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Environmental Health and Safety Plan and
Impacted Material Management Plan
Submitted: June 22, 2018

Proposed Ground-Mounted Solar Array
at Oxon Run
4669 South Capitol Street, SE
Washington, DC 20032

ECC Project No. 18-13198

Prepared For: Mr. David Lasky
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Prepared by: Environmental Consultants and Contractors, Inc.
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REVIEW AND APPROVAL

This Environmental Health and Safety Plan (EHASP) and Impacted Material Management Plan (IMMP) (the Plan or EHASP/IMMP) has been reviewed by the undersigned representatives of the Contractor (GRID Alternatives, Mid-Atlantic) and Environmental Consultants and Contractors, Inc., and companies performing earthwork, excavation, soil removal and disposal, and related work on the Ground-Mounted Solar Array at Oxon Run (site addressed approximately 4669 South Capitol Street SE) project site in Washington, District of Columbia. The undersigned acknowledge they have been notified and informed that certain chemical contaminants exist in soil and groundwater at the site. The undersigned acknowledge that this document outlines acceptable environmental health and safety requirements and procedures related to the control of potential worker environmental hazards from contaminated soil and water at the site, which may be encountered during the performance of construction activities which intrude upon or disturb contaminated soil and/or water. The undersigned agree to abide by the environmental safety and health requirements and procedures outlined in this document and understand that the contractor and other individual sub-contractors are responsible for compliance with these and all other applicable safety and health regulations, requirements and procedures for their own personnel. The EHASP is limited to worker safety and health relating to environmental considerations associated with soil and groundwater contamination and shall not be considered as guidance for other general and construction-related OSHA safety regulations and requirements.

The undersigned acknowledge that the Contractor shall be solely responsible for the health and safety of its employees, agents and lower-tier subcontractors for the duration of the work at the 4669 South Capitol Street SW, redevelopment project. The Contractor shall comply with all applicable federal, state, and local Health and Safety requirements and standards relating to job site and employer safety, including, but not limited to, the Federal OSHA Occupational Safety and Health Act and equivalent Laws and Regulations. The Contractor shall prepare and implement its own health and safety program. ECC is not responsible for the creation, content, or implementation of the Contractor's health and safety program, nor is ECC responsible for the health and safety of Contractor's employees, agents and lower-tier subcontractors.

This document is provided as guidance only and implementation of procedures outlined herein does not, and will not, provide an affirmative defense to OSHA complaints or otherwise limit the responsibility of the Contractor or Sub-contractors to provide for worker health and safety.

A competent person (environmental field technician) should be on site to conduct field screening of soil to determine the appropriate method of off-site disposal. Monitoring shall be conducted by a competent person in areas as directed by the Contractor or a designated subcontractor. Every effort should be made to respect the chain-of-command and contractual agreements and report potential hazards and compliance issues promptly to the Site Safety Officer and assist with recommendations for hazard control. However, if ECC observes an imminent danger situation and/or serious health or safety hazard, ECC will comply with its ethical and legal duty to take any action necessary to warn and remove persons at risk from harm's way, as soon as possible. This may include stopping work temporarily, if necessary in the judgment of the ECC representative, until the Site Safety Officer can be notified and the hazardous situation can be corrected.

Please see the next page for review and approval signatures.

Reviewed and Approved by:

By: _____
Name: Mr. David Lasky
Title: Commercial Solar Project manager for GRID Alternatives Mid-Atlantic

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1.0 Authorization and Limitations

Environmental Consultants and Contractors, Inc. ("ECC"), was authorized by Mr. David Lasky of GRID Alternatives Mid-Atlantic (the "Contractor") to prepare this Environmental Health and Safety Plan (EHASP) and Impacted Material Management Plan (IMMP) to address environmental health and impacted material management issues related to documented contamination at site proposed Ground-Mounted Solar Array at Oxon Run project in southeast Washington DC.

