RESPONSE AND DEVELOPMENT COMPLETION REPORT

AREA B: SUB-PARCEL B6-2 *RETAIL AREA #1 – ROYAL FARMS* TRADEPOINT ATLANTIC SPARROWS POINT, MARYLAND

Prepared For:



TRADEPOINT ATLANTIC 1600 Sparrows Point Boulevard Sparrows Point, Maryland 21219

Prepared By:



ARM GROUP LLC 9175 Guilford Road Suite 310 Columbia, Maryland 20146

ARM Project No. 20010206

Respectfully Submitted, ARM Group LLC

Melisser R. Kritz

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

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

Revision 0 – October 18, 2021

TABLE OF CONTENTS

1.0 In	ntroduction	3
1.1.	Report Purpose	4
1.2.	Project Background	5
1.2	.1. Site Description and History	5
1.2	.2. Historical Environmental Activities	6
1.2	.3. Phase II Investigation	7
1.3.	Site Development and Response Actions	7
2.0 R	esponse Activities	8
2.1.	Well Abandonment	8
3.0 S	ite Development Activities	9
3.1.	Pre-Construction Meeting	9
3.2.	Grading and Site Preparation	9
3.3.	Utility Installation	9
3.4.	Fill Materials 1	0
3.5.	Placement of Sub-base	0
3.6.	Soil Management	0
3.7.	Dust Control 1	1
3.8.	Water Management 1	1
3.9.	Health and Safety 1	1
3.10.	Notable Occurrences	1
	Paving1	
3.12.	Landscaped Areas 1	2
	Temporary Cover Areas	
	Post Remediation Requirements 1	
4.0 C	onclusion 1	4



TABLE OF CONTENTS (CONT.)

FIGURES

Figure 1	Area A & B Parcels	.Following Text
Figure 2	Sub-Parcel B6-2 Boundary	.Following Text
Figure 3	Retail Area #1 Development Area	.Following Text

APPENDICES

Appendix A	Reference List	.Following Text
Appendix B	Email Communication	.Following Text
Appendix C	Well Abandonment Forms	.Following Text
Appendix D	Notice of Completion of Remedial Actions	.Following Text
Appendix E	Photograph Log	.Following Text
Appendix F	Quarterly Development Status Updates and Response to Agency	
	Comments	.Following Text
Appendix G	Preconstruction Meeting Records	.Following Text
Appendix H	Utility Trench Section Detail	.Following Text
Appendix I	Fill Approvals and Documentation	.Following Text
Appendix J	Stockpile Soil Sample Approvals	.Following Text
Appendix K	Modified Level D Contractor Certification	.Following Text
Appendix L	Landscape Cap Marker Fabric Specification	.Following Text

ELECTRONIC ATTACHMENTS

Daily Field Reports	Following Text
Daily Dust Data Summaries	Following Text



1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic, has prepared this Response and Development Completion Report for a portion of Area B: Sub-Parcel B6-2 on the Tradepoint Atlantic property that has been designated as Retail Area #1 (the Site). This report documents the work completed under the Sub-Parcel B6-2 Response and Development Work Plan (RADWP), Revision 1, dated January 24, 2018; Sub-Parcel B6-2 Response and Development Work Plan (RADWP) Addendum, Revision 2, dated May 22, 2018; Request for Modifications to Response and Development Work Plan Addendum (Revision 2) Royal Farms Station – Retail Area #1 Area B: Sub-Parcel B6-2, dated October 24, 2019; and associated comment response letters. The location of Parcel B6 on the Tradepoint Atlantic property is shown on **Figure 1** and the Sub-Parcel B6-2 is shown on **Figure 2**. Additional work completed within the sub-parcel (including the development of the Marketing Center) will be addressed in additional documents to be submitted under separate cover.

The Sub-Parcel B6-2 development area boundary was adjusted from the boundary originally presented in the Sub-Parcel B6-2 RADWP, Revision 1, dated January 24, 2018. The updated boundary was presented in the Sub-Parcel B6-2 RADWP Addendum: SLRA Update dated June 28, 2021. The updated boundary consists of approximately 38 acres, the majority of which is within the northern portion of Parcel B6 with approximately 0.14 acres in the adjacent Parcel A6 (**Figure 2**). The Tin Mill Canal (designated as Parcel B16) abuts the southern boundary of the development area. Response work associated with the Tin Mill Canal (TMC) is covered by several other documents submitted under separate covers. Retail Area # 1 is located slightly west of the center of Sub-Parcel B6-2, just southwest of the intersection of Peninsula Expressway (Route 157) and Bethlehem Boulevard (Route 158). The dimensions of Retail Area # 1 are approximately 450 feet north-to-south and approximately 560 feet east-to-west.

Pursuant to Paragraph 3 of the First Amendment to the Administrative Consent Order (ACO), a cost comparison of the commercial environmental remediation costs against the originally budgeted industrial environmental cost estimate was performed. The cost of the environmental oversight work to be performed by an Environmental Professional (EP) for Retail Area #1 was approximately \$50,000. This cost is equivalent to the normal and customary cost for environmental oversight work performed on industrial parcels at Sparrows Point. The capping specifications and standards for this commercial development (building slab, concrete sidewalks, asphalt paving, clean capped landscaping) are the same as capping specifications and standards for an industrial parcel. Accordingly, there were no additional costs to the Budget based on commercial development and use; the semi-annual Budget review pursuant to Paragraph 84 of the ACO will continue to be conducted as required.



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 B6-2 in accordance with the following agency-approved Phase II Investigation Work Plans:

- Area B: Parcel B6 (Revision 2) dated May 12, 2016.
- A6 Area A: Parcel A6 (Revision 0) dated October 11, 2018.
- Finishing Mills Groundwater Investigation (Revision 1) dated July 7, 2016.

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 May 12, 2016.
- A6 Area A: Parcel A6 (Revision 0) dated October 11, 2018.
- Finishing Mills Groundwater Investigation (Revision 1) dated July 7, 2016.

The Sub-Parcel B6-2 Response and Development Work Plan (RADWP) (Revision 1) dated January 24, 2018 was approved for implementation by the Maryland Department of the Environment (MDE) on February 9, 2018. The Sub-Parcel B6-2 Response and Development Work Plan (RADWP) Addendum (Revision 2) dated May 22, 2018, was approved by the MDE on June 5, 2018.

The development of Sub-Parcel B6-2 generally included slag placement, mass grading; excavation and installation for footers, conduit line, water line, stormwater, sewer line, gas line, grease traps, tank fields, and bio-retention areas; test pitting for water line, installation of light poles, signs, guardrails, and landscaping; paving of parking lot and roadways, and placement of fill and cap.

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. Beginning in 2013, a demolition contractor has demolished the majority of the historical above-grade structures on the site-wide property. Demolition of historical above-grade structures is largely complete.

Parcel B6 comprises approximately 148.5 acres of the approximately 3,100-acre former steel mill that operated for over one hundred years. Within the parcel, several iron and steel work processes were completed within the areas 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 (located South of the Site) generally included heating and rolling hot bands of metal, and cooling and coiling of the finished products. Several railways which supported the Hot Strip Mill and larger Finishing Mills Area passed through Parcel B6. Minor structures formerly located within Parcel B6, included service buildings, access gates, and parking lots. 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).

Sub-Parcel B6-2 consists of approximately 38 acres, the majority of which is within the northern portion of Parcel B6 with approximately 0.14 acres in the adjacent Parcel A6. The sub-parcel was zoned Manufacturing Heavy-Industrial Major (MH-IM) and was not occupied prior to the start of development activities. Sub-Parcel B6-2 was not occupied prior to the start of development activities and all former buildings were demolished.

A small petroleum recovery facility was previously located near the western end of Sub-Parcel B6-2. The oil recovery facility was identified within Weaver Boos' Phase I Environmental Site



Assessment (ESA) (dated May 19, 2014) based on historical aerial imagery as being located adjacent to the waterway formerly known as Humphrey Creek.

The Site represents approximately 3.8 acres and is located within the central portion of Sub-Parcel B6-2 and is north and east of the TMC, as indicated on **Figure 2**. Retail Area #1 is zoned Tier 2 (Commercial) and is currently occupied by a gas station (Royal Farms). It is located to the north of the former Hot Strip Mill Area and all former buildings have been demolished.

