

September 4, 2020  
Revised: September 16, 2020

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Remediation & Site Response Program  
Toxic Substances Division  
District Department of the Environment  
1200 First Street, NE, 5th Floor  
Washington, DC 20002

**Subject: *Post-Remedial Investigation (RI) Perchloroethene (PCE) Data Gap Investigation Work Plan - Benning Road Facility, 3400 Benning Road, NE, Washington, DC***

Dear Ms. Patil:

AECOM has prepared this brief work plan, on behalf of Pepco, to address the data gap in the perchloroethene (PCE) characterization at the Benning Road Site (the Site), as identified in the Final Remedial Investigation (RI) Report of February 28, 2020. Specifically, this work plan has been prepared to determine the local groundwater flow direction at the southern property boundary to determine if off-site sources could be impacting on-site groundwater. Accordingly, this work plan includes the following elements: (1) the installation of a set of piezometers (the number, location, and construction details for which are described below); and (2) the collection and analysis of hydrogeologic and chemical data from these piezometers.

## **Background**

During the Remedial Investigation, perchloroethene (PCE) was detected in two distinct areas of the Site. These areas are: (1) DP-09 Area located along the southern property abutting Benning Road; and (2) Target Area 19 in the southwest corner of the site. The extent of on-Site groundwater contamination of PCE was thoroughly investigated and delineated during RI Phase 1 and Phase 2 activities. PCE concentrations detected in the upper water-bearing zone (UWZ) and lower water-bearing zone (LWZ) at the Site are shown in **Figure 1** and **Figure 2**, respectively. Although chlorinated solvent use was documented in the power plant area of the Site, there were no known releases of this material and no evidence of an on-Site "source area" was found during the subsurface investigations on-Site. The possibility of off-Site source(s) is strongly suggested by the concentration patterns observed along the southern border of the Site, which are highest at the property boundary and decline with distance toward the interior of the property. However, the existing groundwater level and flow data density along the southern property boundary (see **Figure 3** and **Figure 4**) is insufficient to confirm an off-site source. Given these uncertainties, as noted in the final RI Report, this further investigation is proposed to collect additional data regarding groundwater levels and flow directions along the southern boundary to help determine the source(s). The following paragraphs present the proposed investigation methodology.

## Investigation Methodology

A total of 11 temporary piezometers (TP-01 through TP-11) will be installed along the southern property boundary as shown in **Figure 5**. Four of these temporary points will be installed in the UWZ in the DP-09 area, two temporary points in the LWZ in TA-19, three points as nested points separately screened in both UWZ and LWZ in the DP-09 area, and two off-site points screened in UWZ and LWZ. The location of the temporary points depicted in **Figure 5** were selected to provide the data necessary to determine the groundwater flow direction in conjunction with the existing monitoring wells. The proposed piezometer locations, approximate depth and brief description of location and purpose are provided in the table below.

Proposed Location	Piezometer ID	Approx. Depth (ft) <sup>1</sup>	Screened Unit	Site Area	Location/Rationale
TP-01	TP-01A	35	UWZ	DP-09	Evaluate GW flow in the UWZ and LWZ adjacent to the southern property boundary in the vicinity of the PCE plume observed during 2014.
	TP-01B	62	LWZ		
TP-02	TP-02A	30	UWZ	DP-09	Evaluate GW flow between MW-05, MW-06 and MW-09.
	TP-02B	60	LWZ		
TP-03	TP-03A	25	UWZ	Between DP-09 and TA-19	Further define GW flow in the UWZ and LWZ along the south property boundary between TA-19 and DP-09 Area.
	TP-03B	58	LWZ		
TP-04	TP-04A	38	UWZ	DP-09	Further define GW flow along the south property boundary near the entrance of the metro underground structure.
TP-05	TP-05A	38	UWZ	DP-09	Evaluate apparent mounding near MW-10 and GW flow between MW-09 and MW-10.
TP-06	TP-06A	28	UWZ	DP-09	Evaluate apparent mounding near MW-10 and GW flow between MW-06 and MW-09.
TP-07	TP-07B	55	LWZ	TA-19	Define GW flow between MW-01 and MW-05.
TP-08	TP-08B	55	LWZ	TA-19	Evaluate GW flow and apparent depression in the vicinity of MW-01, MW-02 and MW-05.
TP-09	TP-09A	38	UWZ	DP-09	Evaluate groundwater flow toward historical Piney Run channel northeast of DP-09.
TP-10	TP-10A	38	UWZ	Off-site	Determine PCE presence and GW flow toward Pepco property in the UWZ.
	TP-10B	65	LWZ	Off-site	Determine PCE presence and GW flow toward Pepco property in the LWZ.
TP-11	TP-11A	30	UWZ	Off-site	Determine PCE presence and GW flow toward Pepco property in the UWZ.
	TP-11B	60	LWZ	Off-site	Determine PCE presence and GW flow toward Pepco property in the LWZ.