This Combined EHASP/IMMP was prepared for the Contractor for the purpose of providing guidance for compliance with the laws and regulations of the District of Columbia. The Combined EHASP/IMMP is based on the site conditions known or anticipated at the time of preparation by ECC. The Combined EHASP/IMMP, or any portion thereof, may be re-evaluated and modified based on future site activities or conditions, or regulatory requirements as determined by the ECC and/or the Site Safety Office, with notification and approval by Contractor. No other person or organization is entitled to rely upon this report without the written authorization of ECC.

In preparing this EHASP and IMMP, our professional opinions and judgments have been made based upon the information gathered, our experience in the area with similar projects, and in accordance with generally accepted professional environmental practice under similar circumstances. The information presented is based upon the presumption that existing soil and groundwater conditions do not deviate appreciably from those observed and described in the referenced investigations. Soil and groundwater conditions are representative of conditions at the specified location and on the specific dates on which they were observed. The passage of time may result in changing conditions at the Subject Property.

ECC's recommendations are based on the nature of prior investigations and Subject Property usage and history. Should additional information become available with regard to Subject Property history or future planned use, ECC reserves the right to alter its recommendations regarding additional investigation or remedial activities.

Sincerely,
For ECC, Inc.,

John P. Diehl, CPG
Senior Project Manager
John.Diehl@eccfirst.com

2.0 Site History

2.1 Summary

This combined Environmental Health and Safety Plan (EHASP), and Impacted Material Management Plan (IMMP) has been developed as a guidance document for the Ground-Mounted Solar Array at Oxon Run project site (site addressed approximately 4669 South Capitol Street SE). The Plan is intended to provide the Contractor with guidance for environmental health and safety and management of impacted or contaminated materials during site excavation and sub-surface construction activities.

The EHASP provides guidance for protection of workers and the public during excavation of soil and recovery and discharge of groundwater potentially impacted by petroleum constituents and other contaminants. The IMMP provides guidance for segregation, handling, and off-site disposal of petroleum impacted materials. Further, the IMMP provides guidance for management of waste materials or abandoned underground structures (such as abandoned underground storage tanks (UST), oil/water separators, sanitary sewer lines, etc.) if such are encountered during excavation activities at the Site.

2.2 Site Background

The Site occupies approximately 10 acres of open land located west of the intersection of South Capitol Street, SE, and Southern Avenue, SE, in Washington, District of Columbia. The Site is identified as Square 6274 Lots 0800, 0801, and portions of Lot 0802. The site is currently unaddressed, but is sometime referred to as 4669 South capitol Street, SE. A Site Location Map and Site Plan are provided as Figures 1 and 2 in Appendix A for reference.

2.3 2014 Phase II ESA

A *Phase II Environmental Site Assessment* of the site prepared and published by ECC on August 22, 2014, documented low level petroleum compounds in soil and groundwater. The detected contaminant concentrations do not appear to present an unacceptable risk. Fill material containing silty sand with brick fragments, organic roots, glass fragments, burnt debris/ wood and metal fragments had been documented to depths extending to 20 feet below grade. A copy of this report (lab data not included) is provided in Appendix E.

The 2014 Phase II ESA concluded with the following statements regarding contaminants.

- *Low-level petroleum contamination was documented in soil mounds located on the southwestern portion of the Subject Property. TPH-DRO concentrations detected in soil samples from the soil mounds ranged from 35 to 60 ppm. BTEX, MTBE and naphthalene concentrations were not detected in soil samples from the soil mounds.*

- *Low- to moderate-level petroleum contamination was detected in shallow and deep soil at the GeoProbe boring locations. The highest concentrations of petroleum contamination were encountered in borings GP-4, GP-6, and GP-7 near the soil-groundwater interface; soil contamination detected at the soil-groundwater interface is attributed to contaminant migration via groundwater from an off-site source.*

Petroleum compound concentrations in soil above DDOE Tier 0 Screening Levels, DDOE Tier 1 RBSLs for Commercial Workers, or both, were detected in four of 13 soil samples. Metals concentrations were detected within the range of natural background concentrations in all three soil samples collected on the Subject Property. The pesticide DDT and its degradation compounds DDD and DDE were detected at trace concentrations at GP-5. Herbicides were not detected at or above laboratory method detection limits in any of the soil samples.