1.2.2. Historical Environmental Activities

A portion of Sub-Parcel B6-2 Area was formerly occupied by a small petroleum recovery facility that was previously located west of the Site and contained a small rectangular surface impoundment which was diked to separate it from the Humphrey Creek. Minor structures formerly located within Sub-Parcel B6-2 included service buildings, access gates, and parking lots.

Prior to demolition, the Retail Area #1 development area located within Sub-Parcel B6-2 included only minor structures such as access gates and parking lots. More information regarding historical activities can also be found in the Phase II Investigation Work Plan for Parcel B6 (Revision 2 dated May 12, 2016; supplemented by a comment response letter dated November 28, 2016), as well as in the Parcel B6 Phase II Investigation Report (Revision 1 dated May 9, 2017).

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 B6-2 RADWP (Revision 1 dated May 20, 2018).

The Phase I ESA identified the following Recognized Environmental Conditions (RECs) within the Sub-Parcel B6-2 boundaries:

- Apparent Historical Surface Impoundment ("G" Gate) (REC 22, Finding 273)
- TMC Oil Recovery Plant and Impoundment (REC 26, Finding 278)

Relevant Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) were also identified as located in Figure 3-1 from the Description of Current Conditions (DCC) Report prepared by Rust Environmental and Infrastructure, dated January 1998 (included with Weaver Boos' Phase I ESA). There were no SWMUs or AOCs identified within the Sub-Parcel B6-2 boundary.

None of the identified RECs were located within Retail Area #1.



1.2.3. Phase II Investigation

Phase II Investigations specific to soil and groundwater conditions were performed for the areas including and surrounding Sub-Parcel B6-2 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 A: Parcel A6 (Revision 0) dated October 11, 2018.
- Finishing Mills Groundwater Investigation (Revision 1) dated July 7, 2016.

All soil and groundwater samples were collected and analyzed in accordance with agencyapproved 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 A: Parcel A6 (Revision 0) dated June 23, 2020.
- Finishing Mills Groundwater Investigation (Revision 0) dated November 30, 2016.

1.3. SITE DEVELOPMENT AND RESPONSE ACTIONS

This Completion Report addresses development in Retail Area #1 of Sub-Parcel B6-2. The Site has been developed for retail use. Site use will involve indoor workers and customers in the Royal Farms, as well as vehicle occupants utilizing the fuel pumps and outdoor facilities. Further development of Sub-Parcel B6-2 (including the Marketing Center) will be addressed in documents to be submitted under separate cover.

The response and development actions approved for protection of human health and the environment at the Site included piezometer abandonments 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. In addition, two areas, per the Request for Modifications to Response and Development Work Plan Addendum (Revision 2) Royal Farms Station – Retail Area #1 Area B: Sub-Parcel B6-2, have a temporary cap with one foot of clean fill installed. The additional temporary cover areas are shown on **Figure 2** and **Figure 3**.



2.0 RESPONSE ACTIVITIES

2.1. Well Abandonment

Two permanent groundwater monitoring wells, TM12-PZM006 and TM14-PZM005, which were located inside the Sub-Parcel B6-2 Retail Area #1 development boundary and sampled during the Finishing Mills Groundwater Investigation, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on March 8, 2018 and September 04, 2018, prior to the start of development activities.

There are no remaining wells (or piezometers) in Retail Area #1 of Sub-Parcel B6-2. Abandonment records are provided in **Appendix C**.



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 work performed under the Sub-Parcel B6-2 RADWP Addendum for Retail Area #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 2019 with Hopkins & Wayson 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 D**) states that the environmental cap was constructed in general accordance with the Sub-Parcel B6-2 RADWP Addendum for Retail Area #1. Daily Field Reports prepared by the EP are included as an electronic attachment. Select photos from general development activities are included in **Appendix E**.

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

3.1. PRE-CONSTRUCTION MEETING

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

3.2. GRADING AND SITE PREPARATION

Prior to the start of Retail Area #1 development, processed slag fill from elsewhere on the Tradepoint Atlantic property was placed across the entire site. Mass grading was performed across the entire site under the Sub-Parcel B6-2 RADWP. Mass grading was documented in the Sub-Parcel B6-2 Interim Development Completion Report, dated September 22, 2021. 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. The majority of utility excavations completed under the Sub-Parcel B6-2 RADWP Addendum for Retail Area #1 were completed within the slag layer placed during grading activities. Materials excavated from utility trenches were replaced inside the trenches as backfill. Processed blast furnace slag was also used as utility trench backfill. The MDE gave permission to use slag or



previously approved soil as trench backfill beneath capped areas in an email dated March 3, 2017 (**Appendix B**). Materials from Martin Marietta were used as bedding in utility trenches and excavations for underground storage tank installations. Utility trenches were completed in accordance with the Utility Trench Section Detail Included in **Appendix H**.

3.4. FILL MATERIALS

The following fill materials were used during the development of Sub-Parcel B6-2, Retail Area #1:

- Clean fill from Cheney Enterprises, approved by the MDE via email on March 27, 2020;
- Topsoil from Pleasant Construction, approved by the MDE via email on April 8, 2020;
- Backfill materials from Martin Marietta's Cockeysville (Texas) Quarry, approved by the MDE for general use on the Sparrows Point property; and
- Graded aggregate base provided by Tradepoint Atlantic.

Clean fill approvals and documentation are provided in Appendix I.

3.5. PLACEMENT OF SUB-BASE

Processed slag aggregate from elsewhere on the Tradepoint Atlantic property was used during grading activities across the entire sub-parcel prior to the start of Retail Area #1 development work. The placement of slag aggregate beneath the paved areas requires the entire development area to be subject to an environmental capping requirement. No additional slag aggregate was brought to the Site during the Retail Area #1 development work.

3.6. SOIL MANAGEMENT

Soils exhibiting elevated PID readings and odors were detected on one occasion on November 21, 2019. The stockpiled soil (approximately 150 cubic yards) was segregated and placed on polyethylene sheeting. The stockpiled soil was covered with polyethylene sheeting to prevent runoff during rainfall events. The impacted soil was sampled and, following the receipt of the analytical results, the MDE approved the conveyance of the impacted soil to Greys Landfill. Approval documentation is provided in **Appendix J**. The 150 cubic yards of impacted soil was stockpiled within Sub-Parcel B6-2, outside of the Retail Area #1 boundary, prior to being transported to Greys Landfill.

Excess soil that did not exhibit evidence of impacts was temporarily stockpiled southwest of the Retail Area #1 boundary before use in Sub-Parcel B6-4 grading work, which was originally within the boundary of Sub-Parcel B6-2.



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/m³ was observed. No exceedances of the 3.0 mg/m³ action level were observed during construction activities. The Contractor utilized a water truck to mitigate dust generation during the development work operations. No electronic dust monitoring was performed during the second quarter of 2020 because the majority of the site was capped. Instead, visual dust monitoring was performed, and no visible dust migration was observed in the second quarter of 2020.

3.8. WATER MANAGEMENT

All dewatering discharges associated with the development of Sub-Parcel B6-2 were transmitted first to a settling tank and then to a filter bag and drain that conveyed to the TMC, which leads to the Humphreys Creek Wastewater Treatment Plant. No sheens or odors were detected in any dewatering discharges.

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 Addendum and associated comment response letter. The acknowledgement form signed by the site contractor is provided in **Appendix K**.

3.10. NOTABLE OCCURRENCES

During the work completed under the RADWP Addendum and associated Comment Response Letter, no notable occurrences were recorded by the EP.



3.11. PAVING

As stated in the Notice of Completion of Remedial Actions prepared by HCEA (**Appendix D**), the environmental paving cap installed during the Sub-Parcel B6-2 Retail Area #1 development meets the required thicknesses specified in the RADWP Addendum and associated Comment Response Letter.

3.12. LANDSCAPED AREAS

As stated in the Notice of Completion of Remedial Actions (**Appendix D**), capping in the landscaped areas was installed to meet the specifications established in the Sub-Parcel B6-2 RADWP Addendum for Retail Area #1 and the associated Comment Response Letter. As discussed above in Section 3.4 (Fill Materials), the materials used in landscaped areas were approved by the MDE (**Appendix I**).

