



PETROLEUM MANAGEMENT, INC.

Environmental Services Division

5218 Curtis Ave. ♦ Baltimore, Maryland 21226

Phone: (410) 354-0200 ♦ Fax: (410) 354-0201



December 26, 2018

Maryland Department of the Environment
Oil Control Program

Attn: Susan Bull

1800 Washington Blvd., Suite 620
Baltimore, MD 21230

**RE: Limited Subsurface Investigation
Wiley H. Bates Middle School
701 Chase Street, Annapolis
Facility ID# 3200**

Subsurface Investigation Work Plan

Dear Ms. Bull,

In response to the *MDE Directive* issued for the above referenced site, Petroleum Management, Inc. is pleased to submit the following proposed Work Plan for a Limited Subsurface Investigation in the available perimeter of the current UST area and product piping runs, the historic UST area and remote fill piping and the storm drain utility pathways that could provide a conduit for LPH migration from the boiler room to the stormwater outfall. Considering the history of UST activity and heating oil releases reported at this site and with the most recent report and observation of heating oil accumulation at the stormwater outfall to adjacent Spa Creek, the intended purpose of this Subsurface Investigation will be to identify the ongoing source of heating oil impact to the storm drain outfall to Spa Creek and to delineate the vertical and horizontal impact of such source including presence of liquid-phase, residual-phase and dissolved-phase contamination.

Subsurface Investigation Scope of Work

Direct-push technology, *GeoProbe*, will be utilized to advance a number of soil borings as necessary to fully delineate the vertical and horizontal extent of any liquid-phase or residual-phase hydrocarbon contamination identified in the areas of the current USTs and product piping runs, the historic USTs and remote fill piping and the storm drain utility pathways leading to the storm drain outfall to Spa Creek. Initial investigation areas will be identified as **Soil Boring Area #1** (eight (8) soil borings proposed in this area adjacent the terminal end of the storm drain piping, nearest outfall where LPH discharge has been observed), **Soil Boring Area #2** (four (4) soil borings proposed in this area in the perimeter of SW Manhole No.1 where fuel odor is present within) and **Soil Boring Area #3** (eight (8) soil borings proposed in the areas adjacent current USTs and product piping runs and the historic UST area and remote fill piping). All soil borings will be located as safely allowable by location of adjacent underground utilities. Location of additional soil borings, as directed by MDE, may be necessary based on findings to best delineate the migration path of any identified contamination. Proposed soil boring locations are depicted on the attached site plan.

Beginning at 4-feet below the surface, soil borings will be advanced in 4-5 foot intervals using *GeoProbe* macro-core or dual-tube samplers as necessary to retain representative core samples and prevent boring collapse. Each soil sample interval will be identified and screened on-site utilizing a photoionization detector (PID) with results recorded in a soil boring log. As evidence of contamination is identified during the field screening activities, PMI will attempt to advance the borings until evidence of contamination no longer exists, to equipment refusal, or to the shallow groundwater table, whichever occurs first. All sampling equipment will be decontaminated prior to and after each boring advancement using industry standard methods.

Based on boring depth and the PID screening results, up to two (2) soil samples from each boring will be retained using *En-Core* sampling equipment (EPA method 5035) and sent to an accredited laboratory facility for analysis of TPH-GRO, TPH-DRO (EPA method 8015b) and Total VOC (EPA method 8260b) accordingly. Should groundwater be encountered in any of the proposed borings, a groundwater sample, *in addition to a soil sample from the interface depth*, will be sampled via temporary screened casing and submitted for analysis of TPH-GRO, TPH-DRO (EPA method 8015b) and Total VOCs (EPA method 8260) accordingly.

Should liquid-phase hydrocarbons (LPH) be encountered in any of the completed soil borings, a 1" temporary screened well casing will be installed to serve as a gauging and monitoring point. Should installation of permanent monitoring/recovery wells be deemed necessary, an additional site visit will be necessary once appropriate well permits are obtained and to mobilize the appropriate hollow-stem well drilling equipment. Details of additional well installations can be presented in a *Corrective Action Plan* that would further elaborate on a suitable remediation effort based on the site conditions identified in the Limited Subsurface Investigation.

PID readings and laboratory analysis of soil and possible groundwater samples will be used to determine representative concentrations of any residual and/or dissolved phase contamination identified in the target areas. These concentrations and site conditions will then be reviewed in comparison to the current MDE Clean-up Standards for a non-residential area. Details of this investigation will be presented as a Limited Subsurface Investigation report for submittal to the Administration as directed.