- *Fill material consisting of silty sand with brick fragments, organic roots, glass fragments, burnt debris/wood, and metal fragments was observed at depths extending up to 20 feet below grade across the Subject Property. Fill material was underlain by fine- to coarse-grained gravely sand with quartz and sandstone fragments.*

- *Low- to moderate-level petroleum contamination was detected in groundwater on the Subject Property. Contaminant concentrations in groundwater above DDOE Tier 0 Standards, DDOE Tier 1 RBSLs for Commercial Workers, or both, were detected in three of six groundwater samples.*

2.4 2018 Phase II ESA

A *Phase II ESA* of the site prepared and published by Tetra Tech, Inc. and dated May 4, 2018, documented low level petroleum compounds in soil and groundwater. The detected contaminant concentrations do not appear to present an unacceptable risk. A copy of this report (lab data not included) is provided in Appendix E.

The 2018 Phase II ESA concluded with the following statements regarding contaminants:

- *The soil sample analytical results indicate detections of ethylbenzene, toluene, total xylenes, and naphthalene in the soil sample SB-14; however, detections were below the applicable regulatory standards. Soil sample analytical results indicated detectable concentrations of the pesticides 4,4-DDD, 4,4-DDE, 4,4-DDT, alpha-chlordane, gamma-chlordane, and endrin in soil samples collected from SB-1, SB-3, SB-5, SB-6, SB-7, SB-12, SB-13, and SB-14. In each instance, concentrations of pesticides were below the applicable regulatory standards, therefore additional assessment is not considered to be warranted.*

- *Soil sample analytical results indicate detectable concentrations of each of the priority pollutant metals in soil samples collected from each of the soil borings on the Subject Property. Each of the detections at the Subject Property were below the residential and industrial EPA RSLs and DOEE regulations except for arsenic. Arsenic was detected above the residential EPA RSL in each soil boring and above the industrial RSL in SB-1 through SB-4, SB-6, SB-7, and SB-10 through SB-14. While the District does not presently publish background concentrations of arsenic in soil, the State of Maryland, adjacent to the Subject Property, has published that the ATC of arsenic in soils in eastern Maryland is 3.6 mg/kg. The ATC represents the mean concentration plus one standard deviation for samples collected in the background study. The range of detected arsenic concentrations was reported to be between 1.7 mg/kg and 6.7 mg/kg. The detected concentrations of arsenic on the Subject Property during this Phase II ESA fall within this range. Therefore, the concentrations of arsenic observed at the Subject Property are not considered to be indicative of contamination and further assessment of arsenic in soil is not considered to be necessary.*

- *Soil sample analytical results indicate detectable TPH-DRO above the laboratory MDL in the both surficial and subsurface soil samples collected from each of the soil borings at the Subject Property. TPHDRO was detected above the EPA residential soil RSL and DOEE Tier 0 RBSL in SB-2 through SB-6, SB-13, and SB-14. In addition, TPH-DRO was detected above the EPA industrial RSL in SB-5. TPH-GRO was detected above the EPA residential and industrial RSLs and the DOEE Tier 0 RBSL, but below the remaining RBSLs in the soil sample collected from SB-14. The TPH-GRO and DRO exceedances are primarily driven by conservative residential standards, with only the TPH-DRO concentration from SB-5 (collected from a depth of 9-10 feet) and the TPH-GRO concentration of SB-14 (collected from a depth of 16-17 feet) exceeding the industrial soil RSL. Regarding the residential exceedances, of the 10*

