ARM Group Inc.
Engineers and Scientists

December 11, 2019

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

Re: Comment Response Letter:
Delineation/Characterization of Lead
Impacted Soil at A9-001-TP
Area A: Parcel A9
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 provided by the Maryland Department of the Environment (MDE) via email on February 12, 2019. The MDE provided comments regarding the previous submission of the *Work Plan for Delineation/Characterization of Lead Impacted Soil at A9-001-TP*, dated February 6, 2019, for Parcel A9 of the Tradepoint Atlantic property located in Sparrows Point, Maryland. Responses to specific MDE comments are given below; the original comments are included in italics with responses following.

1. *Do you have an ETA on submittal of this Phase II Report?*

   The combined Phase II Investigation Report for Parcels A5, A9, and Greys Rail Yard was submitted to the agencies on October 9, 2019.

2. *Please send site photos of the test pitting on A9, along with groundwater sampling results from the nearby piezometer that was installed at A9-024.*

   A photograph log was provided within the Phase II Investigation Report which documents the test pitting activities; however, photographs are not available from the completion of the A9-001-TP sample location. Photographs are available for the remaining test pitting locations completed under this investigation (eight locations in Parcel A5 and one location in the Greys Rail Yard).

The groundwater analytical results at A9-024-PZ (detections only) are provided in the attached **Table 1**. The complete groundwater results are provided within the Phase II Investigation Report.

3. *Was the elevated lead sample a composite from the test pit? And what conditions were observed that led to the sample being collected? Were there any other elevated contaminants found in the test pit sample?*

   The objective of the test pit investigation was to determine if the materials within several berms and mounds were indicative of potential contamination. The agency-approved Work Plan specified that soil samples would only be required if indications of potential contamination were observed; however, the sampling procedure was modified in the field, and samples were collected from each test pit location as an additional conservatism. No specific observations of contamination were observed at A9-001-TP.

   A soil sample was collected from the excavated material as a 10-point composite. The soil analytical results from A9-001-TP (detections only) are provided in the attached **Table 2**. The complete test pitting sample results are provided within the Phase II Investigation Report. Aside from the elevated lead detection in A9-001-TP, there was one additional Project Action Limit (PAL) exceedance in the composite sample. Hexavalent chromium was detected slightly above its PAL (6.3 mg/kg), at a concentration of 7.6 mg/kg.

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.

Taylor R. Smith, P.E.
Project Engineer

Eric S. Magdar, P.G.
Vice President

TABLES

Table 1 - A9-024-PZ Groundwater Detections

Parameter	Units	PAL	A9-024-PZ*
Total Metals			
Aluminum	µg/L	20,000	**1,180**
Barium	µg/L	2,000	**27.7**
Beryllium	µg/L	4	**0.63 J**
Chromium	µg/L	100	**13**
Copper	µg/L	1,300	**9.0**
Iron	µg/L	14,000	**2,410**
Manganese	µg/L	430	**19**
Nickel	µg/L	390	**3.1 J**
Vanadium	µg/L	86	**6.1**
Zinc	µg/L	6,000	**4.8 J**

Detections in bold

* indicates non-validated data

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

Table 2 - A9-001-TP Soil Detections

Parameter	Units	PAL	A9-001-TP
Semi-Volatile Organic Compounds^			
2-Methylnaphthalene	mg/kg	3,000	**0.00082 J**
Anthracene	mg/kg	230,000	**0.0025 J**
Benz[a]anthracene	mg/kg	21	**0.038**
Benzaldehyde	mg/kg	120,000	**0.02 J**
Benzo[a]pyrene	mg/kg	2.1	**0.061**
Benzo[b]fluoranthene	mg/kg	21	**0.035**
Benzo[g,h,i]perylene	mg/kg		**0.017**
Benzo[k]fluoranthene	mg/kg	210	**0.034**
Chrysene	mg/kg	2,100	**0.056**
Dibenz[a,h]anthracene	mg/kg	2.1	**0.0052 J**
Fluoranthene	mg/kg	30,000	**0.01**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.0048 J**
Phenanthrene	mg/kg		**0.011**
Pyrene	mg/kg	23,000	**0.045**
TPH/Oil & Grease			
Diesel Range Organics	mg/kg	6,200	**14.5 J**
Oil & Grease	mg/kg	6,200	**194**
Metals			
Aluminum	mg/kg	1,100,000	**6,850**
Antimony	mg/kg	470	**18**
Arsenic	mg/kg	3	**2.4**
Barium	mg/kg	220,000	**25.4**
Cadmium	mg/kg	980	**0.49 J**
Chromium	mg/kg	120,000	**585**
Chromium VI	mg/kg	6.3	**7.6**
Copper	mg/kg	47,000	**169**
Iron	mg/kg	820,000	**84,900**
Lead	mg/kg	800	**24,100**
Manganese	mg/kg	26,000	**12,400**
Nickel	mg/kg	22,000	**5.1 J**
Vanadium	mg/kg	5,800	**384**
Zinc	mg/kg	350,000	**30.4**
Other			
Cyanide	mg/kg	150	**0.17 J**

Detections in bold

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

^ PAH compounds were analyzed via SIM

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