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

3.13. TEMPORARY COVER AREAS

As discussed in the Request for Modifications to Response and Development Work Plan Addendum (Revision 2) Royal Farms Station – Retail Area #1 Area B: Sub-Parcel B6-2, two areas had a temporary, one-foot cover installed in preparation for future development in those areas. Both areas were filled with certified clean fill as approved by the MDE and are displayed on **Figure 2** and **Figure 3**. As discussed above in Section 3.4 (Fill Materials), the materials used in these areas were approved by the MDE (**Appendix I**).

3.14. Post Remediation Requirements

Long-term conditions related to future use of the Site will be described within the No Further Action Letter (NFA) and COC. Post remediation requirements will include compliance with the conditions specified in the NFA, COC, and the deed restrictions recorded for the Site. Deed restrictions as defined by the MDE VCP in the NFA and COC will be recorded by the responsible party within 30 days after receipt of the final NFA.

The entire Site will be subject to a restriction that limits the use of the property to non-residential land use as well as 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.

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 incorporated into an Institutional Controls



and Operations & Maintenance Plan, to be submitted under separate cover covering both the Marketing Center Area and Retail Area #1.

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

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

In accordance with the Request for Modifications to Response and Development Work Plan Addendum (Revision 2) Royal Farms Station – Retail Area #1 Area B: Sub-Parcel B6-2, the temporarily covered areas of Parcel B6-2 will be inspected monthly until such time that additional development on those areas is approved by the MDE to begin.



4.0 CONCLUSION

Between October 2019 and April 2020, response and development actions were conducted as part of the redevelopment of the Site identified as Sub-Parcel B6-2, Retail Area #1. The remedial actions specified in the RADWP included: abandonment of temporary groundwater collection points and wells, capping of building and parking areas with paving, capping of landscaped areas and utility corridors within the cap with clean fill, and implementation of institutional controls. Additionally, temporary covers were installed in two areas as displayed on **Figure 2** and **Figure 3**.

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

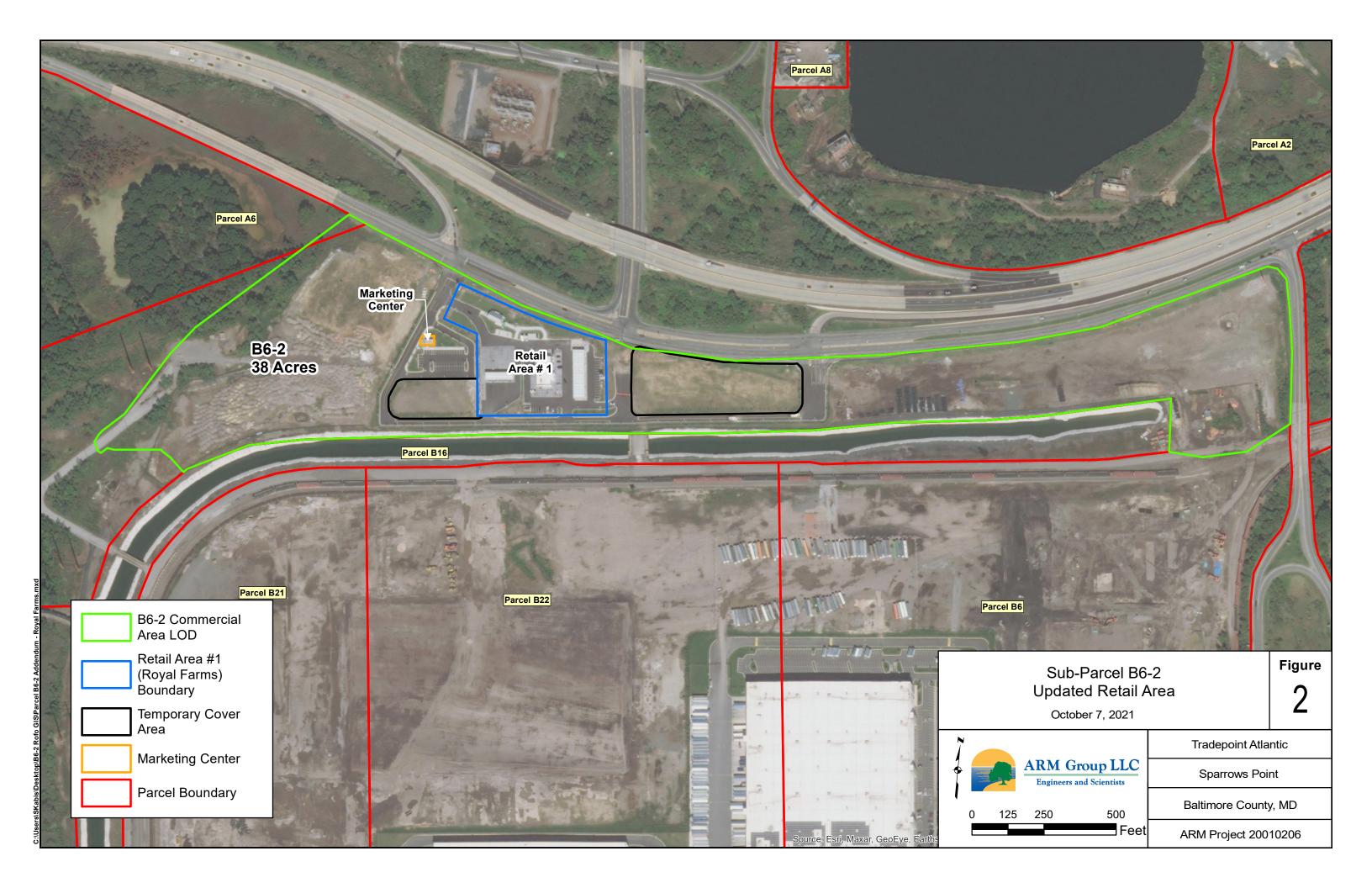
As a result of the information contained herein, it has been demonstrated that the response and development actions have been completed in accordance with the approved RADWP Addendum. With construction of the containment remedy (caps) in conjunction with redevelopment of the Site, the applicable requirements 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 areas of the Site which have been fully capped at this time. Areas with temporary covers will be fully capped during future development activities.

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







APPENDIX A

Reference List

Sub-Parcel B6-2 Retail Area #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: Parcel B6*. Revision 2. May 12, 2016.
- ARM Group, Inc. (2016). *Phase II Investigation Work Plan, Finishing Mills Groundwater*. Revision 1. July 7, 2016.
- ARM Group, Inc. (2016). Phase II Investigation Report, Finishing Mills Groundwater. Revision 0. November 30, 2016.
- ARM Group, Inc. (2017). Utility Excavation NAPL Contingency Plan. Revision 4. June 19, 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 Work Plan, Area A: Parcel A6.* Revision 0. October 11, 2018.
- ARM Group, Inc. (2018). Response and Development Work Plan Area B: Sub-Parcel B6-2. Revision 1. February 9, 2018.
- ARM Group, Inc. (2018). Response and Development Work Plan Addendum Area B: Sub-Parcel B6-2, Retail Area #1. Revision 2. May 22, 2018.
- ARM Group, Inc. (2019) Request for Modifications to Response and Development Work Plan Addendum. Royal Farms Station – Retail Area #1 Area B: Sub-Parcel B6-2. (Revision 2) October 24, 2019.
- ARM Group LLC. (2020). *Quarterly Development Status Update: Fourth Quarter 2019, Area B:* Sub-Parcel B6-2. January 27, 2020.
- ARM Group LLC. (2020). Quarterly Development Status Update: First Quarter 2020, Area B: Sub-Parcel B6-2. April 27, 2020.
- ARM Group LLC (2020). *Phase II Investigation Report Area A: Parcel A6*. Revision 0. June 23, 2020.
- ARM Group LLC. (2020). *Quarterly Development Status Update: Second Quarter 2020, Area B:* Sub-Parcel B6-2. July 31, 2020.