exceedances, seven were collected at depths greater than 10 feet below grade and are therefore unlikely to be encountered by someone utilizing the Subject Property as a park or by construction workers conducting shallow (less than four feet) excavations. The remaining exceedances are relatively low (98 mg/kg, 99 mg/kg, and 350 mg/kg) and are located adjacent to or nearby the concrete pads previously used for commercial site purposes. These pads will be likely removed and the surrounding area cleaned of debris during the construction of a park. Regarding the two industrial exceedances, both occur below a depth that would be encountered during typical commercial redevelopment. In addition, while these concentrations (1,000 mg/kg of TPH-DRO and 1,000 mg/kg of TPH-GRO respectively) exceed the EPA RSLs and the District's Tier 0 Standards, they are orders of magnitude below the DOEE's surficial soil ingestion, inhalation (vapor emissions and particulates), and dermal Contact RBSL of 230,000 mg/kg for TPH-DRO and 465,000 mg/kg for TPH-GRO which would likely be utilized in any environmental cleanup based on the proposed use of the Subject Property. These factors and the frequency of occurrence (two samples out of 28) indicate that the TPH-DRO and TPH-GRO concentrations at these locations are isolated pockets of contamination unlikely to warrant regulatory attention or further assessment.

- *Groundwater analytical results indicate detectable concentrations of benzene, ethylbenzene, MTBE, naphthalene, toluene and total xylenes from two boring locations, SB-2 and SB-14. However, only the concentration of benzene (30 µg/L) in SB-14 was reported at concentrations above the applicable DOEE Groundwater Protection and Quality Standard (5 µg/L). The Subject Property and the surrounding area are serviced by DC Water, the local municipal water utility; groundwater is not utilized as a source of drinking water. In addition, the groundwater at the Subject Property is located at a depth not likely to be encountered by visitors to the Subject Property. However, a LUST case (LUST #2015005) was previously open in association with the former gasoline service station where the current Rite Aid facility is located. Additional assessment may be warranted in association with this facility.*

- *Groundwater analytical results also indicate detectable concentrations of TPH-DRO in soil borings SB-2, and SB-7 through SB-14 and detections of TPH-GRO in soil boring SB-14. In no instances are concentrations of TPH-DRO or TPH-GRO in groundwater above applicable regulatory standards, therefore additional assessment is not considered to be warranted.*

2.3 Definitions

For the purposes of this project and this document, the following standard terms and definitions will be used:

- EHASP: The Environmental Health and Safety Plan (Section 3)
- IMMP: The Impacted Material Management Plan (Section 4)
- Contractor: GRID Alternatives Mid-Atlantic
- ECC: Environmental Consultants and Contractors, Inc. or a designated representative (including employees, not subcontractors)
- Environmental Consultant, Environmental Technician: Representatives of an Environmental Consultant/Engineering firm retained by Contractor.
- Contractor: The Contractor leading any element of the work set forth herein, or a designated representative (including sub-contractors for trades such as excavation and dewatering)
- Site Safety Officer: Safety representative of Contractor or Sub-contractor
- DOEE: Department of Energy and Environment;
- TDA: Temporary Discharge Authorization Permit;
- OSHA: Occupational Safety and Health Administration; and.
- Hazwoper: OSHA Regulation 29 CFR 1910.120: Hazardous Waste Operations and Emergency Response.

3.0 Environmental Health and Safety Plan (EHASP)

This Environmental Health and Safety Plan section has been prepared due to the potential chemical contaminant risk during construction of the Ground-Mounted Solar Array at Oxon Run on South Capitol Street SE and should not be relied upon for guidance regarding other safety-related activities during construction. This section provides guidance for protection of workers and the public during excavation of soil, and possible recovery and discharge of groundwater, potentially impacted by petroleum and volatile organic compounds.

The Contractor shall be solely, and at all times, responsible for the health and safety of its employees, agents and lower-tier subcontractors. The Contractor shall comply with all applicable federal, state, and local health and safety requirements and standards relating to job site and employee safety, including, but not limited to, Federal Occupational Safety and Health Act (OSHA) and similar Laws and Regulations. The Contractor shall prepare and implement its own health and safety program. ECC is not responsible for the creation, content, or implementation of the Contractor's health and safety program. ECC is not responsible for the health and safety of Contractor's employees, agents and lower-tier subcontractors. The Contractor acknowledges the potential for chemical exposure of its personnel and its responsibility for proper training of employees and appropriate personal protective equipment (PPE).

