill in the B22-128 and B6-011 Response Area excavations or transported to Greys Landfill. A total of 40 truckloads of soil from the B22-128 excavation stockpiles and 36 truckloads from the B6-011 excavation stockpiles were disposed of in Greys Landfill.

> *Note: Samples from the first two stockpile cells, designated as B22-128-Cell 1 and B22-128-Cell 2 were not analyzed for Oil & Grease or DRO and thus were not considered for reuse as on-site backfill. The results of TCLP Metals and PCB screening indicated that these samples were non-hazardous, and the soil from these stockpiles was transported to Greys Landfill for disposal.*

2.2. WATER MANAGEMENT

Due to the NAPL impacts extending into and below the water table, groundwater was encountered during excavation activities in both the B22-128 and B6-011 Response Areas. Once the groundwater table was encountered, the excavator operator allowed the excavator's bucket to drain excess water prior to placing the material in the dump truck. Dry overburden material was also utilized to stabilize wet material prior to removal from the excavation. As directed by EAG, groundwater (along with any trace accumulated NAPL) was pumped from the excavations to adjacent manholes identified by Tradepoint Atlantic personnel that conveyed water to the on-site wastewater treatment plant.

2.3. SUBGRADE STRUCTURES AND PIPES

Buried concrete structures were encountered in both the B22-128 and B6-011 Response Area excavations, as indicated on **Figure 6** and **Figure 7**. In particular, the bottom depth of the B22-128 excavation was limited to a depth of 8 feet bgs due to the presence of a concrete slab at the bottom of a concrete box, as shown on **Figure 6**. The concrete box contained soil with minor indications of NAPL but primarily contained a sludge-like material with strong sewage-like odors. A trench was excavated around the southern, eastern, and western faces of the concrete box to investigate the presence of any vertical or horizontal impacts extending outward from the concrete box. No significant impacts originating from the concrete box were observed in the trench surrounding the box. Per the request of HCEA personnel and prior to backfilling, holes were punched in the concrete slab encountered at the bottom of the B22-128 Response Area excavation to allow for future infiltration.

Several pipes were encountered during excavation activities in the B6-011 Response Area, as indicated on **Figure 7**. A 48-inch pipe running in the east-west direction had indications of NAPL in the pipe bedding. The 48-inch pipe was demolished and removed from the excavation. The eastern end of the pipe was capped with concrete on October 16, 2017 by HCEA; the western end of the pipe continued beyond the excavation boundary. A 32-inch pipe running in the east-west direction near the northern boundary of the excavation was observed to contain an oily water mixture. The 32-inch pipe was similarly demolished and removed from the excavation. The MDE requested during their field visit on June 29, 2017 that this pipe also be capped with concrete to prevent additional NAPL exiting the pipe into the subsurface. The western end of the pipe was capped with concrete on July 5, 2017. Sections of a 36-inch NAPL bearing pipe running in the north-south direction were also demolished and removed from the excavation. Several concrete boxes were also encountered in the B6-011 Response Area excavation, as shown on **Figure 7**. A very viscous black NAPL was encountered in the vicinity of the large concrete subgrade structure (former pump house) indicated on **Figure 7**. The NAPL was stabilized with overburden material before being transported by dump truck to the impacted soil stockpiles.

2.4. BACKFILLING

Following the completion of the remedial excavations in the B22-128 and B6-011 Response Areas, notifications were provided to the MDE. Representatives from the MDE visited the B22-128 Response Area and the B6-011 Response Area on June 15 and July 6, 2017, respectively, and gave approval to backfill during each field visit. Although confirmation samples were originally proposed in the Excavation Plans, the MDE gave approval to backfill the excavations without collecting confirmation samples for laboratory analysis. The excavations were backfilled with fine stone, 2 to 3 inch graded stone, and soil. All soil backfill lifts were compacted to 95% compaction and approved by an HCEA field technician. Backfilling activities

were conducted from June 27 to June 28, 2017 for the B22-128 Response Area, and from July 6 to July 7, 2017 for the B6-011 Response Area.

2.5. ASBESTOS-WRAPPED PIPES

Pipes wrapped in a potential asbestos containing material (ACM) were encountered during the remedial excavation activities in the B6-011 Response Area. At the request of the MDE during their field visit on June 29, 2017, two samples of the pipe wrap were submitted to EMSL Analytical Inc. and analyzed for the presence of asbestos via polarized light microscopy (PLM). The two samples returned positive asbestos results. The asbestos-wrapped pipe section that was removed from the excavation was enclosed in polyethylene sheeting and properly labeled for future disposal.

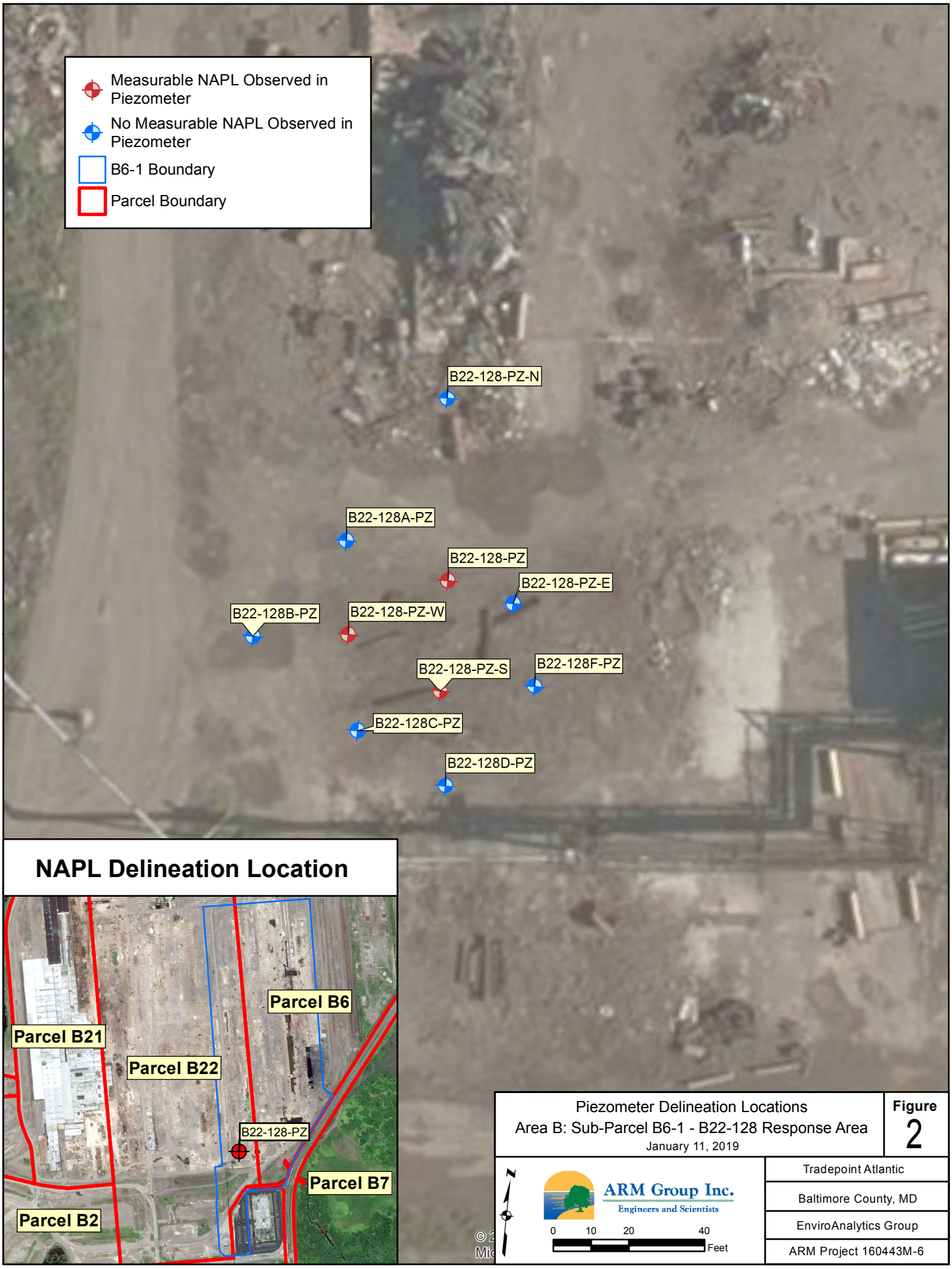
Also, at the request of the MDE, the asbestos wrapped pipes that remained in place within the excavation were carefully covered as to not disturb the asbestos wrap, and the extent of each pipe was recorded with the hand-held GPS unit. The locations of the asbestos-wrapped pipes (shown on **Figure 7**) have been provided to Tradepoint Atlantic for distribution to personnel who may perform subsurface work associated with the redevelopment phase in the vicinity of the B6-011 Response Area.

2.6. HEALTH AND SAFETY

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.

FIGURES


Site Boundary
Sub-Parcel B6-1
Parcel Boundaries
Private Property
Parcel A9
Parcel A5
Parcel A13
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 B22
B6-1
Parcel B16
Parcel B21
Parcel B15
Parcel B24
Parcel B23
Parcel B25
Parcel B7
Parcel B1
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
January 11, 2019
Figure
1
ARM Group Inc.
Engineers and Scientists
0 500 1,000 2,000
Feet
Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
Area A: Project 150298M
Area B: Project 150300M
Development: Project 160443M



Piezometer Delineation Locations
Area B: Sub-Parcel B6-1 - B22-128 Response Area
January 11, 2019

Figure 2

ARM Group Inc.
Engineers and Scientists

0 10 20 40 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-6

NAPL Observed in Soil Core

Oil & Grease PAL Exceedance (>6,200 mg/kg)

Clean Soil Core

Subgrade Structure (approx.)

B6-1 Boundary

Parcel Boundary

B6-011L-SB

B6-011F-SB

B6-011C-SB

B6-011G-SB

B6-011M-SB

B6-011E-SB

B6-011D-SB

B6-011A-SB

B6-011O-SB

B6-011-SB

B6-011I-SB

B6-011H-SB

B6-011N-SB

B6-011B-SB

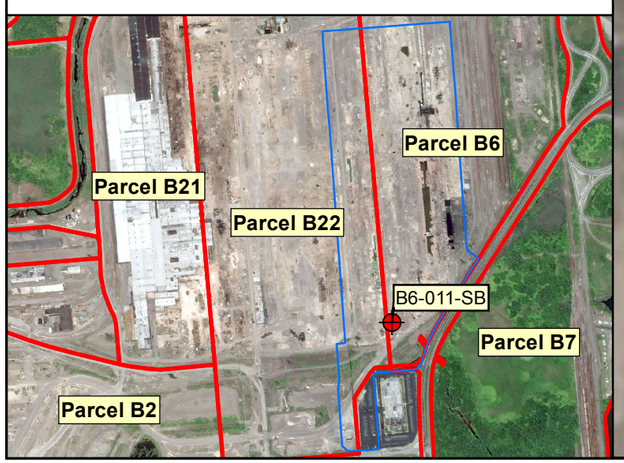
B6-011J-SB

B6-011P-SB

B6-011K-SB

B6-011Q-SB

NAPL Delineation Location



Soil Boring Delineation Locations
Area B: Sub-Parcel B6-1 - B6-011 Response Area
January 11, 2019

Figure 3

ARM Group Inc.
Engineers and Scientists

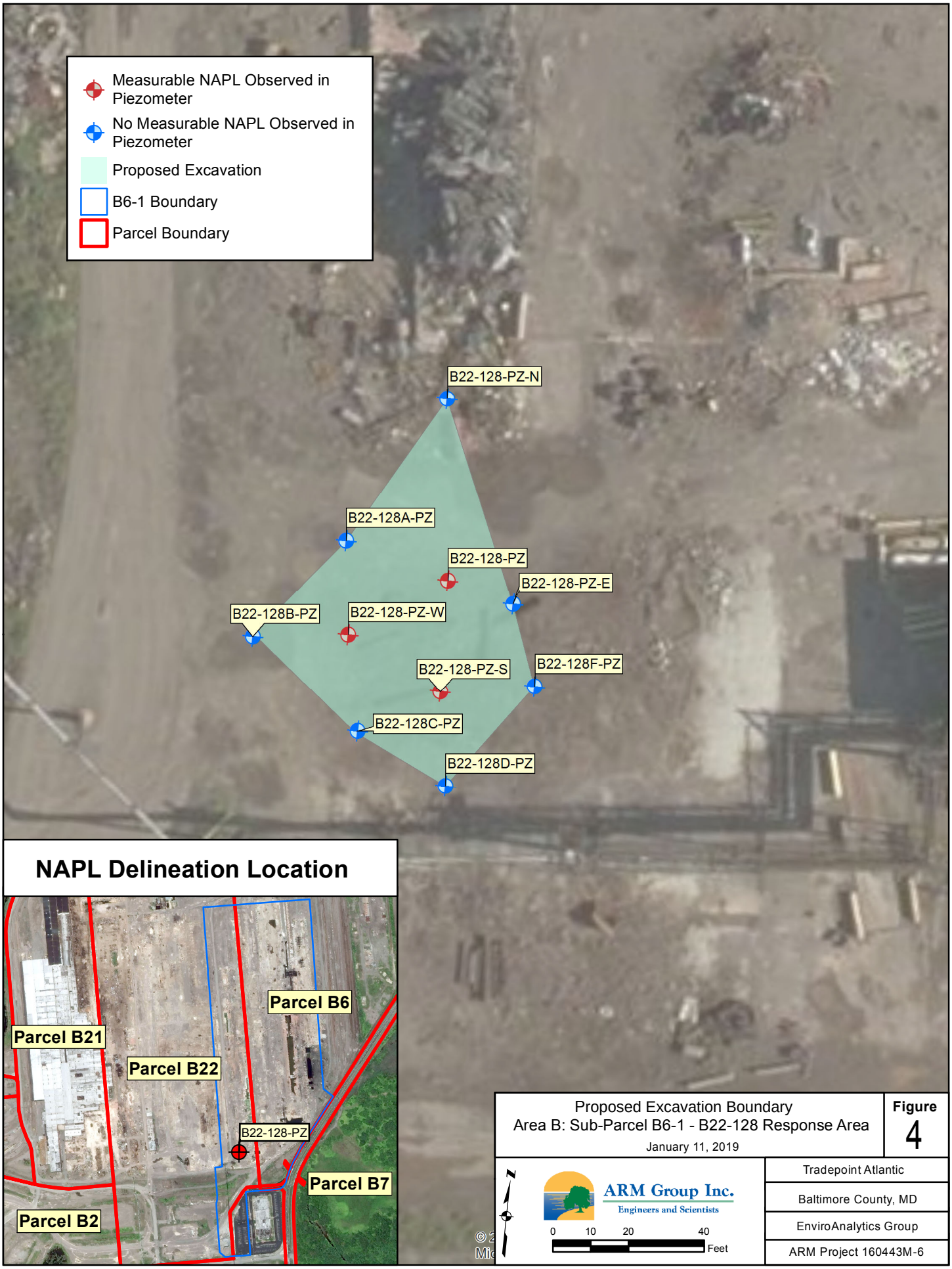
0 5 10 20 Feet

Tradepoint Atlantic

Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-6



NAPL Delineation Location

Proposed Excavation Boundary
Area B: Sub-Parcel B6-1 - B22-128 Response Area
January 11, 2019

Figure 4

ARM Group Inc.
Engineers and Scientists

0 10 20 40 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-6

NAPL Observed in Soil Core

Oil & Grease PAL Exceedance (>6,200 mg/kg)

Clean Soil Core

Proposed Excavation Boundary

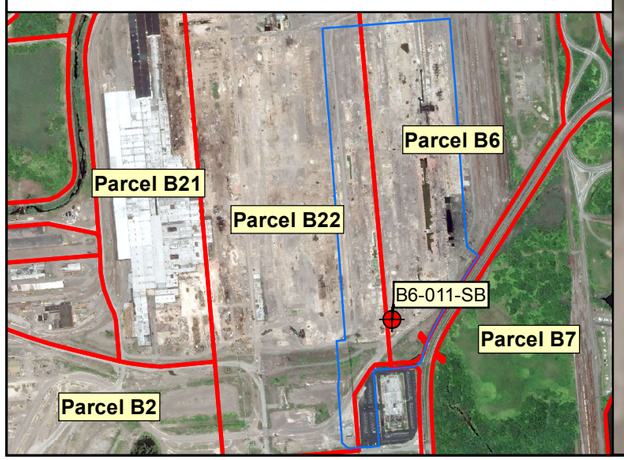
Subgrade Structure (approx.)

B6-1 Boundary

Parcel Boundary

B6-011L-SB
B6-011F-SB
B6-011C-SB
B6-011G-SB
B6-011M-SB
B6-011E-SB
B6-011D-SB
B6-011A-SB
B6-011O-SB
B6-011-SB
B6-011I-SB
B6-011H-SB
B6-011N-SB
B6-011B-SB
B6-011J-SB
B6-011P-SB
B6-011K-SB
B6-011Q-SB

NAPL Delineation Location



Proposed Excavation Boundary
Area B: Sub-Parcel B6-1 - B6-011 Response Area
January 11, 2019

Figure 5

ARM Group Inc.
Engineers and Scientists

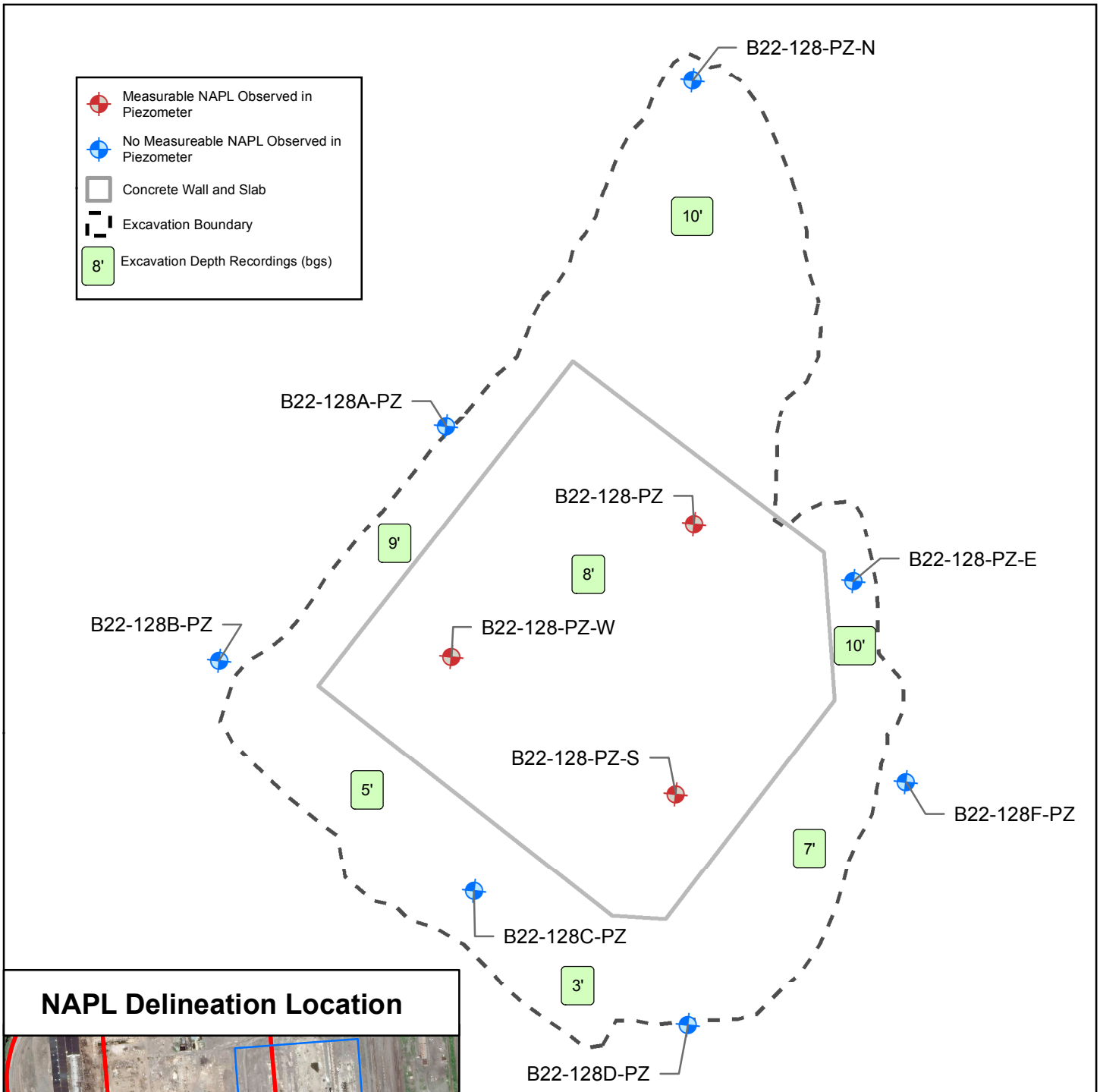
0 5 10 20 Feet

Tradepoint Atlantic

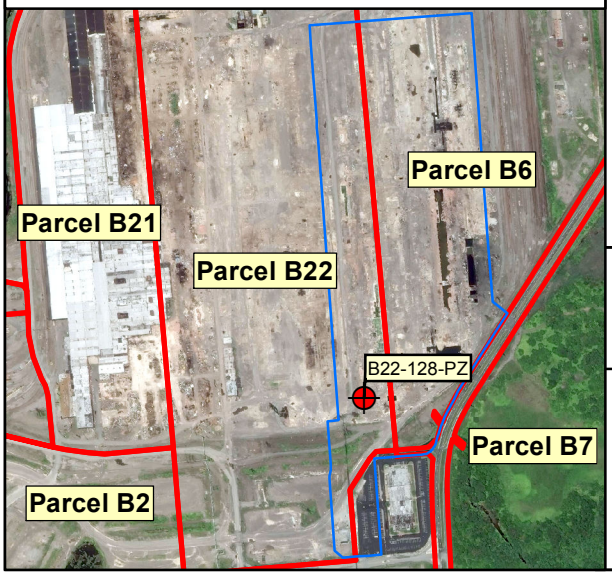
Baltimore County, MD

EnviroAnalytics Group

ARM Project 160443M-6



NAPL Delineation Location



Final Excavation
Area B: Sub-Parcel B6-1 - B22-128 Response Area
December 19, 2019

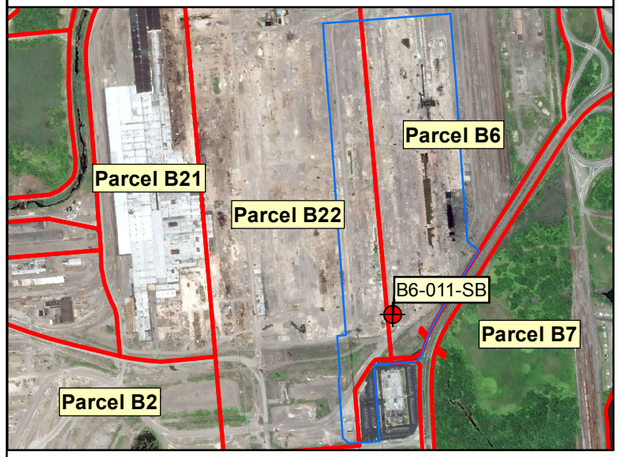
Figure 6

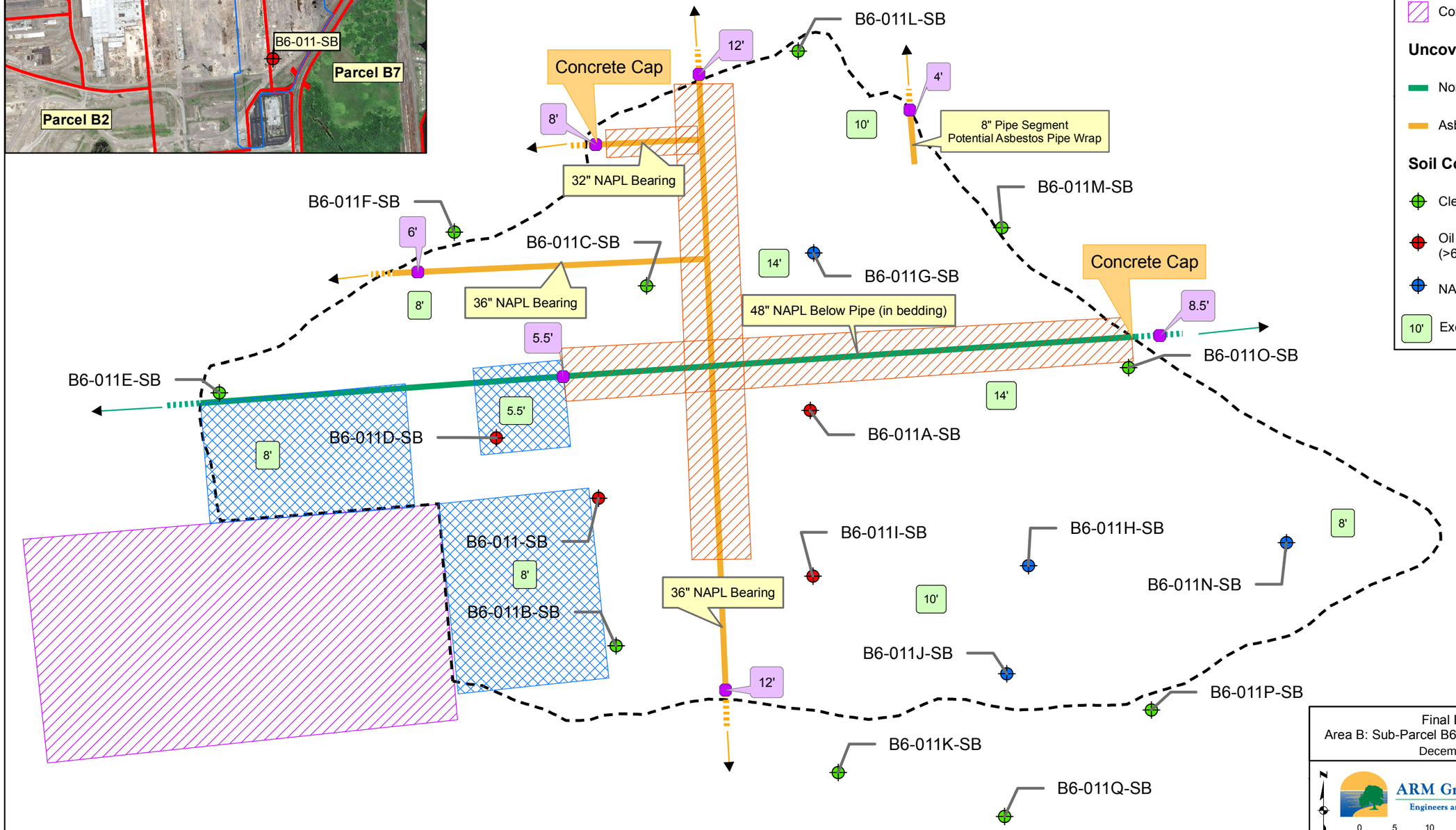
ARM Group Inc.
Engineers and Scientists

0 5 10 20
Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-6

NAPL Delineation Location





- Utility Depth Recordings (bgs)
- Concrete Boxes
- Pipe Sections Removed
- Excavation Boundary
- Concrete Subgrade Structure

Uncovered Utilities

- Non-Wrapped
- Asbestos Wrapped

Soil Core Observations

- Clean Soil Core
- Oil & Grease PAL Exceedence (>6,200 mg/kg)
- NAPL Observed in Soil Core
- 10' Excavation Depth Recordings

Final Excavation
Area B: Sub-Parcel B6-1 - B6-011 Response Area
December 19, 2019

Figure 7

ARM Group Inc.
Engineers and Scientists

0 5 10 20 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 160443M-6

APPENDIX A

060817-1: View to the west of the start of excavation.

060817-2: View to the west of B22-128 Response Area.

060917-1: View of the excavation in progress.

060917-2: View to the east of covered stockpiles of soil from the B22-128 excavation.

061217-1: View to the north of the western exterior trench of the excavation. A trench was dug around the concrete box to confirm if vertical and horizontal impacts from the concrete box were evident.

061417-1: View of the eastern exterior trench of the excavation..

062617-1: View to the southwest of final excavated state of B22-128 Response Area.

062817-1: View to the south of backfilling in progress at the B22-128 Response Area.

APPENDIX B

061317-1: View to the northeast of the start of excavation at the B6-011 Response Area. Visible to the right is a former pump house structure uncovered prior to arrival on site.

061317-2: View to the south of excavation adjacent to the former pump house structure in progress.

061517-1: View to the west of NAPL encountered during excavation.

061617-1: View to the west of viscous black NAPL encountered inside concrete box.

061917-1: View to the west of excavation in progress.

061917-1: View of NAPL encountered on excavation sidewall.

062017-1: View to the west of excavation in progress.

062117-1: View to the northwest of excavation in progress

062917-1: View to the north of excavation in progress.

063017-1: Asbestos-wrapped pipe, wrapped in polyethylene.

070517-1: Concrete capping, per the MDE request, of a NAPL bearing pipe encountered during excavation.

070617-1: View to the west of final excavated state of B6-011 Response Area.

070717-1: View to the west of backfilling in progress.

070717-2: View to the west of final backfilled state of B6-011 Response Area.

APPENDIX C

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

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

Date Received: 06/12/17 12:15
Date Issued: 06/13/17 17:14
Matrix: Soil

Project: Parcel B6-1 Redevelopment B22-128/
Site Location: Sparrows Point, MD
Project Number: 160443-M-5-11

SDG Number: 17061203

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Field Sample ID: 822-128-Cell 1			**Date Sampled: 06/12/17 7:20**			**Lab ID: 17061203-01**	
Percent Solids							
Percent Solids	**84**	%		SM2540G	06/13/17	06/13/17 12:18	MEL
Polychlorinated Biphenyls							
Aroclor 1016	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
Aroclor 1221	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
Aroclor 1232	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
Aroclor 1242	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
Aroclor 1248	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
Aroclor 1254	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
Aroclor 1260	ND	mg/kg	0.066	EPA 8082	06/13/17	06/13/17 14:10	AC
TCLP Metals							
Arsenic	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:05	MEL
Barium	ND	mg/L	10	1311/6020A	06/13/17	06/13/17 14:05	MEL
Cadmium	ND	mg/L	0.1	1311/6020A	06/13/17	06/13/17 14:05	MEL
Chromium	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:05	MEL
Lead	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:05	MEL
Mercury	ND	mg/L	0.02	1311/6020A	06/13/17	06/13/17 14:05	MEL
Selenium	ND	mg/L	0.1	1311/6020A	06/13/17	06/13/17 14:05	MEL
Silver	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:05	MEL
Field Sample ID: 822-128-Cell 2			**Date Sampled: 06/12/17 7:30**			**Lab ID: 17061203-02**	
Percent Solids							
Percent Solids	**92**	%		SM2540G	06/13/17	06/13/17 12:18	MEL
Polychlorinated Biphenyls							
Aroclor 1016	ND	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
Aroclor 1221	ND	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
Aroclor 1232	ND	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
Aroclor 1242	ND	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
Aroclor 1248	ND	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
Aroclor 1254	ND	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
Aroclor 1260	**0.35**	mg/kg	0.3	EPA 8082	06/13/17	06/13/17 14:38	AC
TCLP Metals							
Arsenic	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:11	MEL
Barium	ND	mg/L	10	1311/6020A	06/13/17	06/13/17 14:11	MEL
Cadmium	ND	mg/L	0.1	1311/6020A	06/13/17	06/13/17 14:11	MEL
Chromium	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:11	MEL
Lead	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:11	MEL
Mercury	ND	mg/L	0.02	1311/6020A	06/13/17	06/13/17 14:11	MEL
Selenium	ND	mg/L	0.1	1311/6020A	06/13/17	06/13/17 14:11	MEL
Silver	ND	mg/L	0.5	1311/6020A	06/13/17	06/13/17 14:11	MEL

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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

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

Date Received: 06/12/17 12:15
Date Issued: 06/13/17 17:14
Matrix: Soil

Project: Parcel B6-1 Redevelopment B22-128/
Site Location: Sparrows Point, MD
Project Number: 160443-M-5-11

SDG Number: 17061203

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.

Approved by:

QC Chemist

Notes/Qualifiers:
LLQ - Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
Results reported on a dry weight basis.