Reference List

Sub-Parcel B6-2 Retail Area #1

ARM Group LLC (2021). *RADWP Addendum: SLRA Update – Area B: Sub-Parcel B6-2.* June 28, 2021.

APPENDIX B

Keith Progin

From:	Pete Haid <phaid@tradepointatlantic.com></phaid@tradepointatlantic.com>
Sent:	Thursday, November 9, 2017 1:27 PM
То:	Srinivasa Nookala
Cc:	Justin Dunn; John Martin; Gina L. Galimberti; Keith Progin
Subject:	Utility Backfill

Srini:

As discussed, the MDE allows one (1) foot of clean fill around utility piping. Slag may be used as back fill material. Please note that back fill material cannot encroach into the cap material. The MDE stated that this guidance does not override or supersede plumbing codes and/or manufacturer's standards.

Thanks.

Pete

APPENDIX C

Well/Piezometer Abandonment Form			
Well/Piezometer ID: TM12-PZM	006		
General Project Information:	General Project Information:		
Client: TPA			
Site Location: Sparrows Point, MD			
Parcel ID: B6			
Abandonment Date: 3/8/2018			
Abandonment Contractor: Allied			
Abandonment Method (check appropriate):			
1. PVC \rightarrow Pulled \bigcirc / Split \bigcirc / Perforate	ed 🔘 / Left-In-Place 💽		
2. Abandoned \rightarrow Grout \bigcirc / Bentonite Chip	os 🔘		
Field Equipment: Heron O/W probe, gr	out machine, geoprobe		
ARM Representative(s): L. Perrin			
Well Diameter (inches): 2.00	_		
Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:		
Reported (historical/log): 19.00	Depth to Water (TOC): 11.75		
Measured: 18.65	Depth to NAPL (TOC): No DNAPL/LNAPL		
Please note if this abandonment is for a known N NAPL screening piezometer and identify the nan Area or B5-144 Screening Piezometer):			
<u>Please Note:</u> 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): Split and left in place per Allied.			
ARM Group LLCEngineers and Scientists9175 Guilford Road - Suite 310Columbia, Maryland 21046(410) 290-7775 FAX: (410) 290-7775			

Well/Piezometer Abandonment Form			
Well/Piezometer ID: TM14-PZM005			
General Project Information:			
Client: TPA			
Site Location: Sparrows Point, MD			
Parcel ID: B6			
Abandonment Date: 3/8/2018			
Abandonment Contractor: Allied			
Abandonment Method (check appropriate):			
1. PVC \rightarrow Pulled \bigcirc / Split \bigcirc / Perforate	ed 🔘 / Left-In-Place 💽		
2. Abandoned \rightarrow Grout \bigcirc / Bentonite Chip	os 🔿		
Field Equipment: Heron O/W probe, gr	out and trash pump, geoprobe		
ARM Representative(s): L. Perrin			
Well Diameter (inches): 2.00	_		
Depth to Bottom (TOC)	Final Gauging Prior to Abandonment:		
Reported (historical/log): 16.00	Depth to Water (TOC): 8.44		
Measured: 15.58	Depth to NAPL (TOC): No DNAPL/LNAPL		
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):			
<u>Please Note:</u> If NAPL is identified in a piezometer, the Project Manager should be notified and the piezometer may not be abandoned unless the presence of NAPL is already known and a decision has been made to abandon the NAPL monitoring network.			
Additional Comments (if any):			
ARM Gr	oup LLC		
Engineers and Scientists			
9175 Guilford Road - Suite 310 Columbia, Maryland 21046			
(410) 290-7775 FAX: (410) 290-7775			

APPENDIX D



June 24, 2020

Mr. Peter Haid Tradepoint Atlantic 1600 Sparrows Point Boulevard Baltimore, Maryland 21219 10975 Guilford Road, Suite A Annapolis Junction, MD 20701 Phone (410) 880-4788 Fax (410) 880-4098 www.hcea.com ENGINEERING ASSOCIATES

RE: Notice of Completion of Remedial Actions **Retail Area #1 Area B: Sub-Parcel B6-2** Sparrows Point, Maryland HCEA Project Number 18148A

Dear Mr. Haid:

Hillis-Carnes Engineering Associates, Inc. (HCEA) is pleased to provide this Notice of Completion of Remedial Actions (Notice) for Retail Area #1 of Area B: Sub-Parcel B6-2 in the Sparrows Point area of Baltimore County, Maryland (Site).

In conjunction with HCEA's environmental services at the Site, HCEA was provided with the Response and Development Work Plan (RADWP) Addendum – Revision 2 for Retail Area #1 of Area B: Sub-Parcel B6-2 (dated May 22, 2018). Based on observations made during HCEA's environmental monitoring at the Site, to the best of our knowledge, understanding, and belief, the environmental cap installed at the Site (e.g., pavement thickness, use of geotextile fabric, VCP-approved clean fill thickness) was installed in general accordance with the RADWP.

This Notice has been prepared for the exclusive use of the Client pursuant to the agreement between the Client and HCEA, and 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 E



Photo 1: General excavation activities



Photo 2: General excavation activities with PPE practices visible



Photo 3: Utility excavation activities



Photo 4: Utility installation



Photo 5: Underground Storage Tank (UST) installation



Photo 6: UST excavation backfilling



Photo 7: Placement of marker fabric



Photo 8: Placement of marker fabric and clean fill



Photo 9: Placement of marker fabric and clean fill



Photo 10: Placement of marker fabric and clean fill

APPENDIX F





Engineers and Scientists

January 27, 2020

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

> Re: Quarterly Development Status Update Fourth Quarter 2019 Area B: Sub-Parcel B6-2 Tradepoint Atlantic Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel B6-2 (the Site) during the fourth quarter of 2019. The Sub-Parcel B6-2 Response and Development Work Plan (RADWP) Addendum – Retail Area #1 (Revision 2 dated May 22, 2018) was approved by the agencies by email on June 5, 2018. The initial overall development of Sub-Parcel B6-2 Retail Area #1 includes grading and utility work. Development work completed on Sub-Parcel B6-2 prior to October 1, 2019 is discussed in the previously submitted Quarterly Development Status Updates (dated August 21, 2018, October 31, 2018, and January 28, 2019). No development work was performed between December 2018 and late October 2019. Work recommenced on October 28, 2019. Because no development work was performed in the first, second, or third quarters of 2019, daily oversight was not performed, and Quarterly Development Status Updates were not prepared.

Piezometer and Well Abandonment

Permanent groundwater monitoring wells SW-077-MWS, SW-077-MWI, SW-078-MWS, SW-078-MWI, TM12-PZM006, TM14-PZM005, TM16-PZM007, TM17-PZM005, and TM18-PZM005 which were located inside the Sub-Parcel B6-2 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on February 22, 2018, March 8, 2018, and September 4, 2018, prior to the start of development activities.

Three piezometers were located in the sub-parcel: FM-010-PZS, FM-011-PZS, and FM-011-PZI. These piezometers were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on January 10, 2017.

2

There are no remaining piezometers or wells on the sub-parcel. Abandonment records will be provided in the Sub-Parcel B6-2 Development Completion Report.

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 development work was performed between December 2018 and late October 2019. Work recommenced on October 28, 2019.

Development Progress

Development work commenced prior to the fourth quarter of 2019 with Hopkins and Wayson as the General Contractor. Work to date has included excavation for footers, conduit line, water, stormwater, sewer, gas line, grease traps, parking lot, and tank fields and water line installation. No development work was performed between December 2018 and late October 2019. Work recommenced on October 28, 2019.

Dust Monitoring

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

Soil Management

The EP screened excavated material with a MultiRAE photoionization detector (PID). Soils exhibiting elevated PID readings and odors were detected on one occasion on November 21, 2019. The stockpiled soil (approximately three truck loads of material) was segregated and placed on polyethylene sheeting. The stockpiled soil was covered with polyethylene sheeting to prevent runoff during rainfall events. The stockpiled soils have not yet been sampled for laboratory analysis. No offsite removal of soils to Greys Landfill or elsewhere were performed. Materials screened soils which exhibited no evidence of contamination were replaced inside the utility trenches as backfill. Excess screened soil was stockpiled on the western side of Sub-Parcel B6-1.