This section is provided as guidance only and implementation of procedures outlined in this section does not, and will not, provide an affirmative defense to OSHA complaints or otherwise limit the responsibility of the Contractor or Subcontractors to provide for worker health and safety.

It is ECC's understanding that the site will be developed as a Ground-Mounted Solar Array. Based on historical site uses and prior site investigations, petroleum hydrocarbon contaminants exist on the Subject Property and soil, and potentially groundwater and/or surface water, impacted with contaminants may be encountered during proposed redevelopment activities.

3.1 Responsibility of Site Safety Officer

3.1.1 Health and Safety

The Contractor's Site Safety Officer for the project is responsible for implementing all aspects of health and safety including understanding the health and safety risks from documented site contaminants. The Site Safety Officer is responsible for compliance with applicable OSHA, EPA, and other environmental, health, and safety laws, regulations, and guidance. The Site Safety Officer has stop-work authority.

The Contractor will provide for an Environmental Technician to be on site during excavation operations. The primary responsibility of the Environmental Technician is to screen soil for the presence of contaminants to determine appropriate handling and disposal. The Environmental Technician will be available to provide air monitoring for VOCs as directed by the Contractor and/or the Site Safety Officer. If contaminated soil and/or water are encountered, the Site Safety

Officer may request recommendations regarding hazard controls and contaminated soil and groundwater handling procedures from the Environmental Consultant.

The Environmental Consultant and Environmental Technician will make every effort to respect the chain-of-command and contractual agreements and will report environmental health and safety hazards and compliance issues promptly to the Site Safety Officer. However, if the Environmental Consultant or Environmental Technician observes an imminent danger situation, immediate action to protect life and health will be taken.

3.1.2 Incident Response

In the event of an accident, injury, or environmental-related safety incident, the top priority shall be to provide appropriate, effective assistance to any injured persons without placing additional persons at risk. Prevention and control of property damage is a secondary consideration. The emergency procedures outlined in this section are not all-inclusive, nor should they be thought of as inflexible. Every accident, injury, or environmental-related safety incident presents a unique event that must be dealt with by trained personnel working in a calm, controlled manner. In the event of an accident, injury, or environmental-related safety incident, the prime consideration is to provide an appropriate initial response to assist those in jeopardy without placing additional personnel at an unnecessary risk.

The Site Safety Officer is responsible for leading the emergency response effort in an efficient, rapid, and safe manner; determining if outside assistance or medical treatment is required; and alerting and assisting applicable authorities. If the Site Safety Officer is unavailable, the next available Contractor supervisor will lead the response.

The Site Safety Officer and the Environmental Technician will be equipped with whistles or air horns to alert site personnel in the event of emergencies such as a chemical release, personnel injury, or fire/explosion. The signal is three one-second whistle or air horn blasts. Upon hearing the emergency signal, all personnel working on the site will stop work and exit the work area and go to a designated safe area, predetermined by the Site Safety Officer, until the emergency situation can be assessed and personnel can be accounted for.

All workers on site are responsible for conducting themselves in a mature, calm manner in the event of an accident, injury, or environmental-related safety incident. All personnel must conduct themselves in such a manner as to avoid spreading the danger to themselves and to surrounding workers.

3.1.3 Incident and Release Reporting

The Site Safety Officer will be responsible for reporting chemical releases to the Department of Energy and Environment (DOEE). All accidents, injuries, or environmental-related safety incidents must be reported to the Contractor, and the Environmental Consultant as soon as possible.

3.2 Security and Site Control

Site access will be restricted by the site buildings and/or security fencing. If soil and/or groundwater conditions are encountered which require personal protective equipment, temporary Exclusion Zone boundaries may be established using "Caution" and "Authorized Personnel Only" perimeter barrier tapes. The Exclusion Zone boundaries will be established in the field and adjusted to task and weather conditions.

All contractors, subcontractors, governmental, and visiting personnel will read this document in its entirety and "sign-off" to acknowledge their understanding of site conditions, potential hazards, and safety protocol prior to entry to the Exclusion Zone. The Plan "sign-off" sheet will be kept on-site in the possession of the Site Safety Officer. An example "sign-off" sheet is presented in Appendix B for reference.