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Phone: 410.825.1151
Fax: 410.825.2126
www.caslabs.net

CALIBER ANALYTICAL SERVICES

Chain of Custody Record

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

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	Parcel B6-1 redevelopment B22-128 Excavation
Project Number:	~~Parcel B6-1 Pole~~ 160443M-5-11
Site Location:	Sparrows Point, MD

SDG Number:	17061203
Sampled by:	MAR
PO Number:	

Page ____ of ____

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	TCLP metals	PCBs 8082									Sampling Remarks/ Comments
	B22-128-cell 1	6/12/17	7:20	1	soil	X	X									
	B22-128-cell 2	6/12/17	7:30	1	soil	X	X									

Preservative

Relinquished by:	[signature]	Date/Time:	6/12/17 8:15
Received by:	[signature]	Date/Time:	6/12/17 1215
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 (circled)

Turnaround Time: STD (circled) Next Day 2-Day Other____

Custody Seals: Sample Cooler Delivered by client (circled)

Comments/Special Instructions:

* 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: 06/13/17 9:20
Date Received: 06/13/17 12:55
Date Issued: 06/14/17

Project: Parcel B6-1 Redevelopment B22-128/
Site Location: Sparrows Point, MD
Project Number: 160443-M-5-11

SDG Number: 17061306

Field Sample ID: B22-128-Cell 3 Matrix: Soil Lab ID: 17061306-01

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids								
Percent Solids	**81**	%			SM2540G	06/13/17	06/14/17 12:15	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
Aroclor 1221	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
Aroclor 1232	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
Aroclor 1242	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
Aroclor 1248	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
Aroclor 1254	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
Aroclor 1260	ND	mg/kg	0.055	50	EPA 8082	06/13/17	06/14/17 11:55	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 12:37	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/14/17	06/14/17 12:37	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/14/17	06/14/17 12:37	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 12:37	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 12:37	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/14/17	06/14/17 12:37	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/14/17	06/14/17 12:37	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 12:37	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**13**	mg/kg	12		EPA 8015C	06/12/17	06/14/17 15:35	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**100**	mg/kg	31		EPA 9071B	06/13/17	06/14/17 16:13	AC

Approved by: [signature]

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

Date Sampled: 06/13/17 9:30
Date Received: 06/13/17 12:55
Date Issued: 06/14/17

Project: Parcel B6-1 Redevelopment B22-128/
Site Location: Sparrows Point, MD
Project Number: 160443-M-5-11

SDG Number: 17061306

Field Sample ID: B22-128-Cell 4 Matrix: Soil Lab ID: 17061306-02

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids								
Percent Solids	**85**	%			SM2540G	06/13/17	06/14/17 12:15	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
Aroclor 1221	ND	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
Aroclor 1232	ND	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
Aroclor 1242	ND	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
Aroclor 1248	ND	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
Aroclor 1254	ND	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
Aroclor 1260	**0.079**	mg/kg	0.056	50	EPA 8082	06/13/17	06/14/17 13:07	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 13:05	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/14/17	06/14/17 13:05	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/14/17	06/14/17 13:05	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 13:05	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 13:05	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/14/17	06/14/17 13:05	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/14/17	06/14/17 13:05	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/14/17	06/14/17 13:05	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**2,000**	mg/kg	25		EPA 8015C	06/12/17	06/14/17 15:35	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**15,000**	mg/kg	29		EPA 9071B	06/13/17	06/14/17 16:13	AC

Approved by: [signature]
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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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:	EAG
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	BG-1 redevelopment B22-128 excav.
Project Number:	160443 M-5-11
Site Location:	Sparrows Point, MD

SDG Number:	17061306
Sampled by:	MPR
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative		TCLP metals	PCBs 8082								Sampling Remarks/ Comments
	B22-128-Cell 3	6/13/17	920	1	Soil			X	X								
	B22-128-Cell 4	6/13/17	930	1	Soil			X	X								

Relinquished by:	[signature]	Date/Time:	6/13/17 1030	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:	Pam Calmes	Date/Time:	6/13/17 1255	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:		[signature]		

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

Andrea Castillo <amc@caslabs.net>

Waste Samples 6.13.17 - Additional Analysis

Nicholas Kurtz <nkurtz@armgroup.net> Tue, Jun 13, 2017 at 1:32 PM
To: Andrea Castillo <amc@caslabs.net>

Andrea,

Per our phone call a moment ago, please add the following analysis to the COCs submitted today:

For the A3 Redevelopment samples (RW-003 Cell 3/4), please **ADD** the following analysis:

- TCLP VOCs
- TCLP SVOCs

For the B6-1 Redevelopment samples (B22-128 Cell 3/4), please **ADD** the following analysis:

- DRO
- Oil & Grease

Please let me know if you have enough soil to complete the additional analysis and if the 24 hour TAT request will be effected. If the TAT will be longer, please indicate what it will be.

Thanks,

Nick Kurtz
Project Scientist I

ARM Group Inc.

ARM Group Inc.
9175 Guilford Road
Suite 310
Columbia, MD 21046
Phone: 410-290-7775 x2015
Cell: 443-721-7428

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Certificate of Analysis

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

Date Received: 06/19/17 12:30
Date Issued: 06/20/17

Project: B6-1 Redevelopment
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17061901

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011-Cell 6	**Matrix: Soil**			**Date Sampled: 06/19/17 9:30**			**Lab ID: 17061901-01**	
Percent Solids								
Percent Solids	**93**	%			SM2540G	06/19/17	06/20/17 11:07	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
Aroclor 1221	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
Aroclor 1232	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
Aroclor 1242	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
Aroclor 1248	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
Aroclor 1254	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
Aroclor 1260	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 11:29	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:30	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/20/17	06/20/17 13:30	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/20/17	06/20/17 13:30	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:30	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:30	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/20/17	06/20/17 13:30	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/20/17	06/20/17 13:30	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:30	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**170**	mg/kg	21		EPA 8015C	06/19/17	06/20/17 13:11	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**760**	mg/kg	27		EPA 9071B	06/19/17	06/20/17 16:17	AC

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 Received: 06/19/17 12:30
Date Issued: 06/20/17

Project: B6-1 Redevelopment
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17061901

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011-Cell 7	**Matrix: Soil**		**Date Sampled: 06/19/17 9:45**				**Lab ID: 17061901-02**	
Percent Solids								
Percent Solids	**81**	%			SM2540G	06/19/17	06/20/17 11:07	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
Aroclor 1221	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
Aroclor 1232	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
Aroclor 1242	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
Aroclor 1248	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
Aroclor 1254	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
Aroclor 1260	ND	mg/kg	0.07	50	EPA 8082	06/19/17	06/20/17 11:58	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:36	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/20/17	06/20/17 13:36	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/20/17	06/20/17 13:36	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:36	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:36	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/20/17	06/20/17 13:36	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/20/17	06/20/17 13:36	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:36	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**3,900**	mg/kg	23		EPA 8015C	06/19/17	06/20/17 13:50	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**12,000**	mg/kg	31		EPA 9071B	06/19/17	06/20/17 16:17	AC

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Certificate of Analysis

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

Date Received: 06/19/17 12:30
Date Issued: 06/20/17

Project: B6-1 Redevelopment
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17061901

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011-Cell 5	**Matrix: Soil**			**Date Sampled: 06/19/17 9:15**			**Lab ID: 17061901-03**	
Percent Solids								
Percent Solids	**96**	%			SM2540G	06/19/17	06/20/17 11:07	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
Aroclor 1221	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
Aroclor 1232	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
Aroclor 1242	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
Aroclor 1248	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
Aroclor 1254	**0.13**	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
Aroclor 1260	ND	mg/kg	0.05	50	EPA 8082	06/19/17	06/20/17 12:26	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:41	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/20/17	06/20/17 13:41	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/20/17	06/20/17 13:41	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:41	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:41	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/20/17	06/20/17 13:41	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/20/17	06/20/17 13:41	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/20/17	06/20/17 13:41	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**1,900**	mg/kg	45		EPA 8015C	06/19/17	06/20/17 13:50	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**17,000**	mg/kg	26		EPA 9071B	06/19/17	06/20/17 16:17	AC

Approved by: Matt Cohen
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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Fax: 410.825.2126
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Chain of Custody Record

Customer:	EA6
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	B6-1 Redevelopment
Project Number:	160443M-6-4
Site Location:	Sparrows Point, MD

SDG Number:	17061901
Sampled by:	MAR
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Preservative / Matrix *	TCLP metals	PCBs 8082	O+G	DRO							Sampling Remarks/ Comments
	B6-011-cell 6	6/19/17	930	1	S	1	1	1	1							
	B6-011-cell 7	6/19/17	945	1	S	1	1	1	1							
	B22-128-cell 5	6/19/17	915	1	S	1	1	1	1							

Relinquished by:	[signature]	Date/Time:	6/19/17 10:15	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:	[signature]	Date/Time:	6/19/17 1230	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		

* 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: 06/20/17 9:00
Date Received: 06/20/17 13:20
Date Issued: 06/21/17

Project: B6-1 Redevelopment B6-011 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17062005

Field Sample ID: B6-011-Cell 8 **Matrix: Soil** **Lab ID: 17062005-01**

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Percent Solids							
Percent Solids	**82**	%		SM2540G	06/20/17	06/21/17 10:44	MEL
Polychlorinated Biphenyls							
Aroclor 1016	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
Aroclor 1221	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
Aroclor 1232	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
Aroclor 1242	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
Aroclor 1248	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
Aroclor 1254	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
Aroclor 1260	ND	mg/kg	0.056	EPA 8082	06/20/17	06/20/17 17:45	AC
TCLP Metals							
Arsenic	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 12:48	MEL
Barium	ND	mg/L	10	1311/6020A	06/21/17	06/21/17 12:48	MEL
Cadmium	ND	mg/L	0.1	1311/6020A	06/21/17	06/21/17 12:48	MEL
Chromium	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 12:48	MEL
Lead	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 12:48	MEL
Mercury	ND	mg/L	0.02	1311/6020A	06/21/17	06/21/17 12:48	MEL
Selenium	ND	mg/L	0.1	1311/6020A	06/21/17	06/21/17 12:48	MEL
Silver	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 12:48	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO							
Diesel Range Organics	**23**	mg/kg	12	EPA 8015C	06/20/17	06/21/17 15:07	AC
TPH & Oil and Grease - HEM							
TPH & Oil & Grease	**49**	mg/kg	30	EPA 9071B	06/20/17	06/21/17 16:00	AC

Notes/Qualifiers:
LLQ - Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
Results reported on a dry weight basis.

Approved by:

QC Chemist

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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: 06/20/17 9:15
Date Received: 06/20/17 13:20
Date Issued: 06/21/17

Project: B6-1 Redevelopment B6-011 Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17062005

Field Sample ID: B6-011-Cell 9 **Matrix: Soil** **Lab ID: 17062005-02**

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Percent Solids							
Percent Solids	**84**	%		SM2540G	06/20/17	06/21/17 10:44	MEL
Polychlorinated Biphenyls							
Aroclor 1016	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
Aroclor 1221	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
Aroclor 1232	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
Aroclor 1242	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
Aroclor 1248	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
Aroclor 1254	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
Aroclor 1260	ND	mg/kg	0.061	EPA 8082	06/20/17	06/21/17 9:26	AC
TCLP Metals							
Arsenic	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 13:16	MEL
Barium	ND	mg/L	10	1311/6020A	06/21/17	06/21/17 13:16	MEL
Cadmium	ND	mg/L	0.1	1311/6020A	06/21/17	06/21/17 13:16	MEL
Chromium	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 13:16	MEL
Lead	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 13:16	MEL
Mercury	ND	mg/L	0.02	1311/6020A	06/21/17	06/21/17 13:16	MEL
Selenium	ND	mg/L	0.1	1311/6020A	06/21/17	06/21/17 13:16	MEL
Silver	ND	mg/L	0.5	1311/6020A	06/21/17	06/21/17 13:16	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO							
Diesel Range Organics	**2,700**	mg/kg	12	EPA 8015C	06/20/17	06/21/17 15:45	AC
TPH & Oil and Grease - HEM							
TPH & Oil & Grease	**2,900**	mg/kg	30	EPA 9071B	06/20/17	06/21/17 16:00	AC

Notes/Qualifiers:
LLQ - Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.
Results reported on a dry weight basis.

Approved by: Matt Osher
QC Chemist

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CALIBER ANALYTICAL SERVICES

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Chain of Custody Record

Customer:	EA G
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	B6-1 Redevelopment B6-011 excav.
Project Number:	160443M-6-4
Site Location:	Sparrows Point, MD

SDG Number:	17062605
Sampled by:	MAR
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Preservative / Matrix *	TCLP metals	PCBs 8082	O + G	DRO							Sampling Remarks/ Comments
	B6-011 - cell 8	6/20/17	900	1	S	1	1	1	1							
	B6-011 - cell 9	6/20/17	915	1	S	1	1	1	1							

Relinquished by:	Mike Ryan	Date/Time:	6/20/17 1000	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:	Pam Chee	Date/Time:	6/20/17 120	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		

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

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Certificate of Analysis

EnviroAnalytics Group, LLC
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Date Received: 06/23/17 11:22
Date Issued: 06/26/17

Project: Parcel B6-1 Redevelopment B6-Oil Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4
SDG Number: 17062304

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011- Cell 10	**Matrix: Soil**			**Date Sampled: 06/22/17 8:45**			**Lab ID: 17062304-01**	
Percent Solids								
Percent Solids	**86**	%			SM2540G	06/23/17	06/26/17 16:05	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
Aroclor 1221	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
Aroclor 1232	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
Aroclor 1242	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
Aroclor 1248	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
Aroclor 1254	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
Aroclor 1260	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:29	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:49	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/26/17	06/26/17 12:49	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 12:49	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:49	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:49	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/26/17	06/26/17 12:49	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 12:49	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:49	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**770**	mg/kg	12		EPA 8015C	06/23/17	06/26/17 14:04	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**3,000**	mg/kg	29		EPA 9071B	06/26/17	06/26/17 16:34	AC

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Date Received: 06/23/17 11:22
Date Issued: 06/26/17

Project: Parcel B6-1 Redevelopment B6-Oil Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4
SDG Number: 17062304

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011- Cell 11	**Matrix: Soil**			**Date Sampled: 06/22/17 9:00**			**Lab ID: 17062304-02**	
Percent Solids								
Percent Solids	**79**	%			SM2540G	06/23/17	06/26/17 16:05	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
Aroclor 1221	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
Aroclor 1232	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
Aroclor 1242	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
Aroclor 1248	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
Aroclor 1254	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
Aroclor 1260	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 13:58	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:55	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/26/17	06/26/17 12:55	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 12:55	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:55	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:55	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/26/17	06/26/17 12:55	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 12:55	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 12:55	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**22**	mg/kg	12		EPA 8015C	06/23/17	06/26/17 14:42	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	ND	mg/kg	31		EPA 9071B	06/26/17	06/26/17 16:34	AC

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Certificate of Analysis

EnviroAnalytics Group, LLC
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St. Louis, MO 63131

Date Received: 06/23/17 11:22
Date Issued: 06/26/17

Project: Parcel B6-1 Redevelopment B6-Oil Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17062304

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011- Cell 12	**Matrix: Soil**		**Date Sampled: 06/22/17 9:15**				**Lab ID: 17062304-03**	
Percent Solids								
Percent Solids	**84**	%			SM2540G	06/23/17	06/26/17 16:05	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
Aroclor 1221	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
Aroclor 1232	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
Aroclor 1242	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
Aroclor 1248	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
Aroclor 1254	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
Aroclor 1260	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 14:26	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:01	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/26/17	06/26/17 13:01	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 13:01	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:01	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:01	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/26/17	06/26/17 13:01	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 13:01	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:01	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**34**	mg/kg	12		EPA 8015C	06/23/17	06/26/17 14:42	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**82**	mg/kg	30		EPA 9071B	06/26/17	06/26/17 16:35	AC

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 Cohen
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:	EA G
Contact/Report to:	James Calenola
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	Parcel B6-1 Redevelopment B6-011 Recovery
Project Number:	160443/M-6-4
Site Location:	Sparrows Point, MD

SDG Number:	17062304
Sampled by:	MAR
PO Number:	

Page ____ of ____

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Preservative / Matrix *	TAL metals	PCBs 8082	DRO	DRO							Sampling Remarks/ Comments
	B6-011-cell 10	6/22/17	845	1	S	1	1	1	1							
	B6-011-cell 11	6/22/17	900	1	S	1	1	1	1							
	B6-011-cell 12	6/22/17	915	1	S	1	1	1	1							

Relinquished by:	[signature]	Date/Time:	6/22/17 1015	Deliverables:	Receipt Temperature:
Received by:	Pam Chue	Date/Time:	6/23/17 1122	I II III CLP EDD	Temp:____ On Ice
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:		[signature]	

Turnaround Time: STD Next Day 2-Day Other____

* 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 Received: 06/23/17 11:22
Date Issued: 06/26/17

Project: Parcel B6-1 Redevelopment B6-Oil Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4
SDG Number: 17062305

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011- Cell 13	**Matrix: Soil**		**Date Sampled: 06/23/17 8:15**				**Lab ID: 17062305-01**	
Percent Solids								
Percent Solids	**80**	%			SM2540G	06/23/17	06/26/17 16:05	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
Aroclor 1221	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
Aroclor 1232	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
Aroclor 1242	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
Aroclor 1248	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
Aroclor 1254	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
Aroclor 1260	ND	mg/kg	0.07	50	EPA 8082	06/23/17	06/26/17 14:55	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:06	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/26/17	06/26/17 13:06	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 13:06	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:06	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:06	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/26/17	06/26/17 13:06	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 13:06	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:06	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**630**	mg/kg	22		EPA 8015C	06/23/17	06/26/17 15:20	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**1,700**	mg/kg	31		EPA 9071B	06/26/17	06/26/17 16:35	AC

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 Received: 06/23/17 11:22
Date Issued: 06/26/17

Project: Parcel B6-1 Redevelopment B6-Oil Excavation
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4
SDG Number: 17062305

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011- Cell 14	**Matrix: Soil**		**Date Sampled: 06/23/17 8:30**				**Lab ID: 17062305-02**	
Percent Solids								
Percent Solids	**85**	%			SM2540G	06/23/17	06/26/17 16:05	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
Aroclor 1221	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
Aroclor 1232	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
Aroclor 1242	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
Aroclor 1248	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
Aroclor 1254	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
Aroclor 1260	ND	mg/kg	0.06	50	EPA 8082	06/23/17	06/26/17 15:24	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:12	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/26/17	06/26/17 13:12	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 13:12	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:12	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:12	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/26/17	06/26/17 13:12	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/26/17	06/26/17 13:12	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/26/17	06/26/17 13:12	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**200**	mg/kg	12		EPA 8015C	06/23/17	06/26/17 15:20	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**1,300**	mg/kg	29		EPA 9071B	06/26/17	06/26/17 16:35	AC

Approved by: Matt Cohen
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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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:	EAG
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	B6-1 Redevelopment - B6-011 excav.
Project Number:	160443M-6-4
Site Location:	Sparrows Point, MD

SDG Number:	17062305
Sampled by:	MAR
PO Number:	

Page____ of ____

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	TCLP metals	PCBs 8082	O+G	DRO							Sampling Remarks/ Comments
	B6-011-cell 13	6/23/17	815	1	S		X	X	X	X							
	B6-011-cell 14	6/23/17	830	1	S		X	X	X	X							

Relinquished by:	[signature]	Date/Time:	6/23/17 945
Received by:	Pam Cake	Date/Time:	6/23/17 1122
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 (circled)

Turnaround Time: STD Next Day (circled) 2-Day Other____

Custody Seals: Sample Cooler Delivered by client — CAS

Comments/Special Instructions:

* 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: 06/27/17 9:40
Date Received: 06/27/17 11:22
Date Issued: 06/28/17

Project: Parcel B6-1 Redevelopment
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17062703

Field Sample ID: B6-011- Cell 15 Matrix: Soil Lab ID: 17062703-01

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids								
Percent Solids	**84**	%			SM2540G	06/27/17	06/27/17 16:25	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
Aroclor 1221	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
Aroclor 1232	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
Aroclor 1242	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
Aroclor 1248	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
Aroclor 1254	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
Aroclor 1260	ND	mg/kg	0.063	50	EPA 8082	06/27/17	06/27/17 17:16	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:24	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/28/17	06/28/17 11:24	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/28/17	06/28/17 11:24	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:24	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:24	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/28/17	06/28/17 11:24	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/28/17	06/28/17 11:24	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:24	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**870**	mg/kg	12		EPA 8015C	06/27/17	06/28/17 13:18	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**5,800**	mg/kg	30		EPA 9071B	06/27/17	06/28/17 10:04	AC

Approved by: Matt Cohen

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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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

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

Date Sampled: 06/27/17 9:45
Date Received: 06/27/17 11:22
Date Issued: 06/28/17

Project: Parcel B6-1 Redevelopment
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17062703

Field Sample ID: B6-011- Cell 16 **Matrix: Soil** **Lab ID: 17062703-02**

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Percent Solids								
Percent Solids	**85**	%			SM2540G	06/27/17	06/27/17 16:25	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
Aroclor 1221	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
Aroclor 1232	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
Aroclor 1242	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
Aroclor 1248	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
Aroclor 1254	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
Aroclor 1260	ND	mg/kg	0.059	50	EPA 8082	06/27/17	06/27/17 17:44	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:29	MEL
Barium	ND	mg/L	10	100	1311/6020A	06/28/17	06/28/17 11:29	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	06/28/17	06/28/17 11:29	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:29	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:29	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	06/28/17	06/28/17 11:29	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	06/28/17	06/28/17 11:29	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	06/28/17	06/28/17 11:29	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**480**	mg/kg	12		EPA 8015C	06/27/17	06/28/17 13:18	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**690**	mg/kg	29		EPA 9071B	06/27/17	06/28/17 10:04	AC

Approved by: Matt Ochse
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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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:	EA6
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@environanalyticsgroup.com
Project Name:	Parcel B6-1 Redevelopment
Project Number:	160443M-6-4
Site Location:	Sparrows Point, MD

SDG Number:	17062703
Sampled by:	N. Kurtz
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Preservative / Matrix *	TCLP Metals	Oil & Grease 1671	DRO 8015	PCBs 8082							Sampling Remarks/ Comments
	B6-011 Cell 15	6/27/16	940	1	Soil	X	X	X	X							
	B6-011 Cell 16	1	945	1	1	X	X	X	X							

Relinquished by:	[signature]	Date/Time:	6/27/16 1001	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:	Pam Ahee	Date/Time:	6/27/16 1122	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:				

* 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 Received: 07/05/17 12:30
Date Issued: 07/06/17

Project: Parcel B6-1 Redevelopment
Site Location: Sparrows Point, MD
Project Number: 160443M-6-4

SDG Number: 17070503

	Result	Unit	LLQ	REGL	Method	Prepared	Analyzed	Init.
Field Sample ID: B6-011- Cell 17	**Matrix: Soil**			**Date Sampled: 07/05/17 11:20**			**Lab ID: 17070503-01**	
Percent Solids								
Percent Solids	**90**	%			SM2540G	07/05/17	07/06/17 10:07	MEL
Polychlorinated Biphenyls								
Aroclor 1016	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
Aroclor 1221	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
Aroclor 1232	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
Aroclor 1242	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
Aroclor 1248	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
Aroclor 1254	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
Aroclor 1260	ND	mg/kg	0.06	50	EPA 8082	07/05/17	07/05/17 19:53	AC
TCLP Metals								
Arsenic	ND	mg/L	0.5	5	1311/6020A	07/06/17	07/06/17 13:10	MEL
Barium	ND	mg/L	10	100	1311/6020A	07/06/17	07/06/17 13:10	MEL
Cadmium	ND	mg/L	0.1	1	1311/6020A	07/06/17	07/06/17 13:10	MEL
Chromium	ND	mg/L	0.5	5	1311/6020A	07/06/17	07/06/17 13:10	MEL
Lead	ND	mg/L	0.5	5	1311/6020A	07/06/17	07/06/17 13:10	MEL
Mercury	ND	mg/L	0.02	0.2	1311/6020A	07/06/17	07/06/17 13:10	MEL
Selenium	ND	mg/L	0.1	1	1311/6020A	07/06/17	07/06/17 13:10	MEL
Silver	ND	mg/L	0.5	5	1311/6020A	07/06/17	07/06/17 13:10	MEL
Total Petroleum Hydrocarbons - (C10-C28) DRO								
Diesel Range Organics	**1,900**	mg/kg	110		EPA 8015C	07/05/17	07/06/17 14:07	AC
TPH & Oil and Grease - HEM								
TPH & Oil & Grease	**5,100**	mg/kg	28		EPA 9071B	07/05/17	07/06/17 15:39	AC

Approved by: Matt Cohen
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.

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:	EA6
Contact/Report to:	James Calenda
Phone:	314-620-3056
Fax:	

E-mail address:	jcalenda@enviroanalyticsgroup.com
Project Name:	Parcel B6-1 Redevelopment
Project Number:	160443M-6-4
Site Location:	Sparrows Point, MD

SDG Number:	17070503
Sampled by:	N. Kurtz
PO Number:	

Page 1 of 1

Analysis Requested

Lab Number	Field Sample ID	Date Sampled	Time Sampled	No. of Bottles	Matrix *	Preservative	TCLP Metals	PCBs 8082	Oil & Grease 9071	TPH-DRO 8015							Sampling Remarks/ Comments
	B6-O 11 cell 17	7/5/17	1120	1	Soil		X	X	X	X							

Relinquished by:		Date/Time:	7/5/17 1135	Deliverables:	Receipt Temperature:	Turnaround Time:
Received by:		Date/Time:	7/5/17 1135	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:				

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

ARM Group LLC
Engineers and Scientists

July 20, 2020

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

Re: Comment Response Letter:
Response Action Completion Report
B22-128 and B6-011 Response Areas
Area B: Sub-Parcel B6-1
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) is pleased to provide the following response to a comment provided by the Maryland Department of the Environment (MDE) via email on February 18, 2020 regarding the previous submission of the Response Action Completion Report (Revision 0 dated December 20, 2019) for the B22-128 and B6-011 Response Areas located on Sub-Parcel B6-1 of the Tradepoint Atlantic property located in Sparrows Point, Maryland. Based on the nature of the comment, the Response Action Completion Report is not planned to be resubmitted. The response is given below; the original comment is included in italics with the response following.

1. *The report does not clarify how the asbestos-wrapped pipe was disposed of. Could you provide details for that?*

During the excavation of the B6-011 Response Area, a pipe that appeared to be wrapped in asbestos-containing material (ACM) was discovered. The pipe was removed from the excavation, wrapped in polyethylene sheeting, and set aside. A sample of the pipe insulation was collected and sent to EMSL Analytical, Inc. to confirm whether ACM was present. The sample results indicated that the insulation surrounding the pipe did indeed contain ACM. EAG has reported that to the best of their knowledge the pipe was properly disposed of at Greys Landfill by MCM Management Corporation (MCM) in accordance with ACM disposal protocols. EAG was not able to obtain disposal records from MCM, nor were they able to visually observe the removal and disposal of the ACM pipe.

If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group LLC at 410-290-7775.

Respectfully Submitted,
ARM Group LLC

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

Eric S. Magdar, P.G.
Vice President

APPENDIX D

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS-43** Checklist Completed By **M. Cirri**

Building Location: **See 68" HSM Exhibit 2** - **Cooling Conveyor Trench**

GPS Coordinates: **N 39° 13.926; W 076° 28.163**

Sub-Grade Structure Dimensions: **275 ft x 14 ft** Sub-Grade Structure Area: **3850 ft^2**

Sub-Grade Structure Depth: **12ft** Estimated Volume: **1700 cy**

Pumping Dates: _____**10/19/15**_____

Date Sub-Grade Structure Cleared for Inspection: **11/4/15**

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): **8/25/15; 10/16/15; 10/19/15; 10/21/15; 11/4/15; 1/8/16**

Condition of Groundwater in SGS: **Oil sheen on surface; more prevalent at north end due to prevailing wind direction. Generally murky to clear moving north to south.**

Visual Inspection Observations (attach photos): **The equipment located in and/or above the Cooling Conveyor Trench was removed for either resale or salvage. The condition of the SGS's was the result of former steel mill operations and not caused by the MCM demolition of the building. There were no sumps visible; however the SGS-43 trench connects to SGS-44. Miscellaneous metal and debris observed in the SGS. Concrete walls had evidence of mild oil staining. Starting on 10/19/15 thru 10/23/15 A to Z Environmental was onsite to skim and collect for disposal surface oil film using a Vac-Truck (See Attached Documentation). Water from the SGS#43 was pumped to the existing waste water sewer system which discharges into the Tin Mill Canal and continues to the HCWWTP. Metal removed from the sub grade structure went to scrap recycling and any non-recyclable debris went to Greys Landfill in accordance with Greys Landfill Operations Manual. Backfilling began on 1/13/16 and was completed on 1/15/16 (See Century Engineering Geo-Technical Report).**

Sub-Grade Structure Sampling

Date Sampled: **8/25/15**

Chain of Custody #: **15091007** Sample #: **015-028-303** TAT: **Standard**

No. of Samples: **One (1)** (attach sample location description, sample location figure, and photos)

Media Sampled: **Combination of rainwater and groundwater infiltrating structure**

Date Results Received: **9/08/15**

Result Evaluated and QC checked by: **M. Cirri** _____

Approval for Submission to MDE by (MCM or JEI): **B. Bonnano/M. Cirri**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

MDE Review for Sub-Grade Structure Clearance

Date Analytical Results submitted to MDE: **10/28/15**

MDE Review by: _**Barbara Brown, MDE-LRP-VCP Section Head**__Response date: __**10/28/15**

MDE Approval Date: ____**11/06/15** _____

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **1/13/16**_____

Date Sub-Grade Structure Backfill Completed: **1/15/16** _____

Stockpile ID(s) for Material Used for Backfilling: **Non-metallic slag tailings – no specific Stockpile ID. (See Century Engineering Geo-Technical Report).**

Michael Cirri

From: Barbara Brown -MDE- [barbara.brown1@maryland.gov]
Sent: Friday, November 06, 2015 7:47 AM
To: Michael Cirri
Cc: Brandon Bonanno; George Perdikakis; Jennifer Sohns -MDE-
Subject: Re: REQUEST FOR APPROVAL TO BACKFILL SGS-43

Hello Mike

Based on a review of the submitted documentation you may proceed with the pit backfill for 68" SGS-43 and 44 in accordance with the MMP.

Barbara Brown
MDE Project Coordinator

On Fri, Nov 6, 2015 at 6:48 AM, Michael Cirri <mcirri@jeinc.org> wrote:

Barbara:

We are requesting the Department's approval to proceed with backfilling of SGS-43. In accordance with MMP specifications I performed inspections throughout the pump down, surface oil removal (VacTruck) and foundation walls/slab cleaning. Inspection dates: 10/16, 10/19, 10/21, 10/27 and 11/4. (See Attached Photographs)

Prior to backfilling the Department will be provided with a Stockpile Tracking Log and associated laboratory reports for material that will be used to fill SGS-43. During backfill operations Century Engineering will have a Geotech inspector on-site to test, approve and certify the work. Upon completion of backfilling JEI will prepare and submit a Sub Grade Structure Clearance Checklist.

We look forward to receiving the Department's approval to proceed.

Let me know if you have any questions.

Regards,

Mike

Michael J. Cirri

President/Chief Financial Officer

Jenkins Environmental, Inc.

8600 LaSalle Road

York Building, Suite 509

Towson, MD 21286

410.828.9888 - Phone

410.828.9899 - Fax

1.888.473.8200 - Toll Free

mcirri@jeinc.org - Email

From: Michael Cirri
Sent: Wednesday, October 28, 2015 1:23 PM
To: Barbara Brown -MDE-
Cc: Brandon Bonanno; George Perdikakis
Subject: STATUS UPDATE - 68" HSM SGS-43 & 44 CLOSURE

Barbara:

Attached is photo documentation of on-going pumping and cleaning efforts taking place in the referenced structures. In addition, I've attached Mike Vogler's approval to pump SGS Water to HCWWTP. Surface oil in the structures was skimmed and collected in a Vac Truck for disposal. Remaining water was pumped to HCWWTP. Metal was removed for recycling. Other debris and sludge were placed in a berm and pending test results, will be transported to Grey's Landfill. Workers are getting the bottom of the structures "shovel clean', some surficial oil stains will remain on the concrete walls but pose no detrimental impacts to the environment once the structures have been backfill and closed.

We will be making our formal backfill request in accordance with the MMP shortly. Let me know is you have any questions regarding the clean-up efforts to date.

Regards,

Mike

Michael J. Cirri

President/Chief Financial Officer

Jenkins Environmental, Inc.

8600 LaSalle Road

York Building, Suite 509

Towson, MD 21286

410.828.9888 - Phone

410.828.9899 - Fax

1.888.473.8200 - Toll Free

mcirri@jeinc.org - Email

--

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

Certification Statement

I hereby certify that I am familiar with the Sparrows Point Terminal Property and that I or my agents, (M.J. Cirri/J.C. Cirri) have visited and examined Sub-grade Structures (SGS) closure sites at the Sparrows Point Terminal facility located in Baltimore County, Maryland. I certify this Closure Report has been prepared in accordance with good practices, including consideration of applicable industry standards and that information provided by MCM Management Corporation in relation to matters of waste disposal is reliable. Furthermore, I certify that procedures for required inspections and testing have been established by MCM requirements and that the Sub grade Structure Backfill Report is in conformance with the terms of the Enhanced Scope of Work (9/09/14) and done in a sound professional manner.