<sup>1</sup> Piezometer depth approximated based on screen interval in nearby wells and geologic logs. Actual depth will be field determined based on observed lithology during drilling.

Several of the on-site temporary points are located next to the Washington Metropolitan Area Transit Authority (WMATA) infrastructure and would need clearance/permits from the WMATA Adjacent

Construction Program. The two off-site points are located in road rights of way and require District Department of Transportation permits. AECOM will also apply for the Department of Consumer and Regulatory Affairs permit. Upon the receipt of permits and approval of this work plan by DOEE, AECOM will perform utility clearances prior to installing the temporary points. Given the density of underground and overhead utilities on site, some of the proposed locations may need to be field adjusted.

The temporary points will be installed with a Geoprobe® rig using Direct Push Technology (DPT). Each proposed temporary point location will be first characterized for lithology onsite by advancing continuous cores to the desired terminal depth. A field geologist will log the lithology for the core sections and will determine the positioning of the lower and upper well screens. The RI identified a silt-clay semi-confining layer underlying much of the Site and dividing the Patapsco Formation into an UWZ and LWZ. The UWZ points will be installed on top of this silt-clay layer. The LWZ points will be installed on top of the Arundel Clay unit. The temporary points will be installed using 1.0-inch diameter Geoprobe® prepacked well screens. Prepacked screens consist of a standard, slotted PVC well screen pipe surrounded by a stainless steel mesh. Sand is packed between the slotted PVC and the stainless steel mesh. A five-foot prepacked well screen section will be used with 1.0-inch casing extending to the ground surface. A two foot bentonite seal will be installed above the well screen and the remainder of the annular space will be filled with grout to the ground surface. The temporary points will each be sealed with a rubber gasket plug and installed in a flush-mount manhole. GPS coordinates of the temporary points and top of casing elevations will be surveyed upon completion of the installation.

The piezometers will be developed by pumping, to the extent practicable, after 24 hours of their installation and allowed to stabilize for a minimum of 48 hours. It should be noted that the development process could be limited by poor recoveries and small diameter of the piezometers. Following the stabilization period, one round of groundwater gauging will be performed in the newly-installed piezometers as well as the existing monitoring wells. A second round of gauging will be performed after three months. Groundwater gauging will be performed using the procedures described in the RI/FS Work Plan dated December 28, 2012. Data from the two rounds of gauging will be used to generate updated groundwater contour maps.

One round of groundwater samples will also be collected from the proposed eleven piezometers (TP-01 through TP-11) and four existing monitoring wells (MW-01, MW-02, MW-05, and MW-09) to determine current concentrations. Samples will be collected using an inertial pump or mini-bailer. All samples will be analyzed for PCE and its daughter products using EPA Method 8260.

The findings of this data gap investigation will be discussed in a brief technical memorandum and will be submitted to DOEE for review and comment. Upon DOEE's approval of the technical memorandum the temporary points will be properly abandoned with grout following the DDOE guidance. The ground surface will be restored to match the existing surface cover.

Disposable materials and supplies (e.g. direct push liners, tubing, PPE, etc.) will be rinsed and disposed of as ordinary solid waste. Soil cuttings and purge water generated during boring installation will be temporarily staged on-site in 55-gallon drums for disposal by Pepco's waste management services department.

### Anticipated Schedule

It is anticipated that the temporary monitoring point installation and the first round of gauging will be completed within two weeks of receiving DOEE approval of this work plan and the necessary permits. The second round of gauging will be completed three months after the first round of gauging. A draft technical memorandum will be submitted to DOEE within 30 days of the second round of gauging.

Delays or restrictions associated with potential COVID-19 generated impacts, including reduced or restricted travel or site access, reduced availability of AECOM, subcontractor, or Pepco staff, quarantines and other actions by local, city, county, state governments and the federal government could impact project deadlines. Allowance for such potential impacts has not been considered in the above schedule.