3.3 Excavation Work

Care should be taken by all personnel during excavation operations to avoid possible chemical and physical hazards. Chemical hazards can occur from direct exposure to excavation soil or water, inhalation of volatilized materials, fire/explosion, and exposure to hazardous or oxygen-depleted atmospheres. Physical hazards include the possible collapse of excavation side walls or surface edges, mechanical injury through contact with the excavation equipment, and explosion of waste materials.

Policies and standard operating procedures to address these hazards should be addressed in the Contractor Health and Safety Plan. Compliance with these policies and procedures is the responsibility of all site personnel and shall be enforced by the Site Safety Officer.

There is the potential to encounter unknown USTs and piping during excavation. If a suspected UST, piping, or drums or other containers are encountered during excavation, workers shall stop excavation immediately and notify the Site Safety Officer.

3.4 Health and Safety Training/Medical Monitoring

In accordance with OSHA standard 29 CFR 1910.120(e), field personnel who may encounter or be exposed to potentially hazardous materials should have received a minimum of 24 hours of initial health and safety instruction and annual refresher courses before field work begins. This instruction shall be supplemented with project-specific health and safety training for the personnel who may encounter these hazards.

It is expected that the only personnel who may require health and safety training will be those associated with soil screening and sampling, operating site dewatering systems, and Site Safety Officers. For all others, a project-specific Hazard Awareness Orientation session will be sufficient. **However, the Contractor and/or Site Safety Officer must determine the necessity and completeness of all health and safety training.**

If Hazard Awareness Orientation is deemed sufficient, it should include (at a minimum) the following topics:

- The purpose behind conducting the health and safety training session.

- A respiratory protection workshop, if necessary, that will describe applicable respirator and filter cartridge types applicable to the potential hazards at the site. This workshop is not intended to be a "fit" test and qualification workshop.

- A review of the project-specific environmental health and safety concerns identified in this plan.

- Recognition of potential hazards from contaminated soil and groundwater, measures to avoid exposure, including the importance of hands/face washing, and understanding of situations that may require Level C or other additional personal protection and HAZWOPER training.

It is the responsibility of the Contractor and individual subcontractors to make provisions for health and safety training, material safety data sheets, health and safety operating procedures, personal protective equipment, safety equipment, and medical surveillance for their employees. Such training may include OSHA Hazard Communication, HAZWOPER, Respiratory Protection, fall protection, general construction safety training, and Hazard Awareness Orientation.

Pursuant to OSHA regulation 1910.134(b)(10), all personnel who may encounter hazardous waste should participate in an annual medical monitoring program and be certified to perform work using respiratory protection. The provision of medical monitoring is the responsibility of the individual contractor. Medical monitoring is required for personnel who:

- May be exposed to health hazards at or above the permissible exposure limits for 30 or more days per year.

- Wear a respirator.

- Are injured by exposure to a hazardous substance/hazard during an emergency incident.

3.5 General Safety Rules and Procedures

The Contractor will ensure that all requirements and procedures outlined in the Contractor Health and Safety Plan, this section, and all applicable OSHA and EPA health and safety regulations will be followed by all Contractor and sub-contractor personnel. Prior to the initiation of any field activities, all personnel performing soil or groundwater contact activities will read and sign a statement acknowledging that they understand the potential hazards prior to initiating work. In addition, the following general rules apply to all personnel:

- Eating, drinking, chewing gum or tobacco, smoking, and any other hand-to-mouth activities are prohibited in the work areas where contamination exists or is suspected to exist.

- Upon leaving the work area, hands and face must be thoroughly washed. Any protective outer clothing which has been contaminated must be removed, and deposited at the designated area prior to entering the clean area.

Contact with potentially contaminated materials must be avoided.

3.6 Hazard Evaluation

Potential environmental hazards and their exposure routes include:

- Inhalation of organic vapors due to the presence of volatile organic compounds in soil. Applicable OSHA permissible exposure limits for inhalation of contaminants of concern on site are provided in Table 1 in Appendix A.