By: _____

C. William Ruth, P.E.
Jenkins Environmental, Inc.

Date: 2/04/16

By: _____

Michael J. Cirri, President
Jenkins Environmental, Inc.

Date: 2/4/16

Authorization Certificate

for Sub Grade Structure Pumping

Authorization Certificate
for
Sub Grade Structure (SGS) Pumping

On 10/19 (Month/Day) 2015, Mike Vogler, Sr. VP Operations (Name/Print), an authorized representative of SPT (Company Name) reviewed laboratory Certificates of Analysis for Sample 015-028-303 collected from SGS(s) No.(s) 43 and conducted a visual inspection of the referenced structures. The laboratory test results and associated inspection find the water acceptable for pumping to the Humphrey's Creek Waste Water Treatment Plant.

Pumping Authorization Granted by:

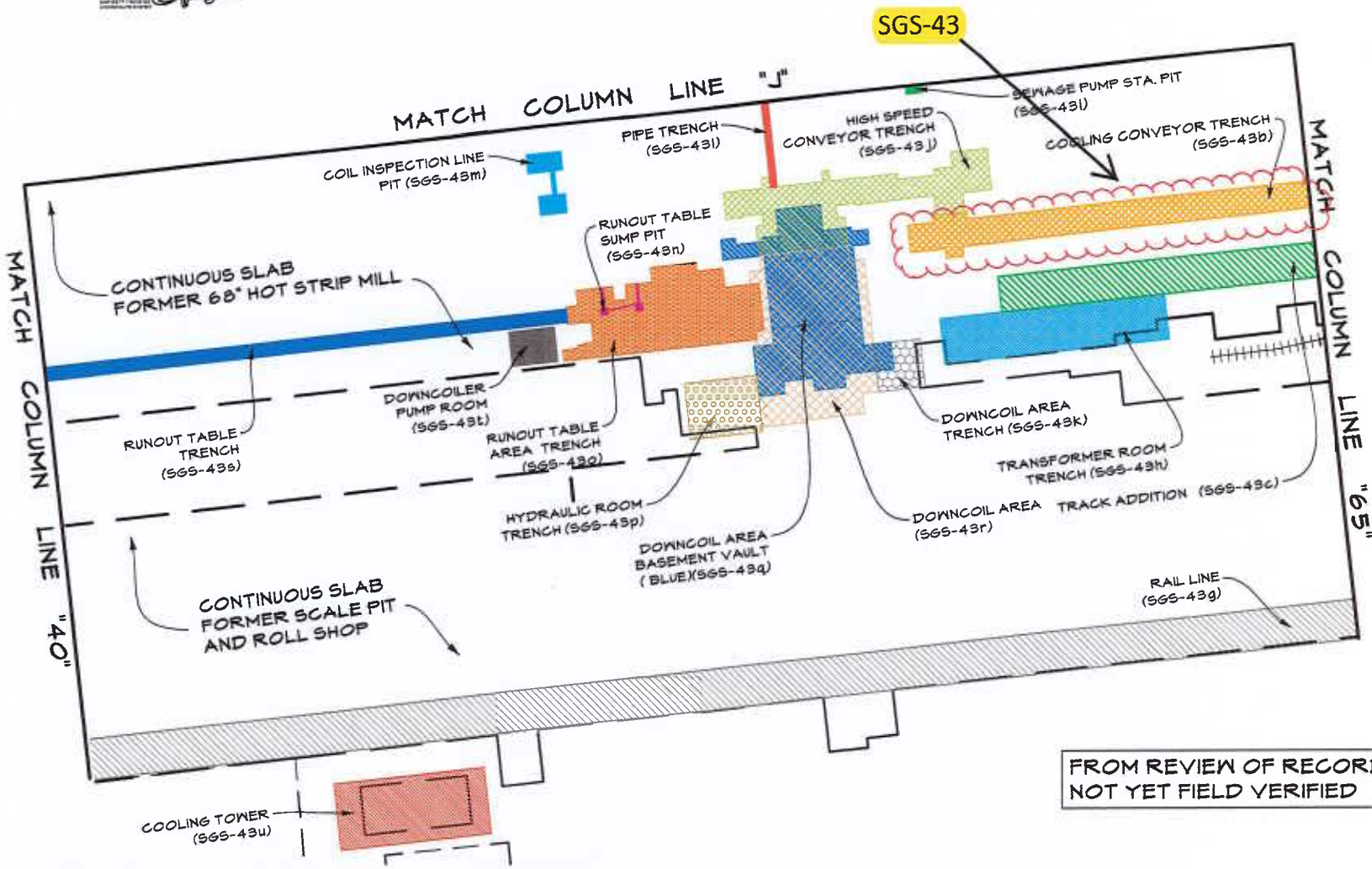
M. Vogler (Signature) | V.P. Operations (Title) | 10/19/15 (Date)

Witnessed by:

Michael J Cini (Signature) | JEI (Company) | 10/19/15 (Date)

JENKINS ENVIRONMENTAL, INC.

8600 LaSalle Road • Suite 509 • Towson, MD 21286



FROM REVIEW OF RECORD DRAWINGS
NOT YET FIELD VERIFIED

SPARROWS POINT FACILITY

68" HOT STRIP MILL BUILDING
SUBGRADE STRUCTURE LOCATION EXHIBIT 2

Job No. 1511117.01	Scale: 1" = 50'	Date: 9-22-15	Drawn By: G.P.T.	Checked By: R.G.B.	Sheet:

MCM

JENKINS CENTURY ENGINEERING

PLAN

SCALE: 1" = 50'

0 50' 100'

CALIBER ANALYTICAL SERVICES

Certificate of Analysis

Jenkins Environmental, Inc.
8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 08/25/15 10:21
Date Received: 08/26/15 11:08
Date Issued: 09/08/15

Project: HSM - Sparrows PT
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15082602

Field Sample ID: 015-028-303 **Matrix:** Water **Lab ID:** 15082602-01

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Polychlorinated Biphenyls							
Aroclor 1016	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Aroclor 1221	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Aroclor 1232	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Aroclor 1242	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Aroclor 1248	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Aroclor 1254	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Aroclor 1260	ND	mg/kg	2.4	EPA 8082	08/27/15	08/28/15 17:33	AC
Product Identification							
Product ID Motor/Hydraulic oil				EPA 8015C	08/27/15	08/29/15 0:30	AC
Target Compound List - SEMIVOLATILES							
Phenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Bis (2-chloroethyl) ether	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2-Chlorophenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2-Methylphenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Bis (2-chloroisopropyl) ether	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Acetophenone	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Methylphenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
N-Nitroso-di-n-propylamine	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Hexachloroethane	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Nitrobenzene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Isophorone	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2-Nitrophenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2,4-Dimethylphenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Bis (2-chloroethoxy) methane	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2,4-Dichlorophenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Naphthalene`	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Chloroaniline	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Hexachlorobutadiene`	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Caprolactam	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Chloro-3-methylphenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2-Methylnaphthalene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Hexachlorocyclopentadiene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2,4,6-Trichlorophenol	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2,4,5-Trichlorophenol	ND	ug/L	140	EPA 8270C	09/02/15	09/03/15 21:40	GFH
1,1-Biphenyl	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2-Chloronaphthalene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2-Nitroaniline	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Dimethyl phthalate	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH

8851 Orchard Tree Lane Towson, Maryland 21286
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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

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York Building, Suite 509
Towson, MD 21286

Date Sampled: 08/25/15 10:21
Date Received: 08/26/15 11:08
Date Issued: 09/08/15

Project: HSM - Sparrows PT
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15082602

Field Sample ID: 015-028-303 **Matrix:** Water **Lab ID:** 15082602-01

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Target Compound List - SEMIVOLATILES							
2,6-Dinitrotoluene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Acenaphthylene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
3-Nitroaniline	ND	ug/L	140	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Acenaphthene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2,4-Dinitrophenol	ND	ug/L	140	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Nitrophenol	ND	ug/L	140	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Dibenzofuran	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
2,4-Dinitrotoluene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Diethyl phthalate	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Fluorene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Chlorophenyl phenyl ether	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Nitroaniline	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4,6-Dinitro-2-methylphenol	ND	ug/L	140	EPA 8270C	09/02/15	09/03/15 21:40	GFH
N-Nitrosodiphenylamine	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
4-Bromophenyl phenyl ether	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Hexachlorobenzene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Atrazine	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Pentachlorophenol	ND	ug/L	140	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Phenanthrene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Anthracene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Carbazole	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Di-n-butyl phthalate	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Fluoranthene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Pyrene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Butyl benzyl phthalate	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
3,3-Dichlorobenzidine	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Benzo[a]anthracene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Chrysene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Bis (2-ethylhexyl) phthalate	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Di-n-octyl phthalate	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Benzo[b]fluoranthene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Benzo[k]fluoranthene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Benzo[a]pyrene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Indeno[1,2,3-cd]pyrene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Dibenz[a,h]anthracene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Benzo[g,h,i]perylene	ND	ug/L	57	EPA 8270C	09/02/15	09/03/15 21:40	GFH
Target Compound List - VOLATILES							
Dichlorodifluoromethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH

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Date Sampled: 08/25/15 10:21
Date Received: 08/26/15 11:08
Date Issued: 09/08/15

Project: HSM - Sparrows PT
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15082602

Field Sample ID: 015-028-303 **Matrix:** Water **Lab ID:** 15082602-01

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Target Compound List - VOLATILES							
Chloromethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Vinyl chloride	ND	ug/L	10	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Bromomethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Chloroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Trichlorofluoromethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,1-Dichloroethene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,1,2-Trichlorotrifluoroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Acetone	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Carbon disulfide	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Methyl acetate	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Methylene chloride	ND	ug/L	150	EPA 8260B	08/27/15	08/28/15 0:05	GFH
trans-1,2-Dichloroethene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Methyl t-butyl ether (MTBE)	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,1-Dichloroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
cis-1,2-Dichloroethene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
2-Butanone (MEK)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Chloroform	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,1,1-Trichloroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Cyclohexane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Carbon tetrachloride	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Benzene	ND	ug/L	10	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,2-Dichloroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Trichloroethene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Methylcyclohexane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,2-Dichloropropane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Bromodichloromethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
cis-1,3-Dichloropropene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
4-Methyl-2-pentanone (MIBK)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Toluene	ND	ug/L	10	EPA 8260B	08/27/15	08/28/15 0:05	GFH
trans-1,3-Dichloropropene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,1,2-Trichloroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Tetrachloroethene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
2-Hexanone (MBK)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Dibromochloromethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,2-Dibromoethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Chlorobenzene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Ethylbenzene	ND	ug/L	10	EPA 8260B	08/27/15	08/28/15 0:05	GFH
m&p-Xylene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	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

Jenkins Environmental, Inc.
8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 08/25/15 10:21
Date Received: 08/26/15 11:08
Date Issued: 09/08/15

Project: HSM - Sparrows PT
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15082602

Field Sample ID: 015-028-303 **Matrix:** Water **Lab ID:** 15082602-01

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Target Compound List - VOLATILES							
o-Xylene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Styrene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Bromoform	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Isopropylbenzene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,1,2,2-Tetrachloroethane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,3-Dichlorobenzene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,4-Dichlorobenzene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,2-Dichlorobenzene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,2-Dibromo-3-chloropropane	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
1,2,4-Trichlorobenzene	ND	ug/L	50	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Naphthalene	ND	ug/L	100	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Ethyl t-butyl ether (ETBE)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
tert-Butanol (TBA)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Diisopropyl ether (DIPE)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
tert-Amyl methyl ether (TAME)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
tert-Amyl alcohol (TAA)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
tert-Amyl ethyl ether (TAEE)	ND	ug/L	250	EPA 8260B	08/27/15	08/28/15 0:05	GFH
Total Metals							
Aluminum	ND	ug/L	50	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Antimony	7.2	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Arsenic	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Barium	48	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Beryllium	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Cadmium	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Calcium	59,000	ug/L	1000	EPA 6020A	08/31/15	08/31/15 12:59	MEL
Chromium	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Cobalt	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Copper	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Iron	6,400	ug/L	1000	EPA 6020A	08/31/15	08/31/15 12:59	MEL
Lead	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Magnesium	10,000	ug/L	1000	EPA 6020A	08/31/15	08/31/15 12:59	MEL
Manganese	1,100	ug/L	50	EPA 6020A	08/31/15	08/31/15 12:59	MEL
Mercury	ND	ug/L	1	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Nickel	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Potassium	17,000	ug/L	1000	EPA 6020A	08/31/15	08/31/15 12:59	MEL
Selenium	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Silver	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Sodium	29,000	ug/L	1000	EPA 6020A	08/31/15	08/31/15 12:59	MEL

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Date Sampled: 08/25/15 10:21
Date Received: 08/26/15 11:08
Date Issued: 09/08/15

Project: HSM - Sparrows PT
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15082602

Field Sample ID: 015-028-303 **Matrix:** Water **Lab ID:** 15082602-01

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Total Metals							
Thallium	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Vanadium	ND	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL
Zinc	26	ug/L	5	EPA 6020A	08/31/15	08/31/15 14:04	MEL

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.

Approved by: Matt Osher
QC Chemist

8851 Orchard Tree Lane Towson, Maryland 21286
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CALIBER ANALYTICAL SERVICES

Certificate of Analysis

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8600 LaSalle Road
York Building, Suite 509
Towson, MD 21286

Date Sampled: 08/25/15 10:21
Date Received: 08/26/15 11:08
Date Issued: 09/08/15

Project: HSM - Sparrows PT
Site Location: Sparrows PT, MD
Project Number: 2015-028

SDG Number: 15082602

Field Sample ID: 015-028-303 **Matrix:** Oil **Lab ID:** 15082602-04

	Result	Unit	LLQ	Method	Prepared	Analyzed	Init.
Total Metals							
Aluminum	60	mg/kg	42	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Antimony	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Arsenic	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Barium	7.0	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Beryllium	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Cadmium	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Calcium	650	mg/kg	83	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Chromium	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Cobalt	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Copper	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Iron	1,700	mg/kg	83	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Lead	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Magnesium	ND	mg/kg	83	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Manganese	35	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Mercury	ND	mg/kg	1.7	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Nickel	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Potassium	ND	mg/kg	83	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Selenium	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Silver	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Sodium	300	mg/kg	83	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Thallium	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Vanadium	ND	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL
Zinc	7.8	mg/kg	4.2	EPA 6020A	08/27/15	08/31/15 12:47	MEL

Notes/Qualifiers:
LLQ- Lowest Level of Quantitation
ND - Not Detected at a concentration greater than or equal to the LLQ.

Approved by: Matt Cohen
QC Chemist

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

Non-Hazardous Waste Disposal Doucmentation

A2Z ENVIRONMENTAL GROUP, LLC
OFFICE: 410-679-8877 FAX: 410-679-1308
FEIN: 52-2008446
250 S. KRESSON STREET

Invoice

DATE	INVOICE #
10/23/2015	151454

BILL TO	SITE
MCM 1430 SPARROWS POINT BLVD SPARROWS POINT, MD 21219 ATTN: BRANDON BONANO	1430 SPARROWS POINT SPARROWS POINT, MD 21219

P.O. NO.	TERMS
	NET 30 DAYS

DESCRIPTION		QTY	U/M	RATE	AMOUNT
PROVIDE VACUUM TRUCK SERVICES FOR HOT STRIP PITS					
10-19-2015					
VACUUM TRUCK AND OPERATOR, J LACY	ST	8.5		125.00	1,062.50
VACUUM TRUCK AND OPERATOR, J LACY	OT	2.5		150.00	375.00
DISPOSAL PER GALLON		238		0.60	142.80
10-20-2015					
VACUUM TRUCK AND OPERATOR, J LACY	ST	8.5		125.00	1,062.50
VACUUM TRUCK AND OPERATOR, J LACY	OT	2.5		150.00	375.00
DISPOSAL PER GALLON		433		0.60	259.80
10-21-2015					
VACUUM TRUCK AND OPERATOR, J LACY	ST	8.5		125.00	1,062.50
VACUUM TRUCK AND OPERATOR, J LACY	OT	2.5		150.00	375.00
DISPOSAL PER GALLON		157		0.60	94.20
10-22-2015					
VACUUM TRUCK AND OPERATOR, J LACY	ST	8.5		125.00	1,062.50
VACUUM TRUCK AND OPERATOR, J LACY	OT	2.5		150.00	375.00
DISPOSAL PER GALLON		68		0.60	40.80
10-23-2015					
VACUUM TRUCK AND OPERATOR, T MINKOSKY	ST	7.75		125.00	968.75
DISPOSAL PER GALLON		264		0.60	158.40

Please remit payment to:
A2Z Environmental Group, LLC.
250 S. Kresson St.
Baltimore, MD 21224

Total	$7,414.75
Payments/Credits	$0.00
Balance Due	$7,414.75

Phone (410) 679-8877
Fax (410)-679-1308

A2Z Environmental Group, LLC

250 South Kresson St.
Baltimore, MD 21224

Certified Payroll ☐ Yes ☒ No

Day & Date MON 10/19/15

Contact Person ED LANGLOIS

Phone 1-248-672-4941

Industrial - Commercial - Marine
24 Hour Service

Job # 9293

T & D ☐ C&G ☐
T & M ☐ Demo ☐
Contract ☒ Envir. ☒

Client MCM @ 1430 Sparrows Point Blvd

Billing Address STEEL MILL @ NORTH POINT BLVD

Baltimore MD Attn. BILLING

Job Location OLD HOT STRIP

LABOR: (S=Super, F=Foreman, E=Equip. Op., T=Field Tech.)

Title/Name	Start Time	Stop Time	ST Hrs	OT Hrs	DT Hrs
JUSTIN LACY	0700	1800	11		
DECON 1 MAN	—	—	1		

EQUIPMENT:

Type	Trk. No.	Start Time	Stop Time	Hour
VAC	206	0700	1800	11
DECON EQUIP	206	—	—	1

DISPOSAL:

Destination	Amount		Manifest #
Liquid (Bulk)	238 Gals.		101915-206 ON SITE
Estimated Solids in Bulk Load (Gals.)	Gals.		
Solid (Bulk)	Tns/Yds		
Liquid (Drums)	# of drums	Amt Gals.	
Solid (Drums)	# of drums	Amt Lbs.	
Additional Info.			
ON SITE @ 0700			

MATERIAL:

QTY	DESCRIPTION	QTY	DESCRIPTION
1	PAIR PVC GLOVES		
1	ROLL DUCT TAPE		

ANALYSIS:

QTY	Type	Destination

SUBCONTRACTORS:

Name of Company	Description

JOB DESCRIPTION:

LOAD Hoses + Equip for Transport.
Transport Equip To + From Job
Vacuum oily water @ Hot Strip
Pump on Site
Repeat until complete

Job Completed ☐ Yes ☒ No

Signature [signature]

Date MON 10/19/15

Customer: MCM (Company Name)

By: [signature] Signature

ED LANGLOIS Print Name

Title

Date: MON 10/19/15

IMPORTANT - PAYMENT TERMS ON BACK

White - Supervisor Copy • Yellow - Customer Copy • Pink - Folder

NON-HAZARDOUS WASTE MANIFEST

9943 Q

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N/A

Manifest Document No. 101915-206

2. Page 1 of 1

GENERATOR

3. Generator's Name and Mailing Address: MCM @ RG Steel North Point Blvd Balto. MD / MCM 35980 Woodward Ave Bloomfield Hills MI 48304

Justin Lacy (Transport)

Ed Langlois (Contact)

4. Generator's Phone (248) 672-4141

5. Transporter 1 Company Name: A&Z Enviro Group

6. US EPA ID Number: N/A

A. State Transporter's ID

B. Transporter 1 Phone 410-207-1014

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: A&Z Enviro Group 250 S Kresson St Balto MD 21224

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone 410-675-8833

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
Non Haz Liquid Sump Removal				
a. Oily sludge, grease, water	1	TT	238	G
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

24 HR Emergency 1-800-207-7325

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Ed Langlois	[signature]	10	19	15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Justin Lacy	[signature]	10	19	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

Phone (410) 679-8877
Fax (410)-679-1308

A2Z Environmental Group, LLC

250 South Kresson St.
Baltimore, MD 21224

Certified Payroll ☐ Yes ☒ No

Day & Date Tues 10/20/15

Contact Person ED LANGLOIS

Phone 1-248-672-4241

Industrial - Commercial - Marine
24 Hour Service

Job # 2293

T & D ☐ C&G ☐
T & M ☐ Demo ☐
Contract ☐ Envir. ☒

Client MCM

Billing Address 35980 WOODWARD AVE

Bloomfield Hills MI 48304 Attn. Billing

Job Location Sparrows Point Steel Mill
1/30 Sparrows Point Bldg
Sparrows Point MD

LABOR: (S=Super, F=Foreman, E=Equip. Op., T=Field Tech.)

Title/Name	Start Time	Stop Time	ST Hrs	OT Hrs	DT Hrs
Justin Lacy	0700	1800	11		
Decon	—		1		

EQUIPMENT:

Type	Trk. No.	Start Time	Stop Time	Hour
VAC	20	0700	1800	11
Decon	- 20	—	—	1

DISPOSAL:

Destination			Manifest #
	Amount		
Liquid (Bulk)	433 Gals.		102015-20
Estimated Solids in Bulk Load (Gals.)	Gals.		
Solid (Bulk)	Tns/Yds		
Liquid (Drums)	# of drums	Amt Gals.	
Solid (Drums)	# of drums	Amt Lbs.	
Additional Info.			

MATERIAL:

QTY	DESCRIPTION	QTY	DESCRIPTION
1	pair pvc gloves		
1	Tyvek		
1	Roll duct tape		

ANALYSIS:

QTY	Type	Destination

JOB DESCRIPTION:

Load equip for transport
Transport equip to Fauna Job
Vacuum oily water @ Hot Strip
Pump water on site
Treatment complete
Pump sludge to site
Decon equip.

SUBCONTRACTORS:

Name of Company	Description

Job Completed ☐ Yes ☒ No

Signature

Date Tues 10/20/15

Customer: MCM
(Company Name)

By: E. Langlois
Signature

X ED LANGLOIS
Print Name

Title

Date: Tues 10/20/15

IMPORTANT - PAYMENT TERMS ON BACK

White - Supervisor Copy • Yellow - Customer Copy • Pink - Folder

Job # 2293

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE

GENERATOR

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name	6. US EPA ID Number	A. State Transporter's ID
		B. Transporter 1 Phone
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID
		D. Transporter 2 Phone
9. Designated Facility Name and Site Address	10. US EPA ID Number	E. State Facility's ID
		F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a.				
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above	H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

TRANSPORTER

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
X Ed Langlois	X			

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

Rev. 3/95

Phone (410) 679-8877
Fax (410)-679-1308

A2Z Environmental Group, LLC

250 South Kresson St.
Baltimore, MD 21224

Certified Payroll ☐ Yes ☒ No

Day & Date WED 10/21/15

Contact Person ED LANGLOIS

Phone 1-248-672-4941

Industrial - Commercial - Marine
24 Hour Service

Job # 2273

T & D ☐ C&G ☐
T & M ☐ Demo ☐
Contract ☐ Envir. ☒

Client MCM

Billing Address 35980 WOODWARD AVE.
Bloomfield Hills MI 48340 Attn. BILLING

Job Location SPARROWS POINT STEEL MILL
1430 SPARROWS POINT BLVD
SPARROWS POINT MD

LABOR: (S=Super, F=Foreman, E=Equip. Op., T=Field Tech.)

Title/Name	Start Time	Stop Time	ST Hrs	OT Hrs	DT Hrs
JUSTIN LAMY	0700	1800	11		
DECON	—		1		

EQUIPMENT:

Type	Trk. No.	Start Time	Stop Time	Hour
VAC	20	0700	1800	11
DECON	20	—	—	1

DISPOSAL:

Destination			Manifest #
	Amount		
Liquid (Bulk)	157 Gals.		102115-20
Estimated Solids in Bulk Load (Gals.)	↓ Gals.		↓
Solid (Bulk)	Tns/Yds		
Liquid (Drums)	# of drums	Amt Gals.	
Solid (Drums)	# of drums	Amt Lbs.	
Additional Info.			

MATERIAL:

QTY	DESCRIPTION	QTY	DESCRIPTION
1	PAIR PVC GLOVES		
1	ROLL DUCT TAPE		
1	TYVEK		

ANALYSIS:

QTY	Type	Destination

SUBCONTRACTORS:

Name of Company	Description

JOB DESCRIPTION:

TRANSPORT EQUIP TO / FROM JOB
VALVE — OILY WATER @ HOT STRIP
REMOVE WATER ONSITE
REPEAT UNTIL COMPLETE
REMOVE OILY GREASE & SLUDGE OFF SITE
DECON EQUIP.

Job Completed ☐ Yes ☒ No

Signature [signature]

Date WED 10/21/15

Customer: MCM (Company Name)

By: [signature] (Signature)

ED LANGLOIS (Print Name)

(Title)

Date: WED 10/21/15

IMPORTANT - PAYMENT TERMS ON BACK

White - Supervisor Copy • Yellow - Customer Copy • Pink - Folder

NP 2293

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: N/A

Manifest Document No.: 10/21/15-1

2. Page 1 of 1

3. Generator's Name and Mailing Address: MCM @ Sparrows Point Steel Mill, 1430 Sparrows Point Blvd Sparrows Pt MD

Justin Casey (Transport)

Ed Langlois (Contact)

4. Generator's Phone: (248) 692-4941

5. Transporter 1 Company Name: A&K

6. US EPA ID Number: N/A

A. State Transporter's ID

B. Transporter 1 Phone: 443-801-1616

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: A&K Environ., 250 S Kresson St, Balt, MD 21224

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone: 410-677-8877

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
Non Haz non DOT Reg.				
a. oily water, grease, sludge	1	TT	157	G
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

24 HR Emergency 1-800-207-7325

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Month	Day	Year
Ed Langlois	[signature]	10	21	15

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Justin Casey	[signature]	10	21	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
	Ed Langlois			

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR / TRANSPORTER / FACILITY

NON-HAZARDOUS WASTE

Phone (410) 679-8877
Fax (410)-679-1308

A2Z Environmental Group, LLC

250 South Kresson St.
Baltimore, MD 21224

Industrial - Commercial - Marine
24 Hour Service

Certified Payroll ☐ Yes ☒ No

T & D ☐ C&G ☐
T & M ☐ Demo ☐
Contract ☐ Envir. ☒

Day & Date ~~Wed~~ Thur 10/22/15

Contact Person ED Langlois

Phone 1-248-672-4941

Job # 2293 G

Client 3590 Woodward Ave (MCM)

Billing Address Bloomfield Hills MI 48346

Attn. Billing

Job Location Sparrows Point Steel Mill
1430 Sparrows Point Blvd
Sparrows Point MD

LABOR: (S=Super, F=Foreman, E=Equip. Op., T=Field Tech.)

Title/Name	Start Time	Stop Time	ST Hrs	OT Hrs	DT Hrs
Justin Long	0700	1800	11		
Decon	—	—	1		

EQUIPMENT:

Type	Trk. No.	Start Time	Stop Time	Hour
VAC	10	0700	1800	11
Decon		—	—	1

DISPOSAL:

Destination	Amount	Manifest #
~~Liquid (Bulk)~~	068 Gals.	102215-20
Estimated Solids in Bulk Load (Gals.)	↓ Gals.	↓
Solid (Bulk)	Tns/Yds	
Liquid (Drums)	# of drums / Amt Gals.	
Solid (Drums)	# of drums / Amt Lbs.	
Additional Info.		

MATERIAL:

QTY	DESCRIPTION	QTY	DESCRIPTION
1	pair pvc gloves		
1	Roll Duct Tape		
1	Tyvek		

ANALYSIS:

QTY	Type	Destination
	/	

SUBCONTRACTORS:

Name of Company	Description
	/

JOB DESCRIPTION:

Transport Equip to & From Job
Vacuum oily water @ Hot Strip
Remove water on site disposal
Repeat until complete
Dispose of oil/grease off site
Decon Equip.

Job Completed ☐ Yes ☒ No

Signature [signature]

Date Thur 10/22/15

Customer: MCM (Company Name)

By: X [signature] Signature

X ED LANGLOIS Print Name

Title

Date: Thur 10/22/15

IMPORTANT - PAYMENT TERMS ON BACK

White - Supervisor Copy • Yellow - Customer Copy • Pink - Folder

NON-HAZARDOUS WASTE MANIFEST

2293 P

1-248-672-4541

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. N/A	Manifest Document No. 102215-20	2. Page 1 of 1

3. Generator's Name and Mailing Address: Sparrows Point Site (1) MCM @ 1430 Sparrows Point Blvd Sparrows Point MD

Justin Lacy (Transport)

Ed Langlois (Owner)

4. Generator's Phone (248) 672-4541

5. Transporter 1 Company Name	6. US EPA ID Number	A. State Transporter's ID
A&Z	N/A	B. Transporter 1 Phone
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID
A		D. Transporter 2 Phone
9. Designated Facility Name and Site Address	10. US EPA ID Number	E. State Facility's ID
A&Z Enviro. 856 S. Kresson St. Balto. MD 21224		F. Facility's Phone

11. WASTE DESCRIPTION Non Haz Non DOT Reg	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. oily water, grease, sludge	1	TT	868	G
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

24 HR Emergency

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Ed Langlois	[signature]	10	22	15

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Justin Lacy	[signature]	10	22	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

GENERATOR / TRANSPORTER / FACILITY

NON-HAZARDOUS WASTE

Phone (410) 679-8877
Fax (410)-679-1308

A2Z Environmental Group, LLC

250 South Kresson St.
Baltimore, MD 21224

Certified Payroll ☐ Yes ☐ No

Day & Date Friday 10-23-15

Contact Person ED Langlois

Phone 248-672-4941

Industrial - Commercial - Marine
24 Hour Service

Job # 2293 R12

T & D ☐ C&G ☐
T & M ☐ Demo ☐
Contract ☐ Envir. ☒

Client MCM

Billing Address _____

Attn. _____

Job Location _____

LABOR: (S=Super, F=Foreman, E=Equip. Op., T=Field Tech.)

Title/Name	Start Time	Stop Time	ST Hrs	OT Hrs	DT Hrs
T. Minkosky	7:30 AM	2:15 pm			

EQUIPMENT:

Type	Trk. No.	Start Time	Stop Time	Hour
VAC	20	7:00 AM	2:45 pm	

DISPOSAL:

Destination			
	Amount		Manifest #
Liquid (Bulk)	264 Gals.		10-23-15-20-A
Estimated Solids in Bulk Load (Gals.)	Gals.		
Solid (Bulk)	Tns/Yds		
Liquid (Drums)	# of drums	Amt Gals.	
Solid (Drums)	# of drums	Amt Lbs.	
Additional Info.			

MATERIAL:

QTY	DESCRIPTION	QTY	DESCRIPTION
2	Ductape		

ANALYSIS:

QTY	Type	Destination

JOB DESCRIPTION:

Arrive on Site @ 7:30am. Went to Security to get pass. Waited in parkway lot for ED to take me to the work Area. VAC oil & water. Skimmed oil out of pit. Decanted water Back into pit.

SUBCONTRACTORS:

Name of Company	Description

Job Completed ☐ Yes ☒ No

Signature Thom Minkosky

Date 10-23-15

Customer: _____
(Company Name)

By: _____
Signature

Ed Langlois
Print Name

Ed. Cut
Title

Date: 10-23-15

IMPORTANT - PAYMENT TERMS ON BACK

White - Supervisor Copy • Yellow - Customer Copy • Pink - Folder

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 10231520 11

2. Page 1 of

3. Generator's Name and Mailing Address MCM
Sparrows Point, MD 21219

4. Generator's Phone (248) 672-4941

5. Transporter 1 Company Name A2Z Environmental

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 410-679-8877

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
A2Z environmental
256 S. Kierson St.
Baltimore, MD 21224

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone 410-679-8877

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. Non-haz, Not RCRA, Non DOT Regulated	1	VAC	264	Gallons
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

N/A

H. Handling Codes for Wastes Listed Above

N/A

15. Special Handling Instructions and Additional Information

24 HR Emergency Response # 410 679 8877

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Ed Langlois		10	25	15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Travis Mulvey		10	23	15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

NON-HAZARDOUS WASTE

Rev. 3/95

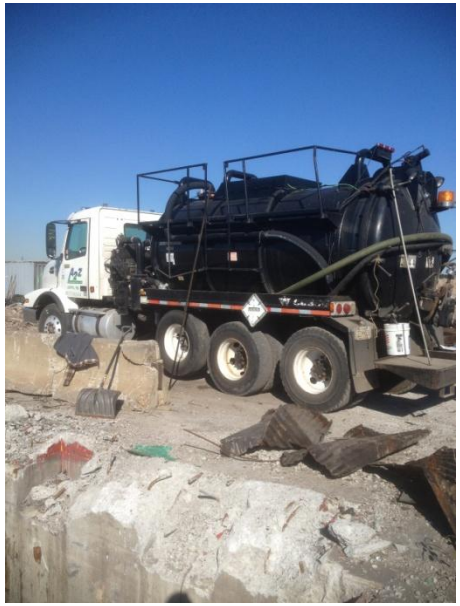
SGS-43 Decon & Backfilling

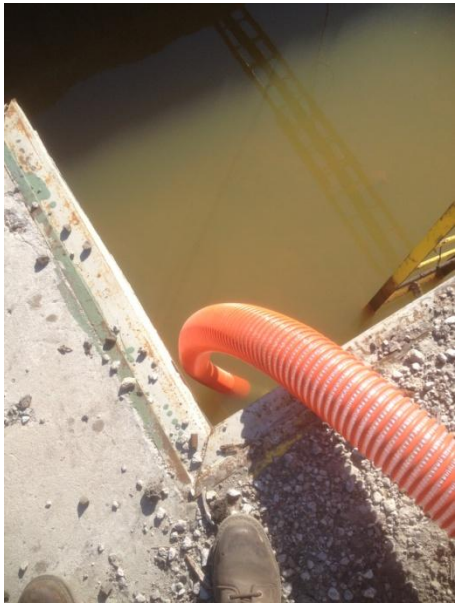
Photographic Documentation

SGS-43 PUMPING,DECON, and BACKFILLING

by : JENKINS ENVIRONMENTAL, INC.