R

Μ

A

G

0

r

р

L

L

С

Water Management

R

Μ

A

G

r

0

u

р

At the direction of Tradepoint Atlantic personnel, all dewatering discharges associated with the development of Sub-Parcel B6-2 were transmitted first to a settling tank and then to a drain that conveyed to the Tin Mill Canal, which leads to the Humphreys Creek Wastewater Treatment Plant. No sheens or odors were detected in any dewatering discharges.

3

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

Respectfully Submitted, ARM Group LLC

Melissa Reployle

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

Alul Pets

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

L

L

С







Engineers and Scientists

April 27, 2020

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

> Re: Quarterly Development Status Update First Quarter 2020 Area B: Sub-Parcel B6-2 Tradepoint Atlantic Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document ongoing and completed development activities performed on Sub-Parcel B6-2 (the Site) during the first quarter of 2020. The Sub-Parcel B6-2 Response and Development Work Plan (RADWP) Addendum – Retail Area #1 (Revision 2 dated May 22, 2018) was approved by the agencies by email on June 5, 2018. The initial overall development of Sub-Parcel B6-2 Retail Area #1 includes grading and utility work. Development work completed on Sub-Parcel B6-2 prior to January 1, 2020 is discussed in the previously submitted Quarterly Development Status Updates (dated August 21, 2018, October 31, 2018, January 28, 2019, and January 27, 2020). No development work was performed between December 2018 and late October 2019. Work recommenced on October 28, 2019, daily oversight was not performed, and Quarterly Development Status Updates were not prepared.

Piezometer and Well Abandonment

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

Permanent groundwater monitoring wells SW-077-MWS, SW-077-MWI, SW-078-MWS, SW-078-MWI, TM12-PZM006, TM14-PZM005, TM16-PZM007, TM17-PZM005, and TM18-PZM005 which were located inside the Sub-Parcel B6-2 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on February 22, 2018, March 8, 2018, and September 4, 2018, prior to the start of development activities. Three piezometers were located in the sub-parcel: FM-010-PZS, FM-011-PZS, and FM-011-PZI. These piezometers were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on January 10, 2017.

There are no remaining piezometers or wells on the sub-parcel. Abandonment records will be provided in the Sub-Parcel B6-2 Development Completion Report.

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 development work was performed between December 2018 and late October 2019. Work recommenced on October 28, 2019.

Development Progress

Development work commenced prior to the first quarter of 2020 with Hopkins and Wayson as the General Contractor. Work to date has included excavation for footers, conduit line, water, stormwater, sewer, gas line, grease traps, parking lot, tank fields, bio-retention areas, light poles and signs; water line installation; and placement of fill and cap. No development work was performed between December 2018 and late October 2019. Work recommenced on October 28, 2019.

Work performed during the first quarter of 2020 consisted of excavation for storm drain, water line, electrical conduit, bio-retention areas, light poles, signs as well as placement of fill and cap.

Dust Monitoring

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

Soil Management

R

Μ

G

r

0

A

The EP screened excavated material with a MultiRAE photoionization detector (PID). No elevated PID readings, odors, or staining were detected in any of the soils inspected during the first quarter of 2020. Therefore, no materials segregation, material stockpiling, or offsite removal of soils were required. Screened soils which exhibited no evidence of contamination were replaced inside the utility trenches as backfill. Excess screened soil was stockpiled on the western side of the sub-parcel.

u

р

L

L

С



Water Management

А

R

Μ

G

r

o u

р

Dewatering discharges associated with the development of Sub-Parcel B6-2 were transmitted first to a settling tank and then to a filter bag and drain that conveyed to the Tin Mill Canal, which leads to the Humphreys Creek Wastewater Treatment Plant. No sheens or odors were detected in any dewatering discharges.

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

Respectfully Submitted, ARM Group LLC

Melissa Reployle

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

Alul Pets

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

L

L

С



3





Engineers and Scientists

July 31, 2020

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

> Re: Quarterly Development Status Update Second Quarter 2020 Area B: Sub-Parcel B6-2 Tradepoint Atlantic Sparrows Point, MD 21219

Dear Ms. Brown,

On behalf of EnviroAnalytics Group, LLC (EAG), ARM Group LLC (ARM) has prepared this Quarterly Development Status Update to document both ongoing and completed development activities performed on Sub-Parcel B6-2 (the Site) during the second quarter of 2020. The Sub-Parcel B6-2 Response and Development Work Plan (RADWP) Addendum – Retail Area #1 (Revision 2 dated May 22, 2018) was approved by the agencies by email on June 5, 2018. The initial overall development of Sub-Parcel B6-2 Retail Area #1 includes grading and utility work. Development work completed on Sub-Parcel B6-2 prior to January 1, 2020 is discussed in the previously submitted Quarterly Development Status Updates (dated August 21, 2018, October 31, 2018, January 28, 2019, January 27, 2020, and April 27, 2020). No development work was performed between December 2018 and late-October 2019. Work recommenced on October 28, 2019. Because no development work was performed in the first, second, or third quarters of 2019, daily oversight was not performed, and Quarterly Development Status Updates were not prepared.

Piezometer and Well Abandonment

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

Permanent groundwater monitoring wells SW-077-MWS, SW-077-MWI, SW-078-MWS, SW-078-MWI, TM12-PZM006, TM14-PZM005, TM16-PZM007, TM17-PZM005, and TM18-PZM005 which were located inside the Sub-Parcel B6-2 development boundary, were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on February 22, 2018, March 8, 2018, and September 4, 2018, prior to the start of development activities. Three piezometers were located in the sub-parcel: FM-010-PZS, FM-011-PZS, and FM-011-PZI. These piezometers were properly abandoned in accordance with COMAR 26.04.04.34 through 36 on January 10, 2017.

There are no remaining piezometers or wells on the sub-parcel. Abandonment records will be provided in the Sub-Parcel B6-2 Development Completion Report.

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 development work was performed between December 2018 and late-October 2019. Work recommenced on October 28, 2019.

Development Progress

Development work commenced prior to the second quarter of 2020 with Hopkins and Wayson as the General Contractor. Work to date has included excavation for footers, conduit line, water, stormwater, sewer, gas line, grease traps, parking lot, tank fields, bio-retention areas, light poles and signs; water line installation; and placement of fill and cap. No development work was performed between December 2018 and late-October 2019. Work recommenced on October 28, 2019.

Work performed during the second quarter of 2020 consisted of excavation for light poles as well as placement of topsoil, asphalt, landscaping, and guardrails.

Dust Monitoring

No electronic dust monitoring was performed during the second quarter of 2020 because the majority of the site was capped. Instead, visual dust monitoring was performed, and no visible dust migration was observed in the second quarter of 2020. When dust generation was anticipated due to site conditions and planned development work, the General Contractor utilized a water truck to suppress dust.

Soil Management

R

Μ

G

r

A

The EP screened excavated material with a MultiRAE photoionization detector (PID). No elevated PID readings, odors, or staining were detected in any of the soils inspected during the second quarter of 2020. Therefore, no materials segregation, material stockpiling, or offsite removal of soils were required. Screened soils which exhibited no evidence of contamination were replaced inside the utility trenches as backfill. Excess screened soil was stockpiled on the western side of the sub-parcel.

u

0

p

L

L

С



Water Management

No dewatering was performed in the second quarter of 2020.