- Inadvertent ingestion of potentially toxic substances via hand to mouth contact or ingestion of materials inadvertently contaminated with potentially toxic compounds.

- Skin and eye contact with contaminants at the site.

To limit exposures, soil excavation activities should be monitored for environmentally suspect conditions. If monitoring by the Environmental Technician indicates the presence of petroleum or VOC contaminants, such presence will be communicated to the Site Safety Officer. If requested by the Contractor, the Environmental Consultant will work with the Site Safety Officer to perform a further hazard evaluation to determine the significance of the contamination.

3.7 Health and Safety Monitoring

An Environmental Technician equipped with a Photoionization Detector (PID) with a 10.6eV lamp should be on-site and available to monitor VOC concentrations in excavation areas, near excavated soil, and at specific locations as directed by the Site Safety Officer. PIDs should be calibrated according to the manufacturer's recommendations. All calibration checks should be documented along with air monitoring results in daily monitoring log.

The Site Safety Officer is responsible for monitoring excavations, and worker entry into any excavation, for safe conditions in compliance with the Contractor Health and Safety Plan. Upon request of the Site Safety Officer, the Environmental Technician will monitor excavations with a PID and/or a combustible gas/oxygen meter.

3.7.1 On-Site VOC Monitoring

All work involving subsurface disturbances with the potential of encountering petroleum-impacted material should be monitored for airborne (respirable) petroleum contamination using a PID. If PID readings exceed 10 parts per million by volume (ppmv) in the breathing zone for a period of one minute or greater, an emergency signal for all workers to exit the work area should be sounded. Once workers have exited the affected area, the Site Safety Officer will be notified to determine next actions.

If petroleum vapors are detected by PID above 10 ppmv, further evaluation may be conducted using real-time air quality data for specific compounds. Real time data may be acquired using Dräger or Sensidyne Detector Tubes which detect specific organic compounds in a range of concentrations including concentrations below the OSHA PELs. If real-time air monitoring indicates any compound-specific PELs (as provided in Table 1 in Appendix A) are exceeded in the breathing zone of site workers, Level C personal protection equipment (PPE) may be required, including respirators with NIOSH approved organic chemical cartridges.

Air monitoring results will be recorded on log sheets; an example log sheet is included in Appendix C for reference. The results of air monitoring can be used to determine if more stringent respiratory protection, such as organic chemical and dust restrictive chemical cartridges, are required for the performance of specific tasks.

3.8 Personal Protective Equipment

Selection of person protective equipment is the responsibility of the Site Safety Officer. Based on general construction safety policies and procedures, the following personal protective equipment is recommended for all workers at the site (personal protective equipment requirements should be described in the general and construction safety plan for the site):

Level D: Boot/shoes- leather, steel toe and shank
Hard hat (ANSI approved)
Standard work clothes – shirts and long pants at all times
Safety Glasses with side shields (ANSI approved)
Work gloves (leather, cotton, etc.)

If petroleum-impacted soil and/or groundwater are encountered, the Site Safety Officer will reevaluate the potential hazard by job activity and site area, and may implement Upgraded Level D or Level C protection.

Level D (upgraded): Over-boots – PVC or other impermeable material
Hard hat (ANSI approved)
Safety glasses/side shields (ANSI approved)
Tyvek® or other semi-permeable disposable coveralls over standard work clothes
Nitrile or equivalent protective gloves

Level C: Over-boots – PVC or other impermeable material
Hard hat (ANSI approved)
Safety glasses/side shields (ANSI approved)
Tyvek® or other semi-permeable disposable coveralls over
Nitrile or equivalent protective gloves
Half or full-face NIOSH respirator with organic vapor/particulate cartridges

Level C conditions require that workers have specialized training in hazard awareness, respiratory protection, the proper use of personal protective equipment and decontamination (HAZWOPER training). Medical surveillance is also required.

The levels of safety may be adjusted for specific tasks depending on the identification of hazardous substances.