43
10/16/2015 10:35






10/16/2015 10:35


10/16/2015 10:36


10/16/2015 10:36


SUGAR
PANTS
10/19/2015 14:20


10/19/2015 14:20


10/19/2015 14:20


10/19/2015 14:21


10/19/2015 14:40


10/19/2015 14:40


10/21/2015 08:59


10/21/2015 08:59


10/21/2015 09:01


43


11/04/2015 15:21


11/04/2015, 15:21

SGS-43 Century Engineering

Backfill & Compaction Report

February 4, 2016

MCM Management Corp.
1430 Sparrows Point Blvd.
Truck Dock 341A
Sparrows Point, Maryland 21219

Attn: Mr. Brandon Bonanno
Vice President Operations

Re: Sparrows Point Facility
Backfill Certification for SGS-43
Cooling Conveyor Trench (CEI-43b)
Sparrows Point, Maryland
CEI Project No. 151117.00

Dear Mr. Bonanno:

Century Engineering, Inc. has performed inspections and testing for the backfilling of the Cooling Conveyor Trench of SGS-43 (CEI-43b). The requirements for the backfilling were specified by the Backfill Plan we prepared that followed generally accepted practices for placing backfill that is intended to support structures such as a typical commercial or industrial building on a spread footing foundation.

The inspections and testing were performed during January 13-15, 2016 and consisted of the following:

- Performing laboratory testing on all of the backfill materials to verify compliance with the Backfill Plan.
- Visual inspection of the placement of the backfill materials to verify that such materials were placed according to the Backfill Plan and that Select Backfill was placed to the required minimum depth below finished grade.
- Inspecting the placement of the Aggregate and Conventional Backfill and performing compaction testing using a nuclear moisture-density gauge to verify that the backfill was compacted to the required minimum density (95% of the ASTM D 1557 maximum dry density).

Based on our inspections and testing, we certify that the backfilling of Cooling Conveyor Trench (CEI-43b) was accomplished in accordance with the requirements of the Backfill Plan.

Our field inspection and lab testing reports are attached. Please contact us if you have any questions or need additional information.

Very truly yours,

CENTURY ENGINEERING, INC.

Paul A. D'Amato, P.E.
Sr. Geotechnical Engineer

Personal Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 12018, Expiration 6/21/16.

CENTURY ENGINEERING

DAILY REPORT

REPORT NO: 1

PROJECT: Sparrows Point Facility – 68" HSM (SGS-43) DATE: 1/13/2016

WORK SHIFT: FROM: 8:15 am TO: 4:15 pm WEATHER: Sunny & Cold

FROM: _____ TO: _____ TEMP. 24° 12 P.M. 28° 4 P.M. 30°

WORK IN PROGRESS: (Location and Description, Equipment in Use)

- Arrived at site to inspect backfilling a portion of Subgrade Structure SGS-43.
- The SGS to be backfilled is the Cooling Conveyor Trench (CEI-43b). It consists of an open pit that has approximate dimensions of 275' length x 14' width x 8.5' depth.
- The contractor first performed demolition to make 5 holes in the bottom slab for drainage. The holes were approximately 4' x 4' and spaced at 50 foot intervals as described in the Demolition and Backfilling Plan for the Subgrade Structure. Rebar was cut-off and removed from each hole. It was noted that the bottom slab is underlain by #57 slag aggregate and that there was groundwater at the bottom of the slab.
- Access to the bottom of the pit was made by the contractor making a ramp with CR-1 type slag aggregate. The ramp material will be spread and compacted into the backfill as it is placed.
- The backfilling plan called for a layer of #57 slag aggregate to be placed over the holes and wet areas and covered with a layer of CR-6 slag aggregate. The conventional backfill was to consist of the Blast Furnace Slag Aggregate #10 tailings that we had previously sampled and tested. The MCM representative (Scott Lang) said that the #57 and CR-6 aggregates were not available. #3 and #8 slag aggregates are available. Their use as replacements was discussed with Engineer (Paul D'Amato) and were approved for use.
- The contractor completed making the holes in the slab and placed the #3 aggregate to fill the holes and as a 12" thick layer over the slab. The #3 aggregate will be covered with a layer of #8 aggregate.

COMMENTS:

INSPECTOR: Chris Jacobs

CENTURY CONTRACT NO: 151117.00

CENTURY ENGINEERING

DAILY REPORT

REPORT NO: 2

PROJECT: Sparrows Point Facility – 68" HSM (SGS-43) DATE: 1/14/2016

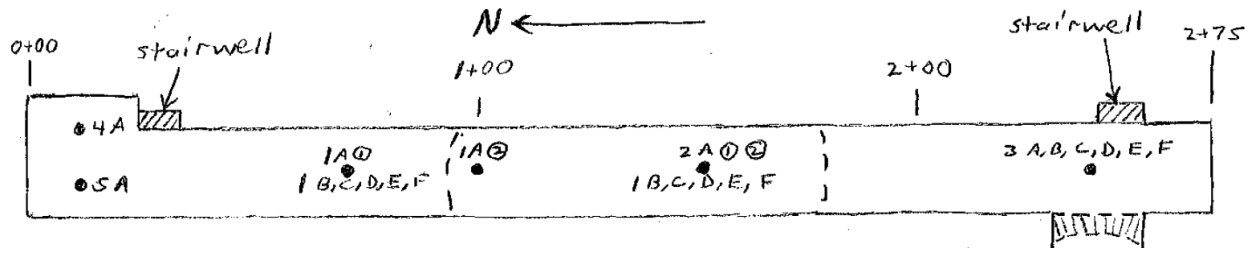
WORK SHIFT: FROM: 8:15 am TO: 5:15 pm WEATHER: Partly Cloudy

FROM: _____ TO: _____ TEMP. 25° 12 P.M. 40° 4 P.M. 46°

WORK IN PROGRESS: (Location and Description, Equipment in Use)

- Arrived at site to inspect backfilling of Cooling Conveyor Trench of Subgrade Structure SGS-43 (CEI 43b).
- The contractor placed a 12" layer of #8 slag aggregate over the #3 layer to serve as a filter course between the #3 stone and the slag tailings. The #8 stone was compacted with several passes with a vibratory drum roller.
- The contractor began placing the first lift of slag tailings at about 11:30 am. The tailings consisted of "steel slag tailing" and not the "blast furnace slag tailing" that we had previously sampled. The steel slag tailings had previously been used for SGS backfill and the contractor made available test reports that indicated that maximum dry density of 140.4 pcf and optimum moisture content of 11.0% was used for compaction testing. These numbers were believed to represent standard compaction (ASTM D 698) and not modified compaction (ASTM D 1557) as required by the CEI compaction spec. It was decided to temporarily use these compaction values and use 100% of standard compaction as being approximately equivalent to 95% of modified compaction that the spec requires. A sample of the material was obtained and brought to the lab to perform a modified compaction test. This test gave a maximum dry density of 145.0 pcf and optimum moisture of 9.5%.
- After placing the first lift of tailings, a 75 foot section was pumping because it was wet. This wet material was removed and replaced with drier material from the stockpile.
- One lift of the tailing was placed and compacted. Compaction exceeded the 95% of modified compaction that is required.

CEI-43b



COMMENTS:

INSPECTOR: **Chris Jacobs**

CENTURY CONTRACT NO: **151117.00**

CENTURY ENGINEERING, INC.

NUCLEAR DENSITY TEST DATA SHEET

PROJECT: Sparrows Point Facility- 68" Hot Strip Mill (SGS-43) Cooling Conveyor Trench (CEI-43b) DATE: 1/14/2016

CLIENT: MCM

CEI PROJECT NO.: 151117.00

GAUGE SERIAL NO.: 24148

DENSITY: 1934

MOISTURE: 605

TEST NO	1A	2A	3A	1A-2 (Re-Test)	2A-2 (Re-Test)				
LOCATION OR STATION	0+75 See Sketch	1+50 See Sketch	2+50 See Sketch	1+00 See Sketch	1+50 See Sketch				
OFFSET	CL	CL	CL	CL	CL				
ELEVATION	-5.25'	-5.25'	-5.25'	-5.25'	-5.25'				
SOURCE DEPTH	6"	6"	6"	6"	6"				
DENSITY COUNT	701	804	733	746	738				
WET DENSITY PCF	161.3	154.8	159.2	158.5	159.1				
MOISTURE COUNT	187	199	178	179	175				
MOISTURE CONTENT %	11.5	12.8	11.0	112.0	10.7				
DRY DENSITY PCF	144.7	137.2	143.4	142.5	143.7				
MAX DRY DENSITY PCF	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0				
OPT MOISTURE CONT. %	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5				
% COMPACTION REQ'D	100/95	100/95	100/95	100/95	100/95				
% COMPACTION OBTAINED	103.0/99.8 Pass	97.6/94.6 Fail	102.1/98.9 Pass	101.5/98.3 Pass	102.4/99.1 Pass				

REMARKS: %compaction shown as percent of Standard Proctor / Modified Proctor

TECHNICIAN: C.Jacobs

CLIENT'S REPRESENTATIVE:

CENTURY ENGINEERING

DAILY REPORT

REPORT NO: 3

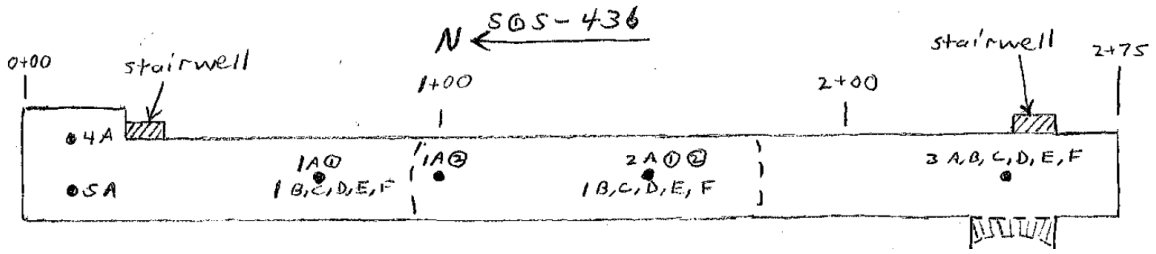
PROJECT: Sparrows Point Facility – 68" HSM (SGS-43) DATE: 1/15/2016

WORK SHIFT: FROM: 8:15 am TO: 4:45 pm WEATHER: Partly Cloudy

FROM: _____ TO: _____ TEMP. . 25° 12 P.M. 40° 4 P.M. 45°

WORK IN PROGRESS: (Location and Description, Equipment in Use)

- Arrived at site to inspect backfilling of Subgrade Structure SGS-43 (Cooling Conveyor Trench CEI-43b).
- The contractor continued to place the slag tailings and roll each lift with the vibratory drum roller.
- Continued to base the minimum compaction on 100% of the standard proctor as the lab test results for the modified proctor were not available.
- The entire pit was backfilled, but the stairwells were not filled because a small compactor was not available.
- Performed compaction testing as shown on the attached sheets. The compaction met the requirements.



COMMENTS:

INSPECTOR: Chris Jacobs

CENTURY CONTRACT NO: 151117.00

CENTURY ENGINEERING, INC.

NUCLEAR DENSITY TEST DATA SHEET

PROJECT: Sparrows Point Facility- 68" Hot Strip Mill (SGS-43) Cooling Conveyor Trench (CEI-43b) DATE: 1/15/2016

CLIENT: MCM

CEI PROJECT NO.: 151117.00

GAUGE SERIAL NO.: 24148

DENSITY: 1934

MOISTURE: 605

TEST NO	1B	2B	3B	1C	2C	3C	1D	2D	3D
LOCATION OR STATION	0+75 See Sketch	1+50 See Sketch	2+50 See Sketch	0+75 See Sketch	1+50 See Sketch	2+50 See Sketch	0+75 See Sketch	1+50 See Sketch	2+50 See Sketch
OFFSET	CL	CL	CL	CL	CL	CL	CL	CL	CL
ELEVATION	-4.5'	-4.5'	-4.5'	-3.8'	-3.8'	-3.8'	-3.0	-3.0	-3.0
SOURCE DEPTH	6"	6"	6"	6"	6"	6"	6"	6"	6"
DENSITY COUNT	751	716	743	734	776	766	713	749	731
WET DENSITY PCF	158.2	160.3	158.0	159.1	156.8	157.5	160.5	158.2	159.4
MOISTURE COUNT	192	177	192	183	181	174	185	181	177
MOISTURE CONTENT %	12.0	10.8	11.9	11.4	11.7	11.1	11.5	12.0	11.0
DRY DENSITY PCF	141.2	144.7	141.2	142.8	140.5	141.8	143.9	141.2	143.6
MAX DRY DENSITY PCF	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0
OPT MOISTURE CONT. %	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5
% COMPACTION REQ'D	100/95	100/95	100/95	100/95	100/95	100/95	100/95	100/95	100/95
% COMPACTION OBTAINED	100.6/97.4 Pass	103.1/99.8 Pass	100.6/97.4 Pass	101.7/98.5 Pass	100.1/96.9 Pass	101.0/98.8 Pass	102.5/99.2 Pass	100.6/97.4 Pass	102.3/99.0 Pass

REMARKS: %compaction shown as percent of Standard Proctor / Modified Proctor

TECHNICIAN: C.Jacobs

CLIENT'S REPRESENTATIVE:

CENTURY ENGINEERING, INC.

NUCLEAR DENSITY TEST DATA SHEET

PROJECT: Sparrows Point Facility- 68" Hot Strip Mill (SGS-43) Cooling Conveyor Trench (CEI-43b) DATE: 1/15/2016

CLIENT: MCM

CEI PROJECT NO.: 151117.00

GAUGE SERIAL NO.: 24148

DENSITY: 1934

MOISTURE: 605

TEST NO	1E	2E	3E	4A (Ramp)	5A (Ramp)	1F	2F	3F	
LOCATION OR STATION	0+75 See Sketch	1+50 See Sketch	2+50 See Sketch	0+10 See Sketch	0+10 See Sketch	1+00 See Sketch	1+50 See Sketch	2+50 See Sketch	
OFFSET	CL	CL	CL	CL	CL	CL	CL	CL	
ELEVATION	-1.5	-1.5	-1.5	-1.8	-1.8	Grade	Grade	Grade	
SOURCE DEPTH	6"	6"	6"	6"	6"	6"	6"	6"	
DENSITY COUNT	788	721	779	744	743	774	781	769	
WET DENSITY PCF	156.2	160.0	157.5	158.8	158.6	156.5	156.1	157.3	
MOISTURE COUNT	172	173	182	168	181	183	179	166	
MOISTURE CONTENT %	11.0	10.5	11.4	10.5	11.2	11.0	11.1	10.4	
DRY DENSITY PCF	140.7	144.8	141.4	143.7	142.6	140.6	140.5	142.5	
MAX DRY DENSITY PCF	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	140.4/145.0	
OPT MOISTURE CONT. %	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	11.0/9.5	
% COMPACTION REQ'D	100/95	100/95	100/95	100/95	100/95	100/95	100/95	100/95	
% COMPACTION OBTAINED	100.2/97.0 Pass	103.1/99.8 Pass	100.7/97.5 Pass	102.4/99.1 Pass	101.6/98.3 Pass	100.1/97.0 Pass	100.0/96.9 Pass	101.5/98.3 Pass	

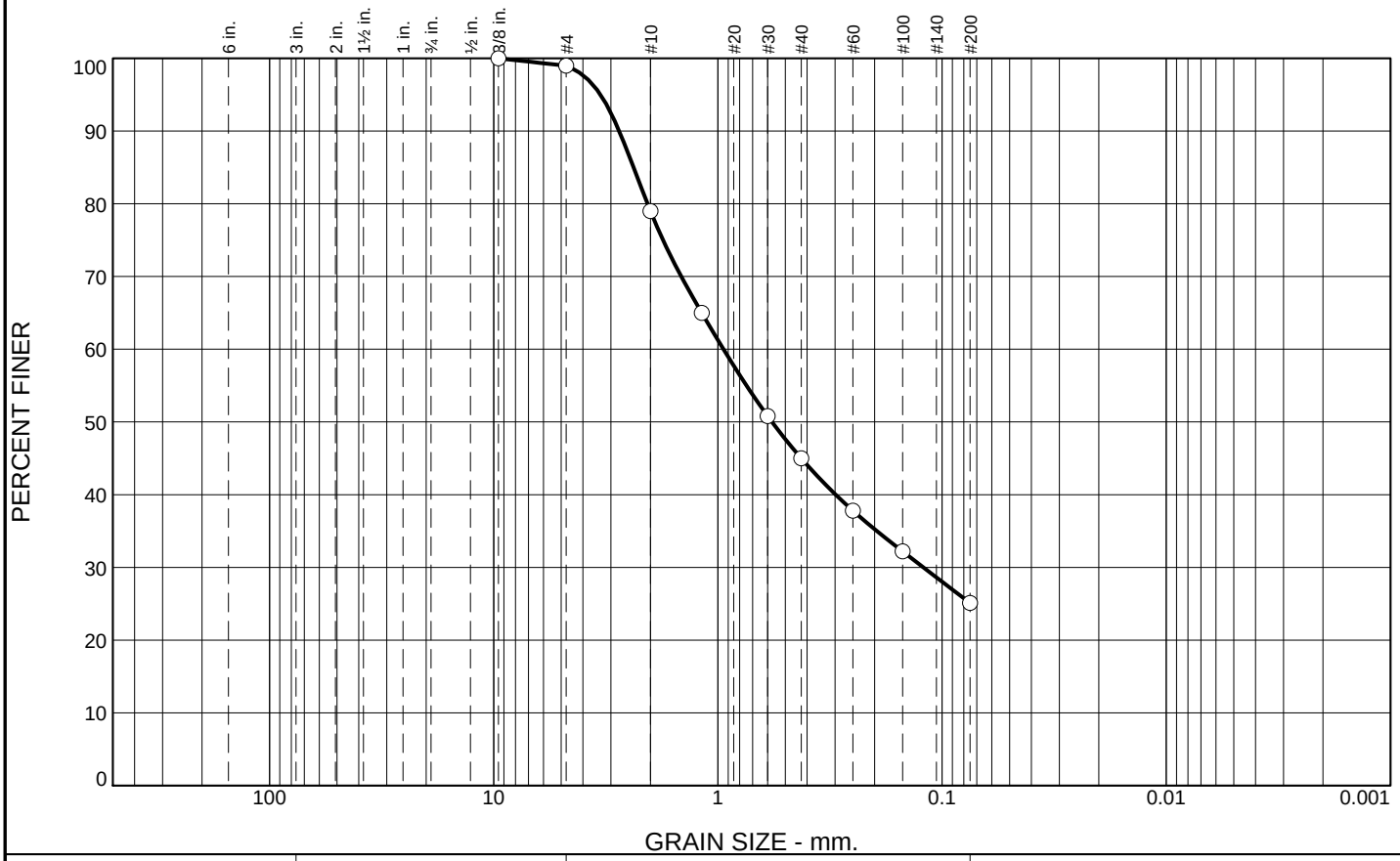
REMARKS: %compaction shown as percent of Standard Proctor / Modified Proctor

Tests 4A and 5A are tests conducted af remp area after the removal of the CR-1 ramp material and replacement with tailings.

TECHNICIAN: C.Jacobs

CLIENT'S REPRESENTATIVE:

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	20.0	34.0	19.9	25.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.0		
#10	79.0		
#16	65.0		
#30	50.8		
#40	45.0		
#60	37.8		
#100	32.2		
#200	25.1		

* (no specification provided)

Soil Description

Steel Slag Tailings (Samples 1/13/16)

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 2.7578 D_{85}= 2.3788 D_{60}= 0.9443
D_{50}= 0.5742 D_{30}= 0.1212 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Sampled 1/13/17 from SGS-43b backfill material

Source of Sample: Steel Slag Tailings
Sample Number: 1

Date: 1/17/16

Century Engineering, Inc.

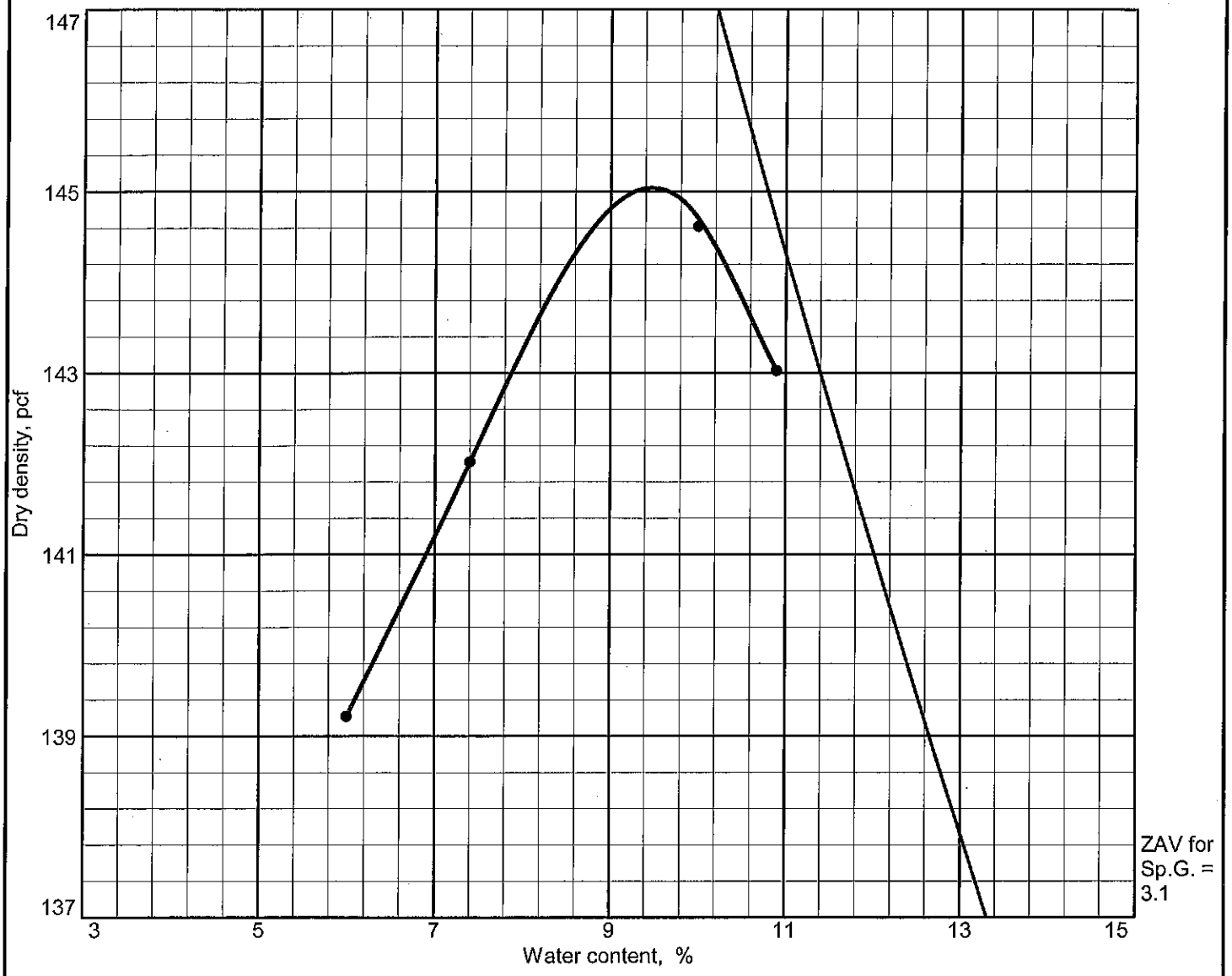
Hunt Valley, MD

Client: MCM Management Corp.
Project: Sparrows Point Terminals-Subgrade Structures

Project No: 151117.00 **Figure**

Tested By: United Eng. **Checked By:** PAD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM	A-1-b			NV	NP	1.0	25.1

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 145.0 pcf Optimum moisture = 9.5 %	Steel Slag Tailings (Samples 1/13/16)

Project No. 151117.00 **Client:** MCM Management Corp.
Project: Sparrows Point Terminals-Subgrade Structures

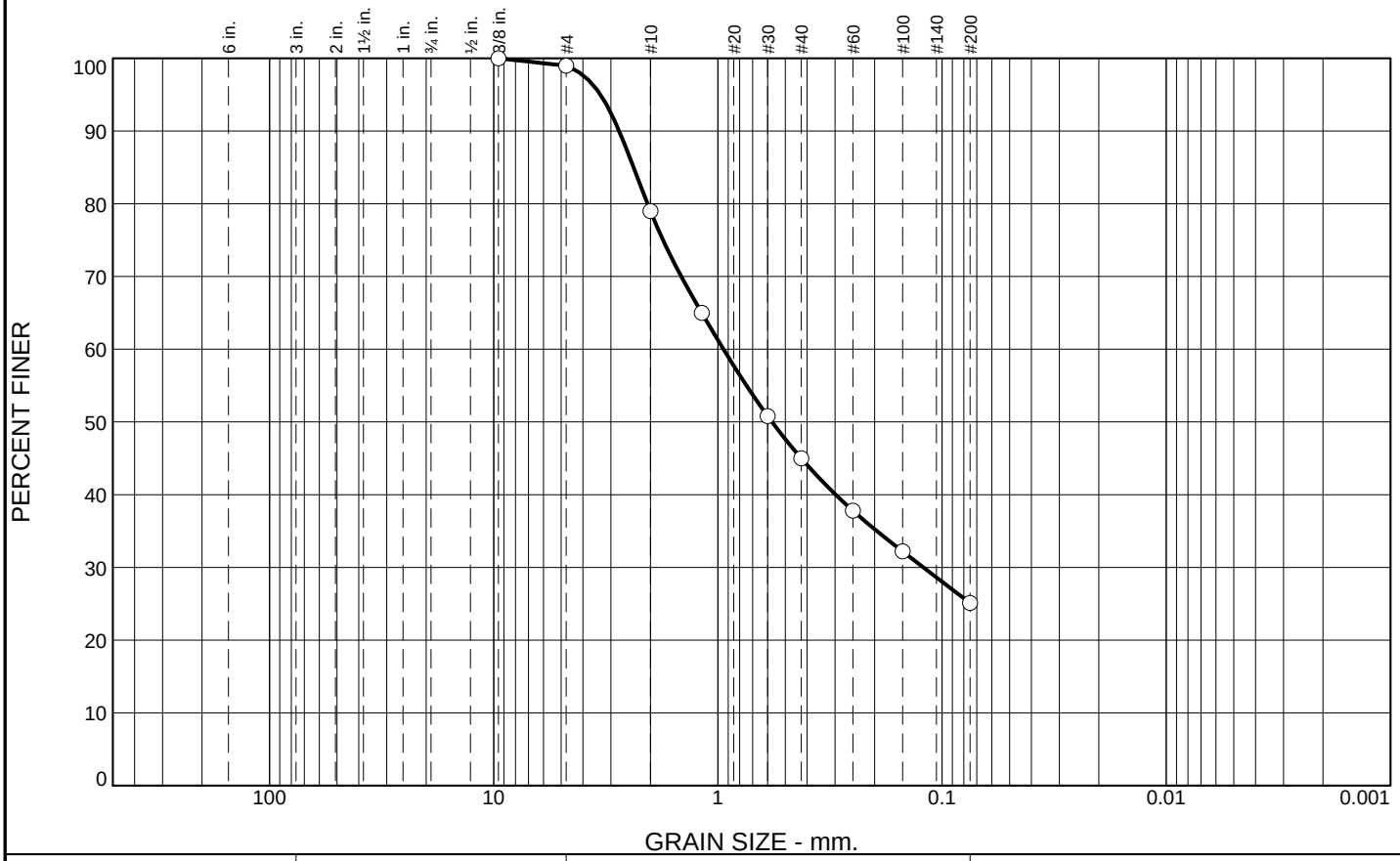
● **Source:** Steel Slag Tailings **Sample No.:** 1

Remarks:

Century Engineering, Inc.
Hunt Valley, MD

Figure

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.0	20.0	34.0	19.9	25.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	99.0		
#10	79.0		
#16	65.0		
#30	50.8		
#40	45.0		
#60	37.8		
#100	32.2		
#200	25.1		

* (no specification provided)

Soil Description

Steel Slag Tailings (Samples 1/13/16)

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 2.7578 D_{85}= 2.3788 D_{60}= 0.9443
D_{50}= 0.5742 D_{30}= 0.1212 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Sampled 1/13/17 from SGS-43b backfill material

Source of Sample: Steel Slag Tailings
Sample Number: 1

Date: 1/17/16

Century Engineering, Inc.