Notable Occurrences

R

М

А

None

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

Group LLC

Respectfully Submitted, ARM Group LLC

Melisser R. Hritz

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

Alal Pets

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



3

CRRGP F KZ 'I

11



Memo

Mr. Peter Haid – Tradepoint Atlantic
Mr. Keith Progin
October 15, 2019
B6-2 (Royal Farms) - Pre-Construction Meeting

On October 15, 2019, a pre-construction meeting for B6-2 (Royal Farms) was held at Tradepoint Atlantic's office in Sparrows Point, Maryland. In attendance were:

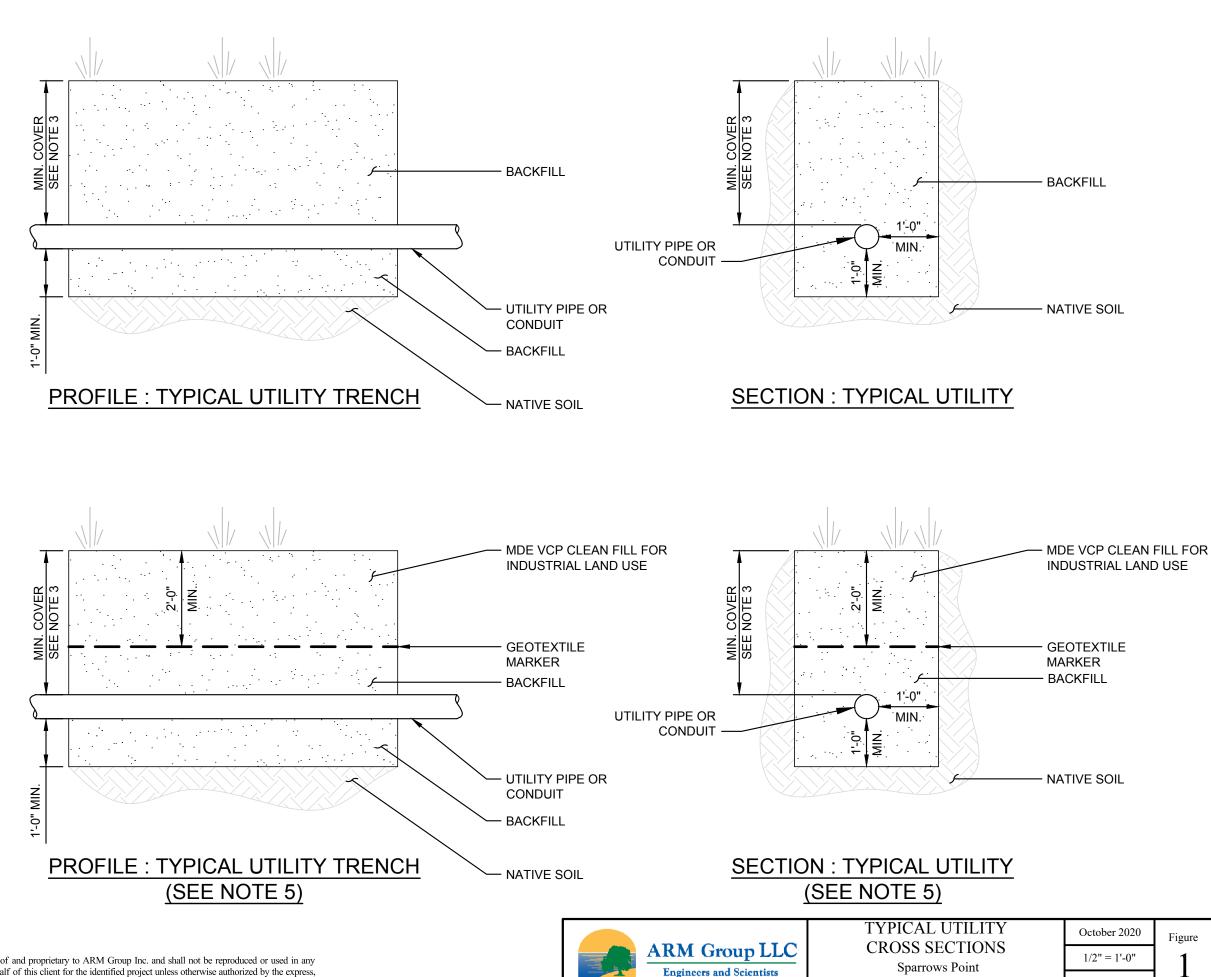
- Royal Farms Mr. Chris Bollino and Mr. Kevin Pellegrini
- Dewberry Ms. Amanda Stamper and Ms. Joanne Cheok
- Hopkins & Wayson Mr. Brian Hall, Mr. James Peck, and Mr. Kevin McQuilliam
- Ratcliffe Architects Mr. William Mortolff
- Hillis-Carnes Engineering Associates, Inc. –Mr. Keith Progin
- Tradepoint Atlantic Mr. Peter Haid, Mr. Matthew Newman, Mr. Ethan Zweig, and Mr. John Martin

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

APPENDIX H

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 ÚŒUÙ OD ŐÁ/PÜUWŐ PÁŒÜ ÒŒUÁ Y PÔPÁŒ ÒÁPUVÁÖ OÙÕ ÞŒ VOÖÁVUÁÓO ÔŒÚÚÒÖÁSHALL BE BACKFILLED WITH BEDDING AND MATERIALS APPROVED BY MDEÁZUÜÁQÞÖWÙVÜQQEŠÁWÙÒÈ
- 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 OPOWUVUOUS 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 PAVEDÁCAP QJÜÁÖÒÚVPÙÁÓÒŠUY Á/PÒÁ T OLÜS ÖÜÁZOLÓ ÜÓDÁWILL BE BACKFILLED WITHÁMATERIALS APPROVED BY MDE FOR WÙ Ò ÁÓ Ò ŠU Y Á/P Ò ÁÔ Œ Ú ÊY POÔ P ÁT Œ Y Á ✿ÔŠWÖÒÁ́JÜUÔÒÙÙÒÖÁÙŠŒŐÁŒŐÖÜÒÕŒ/ÒÁ ŒUÞÕÁUVPÒÜÁTŒVÒÜQOŠÙ.



This drawing, its contents, and each component of this drawing are the property of and proprietary to ARM Group Inc. and shall not be reproduced or used in any manner except for the purpose identified on the Title Block, and only by or on behalf of this client for the identified project unless otherwise authorized by the express, written consent of ARM Group Inc.

2018

TYPICAL UTILITY	October 2020	Figure
CROSS SECTIONS	1/2" = 1'-0"	1
Sparrows Point	1/2 - 1 -0	
Tradepoint Atlantic	20010206	I

"

APPENDIX I

"

"

"

"

۱

..

Keith Progin

From:	Barbara Brown -MDE- <barbara.brown1@maryland.gov></barbara.brown1@maryland.gov>
Sent:	Friday, March 27, 2020 9:09 AM
То:	Keith Progin
Cc:	Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject:	Re: TPA - Royal Farms #345 fill material

CAUTION: External Email.

Hi Keith

The material from Chaney Enterprises as described in the affidavit provided with your email is approved for use as clean fill material in either commercial or industrial use parcels at Sparrows Point. As always-please track the amount of material imported.

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

Barbara Brown

On Fri, Mar 27, 2020 at 9:03 AM Keith Progin <<u>kprogin@hcea.com</u>> wrote:

Please see the attached affidavit for proposed clean fill to be used at Royal Farms. The contractor is proposing using this material as part of the 24-inch clean fill cap in landscaped areas.

Thanks!

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

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

From: James Peck <jpeck@hopkinswayson.com> Sent: Friday, March 27, 2020 8:54 AM To: Keith Progin <<u>kprogin@hcea.com</u>> Subject: Royal Farms #345 fill material

CAUTION: External Email

Keith please see the attached submittal a for fill material

Jim Peck

Project Manager

Hopkins & Wayson, Inc.

General Contractors

601 Keith Lane

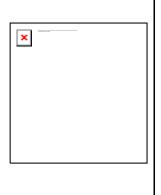
Owings, MD 20736

Office: 301.855.3303

Cell: 774.259.3041

Fax: 301.855.3302

www.hopkinswayson.com



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

Click here to complete a three question <u>customer experience survey</u>.

<u>Click here</u> to complete a three question customer experience survey.

Keith Progin

From: Sent:	Barbara Brown -MDE- <barbara.brown1@maryland.gov> Wednesday, April 8, 2020 9:51 AM</barbara.brown1@maryland.gov>
То:	Keith Progin
Cc:	Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov); Matthew Newman; Pete Haid
Subject:	Re: TPA_Royal Farms Topsoil Approval

CAUTION: External Email.