Pepco and AECOM look forward to your approval of this work plan. Please contact Ravi Damera at (202) 734-0749 or via email at [ravi.damera@aecom.com](mailto:ravi.damera@aecom.com), if you have any questions regarding this submittal.

Sincerely,



Ravi Damera, P.E., BCEE  
Senior Program Manager



Sharon Drummond, P.G.  
Senior Geologist

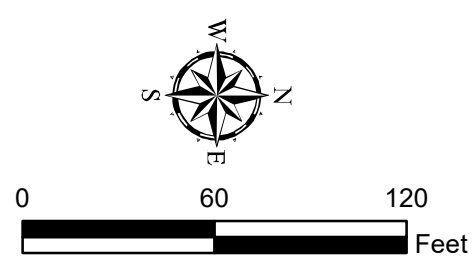
Attachment: Figures 1 through 5



SHALLOW AQUIFER

LEGEND

<b>PCE (ug/L)</b>	● 100.0 - 200.0	□ Benning Road Facility Property Boundary	<b>D.C. Water and Sewer</b>	— Fiber Optic	— Sewer	— Unknown	--- WMATA Underground Easement
● ND	● 200.0 - 300.0	⊕ Dry Cleaning Locations	— Water	— Electric	— Drain	— Water	— Underground-Rail
● <5.0	● 300.0 - 500.0	■ Direct Push Location	— Sewer	— Gas	— Traffic	— Communication	
● 5.0 - 100.0		● Monitoring Well Location					



BENNING ROAD FACILITY RI/FS PROJECT  
3400 BENNING RD., NE  
WASHINGTON, DC 20019

PCE GROUNDWATER CONCENTRATIONS  
UPPER WATER-BEARING ZONE

Date: 8/13/2020

Drawn By: KNS

Checked By: EF

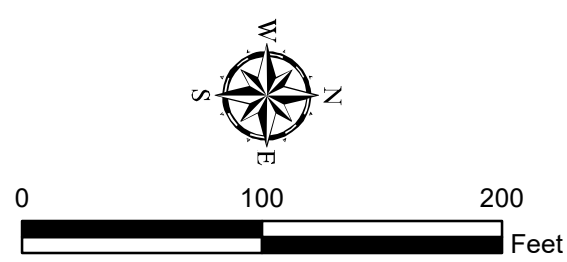
FIGURE 1



**DEEP AQUIFER**

**LEGEND**

<b>PCE (ug/L)</b>	● 100.0 - 200.0	□ Benning Road Facility Property Boundary	<b>D.C. Water and Sewer</b>	— Fiber Optic	— Sewer	— Unknown	--- WMATA Underground Easement
● ND	● 200.0 - 300.0	⊕ Dry Cleaning Locations	— Water	— Electric	— Drain	— Water	— Underground-Rail
● <5.0	● 300.0 - 500.0	■ Direct Push Location	— Sewer	— Gas	— Traffic	— Communication	
● 5.0 - 100.0		● Monitoring Well Location					