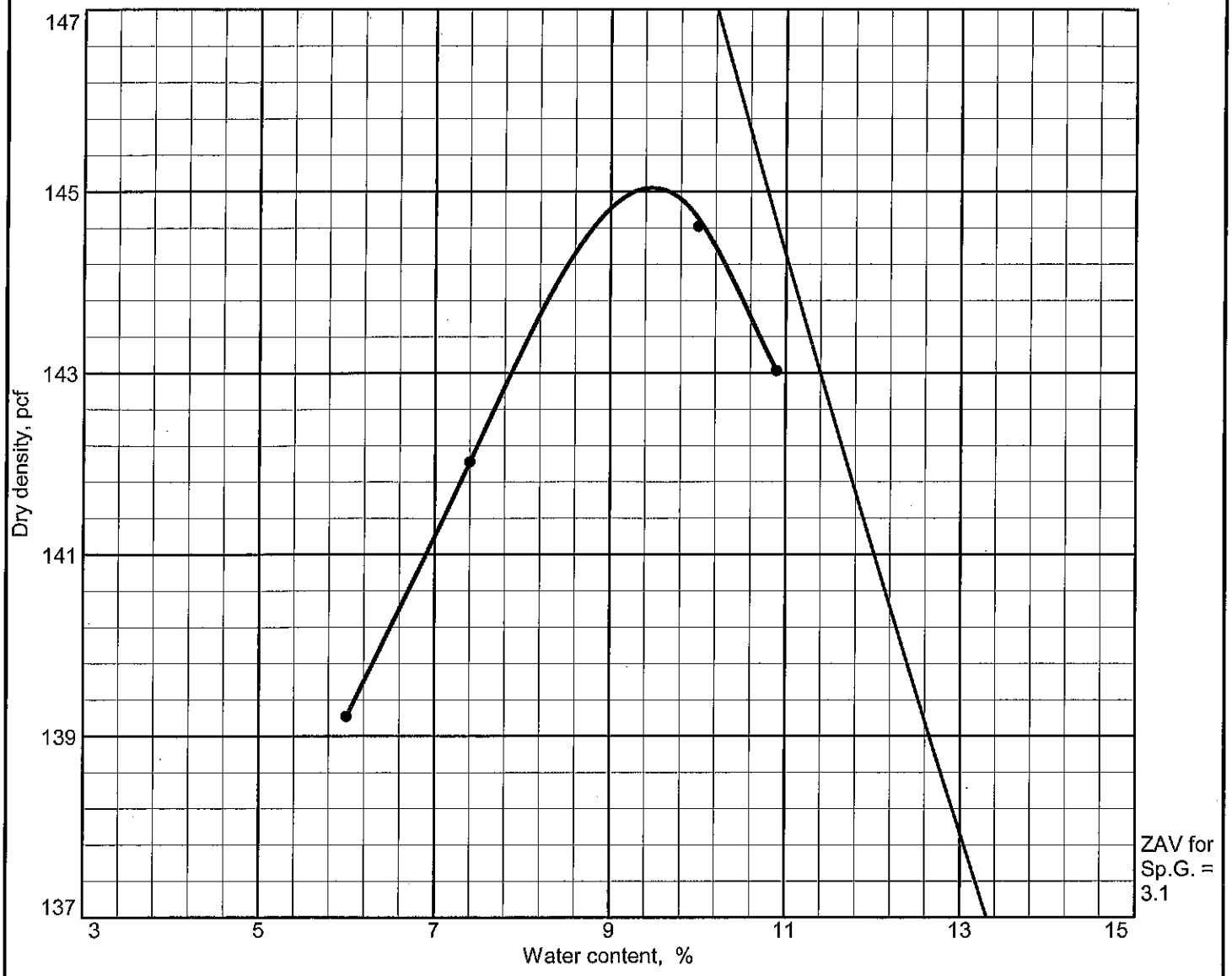
Hunt Valley, MD

Client: MCM Management Corp.
Project: Sparrows Point Terminals-Subgrade Structures

Project No: 151117.00 **Figure**

Tested By: United Eng. **Checked By:** PAD

COMPACTION TEST REPORT



Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM	A-1-b			NV	NP	1.0	25.1

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 145.0 pcf Optimum moisture = 9.5 %	Steel Slag Tailings (Samples 1/13/16)

Project No. 151117.00 **Client:** MCM Management Corp.
Project: Sparrows Point Terminals-Subgrade Structures

● **Source:** Steel Slag Tailings **Sample No.:** 1

Remarks:

Century Engineering, Inc.
Hunt Valley, MD

Figure

Cold Mill Complex – Parcels 4B & 4C

Sub Grade Structure Closure Checklist Reports

Prepared for:

MCM Management Corporation
1430 Sparrows Point Blvd
Sparrows Point, MD 21219

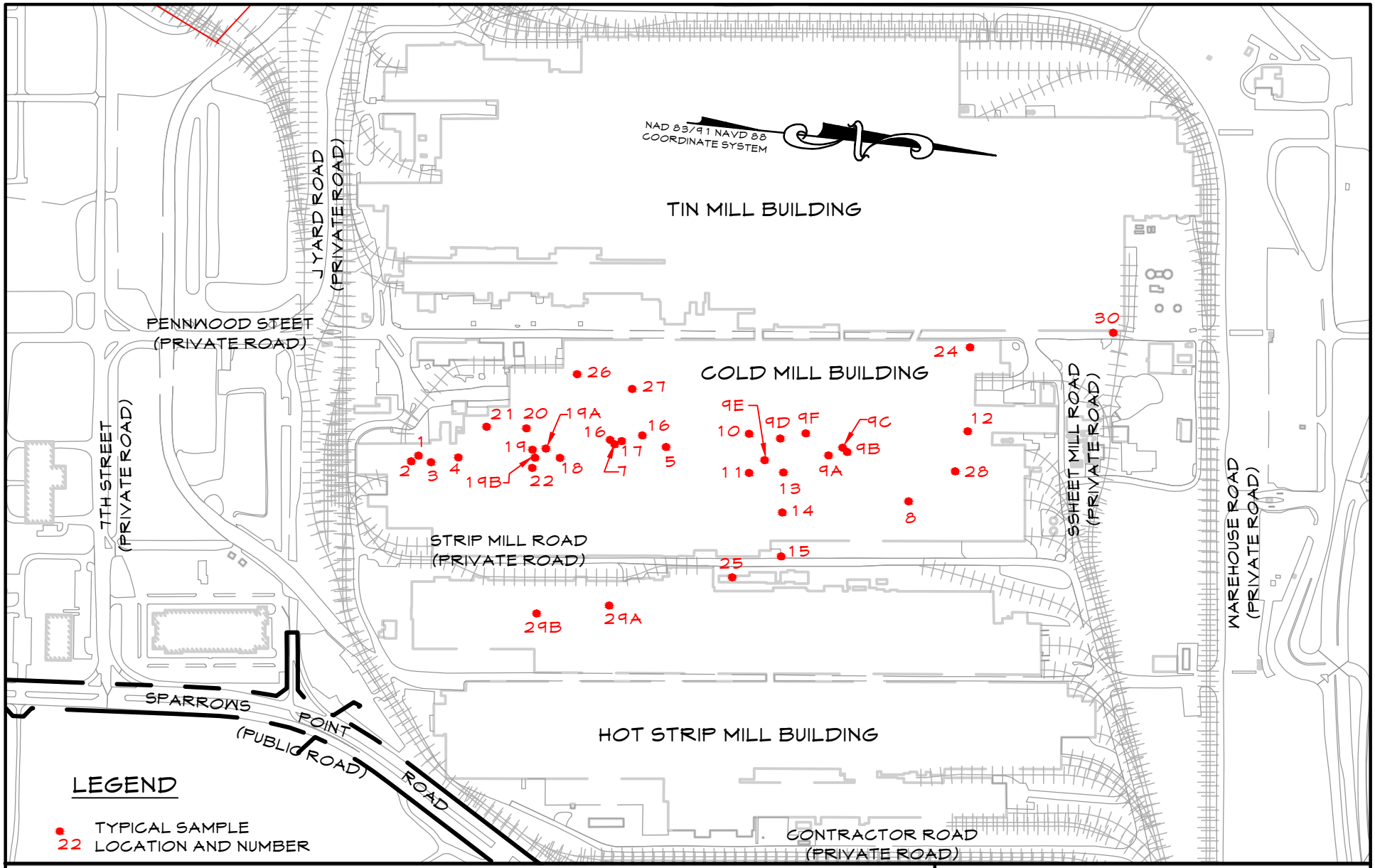
Prepared by:

Jenkins Environmental, Inc.
8600 LaSalle Rd Suite 509
Towson, MD 21286

March 11, 2016

JEI No.: 016-028

JENKINS ENVIRONMENTAL, INC.
8600 LaSalle Road • Suite 509 • Towson, MD • 410-828-9888



SPARROWS POINT FACILITY

COLD MILL BUILDING - SUB-GRADE STRUCTURE PRE-BACKFILL FIELD INVESTIGATION SAMPLE LOCATION EXHIBIT

Job No. 1511117.01	Scale: 1" = 500'	Date: June 22, 2015	Drawn By: R.A.L.	Checked By: R.G.B.	Sheet: 1 of 2

MCM

JENKINS ENVIRONMENTAL, INC.

CENTURY ENGINEERING

Point Table				
Point Number	Northing	Easting	Latitude	Longitude
1	568631.6036	1461757.5866	N039° 13' 36.60"	W076° 28' 21.12"
2	568607.4587	1461781.3339	N039° 13' 36.36"	W076° 28' 20.82"
3	568680.2754	1461776.1916	N039° 13' 37.08"	W076° 28' 20.88"
4	568777.2370	1461747.3021	N039° 13' 38.04"	W076° 28' 21.24"
5	569529.2770	1461624.9224	N039° 13' 45.48"	W076° 28' 22.74"
6	569322.8582	1461621.3927	N039° 13' 43.44"	W076° 28' 22.80"
7	569365.3506	1461621.1474	N039° 13' 43.86"	W076° 28' 22.80"
8	570434.3574	1461723.5641	N039° 13' 54.42"	W076° 28' 21.42"
9a	570123.9794	1461588.4402	N039° 13' 51.36"	W076° 28' 23.16"
9b	570190.6441	1461569.1703	N039° 13' 52.02"	W076° 28' 23.40"
9c	570172.3514	1461555.1121	N039° 13' 51.84"	W076° 28' 23.58"
9d	569941.6240	1461547.0009	N039° 13' 49.56"	W076° 28' 23.70"
9e	569893.5518	1461632.2620	N039° 13' 49.08"	W076° 28' 22.62"
9f	570032.5156	1461518.1487	N039° 13' 50.46"	W076° 28' 24.06"
10	569826.2603	1461542.9453	N039° 13' 48.42"	W076° 28' 23.76"
11	569845.2617	1461679.7541	N039° 13' 48.60"	W076° 28' 22.02"
12	570620.9303	1461443.9363	N039° 13' 56.28"	W076° 28' 24.96"
13	569966.6139	1461669.6106	N039° 13' 49.80"	W076° 28' 22.14"
14	569979.6002	1461815.8960	N039° 13' 49.92"	W076° 28' 20.28"
15	569992.6693	1461976.3447	N039° 13' 50.04"	W076° 28' 18.24"
16	569438.0311	1461592.3994	N039° 13' 44.58"	W076° 28' 23.16"
17	569341.1510	1461635.4513	N039° 13' 43.62"	W076° 28' 22.62"
18	569147.3093	1461707.3923	N039° 13' 41.70"	W076° 28' 21.72"
19	569044.0045	1461689.1031	N039° 13' 40.68"	W076° 28' 21.96"
19a	569092.5126	1461679.3800	N039° 13' 41.16"	W076° 28' 22.08"
19b	569056.3088	1461717.3609	N039° 13' 40.80"	W076° 28' 21.60"
20	569013.2166	1461613.7373	N039° 13' 40.38"	W076° 28' 22.92"
21	568867.5831	1461624.0210	N039° 13' 38.94"	W076° 28' 22.80"
22	569050.4566	1461755.1665	N039° 13' 40.74"	W076° 28' 21.12"
24	570594.8812	1461137.2092	N039° 13' 56.04"	W076° 28' 28.86"
25	569823.2464	1462071.7518	N039° 13' 48.36"	W076° 28' 17.04"
26	569175.8629	1461395.6117	N039° 13' 42.00"	W076° 28' 25.68"
27	569382.4449	1461427.4708	N039° 13' 44.04"	W076° 28' 25.26"
28	570591.4502	1461595.1844	N039° 13' 55.98"	W076° 28' 23.04"
29a	569387.0574	1462225.3627	N039° 13' 44.04"	W076° 28' 15.12"
29b	569126.3614	1462283.5313	N039° 13' 41.46"	W076° 28' 14.40"
30	571110.2359	1461025.6584	N039° 14' 01.14"	W076° 28' 30.24"

JENKINS ENVIRONMENTAL INC.

CENTURY ENGINEERING

MCM

SPARROWS POINT FACILITY

COLD MILL BUILDING - SUB-GRADE STRUCTURE PRE-BACKFILL

FIELD INVESTIGATION SAMPLE LOCATION EXHIBIT

Job No. 1511117.01 | Scale: 1" = 500' | Date: June 22, 2015 | Drawn By: R.A.L. | Checked By: R.G.B. | Sheet: 2 of 2


Sparrow Point Facilities Pit Locations
N
Humphrey Creek
Humphrey Creek
Warehouse Rd
Warehouse Rd
Perwood Rd
Strip Mill Rd
E Shipping Rd
E Shipping Rd
J Yard Rd
Sheet Mill Rd
Sheet Mill Rd
Warehouse Rd
Perwood Rd
Warehouse Rd
Assorting Rd
Sheet Mill Rd
J Yard Rd
Strip Mill Rd
E Shop Rd
J Yard Rd
W Shop Rd
Tin Mill Rd
Tin Mill Rd
Sparrows Point Rd
Slab Hauling Rd
7th St
30
24
12
28
8
9B
9C
9F
9D
13
14
15
10
11
25
23A
23B
5
16
27
17
7
6
29A
23C
26
18
29B
22
20
19B
21
4
3
1
2
0
0.05
0.1
0.2 Miles

Certification Statement

I hereby affirm that I am familiar with the Sparrows Point Terminal Property and that I or my agents, (M.J. Cirri/J.C. Cirri) have visited and examined Sub-grade Structures (SGS) closure sites at the Sparrows Point Terminal facility located in Baltimore County, Maryland. I affirm this Closure Report has been prepared in accordance with good practices, including consideration of applicable standards and that information provided by MCM Management Corporation in relation to matters of waste disposal is reliable. Furthermore, I affirm that procedures for required inspections and testing have been established by MCM and that the Sub grade Structure Backfill Closure Report observations indicate general conformance with the terms of the Enhanced Scope of Work (9/09/14) and work was done in a sound professional manner.

By: _____

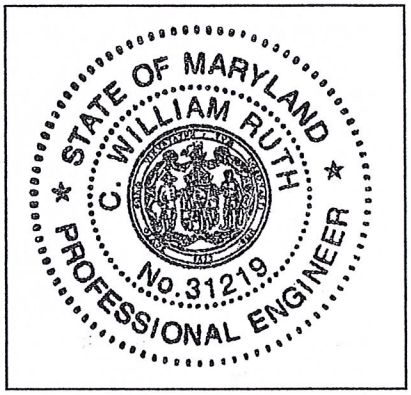
C. William Ruth, P.E.
Jenkins Environmental, Inc.

Date: 2/27/15

By: _____

Michael J. Cirri, President
Jenkins Environmental, Inc.

Date: 2/27/15



SPARROWS POINT TERMINAL
SUB GRADE STRUCTURE (SGS) CLOSURE REPORT

SGS ID#:	**#1- Cold Mill Complex**
LOCATION:	**N39°13.610' W076°28.352'**
DIMENSIONS:	**2092 sf by ≈ 4-6' deep**
VOLUME:	**465 cubic yards**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866

SGS ID#:	**#2- Cold Mill Complex**
LOCATION:	**N39°13.606' W076°28.347'**
DIMENSIONS:	**3107 sf by ≈ 4-6' deep**
VOLUME:	**690 cubic yards**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

BACKGROUND: SGS #1 and SGS#2 are located at the south end of the former Cold Mill Complex in close proximity to each other. These structures were below the former Cold Mill Coating Lines. The equipment located in the building was removed for salvage. The condition of the SGS was the result of the steel mill operation and not cause by the MCM demolition of the building.

OBSERVATIONS: (1) Prior to demolition and backfilling the concrete SGS structures were observed to be intact and devoid of major cracks or fissures. There were no sumps visible or observed. No openings and/or channels to contiguous structures were able to be observed. (2) SGS #1 was observed to contain a small amount (< 55 gals) of rainwater mixed with oil. Other bulk and residual material present included, scrap metal, and electrical conduit; (3) SGS#2 was dry; (4) Water from SGS#1 was collected into drums and placed in MCM's on-site storage for disposal; (5) Following removal of the water from SGS#1 and debris from both structures, heavy equipment was used to scourer concrete surfaces in order to remove additional layers of oil and grease to the extent practical.

BACKFILL MATERIAL: MCM utilized concrete and brick generated from the demolition of the Cold Mill Complex as backfill material. The concrete/brick was inspected prior to use as backfill material. The concrete/brick was free of any visible staining the material was also free of any deleterious materials such as trash, organics, plastics, and rebar.

BACKFILLING: In November 2014 MCM begin backfilling with processed concrete/brick was to be placed in successive 1 foot lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. The non-metallic slag was to be placed in lifts not exceeding 8 inches in thickness. The slag was compacted using a vibrating roller. Structural backfilling and compaction began and was completed during the month of November 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHIC DOCUMENTATION

SGS#1 – South End of Cold Mill Complex

SGS#1 – Sample 014-028-182 (Rainwater)

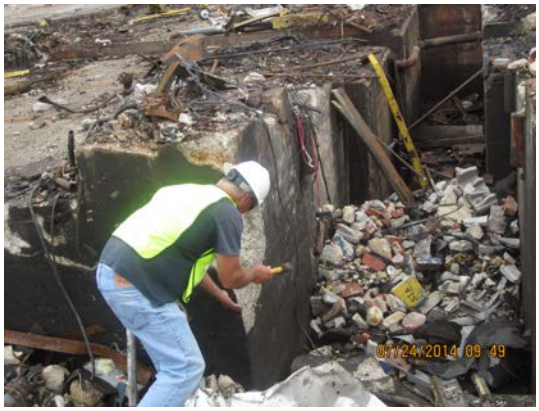
SGS#1 – Sample 014-028-188 (Concrete)

SGS#1 – Structural Backfill Complete

PHOTOGRAPHIC DOCUMENTATION

SGS#2 – South End of Cold Mill Complex

SGS#2 – Dry Pit with Residue and Debris



SGS#2– Sample 014-028-189 (Concrete)

SGS#2 – Structural Backfill Complete

SPARROWS POINT TERMINAL
SUB GRADE STRUCTURE (SGS) CLOSURE REPORT

SGS ID#:	**#3- Cold Mill Complex**
LOCATION:	**N39°13.618' W076°28.348'**
DIMENSIONS:	**28077 sf by ≈ 15' deep**
VOLUME:	**15598 cubic yards**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

SGS ID#:	**#4- Cold Mill Complex**
LOCATION:	**N39°13.634' W076°28.354'**
DIMENSIONS:	**38888 sf by ≈ 15' deep**
VOLUME:	**20,933 cubic yards**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

BACKGROUND: SGS #3 and SGS#4 were subgrade structures below the former Cold Mill Coating lines located at the south end of the former Cold Mill Complex in close proximity to each other. The open structures were in the former Cold Sheet Mill Bldg.99 (Galvanizing Lines 1; 3 & 4). The equipment located in the building was removed for salvage. The condition of the SGS was the result of the steel mill operation and not caused by the MCM demolition of the building.

OBSERVATIONS: (1) Prior to demolition and backfilling the concrete SGS structures were observed to be intact and devoid of major cracks or fissures. There were no sumps visible or observed. No openings and/or channels to contiguous structures were observed. Concrete surface staining was minimal to non-existent. The integrity of the structures was evidenced by their ability to retain considerable quantities of rainwater; (2) Bulk materials (wood, trash, etc.) and other miscellaneous debris was present in the both structures; (3) Structural backfilling began after the removal of the water and miscellaneous debris from SGS#3 and SGS#4 .

BACKFILL MATERIAL: MCM utilized concrete and brick generated from the demolition of the Cold Mill Complex as backfill material. The concrete/brick was inspected prior to use as backfill material. The concrete/brick was free of any visible staining the material was also free of any deleterious materials such as trash, organics, plastics, and rebar.

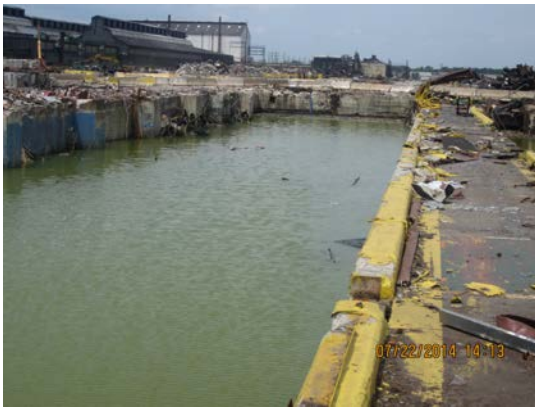
BACKFILLING: On 9/29/14 MCM begin backfilling with processed concrete/brick was placed in successive 1 foot lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. The non-metallic slag was placed in lifts not exceeding 8 inches in thickness. The slag was compacted using a vibrating roller. Structural backfilling and compaction began and was completed during the month of October 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHIC DOCUMENTATION

SGS#3 – South End of Cold Mill Complex

SGS#4 – South End of Cold Mill Complex

SGS#3 – Sample 014-028-183 (Water)



SGS#4 – Sample 014-028-184(Water)

PHOTOGRAPHIC DOCUMENTATION

SGS#4–Miscellaneous Debris

SGS#4 – Backfilling

SGS#3– Backfilling

SGS#3 & #4 – Structural Backfill Complete

SPARROWS POINT TERMINAL
SUBGRADE STRUCTURE CLOSURE REPORT

SGS ID#:	**#5- Cold Mill Complex**
LOCATION:	**N39°13.758' W076°28.379'**
DIMENSIONS:	**7644 sf by ≈ 16' deep**
VOLUME:	**4530 cubic yards**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

OBSERVATIONS: (1) The sub grade structure was located centrally located within the Cold Mill Complex and beneath the #3 Skin Pass Building; (2) There were industrial processes and buildings associated with this structure; (3) The structure contained an undetermined amount of amount storm water; there was no detectable odor, water clarity was generally good, with a light oil sheen observed (i.e. rainbow effect) and there was some floating and settled solids in the form of scrap metal and debris within the structure; (4) concrete walls were not visibly stained; (5) the structure appeared intact and devoid of any major cracks or fissures. There were no sumps or channels to adjacent structures visible or observed.

BACKFILLING: Following the removal of structural steel, scrap metal and water from SGS#5 in November 2014 MCM began backfilling with processed concrete/brick was placed in successive 1 foot lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. The non-metallic slag was placed in lifts not exceeding 8 inches in thickness. The slag was compacted using a vibrating roller. Structural backfilling and compaction began and was completed during late October early and November 2014**.** JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

BACKFILL MATERIAL: Backfill material was concrete/brick and non-metallic processed slag. The backfill material came from Cold Mill Complex demolition and was inspected by MCM prior to use and was free of deleterious materials such as trash, organics, plastics, and rebar.

PHOTOGRAPHIC DOCUMENTATION:

SGS#5 – Post Demolition Structural Steel and Debris

SGS#5 – Post Demolition Structural Steel and Debris

SGS#5 – Sample 014-028-185 (Rainwater)

SGS#5 – Structural Backfill Complete

SPARROWS POINT TERMINAL
SUB GRADE STRUCTURE (SGS) CLOSURE REPORT

LOCATION:	**N39°13.724 W076°28.380'**
DIMENSIONS:	**5165 sf by ≈ 20' deep**
VSGS ID#:	**#6- Cold Mill Complex**
LOLUME:	**3,826 cubic yards (#6 & #7 Combined)**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

SGS ID#:	**#7- Cold Mill Complex**
LOCATION:	**N39°13.634' W076°28.354'**
DIMENSIONS:	**5165 sf by ≈ 20' deep**
VOLUME:	**3,826 cubic yards (#6 & #7 Combined)**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

BACKGROUND: SGS #6 and SGS#7 are subgrade structures located in the middle to southern portion of the former Cold Mill Complex. The structures are in close proximity to each other and appear to be associated with the former Hot Dip Coating Lines and Temper Mill Chromate areas. The equipment located in the building was removed salvage. The condition of the SGS's was the result of the equipment removal and not caused by the MCM demolition of the building.

OBSERVATIONS: (1) Prior to demolition and backfilling the concrete SGS structures were observed to be intact and devoid of any major cracks or fissures. There were no sumps visible or observed. There were openings and/or channels observed between the contiguous structures. The concrete wall surfaces were oil stained. (2) Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the both structures; (3) MCM contracted Ace Environmental to conduct surface oil-skimming of the water in SGS#7; (4) Structural backfilling began after the structures were emptied of metal and debris, dewatered, and the concrete wall surface scourer-red to remove to the extent possible, oil stains.

BACKFILL MATERIAL: MCM utilized concrete and brick generated from the demolition of the Cold Mill Complex as backfill material. The concrete/brick was inspected prior to use as backfill material. The concrete/brick was free of any visible staining the material was also free of any deleterious materials such as trash, organics, plastics, and rebar.

BACKFILLING: MCM then began breaking concrete in order to widen the SGS #6 and #7 to the end points of the openings/channels. MCM removed any conduit, metal, and equipment discovered when widening the SGS. the sub grade structure went to scrap recycling and any non-recyclable debris and wall scrapings went to Greys Landfill in accordance with Greys Landfill Operations Manual. In November 2014 MCM begin backfilling with processed concrete/brick was placed in successive 1 foot lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. The non-metallic slag was placed in lifts not exceeding 8 inches in thickness. The slag was compacted using a vibrating roller. Structural backfilling and compaction began and was completed during the month of November 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHIC DOCUMENTATION

SGS#6 – Middle of Cold Mill Complex

SGS#7 – Middle of Cold Mill Complex

SGS#6 – Sample 014-028-186 (Water)

SGS#7 – Sample 014-028-187(Water)

PHOTOGRAPHIC DOCUMENTATION

SGS#6 & 7– Concrete Scouring

SGS#6 & #7 – Structural Backfill Complete

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#8**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **North of 3 & 4 Galvanizing Line**

GPS Coordinates: **N 39° 13.907 W 076° 28.357**

Sub-Grade Structure Dimensions: _____ft x _____ft Sub-Grade Structure Area:_**588**___ft^2

Sub-Grade Structure Depth: _____**≈2 to 6**_____ft Estimated Volume: _____**131**_____cy

Pumping Dates: ___**NA** __

Date Sub-Grade Structure Cleared for Inspection: ___**8/4/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/4/14; 9/29/14; 10/27/14**____

Condition of Groundwater in SGS: **No GW intrusion observed at time of initial inspection (8/4/14). A small amount of clear surface rainwater was observed (< 1.0").**

Visual Inspection Observations (attach photos): **Prior backfilling the concrete SGS structure was observed to be a shallow intact depression (possibly a stairwell), devoid of major cracks or fissures. No openings and/or channels to contiguous structures were observed. Bulk materials (metal and concrete) and other miscellaneous debris were present in the structure.**

Sub-Grade Structure Sampling

Date Sampled: ____**NA**_____

Chain of Custody #: _____**NA**_____ TAT: _____**NA**_____

No. of Samples:__**NA**__ (attach sample location description, sample location figure, and photos)

Media Sampled: _____**NA**_____

Date Results Received: _____ **NA** _____

Result Evaluated and QC checked by: ____ **NA** _____

Approval for Submission to MDE by (MCM or JEI): _____ **NA** _____

Disposal **NA**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **9/24/14 (Reported to JEI by MCM)**

Date Sub-Grade Structure Backfill Completed: _____**9/29/14**_____

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the removal of the miscellaneous debris from SGS#8. Metal removed from the sub grade structure went to scrap recycling and any non-recyclable debris went to Greys Landfill in accordance with Greys Landfill Operations Manual. The SGS was dry at the time of backfilling, likely due to evaporation. Miscellaneous backfill material as specified in the 6/9/14 Backfill Plan was not used, presumably due to shallow SGS depth. The backfill material used was 100% non-metallic slag compacted with an excavator.**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#9A – 9F**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex** - **4 High Motor Room; 4 High Tandem Hill Motor Rm; 4 High Tandem Mill & Oil Cellar; Accumulators/Aux Hydraulic Systems. SGS #9A –F represent a series of interconnected structures located in the middle section of the former Cold Mill Complex.**

GPS Coordinates: **9A N39°13.856' W076°28.386'; 9B N39°13.867' W076°28.390'; 9C N39°13.864'; W076°28.393'; 9D N39°13.826' W076°28.395'; 9E N39°13.818' W076°28.377'; 9F N39°13.841' W076°28.401'**

Sub-Grade Structure Dimensions: 9A (65x15x21); 9B,C,E (466x15x36); 9F (220x18x33)

Estimated Combined Total Volume: _____**18789**_____cy

Pumping Dates: **11/20/14 – 11/21/14 (Reported to JEI by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/5/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/4/14; 10/27/14; 11/24/14, 12/5/14; 12/30/15**

Condition of Groundwater in SGS: **Water in the SGS was observed to be a heterogeneous quiescent oil- water mixture. Oil was present as a combination of surface film, emulsion and solution.**

Visual Inspection Observations (attach photos): **The equipment located in the building was removed for either resale or salvage. The condition of the SGS was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There were openings and/or channels observed between the contiguous structures. The concrete wall surfaces were oil stained. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures. MCM contracted Ace Environmental to conduct surface oil-skimming of the water in SGS# 9A-F.**

Disposal

Water from the SGS#9 A – F was pumped to the existing waste water sewer system which discharges into the Tin Mill Canal and continues to the HCWWTP. Metal and wood block removed from the sub grade structure went to scrap recycling and any non-recyclable debris went to Greys Landfill in accordance with Greys Landfill Operations Manual.

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **11/24/14 (Reported to JEI by MCM)**

Date Sub-Grade Structure Backfill Completed: **30% complete on 12/27/15 and 100% complete by 1/30/15**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the structures were emptied of metal and debris, dewatered, and the concrete wall surfaces scourer-red to remove oil stains. In November 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris, dewatered , and concrete walls surfaces scoured to remove visible oil stains to the extent possible. Structural backfill material was to be placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted by a vibrating roller. Structural backfilling and compaction began in November 2014 and was completed in early December 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.**

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist
Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#10**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – 4 High Skin Pass Mill & Air Passage**

GPS Coordinates: **N39°13.807' W076°28.396'**

Sub-Grade Structure Dimensions: **112 ft x 35 ft** Sub-Grade Structure Area: **3920 ft^2**

Sub-Grade Structure Depth: **15 ft** Estimated Volume: _____**323**_____cy

Sub-Grade Structure Dimensions: **45 ft x 7 ft** Sub-Grade Structure Area: **315 ft^2**

Sub-Grade Structure Depth: **9 ft** Estimated Volume: _____**105**_____cy

Pumping Dates: **11/25/14 (Reported to JEI by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/5/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/4/14; 10/27/14; 11/24/14, 12/5/14; 12/30/14**

Condition of Groundwater in SGS: **Water in the SGS was observed to be a heterogeneous quiescent oil- water mixture. Oil was present as a combination of surface film, emulsion and solution.**

Visual Inspection Observations (attach photos): **The equipment located in the building was removed for either resale or salvage. The condition of the SGS was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There were openings and/or channels observed between the contiguous structures (4 High Skin Pass Mill and the Air Passageway). Sub grade foundation walls were hammered out making SGS#10 and SGS#9 A-F somewhat contiguous. The concrete wall surfaces were oil stained. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **12/05/14**

Date Sub-Grade Structure Backfill Completed: **100% complete by 12/30/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the structures were emptied of metal and debris, dewatered, and the concrete wall surfaces scoured to remove oil stains. In November 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris, dewatered , and concrete walls surfaces scoured to remove visible oil stains to the extent possible. Structural backfill material was to be placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-**

metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a Volvo vibrating roller. Structural backfilling and compaction began in December 2014 and was completed in by December 30th 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#11**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex - Dbl Scale Platform**

GPS Coordinates: **N 39° 13.810** **W 076° 28.367**

Sub-Grade Structure Dimensions: **Varies** ft x **Varies** ft Sub-Grade Structure Area: **555**_ft^2

Sub-Grade Structure Depth: _____**≈5**_____ft Estimated Volume: _____**113**_____cy

Pumping Dates: ___**NA** __

Date Sub-Grade Structure Cleared for Inspection: ___**10/27/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **10/27/14**____

Condition of Groundwater in SGS: **No GW intrusion observed at time of initial inspection (10/27/14). A small amount of pooled rain water was observed (1.0" to 2"). Analysis not required for pumping to HCWWTP (per M. Vogler).**

Visual Inspection Observations (attach photos): **Prior backfilling the concrete SGS structure was observed to be a shallow depression (identified as scale platform), devoid of major cracks or fissures. No openings and/or channels to contiguous structures were observed. Bulk materials (metal and concrete) and other miscellaneous debris were present in the structure.**

Sub-Grade Structure Sampling

Date Sampled: ____**NA**_____

Chain of Custody #: _____**NA**_____ TAT: _____**NA**_____

No. of Samples:__**NA**__ (attach sample location description, sample location figure, and photos)

Media Sampled: _____**NA**_____

Date Results Received: _____ **NA** _____

Result Evaluated and QC checked by: ____ **NA** _____

Approval for Submission to MDE by (MCM or JEI): _____ **NA** _____

Disposal **NA**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **12/01/14**

Date Sub-Grade Structure Backfill Completed: **12/05/14** _____

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the removal of the miscellaneous debris from SGS#11. Metal removed from the sub grade structure went to scrap recycling and any non-recyclable debris went to Greys Landfill in accordance with Greys Landfill Operations Manual. The SGS was dry. Miscellaneous backfill material as specified in the 6/9/14 Backfill Plan was not used, presumably due to shallow SGS depth. The backfill material used was 100% non-metallic slag compacted with an excavator.**

SPARROWS POINT TERMINAL
SUB GRADE STRUCTURE (SGS) CLOSURE REPORT

SGS ID#:	**#12 - Cold Mill Complex**
LOCATION:	**N39°13.938' W076°28.416'**
DIMENSIONS:	**23557 sf by ≈ 15' to 20' deep**
VOLUME:	**17449 cubic yards**
SAMPLERS:	**M.CIRRI (SAMPLER CERTIFICATION #1608-00-867)**
	J.CIRRI (SAMPLER CERTIFICATION #1608-00-866)

BACKGROUND: SGS #12 is located in the former Cold Mill Complex and inside the 66" Tandem Cold Mill portion of the complex. SGS #12 was below the former 66" Tandem Mill in the 4 Stand Cold Mill/Motor Room areas. The 66" Tandem Mill equipment was removed by a former owner of the steel mill for either resale or salvage. The condition of the SGS was the result of the equipment removal and not cause by the MCM demolition of the building. This equipment removal probably occurred in 2000-2001 after the start-up of the New Cold Mill.

OBSERVATIONS: (1) Prior to demolition and backfilling the concrete SGS structure was observed to be intact and devoid of cracks or fissures. There were no sumps visible or observed. Openings and channels of unknown origin or destination were observed in the SGS walls. The integrity of the structure was evidenced by its ability to retain rainwater; (2) the SGS was observed to contained a heterogeneous mixture of oil and water. Other bulk and residual material present included wood blocks, scrap metal, electrical conduit, and an oily sludge; (3) In June of 2014, C&W Construction was contracted by MCM for the cleaning of the SGS. C&W commenced pumping SGS water to an on-site oil/water separator located at the former on-site oil recycling facility then treated at the HCWWTP. Following dewatering workers proceeded to clean/remove oil/grease residue and sludge from surface walls and the SGS bottom. Oil sludge and debris removed from the SGS was placed in roll off containers for off-site disposal. Once manual labor achieved a reasonable level of cleanliness heavy equipment was used to scourer concrete surfaces in order to remove additional layers of oil and grease.