Hello Keith

The topsoil as tested is suitable for clean fill above the cap at commercial land use parcels at Sparrows Point. Barbara Brown

On Wed, Apr 8, 2020 at 9:24 AM Keith Progin <<u>kprogin@hcea.com</u>> wrote:

Barbara,

Approximately 1,000 yards of topsoil is proposed for use at Royal Farms. Please see the attached letter from Pleasant Construction. HCEA visited their yard and collected one 10-point composite sample from the stockpiled topsoil. The composite sample was analyzed for PCBs, PAH's, Priority Pollutant Metals (plus hexavalent chromium), pesticides, herbicides, TPH-DRO, and TPH-GRO.

Thanks!

Keith Progin | Senior Environmental Project Manager

HILLIS-CARNES ENGINEERING ASSOCIATES

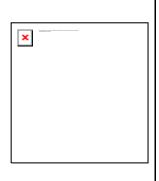
Corporate Headquarters 10975 Guilford Road, Suite A Annapolis Junction, MD 20701 Cell (443) 250-9467 Phone +1 (410) 880-4788 Fax +1 (410) 880-4098 Email kprogin@hcea.com

Website www.hcea.com

LinkedIn MD * DC * DE * PA * VA * Caribbean

×

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or reproduction of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone or email. Thank you.



Barbara H. Brown

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

Click here to complete a three question customer experience survey.

<u>Click here</u> to complete a three question customer experience survey.

2124 Priest Bridge Dr. – Ste. 18 Crofton, MD. 21114

October 22, 2019

Hopkins & Wayson

Re: Royal Farm Store - Sparrows Point

The MD #2/ASSHTO #3 sized crushed stone as produced at Martin Marietta's Cockeysville (Texas) Quarry meets the specifications of the Maryland State Highway Administration per ASSHTO M-43, ASTM D-448, ASTM C33-93 and City of Baltimore Specifications under Section 20.02. The produced stone comes from natural virgin material at the location as listed above. The stone has no deleterious or known hazardous materials within. The material is delivered directly from the quarry to the jobsite. To the best of my knowledge, the material from the above mentioned quarry has not been contaminated by any controlled hazardous substance or petroleum products. The following gradation represents an average and should be used as a reference; the numbers are not to be interpreted as exact. No warranties or guarantees are given or implied. Any further testing is the contractor's responsibility. Sampling performed at plant per ASTM D-75 / AASHTO T-2. On site sampling and testing is unacceptable.

Sieve Size	2 1/2"	2"	1 1/2"	1"	3/4"	1/2"	3/8"
#2/ASSHTO #3	100	95.1	57.2	10.1	5.5	3.1	0.6
% Passing							
MSHA/ASTM/City							
Specification	100	90-100	35-70	0-15	-	0-5	-
Specific Gravity = 2.80							
Absorption = 0.2%							
Wash-loss / $-200 = 0.3\%$ Petrographic: Limestone							

All test results are based on averages.

All materials and quarry are approved by Maryland State Highway Administration Office of Materials & Technology.

Respectfully submitted,

PATUXENT MATERIALS, INC.

2124 Priest Bridge Dr. – Ste. 18 Crofton, MD. 21114

October 22, 2019

Hopkins & Wayson

Re: Royal Farm Store - Sparrows Point

The Washed AASHTO #57 sized crushed stone as produced at Martin Marietta's Cockeysville (Texas) Quarry meets the 2008, Maryland DOT State Highway Administration, Standard Specifications for Construction and Materials section 901, ASTM C33-13, ASTM D448-12, AASHTO M-43-88 and City of Baltimore specifications under article 20.02 and AASHTO M80 Class A requirements. No warranties or guarantees are given or implied. The produced stone is not reprocessed and comes from natural virgin material at the location as listed above. The stone has no deleterious / known hazardous materials within. The material is delivered directly from the quarry to the jobsite. To the best of my knowledge, the material from the above mentioned quarry has not been contaminated by any controlled hazardous substances or petroleum products. All testing and sampling are performed at the plant in accordance with ASTM D-75 / AASHTO T-2. On site sampling is deemed unacceptable. The following gradation and tests represent an average. All numbers shown are not to be interpreted as exact or as a guarantee. Reference purposes only.

Sieve size	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8
#6/#57 Stone	100	99.1	85.2	34.7	22.9	4.8	2.0
MSHA/ASTM/ AASH	TO						
& City of Baltimore							
Specifications	100	95-100	-	25-60	-	0-10	0-5
% Passing							

MDOT approved material. Listed within the MSHA Aggregate Bulletin.

Absorption (ASTM C-127) = 0.30% Specific Gravity (ASTM C-127) = 2.809Soundness - Sodium Sulfate Soundness = (ASTM C-88) = 2.6% loss Sodium Sulfate Soundness (AASHO T104) = 1.02% loss Wash-loss / -200 (ASTM C 117) = 1.02%Clay Lumps & Friable Particles (ASTM C142) = 0.0% Chert (ASTM C-123) = 0%Coal & Lignite (ASTM C 123) = 0%L.A. Abrasion (ASTM C-131)) = 23Dry Unit Weight Loose (ASTM C-29) = 101.2 pcf Dry Unit Weight Rodded (ASTM C-127) = 105.4 pcf. Petrographic: Limestone

PATUXENT MATERIALS, INC.

2124 Priest Bridge Dr. – Ste. 18 Crofton, MD. 21114

October 22, 2019

Hopkins & Wayson

Re: Royal Farm Store - Sparrows Point

This is to certify that the AASHTO #8 crushed stone as produced at Martin Marietta's Cockeysville (Texas) Quarry meets the specifications of the Maryland State Highway Administration, Standard Specifications for Construction Materials Section 901, ASTM C 33-13, ASTM D448, AASHTO M-43 and the City of Baltimore specifications under article 20.02. No warranties or guarantees are given or implied. **The produced stone not reprocessed and comes from natural virgin material at the location as listed above. The material is delivered directly from the quarry to the job-site. To the best of my knowledge, the material from the above mentioned quarry has not been contaminated by any controlled hazardous substance or petroleum products.** The stone has no deleterious / known hazardous materials contained within. Sizing / Classification of Aggregate per ASTM D-488. Sampling in accordance with ASTM D-75 / AASHTO T-2. On site sampling and testing deemed unreliable and unacceptable.

The following gradation analysis represents an average and is not to be interpreted as a guarantee.

Sieve Size	1/2"	3/8"	#4	#8	#16
#8 Stone	100	93.3	25.8	3.3	1.9
% passing					
MSHA/ASTM/City	100	85 - 100	10 - 30	0 -10	0 - 5
Specific Gravity, SSD		- 2.707			
Unit Wt., Rodded		- 96.0 pcf			
Soundness, % Loss		- 0.6%			
L. A. Abrasion		- 41			
Moisture		- 0.3%			
ABS		- 0.3			
Petrographic:		- Limestone	e		

All materials and quarry are approved by the State of Maryland.

PATUXENT MATERIALS, INC.

PATUXENT MATERIALS, INC. 2124 Priest Bridge Dr. – Ste. 18 Crofton, MD. 21114

October 22, 2019

Hopkins & Wayson

Re: Royal Farm Store - Sparrows Point

The MSHA CR-6 Crusher Run stone as produced at Martin Marietta's Cockeysville (Texas) Quarry is manufactured in accordance with MSHA 2008 Standards and Specifications Table 901A / D-2940, ASTM C33-99, ASTM D488-98, AASHTO M-43 & City of Baltimore specifications under article 20.02. The produced stone is not reprocessed and comes from natural virgin material directly from the location as listed above. The stone has no deleterious or known hazardous materials within. The material is delivered directly from the quarry to the jobsite. To the best of my knowledge, the material from the above mentioned quarry has not been contaminated by any controlled hazardous substances or petroleum products.

The following gradation represents an average and should be used as a reference only. Any of the listed test results are not to be interpreted as exact, reference only. No warranties or guarantees are given or implied. Any further testing is the contractor's responsibility. Sampling performed at plant in accordance with ASTM D-75 / AASHTO T-2. On site sampling is unacceptable.