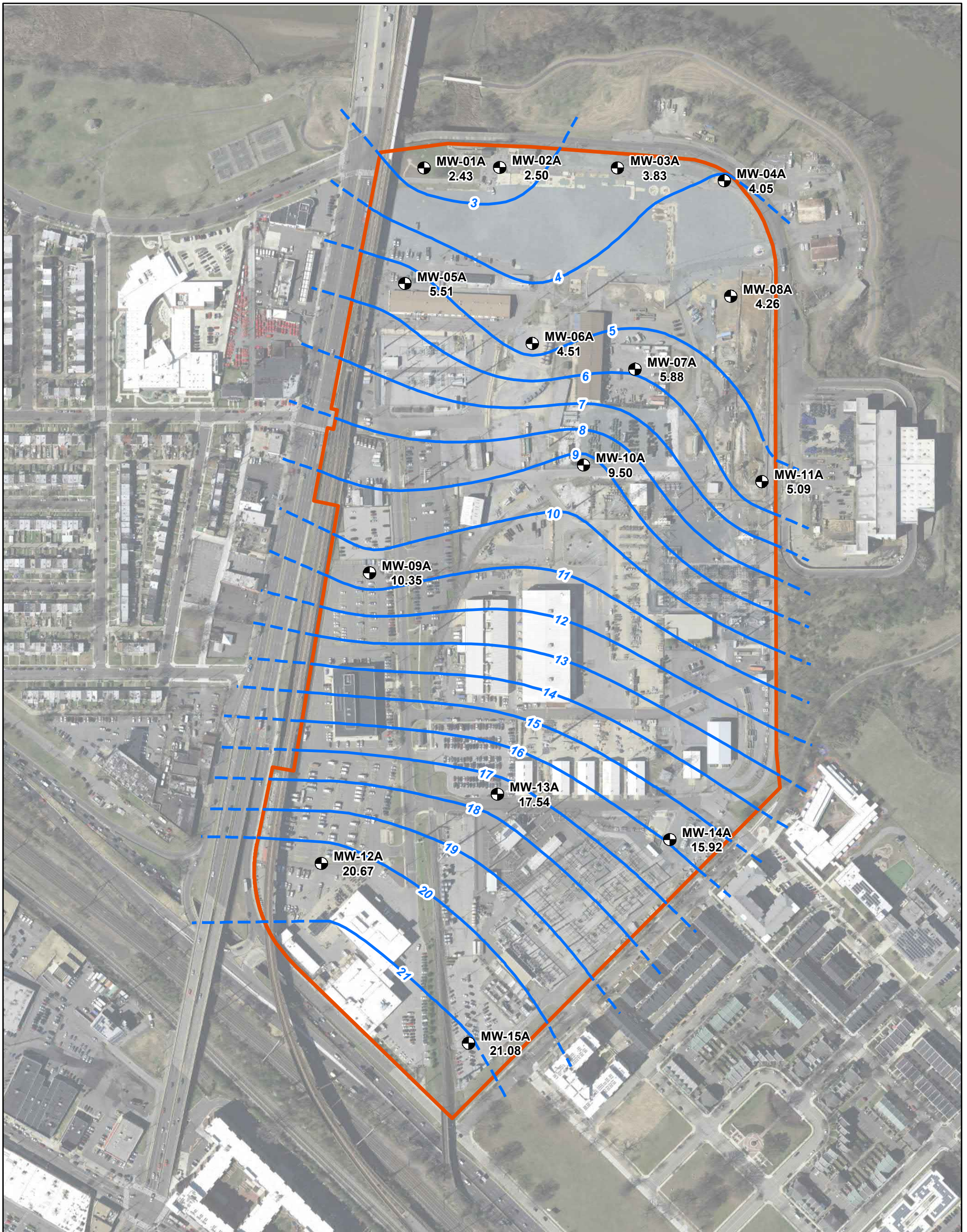


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Date: 8/13/2020    Drawn By: KNS    Checked By: EF

PCE GROUNDWATER CONCENTRATIONS  
 LOWER WATER-BEARING ZONE

FIGURE 2



**LEGEND**

-  Monitoring Well
-  Groundwater Contour
-  Inferred Groundwater Contour
-  Benning Road Facility Property Boundary

Gauging data collected September 28, 2017.



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UWZ GROUNDWATER  
CONTOUR MAP

Date: 9/17/2018





Drawn By: KNS

Checked By: SED

FIGURE 3



**LEGEND**

-  Monitoring Well
-  Groundwater Contour
-  Inferred Groundwater Contour
-  Benning Road Facility Property Boundary

Gauging data collected September 28, 2017.



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LWZ GROUNDWATER  
CONTOUR MAP

Date: 9/17/2018

Drawn By: KNS

Checked By: SED

FIGURE 4





**LEGEND**

- Proposed Temporary Monitoring Point, Upper Water-Bearing Zone (UWZ)
- Proposed Temporary Monitoring Point, Lower Water-Bearing Zone (LWZ)
- Proposed Temporary Well Nested Pair in the UWZ and LWZ
- ⊕ Existing Monitoring Well Nested Pair in the UWZ and LWZ
- Benning Road Facility Property Boundary

**D.C. Water and Sewer**

- Water
- Sewer
- Gas
- Sewer
- Fiber Optic
- Electric
- Drain
- Water
- Communication
- Traffic
- Unknown



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PROPOSED TEMPORARY  
 MONITORING POINT  
 LOCATIONS

Date: 9/16/2020

Drawn By: JB

Checked By: SED

FIGURE 5