BACKFILL MATERIAL: MCM utilized concrete and brick generated from the demolition of the Cold Mill Complex as backfill material. The concrete/brick was inspected prior to use as backfill material. The concrete/brick was free of any visible staining the material was also free of any deleterious materials such as trash, organics, plastics, and rebar.

BACKFILLING: In August/ September 2014 MCM begin tracing the opening and channel leading from the main SGS. MCM identified the end points of each opening/channel. MCM then began breaking concrete in order to widen the SGS to the end points of the openings/channels. MCM removed any conduit, metal, and equipment discovered when widening the SGS.

The processed concrete/brick was to be placed in successive 1 foot lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. The non-metallic slag was to be placed in lifts not exceeding 8 inches in thickness. The slag was compacted using a vibrating roller. Structural backfilling and compaction began and was completed during the month of October 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements. Compaction testing and/or any other geotechnical certifications were the responsibility of others.

KCI performed density testing using the Nuclear Method (ASTM D6938) on October 28, 2014. Compaction test results exceeded the recommended minimum compaction requirement of 95%. The results showed compaction of 96.7% and 99.0%.

PHOTOGRAPHIC DOCUMENTATION

SGS #12 Pre-Decon /Sampling Phase

SGS #12 C&W Construction Pit Decon

SGS #12 Machine Based Pads

SGS #12 Structural Backfill

PHOTOGRAPHIC DOCUMENTATION

SGS #12 Backfill Complete

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#13**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – West of Winding Wheel**

GPS Coordinates: **N 39° 13.830 W 076° 28.369**

Sub-Grade Structure Dimensions: **8** ft x **8** ft Sub-Grade Structure Area: **64**_ft^2

Sub-Grade Structure Depth: **UNKNOWN**_ft Estimated Volume: _____**NA**_____cy

Pumping Dates: ___**NA** __

Date Sub-Grade Structure Cleared for Inspection: ___**10/27/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **10/27/14**____

Condition of Groundwater in SGS: **No GW intrusion was able to be observed at time of initial inspection (10/27/14). Opening was covered with metal plate. Depression appeared to be shallow, possibly a small stairwell.**

Visual Inspection Observations (attach photos): **See Attached**

Sub-Grade Structure Sampling

Date Sampled: ____**NA**_____

Chain of Custody #: _____**NA**_____ TAT: _____**NA**_____

No. of Samples:__**NA**__ (attach sample location description, sample location figure, and photos)

Media Sampled: _____**NA**_____

Date Results Received: _____ **NA** _____

Result Evaluated and QC checked by: ____ **NA** _____

Approval for Submission to MDE by (MCM or JEI): _____ **NA** _____

Disposal **NA**

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **UNKNOWN**

Date Sub-Grade Structure Backfill Completed: **UNKNOWN**

Stockpile ID(s) for Material Used for Backfilling: **UNKNOWN – COVERED WITH PLATE**

PHOTOGRAPHIC DOCUMENTATION

Sub-Grade Structure Clearance Checklist
Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS# 14 & 15**____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – Coil Conveyor**

GPS Coordinates: **SGS#14- N39°13.832' W076°28.338'; SGS#15- N39°13.834' W076°28.304'**

Sub-Grade Structure Dimensions: **1338 ft x 16 ft** Sub-Grade Structure Area: **21408 ft^2**

Sub-Grade Structure Depth: **12ft** Estimated Volume: _____**9515**_____cy

Pumping Dates: **11/25/14 (Reported to JEI by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/5/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/5/14; 10/27/14; 12/5/14; 12/30/15**

Condition of Groundwater in SGS: **Water in the SGS was observed to be relatively clear with a light sheen present as a combination of surface film, emulsion and solution.**

Visual Inspection Observations (attach photos): **The equipment located in the building was removed for either resale or salvage. The condition of the SGS's was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible, however channels/tunnel open in the SGSs were observed. SGS#14 & #15 comprise an open trench some of which was outside the building envelope in the direction of the 56" Hot Strip Mill. A portion of the coil conveyance trench system is beneath the roadway. Mild staining at or below the water line was observed. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **12/05/14**

Date Sub-Grade Structure Backfill Completed: **100% complete by 12/30/14**

Stockpile ID(s) for Material Used for Backfilling: **Backfilling began after the structures were emptied of metal and debris, dewatered, and the concrete wall surfaces scoured to remove oil stains. In November 2014 MCM begin miscellaneous backfilling with processed concrete/brick after the structures were emptied of metal/debris, dewatered , and concrete walls surfaces scoured to remove visible oil stains to the extent possible. Miscellaneous backfill material was to be placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Structural Backfilling with non-metallic Blast Furnace slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The structural backfill was compacted with a Volvo**

vibrating roller. Structural backfilling and compaction began in December 2014 and was completed in by December 30th 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#16**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – North of Hot Dip Coating Line (SGS-17) in the Pallet Conveyor Area**

GPS Coordinates: **N 39° 13.743 W 076° 28.386**

Sub-Grade Structure Dimensions: **UNKNOWN** Sub-Grade Structure Area: **UNKNOWN**

Sub-Grade Structure Depth: **UNKNOWN**_ft Estimated Volume: _____**NA**_____cy

Pumping Dates: ___**NA** __

Date Sub-Grade Structure Cleared for Inspection: ___**10/27/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **10/27/14**____

Condition of Groundwater in SGS: **Some depression surface water was observed at time of initial inspection (10/27/14). Depression was shallow, possibly had been previously filled.**

Visual Inspection Observations (attach photos): **See Attached**

Sub-Grade Structure Sampling

Date Sampled: ____**NA**_____

Chain of Custody #: _____**NA**_____ TAT: _____**NA**_____

No. of Samples:__**NA**__ (attach sample location description, sample location figure, and photos)

Media Sampled: _____**NA**_____

Date Results Received: _____ **NA** _____

Result Evaluated and QC checked by: ____ **NA** _____

Approval for Submission to MDE by (MCM or JEI): _____ **NA** _____

Disposal **NA**

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **UNKNOWN**

Date Sub-Grade Structure Backfill Completed: **UNKNOWN**

Stockpile ID(s) for Material Used for Backfilling: **UNKNOWN**

PHOTOGRAPHIC DOCUMENTATION

Sub-Grade Structure Clearance Checklist
Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#17**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – Hot Dip Coating Line**

GPS Coordinates: **N39°13.727' W076°28.377'**

Sub-Grade Structure Dimensions: **420 ft x 19 ft** Sub-Grade Structure Area: **3920 ft^2**

Sub-Grade Structure Depth: **10.5 ft** Estimated Volume: _____**3130**_____cy

Pumping Dates: **No pumping associated with SGS#17**

Date Sub-Grade Structure Cleared for Inspection: ___**7/7/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **7/07/14, 7/24/14**, **10/03/14, 10/27/14, 11/07/14, 3/23/15**

Condition of Groundwater in SGS: **At the time of the initial inspection the SGS was dry. On 7/24/14 approximately 2" – 3" of rainwater accumulated in one section of the SGS. Water was clear, no sheen or odors were observed or sensed.**

Visual Inspection Observations (attach photos): **The equipment located in the building was removed for either resale or salvage. The condition of the SGS was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There were openings and/or utility tunnels observed between the SGS foundation sidewalls. Interior sub grade foundation walls were hammered out to facilitate backfilling SGS#17. The concrete foundation wall surfaces were clean. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Disposal

There was no water or solid material disposal associated with SGS#17

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **10/03/14**

Date Sub-Grade Structure Backfill Completed: **80% complete by10/27/14 and 100% filled by 11/07/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the structures were emptied of metal and debris. In October 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris. Structural backfill material was to be placed in successive 1 foot plus lifts and**

crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a roller. Structural backfilling and compaction began in October 2014 and was completed in by November 7th . JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist
Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#18**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – Galvanizing Control Basement**

GPS Coordinates: **N39°13.695' W076°28.362'**

Sub-Grade Structure Dimensions: **46 ft x 46 ft** Sub-Grade Structure Area: **2116 ft^2**

Sub-Grade Structure Depth: **15 ft** Estimated Volume: _____**1176**_____cy

Pumping Dates: **10/15/14 (Reported by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/5/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/05/14, 9/15/14, 10/03/14, 10/27/14, 11/24/14, 3/23/15**

Condition of Groundwater in SGS: **Water beneath slight oil sheen, no odor was sensed. Oil was present as a combination of surface film, emulsion and solution.**

Visual Inspection Observations (attach photos): **SGS #18 appears to be a vault within the 3 & 4 Galvanizing Line. The equipment located in the building was removed for either resale or salvage. The condition of the SGS was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There were openings and/or utility tunnels observed within the SGS foundation sidewalls. The concrete foundation wall surfaces were generally clean. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Disposal

Water from the SGS#18 was pumped to the existing waste water sewer system which discharges into the Tin Mill Canal and continues to the HCWWTP. Metal removed from the sub grade structure went to scrap recycling and any non-recyclable debris went to Greys Landfill in accordance with Greys Landfill Operations Manual.

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **10/27/14**

Date Sub-Grade Structure Backfill Completed: **Metal removed and partially filled by10/27/14 and 100% filled by 11/24/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the structures were emptied of metal and debris. In late October 2014 MCM began structural backfilling with processed concrete/brick after the structures were emptied of metal/debris. Structural backfill material was to be placed in successive lifts not exceeding 24"and**

crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a vibrating roller. Structural backfilling and compaction began in October 2014 and was completed in by November 24th. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and general conformance with backfill requirements.

PHOTOGRAPHS:

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#19A & B – SGS#22** Checklist Completed By: __**M. Cirri (JEI)**

Building Location: **Cold Mill Complex – (A) SGS#19 Extension of SGS-4 Galvanizing Line 3 & 4; (B) SGS#22 Extension of SGS-3 Galvanizing Line 1 – includes a probable looper pit**

GPS Coordinates: **19A N39°13.678' W076°28.366'**
19B N39°13.680' W076°28.360'
22 N39°13.679' W076°28.352'

Sub-Grade Structure Dimensions: **(GPS Perimeter Measurement)** Sub-Grade Structure Area: **SGS#19 A & B - 9802 ft^2; SGS#22 – 10,671 ft^2 (main structure); SGS#22 - 36 ft^2**

Sub-Grade Structure Depth: **SGS#19 A – B 15 ft** Estimated Volume: _____**5446**_____cy

Sub-Grade Structure Depth: **SGS#22 10 ft** Estimated Volume: _____**3952**_____cy

Sub-Grade Structure Depth: **SGS#22 Looper 75 ft** Estimated Volume: _____**100**_____cy

Pumping Dates: **10/16 - 10/17/14 (Reported by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/06/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/06/14, 9/29/14, 10/03/14, 10/27/14**

Condition of Groundwater in SGS: **At the time of the initial inspection the SGS the water clarity was milky/cloudy. Floating oil globules were observed over 10 – 20% of the water surface.**

Visual Inspection Observations (attach photos): **The equipment located in these buildings were removed for either resale or salvage. The condition of the SGS's was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There appears to be openings and/or utility tunnels observed between the SGS foundation sidewalls. Interior sub grade foundation walls were hammered out to facilitate backfilling SGS -19 and SGS-22 which is contiguous with SGS-4 and SGS-3, respectively. The concrete foundation wall surfaces were mildly stained. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **10/20/14**

Date Sub-Grade Structure Backfill Completed: **100% completed by10/27/14**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling of SGS-19 & 22 began after the structures were emptied of metal and debris. In October 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris. Structural backfill material was to be placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a vibrating roller. Structural backfilling and compaction began in October 2014 and was completed by October 27, 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.**

PHOTOGRAPHS

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS

***Area of structural backfill depicted above encompasses SGS-19 and SGS-22.**

Sub-Grade Structure Clearance Checklist
Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#20 – SGS#21** Checklist Completed By: __**M. Cirri (JEI)**

Building Location: **Cold Mill Complex – SGS#20 and SGS#21 appear to have been part of the No. 4 Coating Line process.**

GPS Coordinates: **20 N39°13.673' W076°28.382'**
21 N39°13.649' W076°28.380'

Sub-Grade Structure Dimensions: **SGS-20 50'x36'** Sub-Grade Structure Area: **SGS#20 1800 ft^2**

Sub-Grade Structure Dimensions: **SGS-21 50'x30'** Sub-Grade Structure Area: **SGS#21 1500 ft^2**

Sub-Grade Structure Depth: **SGS#20 10 ft** Estimated Volume: _____**667**_____cy

Sub-Grade Structure Depth: **SGS#21 25 ft** Estimated Volume: _____**1389**_____cy

Pumping Dates: **10/22 - 10/23/14 (Reported by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/06/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/06/14, 9/29/14**, **10/03/14, 10/27/14; 11/07/14; 11/30; 12/5**

Condition of Groundwater in SGS: **At the time of the initial inspection SGS#20 water clarity was murky with slight rainbow sheen. SGS#21 was milky/cloudy with moderate oil sheen.**

Visual Inspection Observations (attach photos): **The equipment located in these buildings was removed for either resale or salvage. The condition of the SGS's was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There appears to be openings and/or utility tunnels observed between the SGS foundation sidewalls. Interior sub grade foundation walls were hammered out to facilitate backfilling SGS -20 and SGS-21 simultaneously. The concrete foundation wall surfaces were lightly to mildly stained. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **11/05/14**

Date Sub-Grade Structure Backfill Completed: **100% completed by11/30/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling of SGS-19 & 22 began after the structures were emptied of metal and debris. In November 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris. Structural backfill material was to be placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material**

with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a vibrating roller. Structural backfilling and compaction began in November 2014 and was completed on or before November 30, 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHS

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS

***Area of structural backfill depicted above encompasses SGS-20 and SGS-21.**

Sub-Grade Structure Clearance Checklist
Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#24**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – Open Coil Annealing Pit**

GPS Coordinates: **N39°13.934' W076°28.481'**

Sub-Grade Structure Dimensions:

Sub-Grade Structure Dimensions: **38ft x 26 ft** Sub-Grade Structure Area: **988 ft^2**

Sub-Grade Structure Depth: **10 ft** Estimated Volume: _____**366**_____cy

Pumping Dates: **9/15/16 (to Vac Truck)**

Date Sub-Grade Structure Cleared for Inspection: ___**8/22/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **8/22/14, 9/15/14**, **10/27/14, 11/07/14**

Condition of Groundwater in SGS: **At the time of the initial inspection the SGS partially of water. There was a discernible sulfur-like odor sensed.**

Visual Inspection Observations (attach photos): **The equipment located in the building was removed for either resale or salvage. The condition of the SGS was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There were openings and/or utility tunnels observed between the SGS foundation sidewalls likely connecting to additional Annealing Furnaces located in the area. On 9/15 and 9/16/14 the concrete foundation and wall surfaces were cleaned. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Disposal

Solid material was remove and disposed of at Grey's Landfill. Residual water and clean-up rinsate was collected into a Vac Truck.

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **10/03/14**

Date Sub-Grade Structure Backfill Completed: **100% complete by10/27/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the structures were emptied of metal and debris. In October 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris. Structural backfill material was to placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the**

bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a vibrating roller. Structural backfilling began in mid-September and was completed in by 10/27/14. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHS:

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#26 – SGS#27** Checklist Completed By: __**M. Cirri (JEI)**

Building Location: **Cold Mill Complex – SGS#26 (Trench) and SGS#27 (Pit) appear to be series of interconnected pits and shallow trenches located at the South end of the Annealing Furnaces in the Cold Mill Train area.**

GPS Coordinates: **26 N39°13.700' W076°28.428'**
27 N39°13.734' W076°28.421'

Sub-Grade Structure Dimensions: **GPS Perimeter** Sub-Grade Structure Area: **SGS#26 7056 ft^2**

Sub-Grade Structure Dimensions: **GPS Perimeter** Sub-Grade Structure Area: **SGS#27 347 ft^2**

Sub-Grade Structure Depth: **SGS#26 8 ft** Estimated Volume: _____**2091**_____cy

Sub-Grade Structure Depth: **SGS#27 8 ft** Estimated Volume: _____**103**_____cy

Pumping Dates: **10/22 - 10/23/14 (Reported by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**9/15/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **9/15/14, 9/29/14**, **10/03/14, 10/27/14; 11/07/14; 11/30;**

Condition of Groundwater in SGS: **At the time of the initial inspection SGS#26 water clarity was murky with rainbow oil sheen and floating globules. SGS#27 was clear with no oil sheen.**

Visual Inspection Observations (attach photos): **The equipment located in these buildings was removed for either resale or salvage. The condition of the SGS's was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There appears to be openings and/or utility tunnels observed between the SGS foundation sidewalls. Interior sub grade foundation walls were hammered out to some extend in order to facilitate backfilling SGS -26 and SGS-27 simultaneously. The concrete foundation wall surfaces of SGS-26 were lightly to mildly stained. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Disposal

Water from the SGS#26 and SGS#27 was pumped to the existing waste water sewer system which discharges into the Tin Mill Canal and continues to the HCWWTP. Metal removed from the sub grade structure went to scrap recycling and any non-recyclable debris reportedly went to Greys Landfill in accordance with Greys Landfill Operations Manual

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **10/21/14**

Date Sub-Grade Structure Backfill Completed: **100% completed by11/30/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling of SGS-26 & 27 began after the structures were emptied of metal and debris. In October 2014 MCM begin structural backfilling with processed concrete/brick after the structures were emptied of metal/debris. Structural backfill material was to be placed in successive 1 foot plus lifts and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted by excavation equipment and/or a vibrating roller. Structural backfilling and compaction began in October 2014 and was completed on or before November 30, 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

PHOTOGRAPHS

***Area of structural backfill depicted above encompasses SGS-26 and SGS-27.**

Sub-Grade Structure Clearance Checklist

Sparrows Point Facility – Demolition and Backfill

Sub-Grade Structure ID#: **SGS#28**_____Checklist Completed By: __**M. Cirri (JEI)** ___

Building Location: **Cold Mill Complex – Shallow trench system North end of former Cold Sheet Mill Bldg between pickling equipment and Motor Stand Rm.**

GPS Coordinates: **N39°13.933' W076°28.384'**

Sub-Grade Structure Dimensions: **GPS Perimeter** Sub-Grade Structure Area: **156 ft^2**

Sub-Grade Structure Depth: **6 ft (est.)** Estimated Volume: _____**35**_____cy

Pumping Dates**: 10/17/14 (Reported by MCM)**

Date Sub-Grade Structure Cleared for Inspection: ___**9/19/14**_____

Sub-Grade Structure Inspection by JEI

Sub-Grade Structure Inspection Date(s): __ **9/19/14**, **10/03/14, 10/27/14, 11/24/14, 3/23/15**

Condition of Groundwater in SGS: **Water had slight oil sheen. Oil was present as a combination of surface film, emulsion and solution.**

Visual Inspection Observations (attach photos): **SGS #28 is a shallow trench system within the former Cold Sheet Mill Building. The equipment located in the building was removed for either resale or salvage. The condition of the SGS was the result of the equipment removal and not caused by the MCM demolition of the building. There were no sumps visible or observed. There are presumed openings within the SGS foundation sidewalls to other structures/trenches. The trench wall surfaces were moderately stained. Bulk materials in the form of scrap metal, electrical conduit and other miscellaneous debris items were present in the structures.**

Disposal

Water from the SGS#28 was pumped to the existing waste water sewer system which discharges into the Tin Mill Canal and continues to the HCWWTP. Metal removed from the sub grade structure went to scrap recycling and any non-recyclable debris went to Greys Landfill in accordance with Greys Landfill Operations Manual.

Sub-Grade Structure Backfilling

Date Sub-Grade Structure Backfill Started: **10/22/14**

Date Sub-Grade Structure Backfill Completed: **Metal removed and partially filled by10/27/14 and 100% filled by 11/24/14**

Stockpile ID(s) for Material Used for Backfilling: **Structural backfilling began after the structures were emptied of metal and debris. In late October 2014 MCM began structural backfilling with processed concrete/brick after the structures were emptied of metal/debris.**

Structural backfill material was to be placed in successive lifts not exceeding 24”and crushed/tamped in-place using the equipment bucket loader or by driving over the material with the bulldozer. Non-metallic slag was to be placed in lifts not exceeding roughly 8 inches in thickness. The slag was compacted excavation equipment and/or a vibrating roller. Structural backfilling and compaction began in October 2014 and was completed by November 24, 2014. JEI conducted periodic site visits during cleaning/backfilling and observed the process to be sound and in general conformance with backfill requirements.

PHOTOGRAPHS:

APPENDIX E

Well/Piezometer Abandonment Form

Well/Piezometer ID: FM04-PZM009

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: Could not be located on 11/18/15, presumed destroyed

Abandonment Contractor: N/A

Abandonment Method (circle appropriate):

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

Field Equipment: N/A

ARM Representative(s): W. Mader

Well Diameter: Unknown

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 21 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM04-PZM009

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: Could not be located on 11/18/15, presumed destroyed

Abandonment Contractor: N/A

Abandonment Method (circle appropriate):

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

Field Equipment: N/A

ARM Representative(s): W. Mader

Well Diameter: Unknown

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 48 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM04-PZM009

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: Could not be located on 11/18/15, presumed destroyed

Abandonment Contractor: N/A

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): W. Mader

Well Diameter: Unknown

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 66 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-008-PZI

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 1/6/17

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 32.2 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-008-PZS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 1/6/17

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17.5 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-009-PZI

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 1/6/17

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 40.2 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-009-PZS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 1/6/17

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 15.4 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-014-PZS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 10/10/16

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 50.2 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-014-PZS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 10/10/16

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 27.5 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-015-PZI

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 1/10/17

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 72.6 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: FM-015-PZS

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 1/10/17

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17.0 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: B6-011-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/14/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17.6 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B6-011 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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B6-011 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: B6-039-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: Could not be located on 1/9/20, presumed destroyed

Abandonment Contractor: N/A

Abandonment Method (circle appropriate):

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

Field Equipment: N/A

ARM Representative(s): G. Walsh

Well Diameter: Unknown

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): NAPL Sreening

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):

Transcribed from ARM field records.

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

Well/Piezometer Abandonment Form

Well/Piezometer ID: B6-087-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: Could not be located on 1/9/20, presumed destroyed

Abandonment Contractor: N/A

Abandonment Method (circle appropriate):

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

Field Equipment: N/A

ARM Representative(s): G. Walsh

Well Diameter: Unknown

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 14 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): NAPL Sreening

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):

Transcribed from ARM field records.

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

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-067-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 10/11/16

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 20.7 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-067 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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128A-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.6 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128B-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.3 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128C-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.3 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128D-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.5 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128F-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.4 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 12.1 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128-PZ-E

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 23.5 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128-PZ-N

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.4 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128-PZ-S

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 11.9 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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Engineers and Scientists
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Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-128-PZ-W

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 6/16/17 - removed during remedial excavation

Abandonment Contractor: ENRC (Excavation Contractor)

Abandonment Method (circle appropriate):

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

Field Equipment: Excavator

ARM Representative(s): M. Replogle

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 22.4 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-128 NAPL Area

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):

Transcribed from ARM field book records. Piezometer and underlying soil were removed during B22-128 remedial excavation. Piezometer was removed prior to the MDE directive to gauge piezometers a final time prior to abandonment.

ARM Group Inc.
Engineers and Scientists
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Columbia, Maryland 21046
(410) 290-7775 FAX: (410) 290-7775

Well/Piezometer Abandonment Form

Well/Piezometer ID: B22-129-PZ

General Project Information:

Client: EAG

Site Location: Sparrows Point, MD

Sub-Parcel ID: B6-1

Abandonment Date: 10/10/16

Abandonment Contractor: GSI

Abandonment Method (circle appropriate):

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

Field Equipment: Oil-Water Probe

ARM Representative(s): L. Perrin

Well Diameter: 1 inch

Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:
Reported (historical/log): 17.6 ft	Depth to Water (TOC): Not recorded
Measured: Not recorded	Depth to NAPL (TOC): Not recorded

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): B22-129 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):

Transcribed from ARM field book records. Piezometer was abandoned prior to the MDE directive to gauge piezometers a final time prior to abandonment.

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

APPENDIX F

HILLIS-CARNES
ENGINEERING ASSOCIATES

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

April 29, 2020

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

RE: Notice of Completion of Remedial Actions
Area B: Sub-Parcel B6-1
Baltimore County, Maryland
HCEA Project Number 17551B

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 B6-1 in the Sparrows Point area of Baltimore County, Maryland (Site).

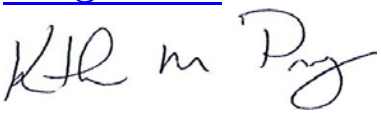
In conjunction with HCEA's environmental services at the Site, HCEA was provided with the Response and Development Work Plan for Area B: Sub-Parcel B6-1 (Revision 2 – July 7, 2017), hereafter referred to as the RDWP. Based on observations made during HCEA's environmental monitoring at the Site, to the 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 RDWP.

This Notice has been prepared for the exclusive use of the Client pursuant to the agreement between the Client and HCEA, dated September 1, 2017, 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 G

HILLIS-CARNES
ENGINEERING ASSOCIATES

10975 Guilford Rd. Suite A
Annapolis Junction, MD 20701
Phone:410-880-4788 Fax:410-880-4098

FIELD REPORT

Project No.: 17551B **Report No.:** **Date:** January 26, 2018

Project Name: Parcel B6-1(Blue Jay) **Weather/Temp:** Clear 45°

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

Contractor: Clayco, Dixie **On Site Time:** hr **Total Time:** 8.00 hr

A. Description of Work:

Hillis-Carnes Engineering Associates (HCEA) on-site to provide dust monitoring and environmental services.

On this date, prevailing wind direction was generally from the Southeast to the Northwest. One perimeter dust monitor was placed on the upwind side of the parcel (Southeast) and one dust monitor was placed on the downwind side of the parcel (Northwest). The downwind and upwind monitors did not exceed the action limit of 3 milligrams per cubic meter (mg/m³). The maximum 15min average for the downwind monitor was 0.047 mg/m³. The maximum 15min average for the upwind monitor was 0.013 mg/m³.

HCEA placed a work zone dust monitor in the area being excavated for storm drain. The work zone monitor did not exceed the action limit of 3 mg/m³. The maximum 15min average for the work zone monitor was 0.013 mg/m³.

Dixie sprayed the haul road throughout the day using a water truck in order to suppress the dust generated on site.

Glenelg began installation of light pole bases in South parking lot.

Dixie continued predigging for utilities on the West side of the building.

Dixie continued installation of storm drain in Southwest portion of the site. While excavating along East side of the sediment basin contractor struck an existing waterline, pumping an exorbitant amount of clean water into the storm drain trench. Contractor dug a channel to divert overflowing water directly into adjacent sediment basin. Tech was screening excavated soils for odors and elevated PID readings and did not detect any before and after the waterline was damaged. Tech observed clear water with no sheen or odors present throughout the duration of de-watering. Contractor used pumps to de-water trench into basin.

Dixie continued installation of water line on the North and West sides of the building.

Tech was screening excavated soils for odors or elevated PID readings. Tech did not detect any odors or elevated PID readings.

Dixie continued grading for parking lot on South side of the building. Contractor was hauling slag from off-site to use as backfill.

B. Tests Performed/Testing Equipment Used

MetOne E-Samplers and MultiRAE Photoionization Detector

C: Problems **Non-Compliance** ☐

None

D. Referenced Plans/Drawings

Verification: _____ **Reviewed By:** _____ **Technician:** Nick Stella

APPENDIX H

Development Photograph Log
Sub-Parcel B6-1
Sparrows Point, Maryland

Photo 1: Placement of clean fill and marker fabric

Photo 2: Placement of clean fill and marker fabric

Photo 3: Impacted soils segregated and placed on plastic

Photo 4: Paving

Photo 5: Basin development in progress

Photo 6: Dust control measures

APPENDIX I

ARM Group Inc.
Earth Resource Engineers and Consultants

October 27, 2017

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

Re: Quarterly Development Status Update
Third Quarter 2017
Area B: Sub-Parcel B6-1
Tradepoint Atlantic
Sparrows Point, Maryland

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 B6-1 during the third quarter of 2017. The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) was approved by the Maryland Department of the Environment (MDE) on June 29, 2017 and by the United States Environmental Protection Agency (USEPA) on September 26, 2017. The main development of Sub-Parcel B6-1 includes the construction of a large warehouse building. Development is expected to include grading, construction of a slab on-grade for the structure, hot mix asphalt (HMA) paving, connections to existing stormwater systems, lighting improvements, landscaping improvements, and other construction tasks.

Environmental Oversight

Environmental oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA). The EP was responsible for performing dust monitoring during the demolition and site preparation phase and during the construction of the building pad. An HCEA EP will perform general environmental oversight once additional construction activities commence; however, only dust monitoring was performed during the third quarter of 2017.

Development Progress

MCM Management Corp. began demolition and site preparation activities on September 5, 2017. A slag building pad was laid and graded. Further development is expected to occur on Sub-

Parcel B6-1; however, only demolition and non-intrusive building pad construction took place during the third quarter of 2017.

Dust Monitoring

Dust monitoring was performed with a ThermoElectron Corporation Personal Data RAM 1000AN Dust Monitor. Dust control measures would be implemented if a sustained level above 3.0 mg/m^3 was observed. During the third quarter of 2017, some exceedances of the 3.0 mg/m^3 action level were observed. However, the exceedances appeared to be associated with trucks passing near the monitor and did not last more than five minutes. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil and Water Management

All slag materials brought to the site for use as structural fill were approved for their intended use by the MDE. No soil screening activities needed to be performed during the third quarter of 2017. A full-time EP was not present to complete general environmental oversight and provide documentation during the demolition and building slab construction stages (other than for dust monitoring purposes).

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

Respectfully Submitted,
ARM Group Inc.

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

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

ARM Group Inc.
Earth Resource Engineers and Consultants

January 29, 2018

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

Re: Quarterly Development Status Updates
Third and Fourth Quarter 2017
Area A: Sub-Parcel A3-1; Area B: Sub-Parcel B5-1;
Sub-Parcel B6-1; Parcel B22, Phase 1
Responses to Agency Comments
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group Inc. (ARM) is pleased to provide the following responses to comments received from the Maryland Department of the Environment (MDE) in an email dated December 7, 2017. The MDE provided comments on the Third Quarter Development Status Updates for Sub-Parcels A3-1, B5-1, B6-1, and Parcel B22, Phase 1 dated October 27 to November 1, 2017. No comments were received from the United States Environmental Protection Agency (USEPA). The updates discussed in this letter have been applied, as applicable, to the Quarterly Development Status Updates for the fourth quarter of 2017 that accompany this letter. Responses to specific comments are provided below; original comments are included in italics with responses following.

1. *General: Soil Management – This section should include an estimate for how much soil has been segregated and stockpiled on-site. In addition, include estimates for the amount of soil disposed of at Grey's Landfill during each quarter. Please note that soil disposed of at Grey's Landfill must be tracked and details from the disposal tracking must be submitted in Completion Reports.*

Sub-Parcel B5-1:

During the third and fourth quarters of 2017, no soils were segregated due to elevated PID readings, odors, or staining on Sub-Parcel B5-1. No soils were removed from the site for disposal at Greys Landfill or elsewhere.

Sub-Parcel B6-1:

During the third quarter of 2017, no soils were segregated due to elevated PID readings, odors, or staining on Sub-Parcel B6-1. No soils were removed from the site for disposal at Greys Landfill or elsewhere.

Information regarding soils stockpiled during the fourth quarter of 2017 is provided in the Fourth Quarter Sub-Parcel B6-1 Quarterly Development Status Update.

Parcel B22, Phase 1:

During the pre-development (demolition) phase on Parcel B22, Phase 1 approximately 8,500 cubic yards (cy) of soil exhibiting evidence of impacts (elevated PID readings, odors, or staining) were stockpiled on site prior to the third quarter of 2017. The MDE was notified of this stockpiled soil via email from Hillis-Carnes Engineering Associates (HCEA) on January 12, 2017. A sampling plan to test for diesel range organics (DRO), gasoline range organics (GRO), Oil & Grease, and polychlorinated biphenyls (PCBs) was submitted by HCEA and approved by the MDE. Following the receipt of laboratory data, the MDE approved the use of the stockpiled soil as fill material under the cap in Parcel B22, Phase 1 in an email dated February 21, 2017.

During storm drain development work on Parcel B22, Phase 1, approximately 200 cy of soil were segregated and placed in two stockpiles. This soil was visually inspected by the MDE on April 13, 2017 and approved for placement beneath paved areas via email on April 19, 2017.

Two additional stockpiles, each containing approximately 100 cy of soil, were segregated during the Road and Utility development associated with Parcel B22, Phase 1. The management of these two stockpiles is discussed in the Parcel B22, Phase 1 Quarterly Development Status Update for the fourth quarter of 2017.