		% Passing	% Passing
		MSHA	Balt.City
Sieve Size	Avg.Grad./AASHTO T27	Specification	Specification
2"	100%	100%	-
1 1/2"	100%	90-100%	100%
3/4"	80.5%	60-90%	-
3/8"	57.9%		
#4	44.3%	30-60%	25-55%
#10	38.4%	-	15-45%
#30	24.1%	-	
#200	8.6%	0-15%	1-12%

Plasticity Index (AASHTO T90) = Non-Plastic **Max. Dry Density** / **Proctor** = **150.3.** #/cf. (T-180) Optimum Moisture = 5.9% Magnesium Sulfate Soundness = 4.4% loss Sodium Sulfate Soundness = 0.6% Petrographic Test = Limestone USCS - GW AASHTO - A-1-a PL = NP LL = NP

Respectfully submitted,

2124 Priest Bridge Dr. – Ste. 18 Crofton, MD. 21114

October 22, 2019

Hopkins & Wayson

Re: Royal Farm Store - Sparrows Point

This is to state that the Graded Aggregate Base - Plain as produced at Martin Marietta's Cockeysville (Texas) Quarry, meets the following specifications. **The produced stone is not reprocessed and comes from natural virgin material at the location as listed above. The stone has no deleterious or known hazardous materials within. The material is delivered directly from the quarry to the jobsite. To the best of my knowledge, the material from the above mentioned quarry has not been contaminated by any controlled hazardous substances or petroleum products.** The following are representative of MSHA Standard Specifications – ASTM 2940 for Construction Materials - 2008 Section 901A, ASTM C33-99, ASTM D488-98, AASHTO M-43, & City of Baltimore specifications under article 20.02.

The following gradation represents an average and should be used as a reference only. Any of the listed test results are not to be interpreted as exact, reference only. No warranties or guarantees are given or implied. Any further testing is the contractor's responsibility. Sampling performed at plant in accordance with ASTM D-75 / AASHTO T-2. On site sampling is unacceptable.

Sieve size	<u>2"</u>	1 1/2"	3/4"	3/8"	#4	#30	#200
GAB	100	100	82	59	47	20	3
State Spec. % Passing	100	95-100	70-92	50-70	35-55	12-25	0-8
Tolerances	-2	+/-5	+/-8	+/-8	+/-8	+/-5	+/-3

Maximum Dry Density / Modified T-180 Proctor = 149.7 @ 5.4This material complies with other specifications as set forth in the Maryland State Highway Administration's ASTM requirements regarding deleterious substances and soundness. On project site testing and sampling is deemed unreliable.

Respectfully Submitted:

2124 Priest Bridge Dr. – Ste. 18 Crofton, MD. 21114

October 22, 2019

Hopkins & Wayson

Re: Royal Farm Store - Sparrows Point

This is to state that the Stone Fill / #10 Stone Dust as produced at Martin Marietta's Cockeysville (Texas) Quarry meets the requirements of the American Society for Testing and Materials D448, AASHTO M-43, and City of Baltimore Specifications 20.02. The produced stone dust is not reprocessed and comes from natural virgin material. No deleterious / known hazardous materials within. The material is delivered directly from the quarry to the jobsite. To the best of our knowledge, the material from the above mentioned quarry has not been contaminated by any controlled hazardous substances or petroleum products what so ever. The following gradation and test results represent an average. No warranties or guarantees are given or implied. Reference purposes only. On site testing is deemed unacceptable. Any further testing is the contractor's responsibility. All testing and sampling are performed at the plant in accordance with ASTM D-75 / AASHTO T-2 methods.

Sieve Size	3/8"	#4	#8	#16	#30	#50	#100	#200 /
#10 Stone Dust								
% Passing	100	98.9	90.5	72.2	60.3	46.0	24.3	14.5

Unit Weights:

Loose: 100.4 pcf Rodded: 111.5 pcf **Proctor – T-180 148.1** @ 6.4 Petrographic – Limestone

All materials and quarry are approved by the State of Maryland. On project site testing is deemed unreliable.

Respectfully Submitted, PATUXENT MATERIALS, INC.

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

<td

"

APPENDIX J

"

"

"

"

١

..

Keith Progin

From:	Barbara Brown -MDE- <barbara.brown1@maryland.gov></barbara.brown1@maryland.gov>
Sent:	Friday, November 13, 2020 12:43 PM
То:	Keith Progin; Pete Haid
Cc:	Jennifer Sohns -MDE- (jennifer.sohns@maryland.gov)
Subject:	Re: TPA_B6-2 (Royal Farms)_Impacted Stockpile

CAUTION: External Email.

Hi Keith

This pile should go to the landfill.

On Fri, Nov 13, 2020 at 11:56 AM Keith Progin <<u>kprogin@hcea.com</u>> wrote:

Barbara,

During the development for Royal Farms (B6-2), soil exhibiting odors and elevated PID readings were detected. Approximately 150 cubic yards of soil was segregated and stockpiled. HCEA collected 1 composite sample and 2 grab samples for laboratory analyses.

Please see the attached package that includes the laboratory report, a comparison table, and a photograph. Please advise if this material is acceptable for reuse under a cap on an industrial parcel.

Thanks!

Keith Progin | Senior Environmental Project Manager

HILLIS-CARNES ENGINEERING ASSOCIATES

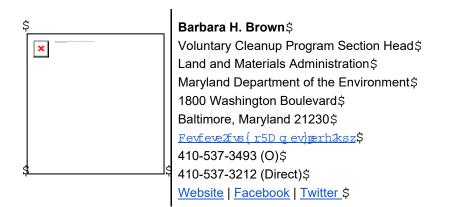
READ ABOUT OUR COVID-19 PREPAREDNESS HERE

Corporate Headquarters 10975 Guilford Road, Suite A Annapolis Junction, MD 20701 Cell (443) 250-9467 Phone +1 (410) 880-4788 Fax +1 (410) 880-4098 Email <u>kprogin@hcea.com</u>

×	LinkedIn 🙀
	MD * DC * DE * PA * VA * Caribbean
	2020 ENR Top Design Firm #341

×

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or reproduction of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone or email. Thank you.



Click here to complete a three question customer experience survey.

<u>Click here</u> to complete a three question customer experience survey.

CRRGP F KZ'M'

Modified Level D Contractor Certification Ground Intrusive Work

In accordance with the Response and Development Work Plan (RDWP) for Area B: Sub-Parcel B6-2, Revision 1 dated January 24, 2018, Section 3.5.2, Sub-Parcel B-2 SLRA Results and Risk Characterization, a site-specific ground intrusive work exposure duration of 36 work days was established. In the RADWP Addendum: SLRA Update for Area B: Sub-Parcel B6-2, an amended sitespecific ground intrusive work exposure duration of 40 work days was established In lieu of tracking exposure days for each employee, the employment of Modified Level D personal protective equipment (PPE) or equivalent elevated PPE was established at the site based on 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 DXI as well as their subcontractors adopted Modified Level D as the baseline PPE for all personnel involved in ground intrusive work. Modified Level D was used from Day 1 of the project by all personnel involved in ground intrusive work.

Statement Certification:

Company:	DXI Construction INC.
Name:	Leslie M. Gilbert 5.
Title:	Superintendant (utilities)
Signature:	Superintendant (utilities) Lele M. Hill ta.
Date:	9/23/21

Modified Level D PPE

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

Modified Level D Contractor Certification Ground Intrusive Work

In accordance with the Response and Development Work Plan (RDWP) for Area Sub-Parcel B-6-2 , dated 1/24/18, Section 3-5, Development Area SLRA Results and Risk Characterization, a site-specific ground intrusive work exposure duration of 36 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 (contractor name) 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 Certi	fication:
Company: _	Hopkins and Wayson, Inc.
Name:	Kevin MacQuilliam
Title:	Superintendent
Signature: _	Julla:
Date: _	10/28/19

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.

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

n

<td

"

APPENDIX L

"

"

"

"

۱

..

NO80N 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/ft²

Values quoted above are the result of multiple tests conducted at an independent testing facility. N080N meets or exceeds values listed. ¹Values 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

Disclaimer: ACF Environmental assumes no liability for the completeness or accuracy of this information or the ultimate use of this information. This document should not be construed as engineering advice. Always consult the project engineer for project specific requirements. The end user assumes sole responsibility for the use of this information and product.

*ACF Environmental is certified and successfully complies with AASHTO's NTPEP Geotextiles Technical Committee Work Plan

