



ARM Group LLC

Engineers and Scientists

September 1, 2020

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

Re: Delineation Work Plan:
Lead & Thallium Impacted Soil
Area A: Parcel A7 (A7-008-TP)
Tradepoint Atlantic
Sparrows Point, MD 21219

Dear Ms. Brown:

ARM Group LLC (ARM), on behalf of EnviroAnalytics Group, LLC (EAG), completed the Phase II Investigation of Parcel A7 (the Site) in October 2017. Parcel A7 is located within Area A of the Tradepoint Atlantic property located in Sparrows Point, Maryland. The Phase II Investigation included the collection of soil samples via test pitting in addition to conventional soil sampling via continuous core soil borings. Test pits were completed at 10 locations throughout the Site, with each location intended to characterize the contents of existing berms and mounds. Berms and mounds were built at various locations in the Site, potentially associated with historical waste disposal areas. At each test pit location, a 10-part composite sample was collected for analysis, and the test pits were backfilled following the completion of sampling. The Phase II Investigation identified elevated soil concentrations of lead (6,780 mg/kg) and thallium (83.6 mg/kg) in the sample collected from test pit location A7-008-TP. Following review of the sampling results, the Maryland Department of the Environment (MDE) requested a delineation investigation to further characterize the observed metals concentrations in A7-008-TP.

During the Phase II Investigation, lead and arsenic were detected in several nearby soil borings and test pits, but none of the detections were significantly elevated or comparable to the detections in A7-008-TP. Lead and thallium were not detected in any of the groundwater samples collected at the Site. A summary of lead and thallium detections in the soil samples collected from test pits and soil borings in close proximity to A7-008-TP is presented on **Figure 1**.

To delineate the lead and thallium impacted material in the vicinity of A7-008-TP, five borings will be completed using a Geoprobe® direct push rig to facilitate the collection of soil samples. No additional groundwater samples are proposed as part of this delineation investigation. Soil

samples will be collected from four locations outside of the former test pit, and one location corresponding to the former test pit. The proposed delineation configuration is presented on **Figure 2**. The proposed delineation boring locations on **Figure 2** are overlain on a hillshade map, which shows the contouring of the berms at the site. All delineation protocols will be conducted in accordance with the Standard Operating Procedures (SOPs) and requirements given in the property-wide Quality Assurance Project Plan (QAPP). The investigation will be conducted under the property-wide Health and Safety Plan (HASP).

At each delineation boring location, soil samples will be collected for analysis from the intervals of 0 to 1, 4 to 5, and 9 to 10-feet below ground surface (bgs) using a Geoprobe[®] direct push rig. One boring will be completed at the approximate center of the original test pit A7-008-TP in accordance with this delineation plan. Samples will not be collected from below the groundwater table. If groundwater is encountered above 10 feet bgs, the deepest sample interval will be shifted to the interval just above the groundwater table. Any sample collected from the 10-foot (or field adjusted) interval will be held at the laboratory and will only be analyzed if Project Action Limits (PALs) are exceeded in the overlying sample. If Geoprobe[®] access is determined to be infeasible due to the terrain at any of the locations, the samples will be collected using a hand auger to a maximum depth of 5 feet bgs.

Delineation soil samples will be submitted to Pace Analytical Services, Inc. (PACE) and analyzed for lead and thallium via USEPA Method 6010. Any soil waste generated during the delineation activities will be placed in designated drums and characterized via TCLP testing to determine the appropriate solid waste disposal requirements. Any (minimal) aqueous waste generated from decontamination fluids, etc. will be managed in bulk with waste from other investigations, and will be appropriately characterized prior to disposal.

The initial delineation phase has five proposed boring locations, including resampling at the original location of A7-008-TP. Based on the analytical results from this initial delineation investigation, the sampling grid may be modified (with additional borings added) to improve the resolution of the delineation, or to expand the grid if any significantly elevated concentrations are identified at the edges of the delineation area. Lead has a typical delineation threshold of 10,000 mg/kg (requiring further expansion), but there is no established delineation threshold for thallium. The findings of this investigation, including any expansion of the delineation scope proposed herein, will be provided to the agencies in a Supplemental Investigation Report. In the event that a remedial response action such as excavation is required in the future, a Work Plan will then be provided under separate cover for agency review.