No soils were removed from the site for disposal at Greys Landfill or elsewhere.

Sub-Parcel A3-1:

Three approximately 100 cy stockpiles were segregated due to evidence of impacts (elevated PID readings, odors, or staining) during the pre-development (demolition) phase on Sub-Parcel A3-1. The soil was sampled on July 19, 2017 and tested for Oil & Grease, DRO, PCBs, and TCLP metals. The soil was approved for re-use under aggregate base in paved areas outside the building footprint by the MDE in an email dated August 7, 2017 and was placed under a parking area.

Approximately 100 cy of soil were segregated during storm drain work on Sub-Parcel A3-1. The soil was sampled on July 20, 2017 and tested for Oil & Grease, DRO, PCBs, and TCLP metals. The sampled soil was approved for re-use under the cap in paved areas by the MDE in an email dated September 19, 2017.

Two areas of stockpiled soil containing approximately 500 cy (1 stockpile) and 1,500 cy (3 stockpiles) were generated during excavation inside the exclusion zones in Sub-Parcel A3-1. The soils were sampled during two sampling events on September 28, 2017 (one sample from 500 cy stockpile) and October 18, 2017 (one sample from each of three 500 cy stockpiles). A sample was collected from each stockpile and submitted to Phase Separation Science, Inc. and tested for DRO, GRO, Oil & Grease, PCBs, total metals, and hexavalent chromium. The soils from the two stockpile areas (500 cy and 1,500 cy) were approved for re-use under capped areas on-site by the MDE in emails dated October 5, 2017 and October 25, 2017, respectively. However, because the contractor determined that the soils were not suitable for compaction, the soils were disposed of at Greys Landfill. The soils were approved for disposal by the MDE in emails dated October 12, 2017 and October 25, 2017 for the first and second rounds of sampling, respectively. Disposal manifests will be included with the Sub-Parcel A3-1 Development Completion Report.

2. *Soil and Water Management – Parcel B6-1: "All slag materials brought to the site for use as structural fill were approved for their intended use by the MDE." Could you please clarify this statement? Is "structural fill" referring to the building foundation pad on this parcel? Also, define "intended use" and provide a reference for the MDE approval referred to in this statement.*

Slag brought to the site was placed under capped areas, i.e. under the building pad foundation, for use as structural fill, and as utility trench backfill. The placement of slag as fill under capped areas has been approved by the MDE in various documents, e.g. the B5-1 Response and Development Work Plan (RADWP) dated September 27, 2017. The use of slag under capped areas was also approved in an email from the MDE regarding the Parcel A4 RADWP dated August 22, 2017. Slag has been approved by the MDE for use as utility trench backfill in areas requiring capping in an email dated November 28, 2017. If slag is used to backfill utility trenches in uncapped areas, capping of the utility trench would be necessary.

3. *Soil Management – Parcel B5-1: "All slag materials brought to the site for use as fill were approved for their intended use by the MDE." Please make this statement more specific to the site. Slag materials were approved for use as fill on this area of Parcel B5-1 due to its location underneath a VCP cap. This level of detail is necessary since there are portions of this parcel that do not require a VCP cap and there are requirements for approval of slag on those areas that have not yet been completed.*

Slag brought to the site was placed under capped areas, i.e. under the building pad foundation, for use as structural fill, and as utility trench backfill. If slag is used to backfill utility trenches in uncapped areas (or if the trench will function as part of the cap including the section to be installed through the B5 Building exposure unit) capping of the utility trench would be necessary.

4. *Notable Occurrences – Parcel B22 - Phase 1: Provide more detail regarding this event, including: date and method (i.e., email, phone call) for notifying the MDE. Also, it is assumed that the excavated soils were sampled for disposal or reuse on the site but this detail is not provided. Please provide additional details regarding the handling of these stockpiled soils.*

On May 17, 2017 a buried utility line containing a large quantity of an oily substance exhibiting strong petroleum odors was damaged. A sample of the oily water was collected the same day and submitted to Phase Separation Science, Inc. and analyzed for volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). The oily water was pumped into a sedimentation basin by an on-site contractor. A vacuum truck was used to pump approximately 4,000 gallons of oily water from the sedimentation basin into a frac tank. The on-site contractor received approval from Tradepoint Atlantic personnel to pump the material to a storm drain leading to the on-site water treatment plant.

All materials excavated from the impacted area were segregated and placed on plastic and covered with additional plastic sheeting. The concrete slab under the containment area was inspected and observed to contain no obvious cracks or holes. An email requesting permission to sample the soil was sent to the MDE on October 24, 2017. The MDE provided approval to sample in an email dated October 25, 2017. The segregated materials were sampled during the fourth quarter of 2017 (on October 27, 2017), and samples were sent to Phase Separation Science, Inc. for analysis of DRO, GRO, Oil & Grease, PCBs, total metals, and hexavalent chromium. Following receipt of the sampling results, the MDE provided approval in an email dated November 7, 2017 to spread the soil from both stockpiles in an area north of the Parcel B22, Phase 1 Development Area.

A sample of the oily water was collected on May 17, 2017 and submitted to Phase Separation Science, Inc. and analyzed for volatile organic compounds (VOCs) and PCBs. The on-site Contractor received approval from Tradepoint Atlantic personnel to pump the material to a storm drain leading to the on-site water treatment plant.

If you have any questions, or if we can provide any additional information at this time, please do not hesitate to contact ARM Group Inc. at 410-290-7775.

Respectfully submitted,
ARM Group Inc.

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

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

ARM Group Inc.
Earth Resource Engineers and Consultants

January 29, 2018

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

Re: Quarterly Development Status Update
Fourth Quarter 2017
Area B: Sub-Parcel B6-1
Tradepoint Atlantic
Sparrows Point, Maryland

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 B6-1 (the Site) during the fourth quarter of 2017. The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) was approved by the Maryland Department of the Environment (MDE) on June 29, 2017 and by the United States Environmental Protection Agency (USEPA) on September 26, 2017. The main development of Sub-Parcel B6-1 includes the construction of a large warehouse building. The expected development of Sub-Parcel B6-1 includes grading, construction of a slab on-grade for the structure, hot mix asphalt (HMA) paving, connections to existing stormwater systems, lighting improvements, landscaping improvements, and other construction tasks. Development work completed on Sub-Parcel B6-1 prior to October 1, 2017 is discussed in the Quarterly Development Status Update for the third quarter of 2017 (dated October 27, 2017).

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during pre-development (demolition phase) and 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

MCM Management Corp. began demolition and site preparation activities on September 5, 2017. Development work has commenced with Clayco as the General Contractor. A slag building pad

was laid and graded. Construction of the building has commenced and is ongoing. Utility trench work associated with the building construction is ongoing.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors. During the fourth quarter of 2017, some exceedances of the 3.0 mg/m^3 action level were observed. However, the exceedances appeared to be associated with trucks passing near the monitor and did not last more than five minutes. When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust.

Soil Management

Slag brought to the site was placed under capped areas, i.e. under the building pad foundation, for use as structural fill, and as utility trench backfill.

The EP screened excavated material with a MultiRAE photoionization detector (PID). During the fourth quarter of 2017, approximately 100 cubic yards (cy) of soil were segregated during excavation of a storm drain trench and stockpiled on the Site and covered with plastic sheeting. Soil sampling and disposal are discussed below.

Water Management

No dewatering occurred in Sub-Parcel B6-1 during the fourth quarter of 2017.

Soil Sampling and Disposal

One stockpile of approximately 100 cy was segregated and stockpiled on the northern portion of the Site. A composite sample was collected on December 7, 2017 and sent to Phase Separation Science, Inc. and analyzed for diesel range organics (DRO), gasoline range organics (GRO), Oil & Grease, polychlorinated biphenyls (PCBs), total metals, and hexavalent chromium. The soil was approved by the MDE via email on January 2, 2018 for reuse under the building foundation on the Site but has not yet been moved.

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

Respectfully Submitted,
ARM Group Inc.

Melissa Replogle

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

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

ARM Group Inc.
Earth Resource Engineers and Consultants

July 17, 2018

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

Re: Quarterly Development Status Update
First Quarter 2018
Area B: Sub-Parcel B6-1
Tradepoint Atlantic
Sparrows Point, Maryland

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 B6-1 (the Site) during the first quarter of 2018. The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) was approved by the Maryland Department of the Environment (MDE) on June 29, 2017 and by the United States Environmental Protection Agency (USEPA) on September 26, 2017. The main development of Sub-Parcel B6-1 includes the construction of a large warehouse building. The expected development of Sub-Parcel B6-1 includes grading, construction of a slab on-grade for the structure, hot mix asphalt (HMA) paving, connections to existing stormwater systems, lighting improvements, landscaping improvements, and other construction tasks. Development work completed on Sub-Parcel B6-1 prior to January 1, 2018 is discussed in previously submitted Quarterly Development Status Updates (dated October 27, 2017 and January 29, 2018).

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during pre-development (demolition phase) and 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 work commenced prior to the first quarter of 2018 with Clayco as the General Contractor. Grading was completed for a parking lot. Construction of the building is ongoing. Utility trench work associated with the building construction is ongoing.

Dust Monitoring

Dust monitoring was performed with MetOne E-Sampler dust monitors. During the first quarter of 2018, no exceedances of the 3.0 mg/m^3 action level were observed. When dust generation was anticipated due to site conditions and planned development work, the Contractor proactively utilized a water truck to suppress dust.

Soil Management

Slag brought to the site was placed under capped areas, i.e. under the building pad foundation, for use as structural fill. Slag was also placed beneath parking areas which were not originally designated as capped areas in the RADWP. Pre-existing slag that was excavated during utility installations was either placed back into the trench as backfill or was placed under parking areas.

The EP screened excavated material with a MultiRAE photoionization detector (PID). During the first quarter of 2018, no soil was segregated due to elevated PID readings, odors, or staining.

During the excavation of the basin, a sandy clay material with no evidence of staining, odors, or elevated PID readings was encountered. Due to the Contractor's desire to reuse the material as clean fill, two preliminary samples were collected on January 18, 2018, and a Work Plan for additional sampling was submitted to the MDE by HCEA. Four additional samples were collected on February 22, 2018. The laboratory results were provided to the MDE and the excavated soil was approved by MDE on March 5, 2018 for use as clean fill above the geotextile maker fabric in landscaped areas.

Excavated Soil Sampling and Disposal

During the first quarter of 2018, no materials were segregated due to elevated PID readings, staining, or odors. Thus, no sampling of stockpiled soil was required, and no soils were removed from the site for disposal at Greys Landfill or elsewhere.

Water Management

All dewatering discharges associated with the development of Sub-Parcel B6-1 were transmitted to a storm drain identified by Tradepoint Atlantic personnel as leading to the on-site water treatment facility.

On January 26, 2018, a water line was damaged during the installation of a storm drain in the Southwest portion of the Site. A channel was dug to divert the water into a sediment basin. The water was observed to be clear with no sheen or odors during the de-watering.

Notable Occurrences
None

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

Respectfully Submitted,
ARM Group Inc.

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

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

ARM Group Inc.
Earth Resource Engineers and Consultants

July 17, 2018

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

Re: Quarterly Development Status Updates
First Quarter 2018
Area A: Sub-Parcel A3-1;
Area B: Sub-Parcel B5-1 and Sub-Parcel B6-1
Responses to Agency Comments
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group Inc. (ARM) is pleased to provide the following responses to comments received from the Maryland Department of the Environment (MDE) in an email dated May 7, 2018. The MDE provided comments on the 2018 First Quarter Development Status Updates for Sub-Parcels A3-1, B5-1, and B6-1, each of which was dated May 3, 2018. No comments were received from the United States Environmental Protection Agency (USEPA). This Comment Response Letter accompanies revised submissions of the Sub-Parcel A3-1 and Sub-Parcel B6-1 Quarterly Development Status Updates for the First Quarter of 2018 (Revision 1). A new revision was not prepared for the Sub-Parcel B5-1 Quarterly Development Status Update due to the minor nature of the MDE comment on this document. Responses to specific comments are provided below; original comments are included in italics with responses following.

Sub-Parcel A3-1:

1. *Did the electronic dust monitoring get discontinued based on a certain portion of the site being paved? What was the rationale for switching to visual observations only?*

   Electronic dust monitoring was discontinued after the majority of the parcel had been capped and the site contractor informed the Environmental Professional (EP) that all subsurface excavations had been completed. No exceedances of the 3.0 mg/m^3 dust action level were detected during the first quarter of 2018. Beginning on February 15, 2018 the EP continued monitoring for visible dust during development work, which

included excavations not originally anticipated by the site contractor. The Quarterly Development Status Update has been updated to include these details.

2. *Was the BGE underground utility line that ran through the coal tar area installed in the 2nd Quarter 2018? Is this why details are not provided in this progress report?*

   The utility line installation through the coal tar area (near the RW-003 Excavation Area) occurred in March 2018. At the time of the excavation, the EP was not aware that the excavation passed through the area with potential coal tar contamination. However, excavated soils were screened using a PID as was required during all development work on the parcel. Excavated material exhibiting elevated PID readings and odors was segregated on plastic and covered with plastic. The Sub-Parcel A3-1 Quarterly Development Status Update for the First Quarter of 2018 (Revision 1) has been updated to include these details. These excavated materials were sampled during the second quarter of 2018. Details will be provided in the Sub-Parcel A3-1 Quarterly Development Status Update for the Second Quarter of 2018.

3. Can we expect to see the details re: well abandonment and installation in the upcoming IM progress report for Parcel A3?

   Permanent monitoring wells RW06-MW(S) and RW06-MW(D) were damaged during construction and thus could not be properly abandoned. Installation details for the replacement wells will be provided in the upcoming Interim Measures Progress Report.

Sub-Parcel B5-1:

4. *Is the excavated and stockpiled soil covered on site?*

   The excavated soil on Sub-Parcel B5-1 is not covered because no physical evidence of contamination was observed during excavation at the Site. As stated in the approved Sub-Parcel B5-1 Response and Development Work Plan (RADWP), soil designated for replacement on-site which does not otherwise exhibit evidence of contamination (as determined by the EP) may be managed in large stockpiles as long as they remain within the erosion and sediment controls. Grass has begun to grow on the stockpiled soil in Sub-Parcel B5-1. Since there is no information to add, a new revision has not been prepared for the Sub-Parcel B5-1 Quarterly Development Status Update for the First Quarter of 2018.

Sub-Parcel B6-1:

5. *Is the utility area on this parcel considered a "capped" area? I had thought that the only area officially requiring a VCP cap was the building foundation. However, this progress report identifies slag placed as utility backfill as a capped area, different from the*

parking areas that are undergoing sampling to determine if they can remain uncapped. Please clarify.

Slag was placed under the building pad as well as under parking areas. Based on clarification received from the subcontractor, the Sub-Parcel B6-1 Quarterly Development Status Update has been revised to clarify that slag was not brought onto the site as utility trench backfill. Rather, pre-existing slag that was removed during excavations for utility installation was either placed back into the trench as backfill or was placed under parking areas. The pre-existing slag fill was determined to not require capping in the Sub-Parcel B6-1 RADWP. A determination has not yet been made regarding whether capping is required for areas where imported slag has been placed.

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

Respectfully submitted,
ARM Group Inc.

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

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

ARM Group Inc.
Engineers and Scientists

August 21, 2018

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

Re: Quarterly Development Status Update
Second Quarter 2018
Area B: Sub-Parcel B6-1
Tradepoint Atlantic
Sparrows Point, Maryland

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 B6-1 (the Site) during the second quarter of 2018. The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) was approved by the Maryland Department of the Environment (MDE) on June 29, 2017 and by the United States Environmental Protection Agency (USEPA) on September 26, 2017. The expected development of Sub-Parcel B6-1 includes grading, construction of a slab on-grade warehouse building, hot mix asphalt (HMA) paving, connections to existing stormwater systems, lighting improvements, landscaping improvements, and other construction tasks. Development work completed on Sub-Parcel B6-1 prior to April 1, 2018 is discussed in previously submitted Quarterly Development Status Updates (dated October 27, 2017, January 29, 2018, and July 17, 2018).

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during pre-development (demolition phase) and 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 work commenced prior to the second quarter of 2018 with Clayco as the General Contractor. Construction of the building is complete. Utility trench work associated with the building construction is complete. Minor landscaping and paving work is ongoing.

Dust Monitoring

When dust generation was anticipated due to site conditions and planned development work, the Contractor utilized a water truck to suppress dust. Dust monitoring was performed with MetOne E Samper dust monitors prior to April 20, 2018. Between April 1 and April 20, 2018, no exceedances of the 3.0 mg/m^3 action level were observed. Electronic dust monitoring was discontinued after large portions of the parcel had been capped and the majority of the excavations completed. After April 20, 2018, only small periodic excavations were expected to continue. HCEA continued to inspect the site for visible dust, but no data were collected. Excessive dust was not observed during the second quarter of 2018.

Soil Management

Clean fill was placed in landscaped areas during the second quarter of 2018. This fill was approved as discussed in the Sub-Parcel B6-1 Development Status Update for the First Quarter of 2018. Documentation will be provided with the Sub-Parcel B6-1 Development Completion Report.

The EP screened excavated material with a MultiRAE photoionization detector (PID). During the second quarter of 2018, no soil was segregated due to elevated PID readings, odors, or staining.

Excavated Soil Sampling and Disposal

During the second quarter of 2018, no materials were segregated due to elevated PID readings, staining, or odors. Thus, no sampling of stockpiled soil was required, and no soils were removed from the site for disposal at Greys Landfill or elsewhere.

Water Management

No dewatering occurred during the second quarter of 2018.

Notable Occurrences

None

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.
Staff Engineer

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

ARM Group Inc.
Engineers and Scientists

October 31, 2018

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

Re: Quarterly Development Status Update
Third Quarter 2018
Area B: Sub-Parcel B6-1
Tradepoint Atlantic
Sparrows Point, Maryland

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 B6-1 (the Site) during the third quarter of 2018. The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) was approved by the Maryland Department of the Environment (MDE) on June 29, 2017 and by the United States Environmental Protection Agency (USEPA) on September 26, 2017. The expected development of Sub-Parcel B6-1 includes grading, construction of a slab on-grade warehouse building, hot mix asphalt (HMA) paving, connections to existing stormwater systems, lighting improvements, landscaping improvements, and other construction tasks. Development work completed on Sub-Parcel B6-1 prior to July 1, 2018 is discussed in previously submitted Quarterly Development Status Updates (dated October 27, 2017; January 29, 2018; July 17, 2018; and August 21, 2018).

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during pre-development (demolition phase) and 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. The EP reported that no intrusive work requiring monitoring was performed during July 2018.

Development Progress

Development work commenced prior to the third quarter of 2018 with Clayco as the General Contractor. Construction of the building is complete. Utility trench work, grading, and paving

associated with the building construction are complete. Landscape capping was performed during the third quarter of 2018, and all landscaping work is now complete. Work in the basin in the southwestern portion of the site was performed in August and September 2018 and is ongoing.

Dust Monitoring

Electronic dust monitoring was discontinued after all excavations and the majority of capping had been completed. HCEA continued to inspect the site for visible dust during the third quarter of 2018, but no data were collected. Excessive dust was not observed during the third quarter.

Soil Management

Clean fill was placed in landscaped areas during the third quarter of 2018. This fill was approved as discussed in the Sub-Parcel B6-1 Development Status Update for the First Quarter of 2018. Documentation will be provided with the Sub-Parcel B6-1 Development Completion Report.

The EP screened excavated material with a MultiRAE photoionization detector (PID). During the third quarter of 2018, no soil was segregated due to elevated PID readings, odors, or staining.

Excavated Soil Sampling and Disposal

During the third quarter of 2018, no excavations were performed. Thus, no sampling of stockpiled soil was required, and no soils were removed from the site for disposal at Greys Landfill or elsewhere.

Water Management

During the third quarter of 2018, all dewatering discharges associated with the development of Sub-Parcel B6-1 were transmitted to the sediment basin in the southwestern portion of the site.

Notable Occurrences

None

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.
Staff Engineer

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

ARM Group Inc.
Engineers and Scientists

January 30, 2019

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

Re: Quarterly Development Status Update
Fourth Quarter 2018
Area B: Sub-Parcel B6-1
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 B6-1 (the Site) during the fourth quarter of 2018. The Sub-Parcel B6-1 Response and Development Work Plan (RADWP) (Revision 1) dated June 9, 2017 was approved for implementation by the Maryland Department of the Environment (MDE) on June 29, 2017. A subsequent revision of the RADWP (Revision 2) dated July 7, 2017 was approved by the United States Environmental Protection Agency (USEPA) on September 26, 2017. The overall development of Sub-Parcel B6-1 includes grading, construction of a slab on-grade warehouse building, hot mix asphalt (HMA) paving, connections to existing stormwater systems, lighting improvements, landscaping improvements, and other construction tasks. Development work completed on Sub-Parcel B6-1 prior to October 1, 2018 is discussed in previously submitted Quarterly Development Status Updates (dated October 27, 2017; January 29, 2018; July 17, 2018; August 21, 2018; and October 31, 2018).

Environmental Oversight

Full-time oversight was performed by an Environmental Professional (EP) provided by Hillis Carnes Engineering Associates (HCEA) during pre-development (demolition phase) and 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. No intrusive activities requiring EP oversight were performed in November or December 2018.

Development Progress

Development work commenced prior to the fourth quarter of 2018 with Clayco as the General Contractor. Construction of the building is complete. Utility trench work, grading, and paving associated with the building construction are complete. Stoned landscape areas were re-capped with 24 inches of MDE Voluntary Cleanup Program approved clean fill. Work in the basin in the southwestern portion of the site was performed during the fourth quarter of 2018 and has now been completed.

Dust Monitoring

Electronic dust monitoring was discontinued after excavations and the majority of capping had been completed prior to the start of the fourth quarter. HCEA continued to inspect the site for visible dust during the fourth quarter of 2018, but no data were collected. Excessive dust was not observed during the fourth quarter.

Soil Management

Clean fill was placed in in the basin in the southwestern portion of the site during the fourth quarter of 2018. This fill was approved as discussed in the Sub-Parcel B6-1 Development Status Update for the First Quarter of 2018. Documentation will be provided with the Sub-Parcel B6-1 Development Completion Report.

No excavations were performed during the fourth quarter of 2018. Therefore, no soil screening, materials segregation, stockpile sampling, or offsite removal of soils to Greys Landfill or elsewhere were required.

Excavated Soil Sampling and Disposal

During the fourth quarter of 2018, no excavations were performed. Therefore, no sampling of stockpiled soil or offsite soil removal for disposal at Greys Landfill or elsewhere were required.

One small stockpile (approximately 100 cubic yards) of segregated soil generated during Sub-Parcel B6-1 development work remains in the northern portion of Parcel B22 (outside the Parcel B22, Phase 1 development area). This stockpile has been sampled, and the MDE has approved the soil for reuse under a future capped area elsewhere on the Tradepoint Atlantic property.

Water Management

No dewatering occurred during the fourth quarter of 2018.

Notable Occurrences

None

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.
Staff Engineer

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

APPENDIX J

HILLIS-CARNES
ENGINEERING ASSOCIATES

Memo

To: Mr. Peter Haid – Tradepoint Atlantic

From: Ms. Gina Galimberti

cc: Mr. Keith Progin

Date: October 18, 2017

Re: Sub-Parcel B6-1 - Pre-Construction Meeting

On October 11, 2017, a pre-construction meeting for Sub-Parcel B6-1 was held at the Tradepoint office at 1600 Sparrows Point Boulevard. In attendance were:

- Mr. Peter Haid – Environmental Director with Tradepoint Atlantic
- Mr. Srini Nookala – Project Manager with Clayco
- Mr. Austin Johnson – Project Engineer with Clayco
- Mr. DJ Cox with Dixie Construction
- Mr. Keith Progin – Senior Environmental Project Manager with Hillis-Carnes
- Ms. Gina Galimberti – Environmental Services Manager with Hillis-Carnes
- Mr. Chris Hillis – Project Engineer with 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; and d) documentation. A summary of these roles was provided to the attendees and is attached to this memorandum.

Sparrows Point Terminal – Area B - Sub-Parcel B6-1
Hillis-Carnes Engineering Associates, Inc. (HCEA) - Environmental Professional (EP) Roles
October 11, 2017

Sub-Parcel B6-1 Development Area consists of 43.8 acres in the southern portion of Parcel B6, 27.0 acres in Parcel B22, and 2.4 acres in the northern portion of Parcel B3, for a total of 73 acres. Sub-Parcel B6-1 Development Area was formerly occupied by portions of the finishing Mills Area including the Hot Strip Mill Area. The area is slated for development and use as an approximate 855,000 square foot warehouse facility with associated parking areas and two expanded storm water detention ponds for the adjacent development on Parcel B22. HCEA is acting as the Environmental Professional (EP) for Sub-Parcel B6-1 during the Development Phase of the project, as described in the Response and Development Work Plan for Area B: Sub-Parcel B6-1 (Revision 2, July 7, 2017). The EP's roles are as follows.

- **Monitoring of Excavated Soils**

HCEA is monitoring the environmental condition of soil as it is being excavated, generally during the following activities: a) site grading and site preparation; b) excavation of underground utility trenches for new utilities; c) excavation of foundation structures; and d) excavation for installation of light poles and inlet/manholes. The monitoring includes the following:

- Soils will be monitored with a calibrated photoionization detector (PID) for evidence of volatile organic compounds (VOCs). Evidence of VOCs is considered to be sustained PID readings greater than 10 units on the PID;
- Soils will be inspected for visual indication of environmental impact (i.e., staining apparently due to impact);
- Soils will be inspected for olfactory indication of environment impact (i.e., odors apparently due to impact);
- Soils will be inspected for the presence of waste materials; and/or
- Soils will be inspected for evidence of free oil (i.e., oil which could potentially be drained or otherwise extracted from the soil and which is often referred to as "non-aqueous phase liquids" or NAPL)

If soils meeting any of the criteria above are encountered, HCEA will coordinate with the General Contractor and their Subcontractor(s) to segregate those materials by placing the materials on plastic sheeting (6-mil minimum) and covering the material with plastic sheeting at the end of each work day. HCEA will coordinate with the MDE's Voluntary Cleanup Program Project Manager for further evaluation of this material (e.g., for potential re-use on-parcel, for off-parcel disposal, etc.)

With regard to NAPL as described previously in the last bullet above, if NAPL is encountered in the utility trench, the extents of the impacts shall be delineated by excavating trenches perpendicular to the utility alignment to examine the soil for physical evidence of NAPL. If NAPL is confirmed to be present, trench plugs shall be constructed in the portion of the utility trench where NAPL is confirmed.

- **Air Monitoring During the Development Phase**

HCEA is on-site conducting daily air monitoring for total dust. This includes a work area monitor and two perimeter monitors. Specifically, HCEA's on-site personnel will utilize a monitor to provide mass dust readings throughout the work day within the work area, or immediately downwind of the work area, depending on site conditions and activity. In addition to the work area monitoring, monitors will be stationed daily at two of the four perimeters of Sub-Parcel B6-1. The perimeters will correspond to those that are upwind and downwind of the work area, based on the predicted prevailing wind direction for that day.

Where dust readings are sustained above the total dust action limit of 3.0 milligrams per cubic meter of air (mg/m^3), HCEA will coordinate with the General Contractor to discuss potential methods for supplementing the standard dust suppression methods in order to address the dust levels. Such methods could include, but will not necessary be limited to, an increase in the frequency of water trucks that are spraying roads, covering of soil piles with plastic sheeting, etc.

- **Monitoring of Dewatering Activity**

If dewatering becomes necessary during the Development Phase of the project, the water must be conveyed to the Humphrey Creek Waste Water Treatment Plant (HCWWTP). HCEA will document dewatering activity. If laboratory analysis of water produced as a result of the dewatering becomes necessary, HCEA can collect water samples for transport to an analytical laboratory.

- **Close-Out Documentation**

HCEA will provide close-out documentation for the project, in accordance with the spreadsheet that is on the reverse side of this summary page.

Documentation Requirements for VCP Completion Reports

Documentation	Responsible Party
General:	
Pre-construction meeting - memo with list of attendees and attached EP Roles Summary	TPA
Daily Construction Observation Reports	EP
Soil Excavations:	
Soil Screening: PID Readings, Visual and Olfactory Observations (general statement if under 10 ppm; maximum readings if above 10 ppm)	EP
Impacted Soils: Stockpile Locations & Stabilization Measures	EP
Impacted Soils: Waste Characterization Sample Results or MDE inspection results	EP
Impacted Soils: Disposal Manifests (for off-site disposal and Greys Landfill)	EP
Impacted Soils: Narrative for on-site placement and approximate quantity (in daily report)	EP
Non-Impacted Soils: Off-parcel disposal - Narrative of approximate quantity and location	EP
Non-Impacted Soils: On-parcel placement - Narrative of location for large quantities only (basins	EP
Dust monitoring:	
Monitoring equipment (manufacturer and model)	EP
Monitoring locations and results (appended to daily report)	EP
Summary/Log of dust suppression actions (included in daily report)	EP
Construction:	
As-Built Drawings, including: - Minimum thickness of all layers: clean fill, subbase, asphalt layers, floor slabs - Grading and compaction specifications - Detention pond construction - Landscaping details	Contractor
Construction Photos (of milestones; note-worthy occurrences; minimum of monthly)	EP
Over excavation of utility trenches (if needed per NAPL Contingency Plan)	EP
VCP-Approved Clean Fill:	
Source Documentation (e.g., facility affidavit for clean material)	EP
Analytical Results (in absence of facility affidavit)	EP
Truck Tickets for Imported VCP-Approved Clean Fill	EP
Water Management:	
Grading Permit	Contractor
Groundwater Discharge Approvals and locations (as applicable)	EP
Collection/Reporting of samples of water removed from excavations	EP
Documentation of what is sent to WWTP or Outfalls	EP
Health and Safety protocols:	
HASP Acknowledgement (HASP cover page and management approval page)	Contractor

TPA = Tradepoint Atlantic

EP = Environmental Professional

APPENDIX K

GENERAL NOTES:

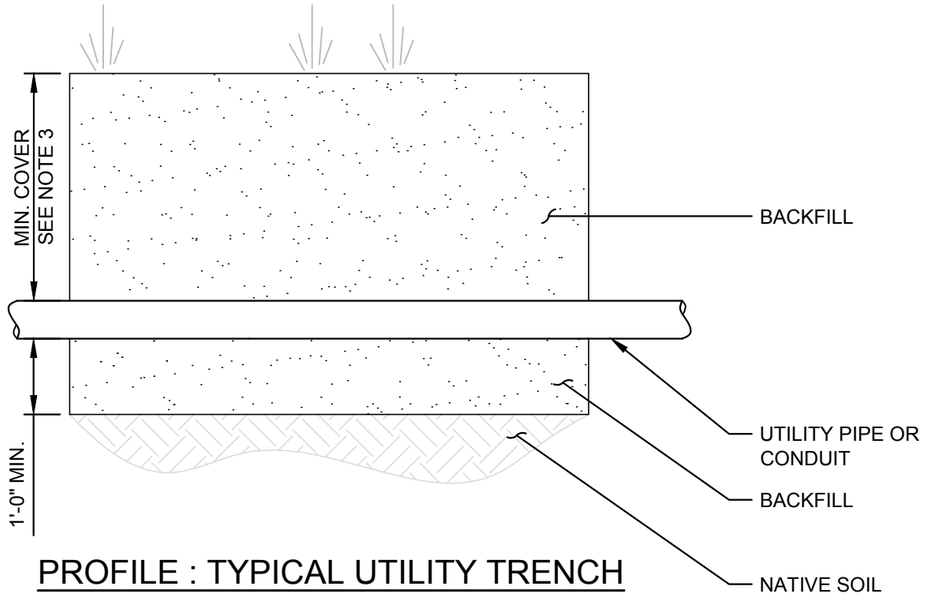
1. ALL PIPES OR CONDUIT SHALL BE LEAK-PROOF AND WATERTIGHT. ALL JOINTS SHALL BE SEALED OR GASKETED.

2. ALL PIPES SHALL BE PROPERLY PLACED AND BEDDED TO PREVENT MISALIGNMENT OR LEAKAGE. PIPE BEDDING SHALL BE INSTALLED IN SUCH A MANNER AS TO MINIMIZE THE POTENTIAL FOR ACCUMULATION OF WATER AND CONCENTRATED INFILTRATION.