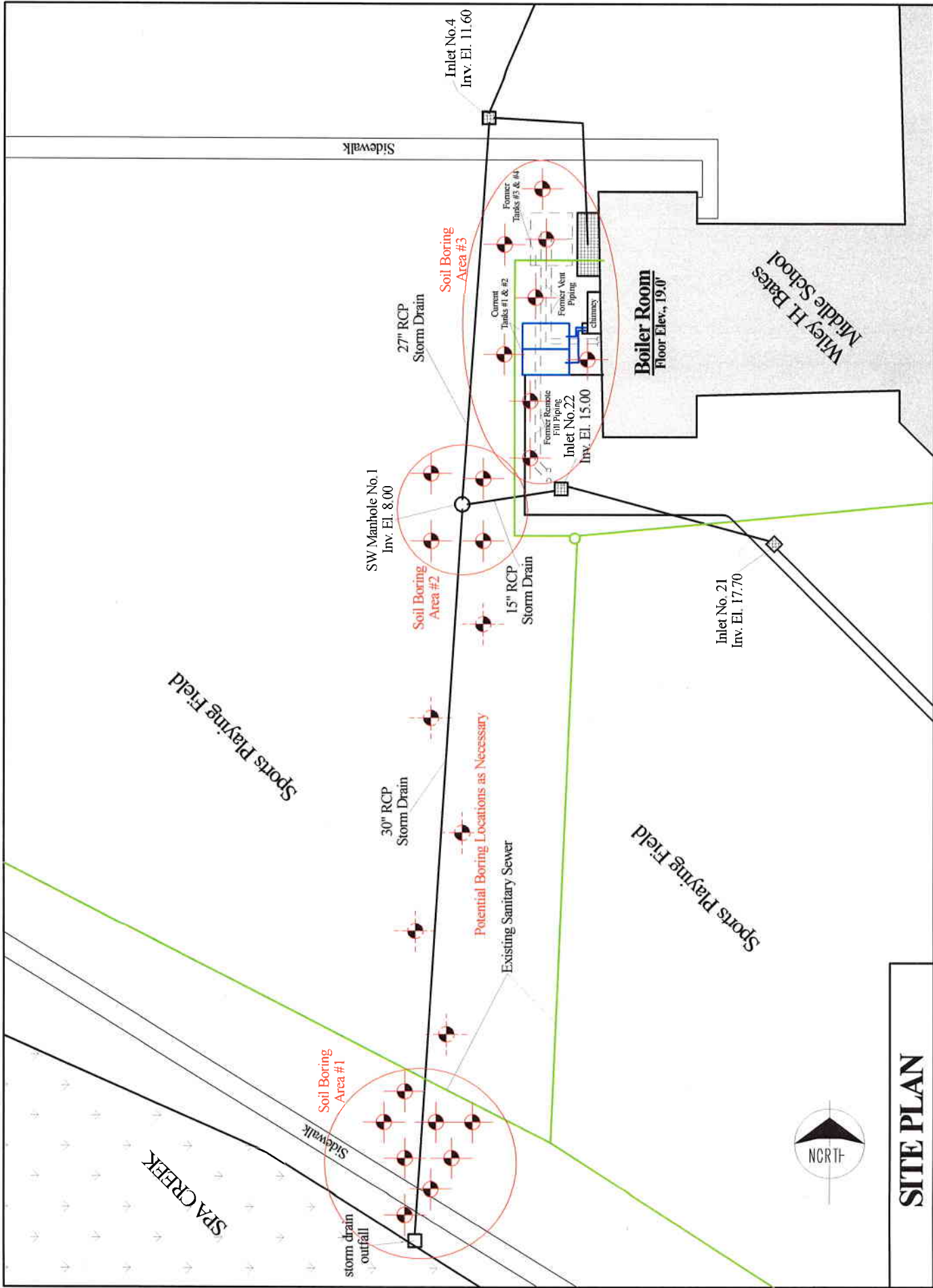
Field activities can be scheduled w/in 30 days of Work Plan approval pending acceptable weather conditions and site access restraints to *Geoprobe* equipment. Arrangements will be made to allow equipment access as necessary and to minimize damage and restoration of the target area. Onsite field activity will be completed within five (5) days. Please review this scope of work for acceptance by the Administration. If there are any questions or concerns in regards to this scope, please contact the project manager to discuss or make any appropriate changes.

Thank you for your attention to this case.



W. Scott Alexander
Environmental Projects Manager

Enc.



SITE PLAN

Petroleum Management, Inc.
 5218 Curtis Avenue
 Curtis Bay, MD 21226
 410-354-0200

Job Name: Wilely H. Bates Middle School - Subsurface Investigation (Proposed Boring Locations)

Location: 701 Chase Street, Annapolis, MD 21401

Drawn By: WSA

Scale: 1" = 50'

Date: 12/26/18