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



Ryan Clancy
Staff Engineer

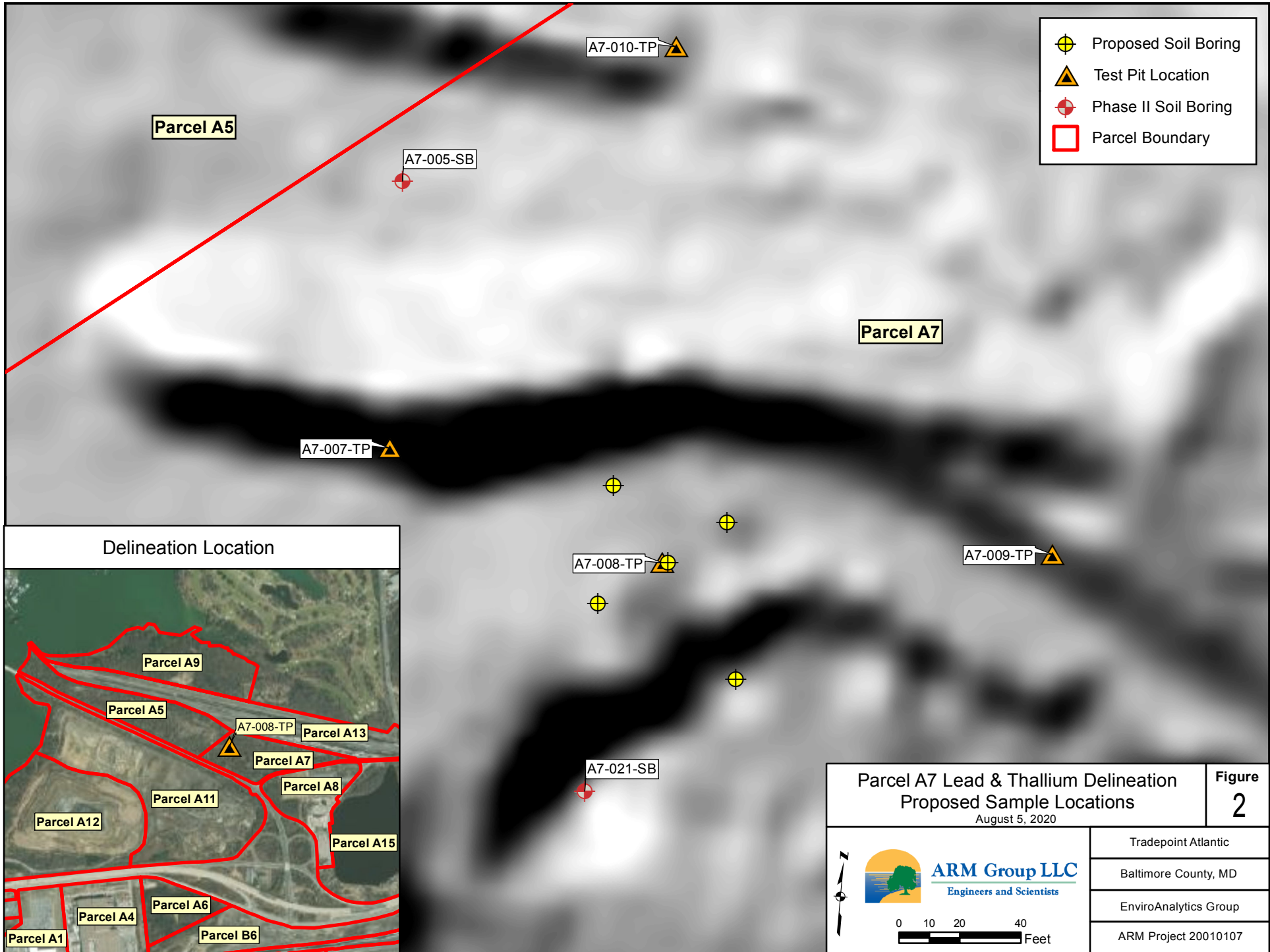






Eric S. Magdar, P.G.
Vice President



FIGURES


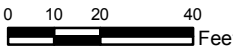




-  Proposed Soil Boring
-  Test Pit Location
-  Phase II Soil Boring
-  Parcel Boundary

Delineation Location



<p>Parcel A7 Lead & Thallium Delineation Proposed Sample Locations August 5, 2020</p>		<p>Figure 2</p>
 <p>ARM Group LLC Engineers and Scientists</p>		<p>Tradepoint Atlantic</p>
		<p>Baltimore County, MD</p>
		<p>EnviroAnalytics Group</p>
		<p>ARM Project 20010107</p>