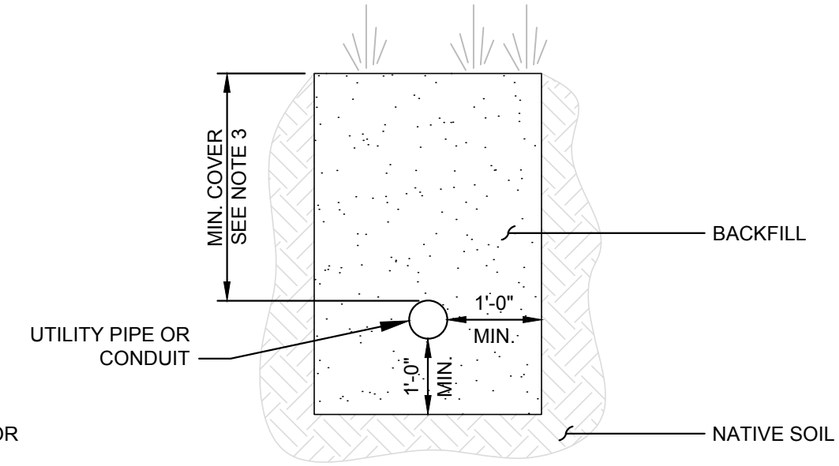
3. MINIMUM COVER ABOVE UTILITY SHALL BE BASED ON SPECIFIC UTILITY REQUIREMENTS.

4. TRENCHES PASSING THROUGH AREAS WHICH ARE NOT DESIGNATED TO BE CAPPED SHALL BE BACKFILLED WITH BEDDING AND MATERIALS APPROVED BY MDE FOR INDUSTRIAL USE.

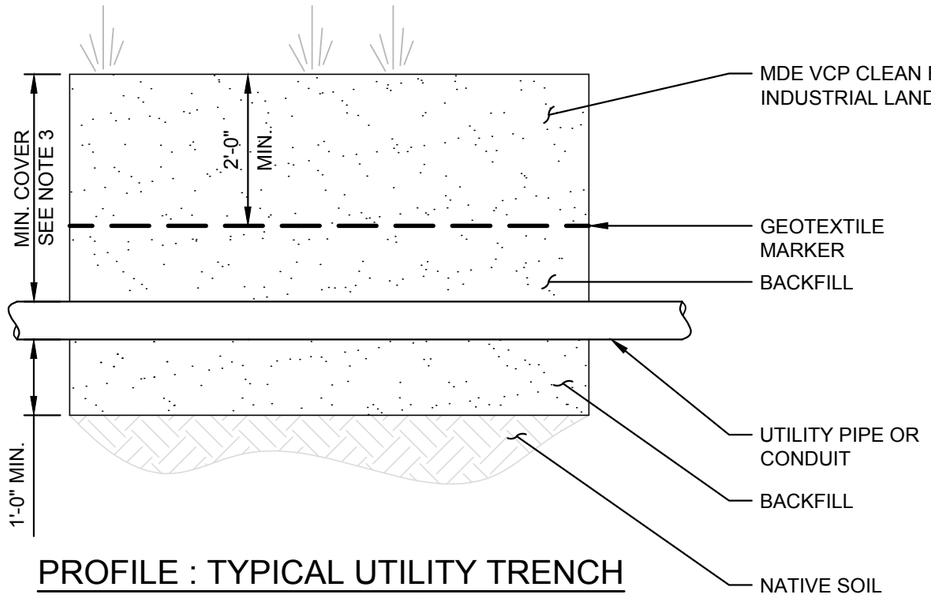
5. FOR ANY UTILITY SEGMENT WHICH GOES THROUGH AN AREA WHICH IS DESIGNATED TO RECEIVE A LANDSCAPED CAP, THE UPPER 2 FEET OF BACKFILL MUST MEET THE REQUIREMENTS OF MDE VCP CLEAN FILL FOR INDUSTRIAL LAND USE. IN THIS CASE THE MDE VCP CLEAN FILL WILL BE UNDERLAIN BY A GEOTEXTILE MARKER FABRIC. UTILITY SEGMENTS WHICH GO THROUGH AREAS WHICH ARE DESIGNATED TO RECEIVED A PAVED CAP (OR DEPTHS BELOW THE MARKER FABRIC) WILL BE BACKFILLED WITH MATERIALS APPROVED BY MDE FOR USE BELOW THE CAP, WHICH MAY INCLUDE PROCESSED SLAG AGGREGATE AMONG OTHER MATERIALS.



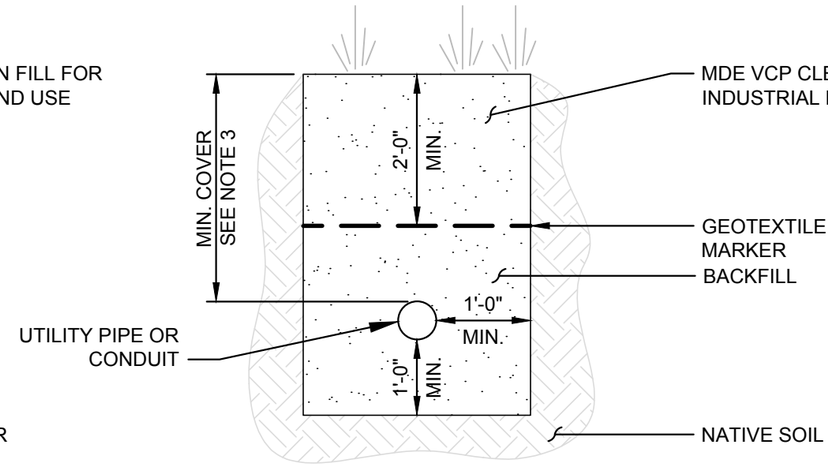
PROFILE : TYPICAL UTILITY TRENCH



SECTION : TYPICAL UTILITY



PROFILE : TYPICAL UTILITY TRENCH
(SEE NOTE 5)



SECTION : TYPICAL UTILITY
(SEE NOTE 5)

ARM Group LLC
Engineers and Scientists

TYPICAL UTILITY
CROSS SECTIONS
Sparrows Point
Tradepoint Atlantic

October 2020
1/2" = 1'-0"
20010206

Figure
1

APPENDIX L

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Wednesday, May 30, 2018 12:33 PM
To: Keith Progin; Pete Haid
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: SPT Topsoil Sampling Plan - Old Court Road

Hello Keith

The material sampled is acceptable for use as clean fill for either commercial or industrial land use at Sparrows Point. As noted previously, the material must be transported and stockpiled at the site in a manor that prevents cross contamination and in accordance with all applicable sediment and erosion control requirements.

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

Barbara Brown
MDE Project Coordinator

On Wed, May 30, 2018 at 9:37 AM, Keith Progin <kprogin@hcea.com> wrote:

During the redevelopment activities at Old Court Road, approximately 10,000 yards of soil was stockpiled. While HCEA was on-site to collect samples from the topsoil, HCEA also collected four composite samples from the 10,000 yard stockpile. HCEA inspected the stockpile and did not observe evidence of concrete, brick, rubble, asphalt, etc. In addition, there was no evidence of staining, odors, or elevated PID readings from the soils used to generate the 4 composite samples. Please see the attached laboratory results.

Dixie is proposing transporting this 10,000 yard stockpile for use as clean fill in landscaped areas at Sparrows Point. Please advise.

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

From: Keith Progin
Sent: Friday, May 25, 2018 4:37 PM
To: 'Barbara Brown -MDE-'; Pete Haid
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: RE: SPT Topsoil Sampling Plan - Old Court Road

Thank you for your quick response. I've been informed that Dixie will take measures to prevent cross contamination and install proper sediment controls.

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

From: Barbara Brown -MDE- [mailto:barbara.brown1@maryland.gov]
Sent: Friday, May 25, 2018 4:31 PM
To: Keith Progin; Pete Haid
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: SPT Topsoil Sampling Plan - Old Court Road

Hello Keith

The sample results look good for clean topsoil for industrial and commercial use.

So they may transport to SPT..however, the pile should be identified, marked and placed in such a way that there is no cross contamination from underlying material and with proper sediment control and dust management.

On Fri, May 25, 2018 at 4:17 PM, Keith Progin <kprogin@hcea.com> wrote:

Please see the attached laboratory report for the top soil samples collected at Old Court Road. Our original Work Plan called for the collection of four composite samples from an approximate 6,000 yard stockpile. Upon arriving on-site, I was informed that a second topsoil stockpile had been generated totaling approximately 8,000 yards. TS-1 through TS-4 were collected from the 8,000 yard stockpile and TS-5 through TS-8 were collected from the original 6,000 yard stockpile.

Dixie is proposing transporting the two topsoil stockpiles for use at SPT. Unfortunately, they have an immediate need for topsoil. Please advise.

Thanks and have a great holiday weekend!

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

From: Barbara Brown -MDE- [mailto:barbara.brown1@maryland.gov]
Sent: Friday, May 11, 2018 11:27 AM
To: Keith Progin
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: SPT Topsoil Sampling Plan - Old Court Road

Hi Keith

You may proceed with the work plan with the addition of herb/pesticides for two of the composites...

Barbara Brown

On Wed, Apr 18, 2018 at 3:52 PM, Keith Progin <kprogin@hcea.com> wrote:

Dixie has requested transporting approximately 4,000 yards of topsoil to SPT that has been generated at the Old Court Crossing Residential Development at 3209 Old Court Road in Pikesville, Maryland. Please see the attached work plan and aerial photograph. Please advise.

Thanks!

Keith Progin | Project Manager, Environmental Division

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HILLIS-CARNES
ENGINEERING ASSOCIATES

--

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.

--

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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.

From: Barbara Brown -MDE- [mailto:barbara.brown1@maryland.gov]
Sent: Wednesday, March 15, 2017 8:41 AM
To: Brandon Bonanno
Subject: Fwd: Sampling Report

---------- Forwarded message ----------
From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Date: Wed, Aug 26, 2015 at 5:05 PM
Subject: Fwd: Sampling Report
To: Brandon Bonanno <bbonanno@mcmdemo.com>

---------- Forwarded message ----------
From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Date: Tue, Apr 21, 2015 at 9:58 AM
Subject: Re: Sampling Report
To: "McMillan, Stephen" <smcmillan@walshgroup.com>, Mike Robertson <MRobertson@aec-env.com>, Brandon Bonanno <bbonanno@mcmdemo.com>, "Bhatia, Kapil" <kbhatia@walshgroup.com>

Hello All

As noted previously the soil sample from B-46 14-16' exceeds the allowable level of Arsenic for industrial use. Therefore, soil around B-46 will not be allowed to be transported to Sparrows Point. An investigation should be performed to define the area of elevated Arsenic that must be disposed of properly.

Sparrows Point may use the remaining in-situ soil within the area defined on the attached map at their discretion. This approval is only for Sparrows Point. Transport of soil from the defined area to any other location other than a permitted disposal facility will require separate approvals.

If soil that exhibits odors or staining is encountered during the removal operations it is not approved and should be segregated and properly staged for further testing.

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

Barbara Brown
MDE Project Coordinator

Keith Progin

From: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Wednesday, November 8, 2017 9:01 AM
To: Keith Progin
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject: Re: SPT B6-1 Clean Fill Cert - Sand

Hello Keith

The sand material described in the certification letter from York Building Products is approved for use at the Sparrows Point site.

On Wed, Nov 8, 2017 at 8:57 AM, Keith Progin <kprogin@hcea.com> wrote:

> Barbara – Please find attached a clean fill certification for your approval for sand from York Building Products to be used at B6-1.
>
> Let me know if you have any questions or need anything further.
>
> Thanks!

Keith Progin | Project Manager, Environmental Division

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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: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Monday, May 14, 2018 10:56 AM
To: Keith Progin; Gina L. Galimberti
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov); phaid@tradepointatlantic.com; James Calenda
Subject: Re: SPT - B6-1 Clean Fill Request

Hello Keith

The stone certification from the new quarry owner is acceptable and the material referenced may be used throughout the Tradepoint Atlantic facility as clean fill material.

If you have any questions please contact me.

Barbara Brown
MDE Project Coordinator

On Fri, May 11, 2018 at 3:14 PM, Keith Progin <kprogin@hcea.com> wrote:

Please see the attached affidavit for the proposed clean fill to be used under the western parking area at B6-1. The material comes from Martin Marietta (formerly Blue Grass). Please let me know if this material is suitable.

Thanks!

Keith Progin | Project Manager, Environmental Division

HILLIS-CARNES ENGINEERING ASSOCIATES

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ENGINEERING ASSOCIATES

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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: Barbara Brown -MDE- <barbara.brown1@maryland.gov>
Sent: Thursday, August 23, 2018 11:58 AM
To: Keith Progin
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov); phaid@tradepointatlantic.com
Subject: Re: SPT - B6-1 Clean Fill Request

Hello Keith

The material in the affidavits is acceptable for use as clean material above the CAP at Sparrows Point. However, in the future the affidavits should be provided and approved before the material is transported to the site.

On Thu, Aug 23, 2018 at 11:34 AM, Keith Progin <kprogin@hcea.com> wrote:

> Barbara,
>
> #2 washed gravel was brought onto B6-1 (Amazon) and was placed along the sidewalk on the eastern side of the building. Two affidavits are attached.
>
> The first affidavit is from Aggtrans that states they received the material from York Building Products storage yard at Pulaski Highway in Abingdon. The second affidavit is from York Building Products stating that it is a virgin material from their Belvedere mining/quarrying operation in Port Deposit.
>
> Please confirm that this material is acceptable for use above the cap at Sparrows Point.
>
> Thanks!
>
> **Keith Progin | Project Manager, Environmental Division**
>
> **HILLIS-CARNES ENGINEERING ASSOCIATES**
>
> Corporate Headquarters
> 10975 Guilford Road, Suite A
> Annapolis Junction, MD 20701
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HILLIS-CARNES
ENGINEERING ASSOCIATES

--

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.

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To: Keith Progin; Pete Haid
Cc: Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
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HILLIS-CARNES
ENGINEERING ASSOCIATES

--

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.

APPENDIX M

From: Barbara Brown -MDE-
To: Keith Progin
Cc: Jennifer Sohns -MDE-; Nick Stella; Pete Haid
Subject: Re: B6-1 Sediment Basin Sampling
Date: Monday, March 5, 2018 12:42:15 PM

Hello Keith

Based upon a review of the recent sampling results provided with your March 5, 2018 email and previous testing conducted, the material sampled from the B6-1 sediment basin may be used as clean fill above the geotextile at B6-1. This clean fill approval is only for Sparrows Point sites with proposed industrial land use.

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

Barbara Brown
MDE Project Coordinator

On Mon, Mar 5, 2018 at 11:32 AM, Keith Progin <kprogin@hcea.com> wrote:

> Please see the attached laboratory results for the sandy clay material that was excavated from the expanded Sediment Basin at B6-1. Again, the contractor is planning on using this material as Clean fill above the geotextile marker fabric in landscaped areas at B6-1. Please let me know if the material is approved for use.
>
> I should note that by the time we sampled the material, they had completed the excavation within the basin. Therefore, all 4 composite samples were collected from the stockpile. An excavator was utilized to allow us to grab our 10 point grabs from deeper depths within the stockpile.
>
> 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
>
> **From:** Jennifer Sohns -MDE- [mailto:jennifer.sohns@maryland.gov]
> **Sent:** Thursday, February 15, 2018 10:20 AM
> **To:** Keith Progin
> **Cc:** Barbara Brown -MDE-
> **Subject:** B6-1 Sediment Basin Sampling
>
> Hi Keith,

> This is a followup to our phone call today. You stated that approximately half of the sandy/clay soils in the sediment basin extension area were removed and stockpiled on the site in order to allow for some development work that needed to move forward. An environmental contractor has been on-site screening soils during the removal and no indications of contamination have been identified. I approved collecting two 10-pt composite samples from this stockpiled soil and the remaining two samples will be collected from soils that remain in-situ, as proposed. Also, it was noted that the slag layer has been removed and stockpiled on the parcel.
>
> Let me know if you have any questions or comments.
>
> Thank you,
>
> --
>
> Jennifer Sohns
>
>

--
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.

APPENDIX N

Modified Level D Contractor Certification
Ground Intrusive Work

In accordance with the *Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B6-1, Revision 2* dated July 7, 2017, Section 3.5.2, *Sub-Parcel B6-1 SLRA Results and Risk Characterization*, a site-specific ground intrusive work exposure duration of 120 days was 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:

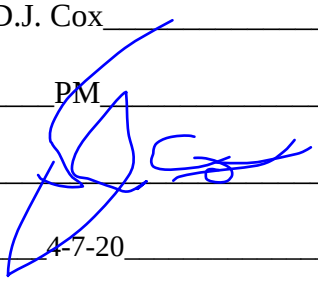
Prior to the start of the project ARCO adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work.

Statement Certification:

Company: DXI Const.

Name: D.J. Cox

Title: PM

Signature: 

Date: 4-7-20

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 O

N080N
TECHNICAL DATA SHEET
NONWOVEN GEOTEXTILE

N080N is a polypropylene, needle punched nonwoven geotextile for use in drainage and separation applications. It has been stabilized to resist degradation due to ultraviolet exposure and is resistant to commonly encountered mildew, insects and soil chemicals, and is non-biodegradable.

SPECIFICATIONS:

The N080N polypropylene nonwoven fabric will utilize the following characteristics:

PROPERTY	TEST METHOD	MIN. AVG. ROLL VALUE
Grab Tensile Strength[1]	ASTM D4632	205 lbs
Grab Tensile Elongation	ASTM D4632	50%
CBR Puncture	ASTM D6241	525 lbs
Trapezoid Tear Strength	ASTM D4533	80 lbs
UV Resistance @ 500 hrs	ASTMD4355	70%
Apparent Opening Size (AOS)	ASTM D4751	80 US Sieve
Permittivity (sec^{-1})	ASTM D4491	1.3 (sec^{-1})
Flow Rate	ASTM D4491	90 gpm/ft^2

Values quoted above are the result of multiple tests conducted at an independent testing facility. N080N meets or exceeds values listed.
[1] Values apply to both machine and cross-machine directions

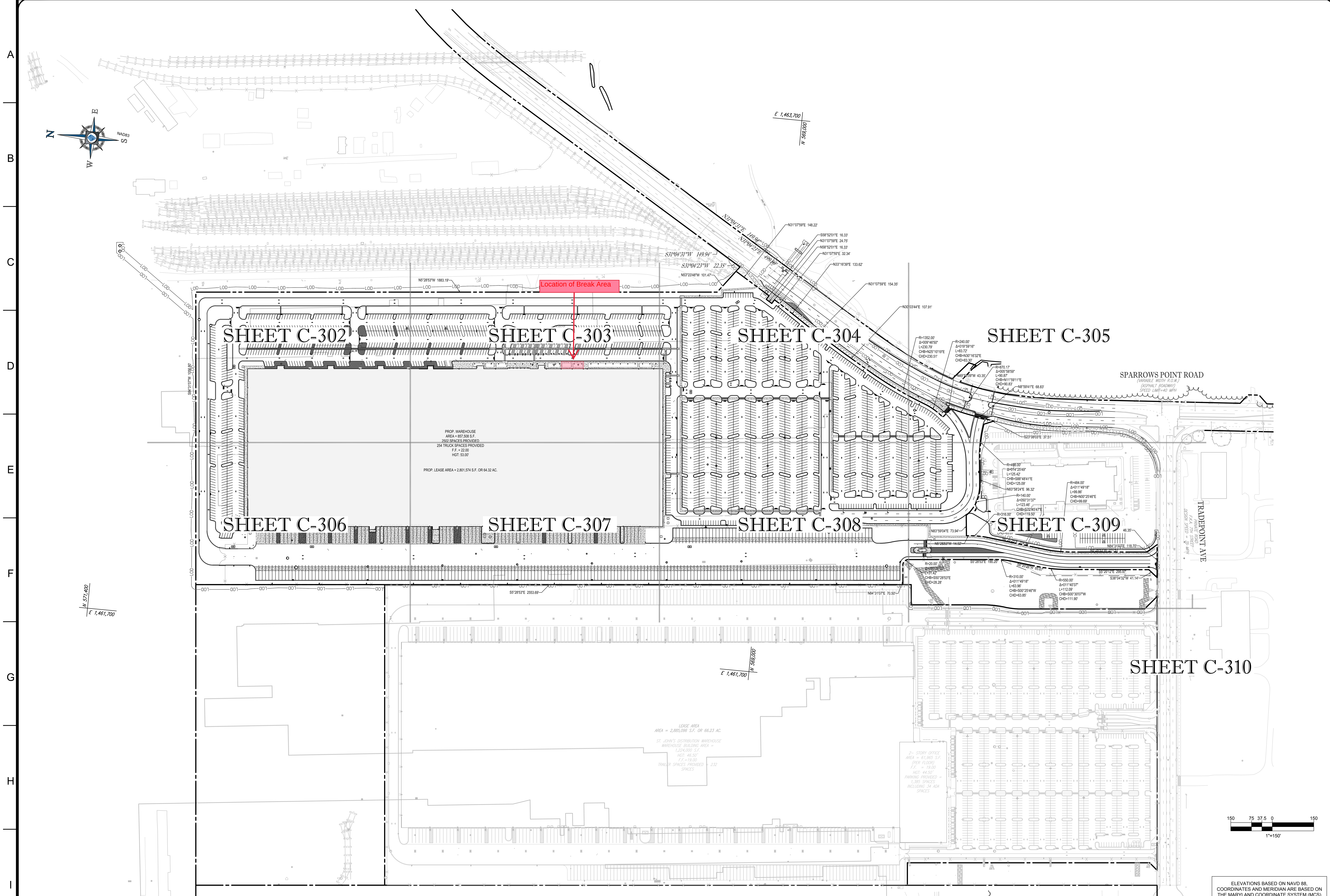
PACKAGING:

Roll Width	12.5 ft.	15 ft.
Roll Length	360 ft.	300 ft.
Roll Area	500 yd^2	500 yd^2

NTPEP "ACF Environmental is certified and successfully complies with AASHTO's NTPEP Geotextiles Technical Committee Work Plan"

11 2017

APPENDIX P



ARCHITECTURAL REFERENCE

THIS PLAN IS BASED ON ARCHITECTURAL PLANS PREPARED BY MACGREGOR ASSOCIATES ARCHITECTS, ENTITLED "PROJECT SPARROWS POINT; 1700 SPARROWS POINT BLVD; SPARROWS POINT, MARYLAND"; PROJECT NO.: 2017-041 DATED: 6/13/17.

ELEVATIONS BASED ON NAVD 88, COORDINATES AND MERIDIAN ARE BASED ON THE MARYLAND COORDINATE SYSTEM (MCS) PER MONUMENTS BCO #1433 AND GIS 2

PROFESSIONAL CERTIFICATION

I, ANDREW G. STINE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 37687, EXPIRATION DATE: 7/12/19

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING PROGRAM MANAGEMENT LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN PERMITTING SERVICES TRANSPORTATION SERVICES

UPSTATE NEW YORK ◆ NEW ENGLAND ◆ BOSTON, MA ◆ NEW YORK, NY ◆ NEW YORK METRO ◆ NORTHERN NEW JERSEY ◆ SOUTHERN NEW JERSEY ◆ PHILADELPHIA, PA ◆ PITTSBURGH, PA ◆ LEHIGH VALLEY, PA ◆ SOUTHEASTERN, PA ◆ REHOBOTH BEACH, DE ◆ BALTIMORE, MD ◆ SOUTHERN MARYLAND ◆ NORTHERN VIRGINIA ◆ CENTRAL VIRGINIA ◆ RALEIGH, NC ◆ WASHINGTON, DC ◆ CHARLOTTE, NC ◆ ATLANTA, GA ◆ TAMPA, FL ◆ SOUTH FLORIDA ◆ DALLAS, TX

REVISIONS

REV	DATE	COMMENT	BY
1	6/13/17	PRICE ASSIST	DML
2	6/28/17	SUBMIT FOR PERMIT	DML
3	9/13/17	ISSUE FOR CONSTRUCTION	DML
4	9/13/17	REVISED PER MDE COMMENTS	RMS
5	10/2/17	REVISED PER MDE COMMENTS	RMS
6	10/18/17	ISSUE FOR CONSTRUCTION	DSH
7	11/22/17	CHANGE BULLETIN #2	CAR
8	12/4/17	CHANGE BULLETIN #3	DSH
9	12/18/17	CHANGE BULLETIN #4	CAR

DIG WITH C.A.R.E. CALL BEFORE YOU DIG

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

APPROVED FOR CONSTRUCTION

PROJECT No.:	MD1620662
DRAWN BY:	DSH
CHECKED BY:	MJG
DATE:	06/09/17
SCALE:	1"=150'
CAD I.D.:	SP9

PROJECT:

CONSTRUCTION DOCUMENTS

FOR

TRADEPOINT ATLANTIC

LOCATION OF SITE
B-6 DISTRIBUTION WAREHOUSE
1700 SPARROWS POINT BLVD
TAX MAP 111, PARCEL 318
BALTIMORE, MD 21219
BALTIMORE COUNTY

BOHLER ENGINEERING
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

ANDREW G. STINE
PROFESSIONAL ENGINEER
MARYLAND LICENSE No. 37687

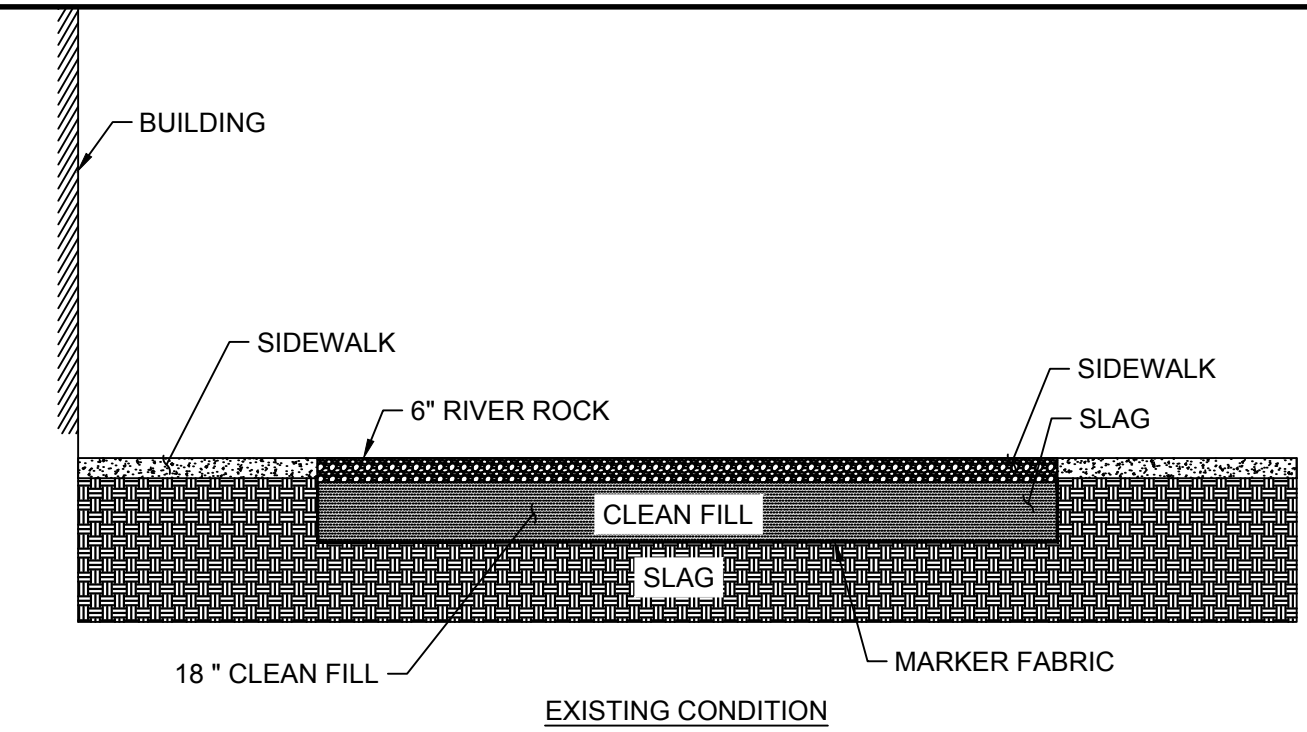
SHEET TITLE:

OVERALL SITE PLAN

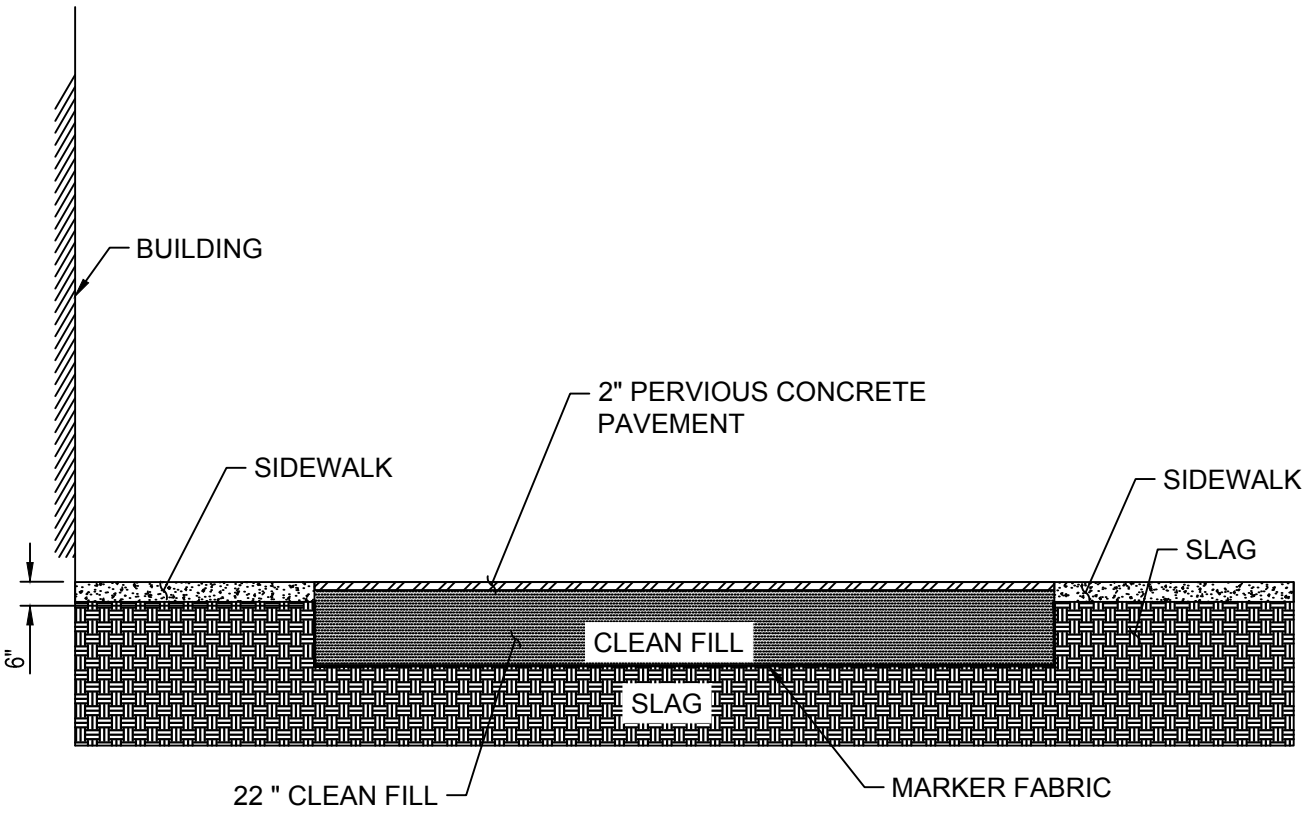
SHEET NUMBER:

C-301

DRC-2017-00036



EXISTING CONDITION



PROPOSED CONDITION

TRADEPOINT ATLANTIC

1600 Sparrows Point Blvd, Baltimore, MD 21219

Tradepoint Atlantic
Detail
Sparrows Point, Baltimore County, Maryland

Scale: N.T.S.	Date: 6/13/2019	Page: 1 of 1

MADE IN THE USA

Porous Pave

PERMEABLE • DURABLE • FLEXIBLE

PERFECT FOR DRIVEWAYS, PATIOS, TRAILS & PATHS

- Can be installed over top of existing concrete, asphalt or wood.
- Mixed on site and applied quickly in a single pour with minimal equipment
- Pour-in-place material fits to any shape over top of existing concrete, asphalt or wood.
- Resistant to oil, gasoline, salt and more
- Great traction when wet, reduces slip and fall accidents - ASTM tested slip resistant
- Eliminates standing water

ENVIRONMENTALLY FRIENDLY INSTALLATION

- Less labor intensive installation than comparable surfacing material — Mixed on site and applied quickly in a single pour with minimal equipment
- Made from recycled tires and is ADA compliant, every 1000 square feet of Porous Pave™ keeps 300 tires out of the landfill

MADE FROM RECYCLED TIRES

- Can be applied in temperatures between 40° and 90°F and generally cures in 24 hours
- 29% porosity — allows large volumes of water to pass through which reduces runoff by allowing water to soak through into the ground

SAFE, DURABLE & UNIQUE

- ASTM tested slip resistant surface reduces slip-and-fall accidents
- Flexible enough to resist crumbling and cracking during freeze thaw cycles
- Any shape or design can be integrated in the surface, available in 8 colors for customized installations
- More cost effective than comparable surfacing material

AVAILABLE IN 8 COLORS

Black *Blue* *Brown* *Cypress* *Gray* *Green* *Redwood* *Tan*