3.9 Decontamination

All workers at the site will have convenient access to hand washing facilities with running water, soap, and towels. Workers should wash their hands and faces before eating, drinking, smoking, applying cosmetics or leaving the site. Workers should wash their hands and faces as soon as possible after inadvertent contact with potentially contaminated soil or groundwater. In the event of significant contact with soil or groundwater contaminated by petroleum, the worker should also remove contaminated clothing, place it in a labeled plastic bag for cleaning or disposal, and don clean coveralls.

Level C conditions require special decontamination procedures for respirators, protective clothing and other equipment. These procedures are addressed in specialized training (e.g. OSHA HAZWOPER training), but generally would include the following decontamination procedures upon exiting the Exclusion Zone:

1. Alconox detergent wash and water rinse of exterior protective clothing.
2. Removal of respiratory protective gear for subsequent decontamination
3. Removal of exterior protective clothing for re-use or disposal.

4.0 Impacted Material Management Plan (IMMP)

Management of impacted soil excavated from the Subject Property as part of construction shall be in compliance with all applicable provisions of federal and local laws and regulations. Based on past sampling data, it is anticipated that petroleum impacted soil will be encountered. Loading, transporting, and legal off-site disposal of impacted soil shall be in accordance to the criteria contained herein.

Management of impacted groundwater, and surface water runoff that is collected, stored, treated, or discharged at the site as part of construction, shall be in compliance with all applicable provisions of the District of Columbia laws and regulations. Based on the proposed development plan which does not contemplate significant excavation, it is not anticipated that petroleum-impacted water will be encountered.

4.1 Impacted Soil Management

4.1.1 Soil Classification

It is expected that soil from the Subject Property will be characterized and classified for disposal purposes as regulated, non-hazardous petroleum/TPH-impacted material. Petroleum-impacted soil is acceptable for disposal at recycling facilities such as:

- Clean Earth of Greater Washington in Upper Marlboro, Maryland (Clean Earth, MDE Oil Operations Permit Number 2013-OPS-16102A), or

- Soil Safe Facility in Brandywine, Maryland (Soil Safe, MDE Oil Operations Permit Number 2015-OPS-14480).

Petroleum-impacted material from the site which exhibits TPH values less than 500 milligrams per kilogram (mg/kg, or ppm) is eligible for disposal at the EnviroSolutions landfill facility in Lorton, Virginia (Lorton Landfill, VDEQ Solid Waste Facility Permit No. 331). Note, EnviroSolutions may elect to set the upper boundary for acceptance at a concentration less than 500 mg/kg.

Copies of the relevant permits for Clean Earth, Soil Safe, and Lorton Landfill are presented in Appendix D.

Excavated impacted material must be classified according to criteria established by the Federal and/or State agency regulating the intended disposal facility. The results of previous subsurface investigations and field observations and screening conducted during excavation will be used to classify soil as petroleum-impacted or non-impacted. All testing and classification will be conducted by the Environmental Technician.

Soil will be classified as follows:

NON-IMPACTED SOIL: Soil will be classified as non-impacted soil if, and only if, ALL of the following clean soil criteria are met:

- No previous or current laboratory analytical data above the following limits 1) total petroleum hydrocarbons analysis of 10 mg/kg or 2) total benzene, toluene, ethylbenzene, and total xylenes (BTEX) result of 1 mg/kg.
- No staining of, or petroleum- or chemical-like odor from, exposed soil;
- No concentrations of VOCs above 10 parts per million by volume (ppmv) by photoionization detector (PID);
- No detection of elevated concentrations of specific compounds such as petroleum, benzene, or other substances using field test kits.

LOW TPH IMPACTED SOIL: Soil will be classified as low-level TPH Impacted soil if ANY of the following evaluation criteria are met:

- Previous or current laboratory analytical data for TPH above 10 mg/kg, but not greater than 500 mg/kg OR any lower upper boundary defined by a low-level TPH receiving facility. In no case will the upper boundary be greater than 500 mg/kg;
- Concentrations of VOCs above 10 parts per million by volume (ppmv) by photoionization detector (PID);
- Staining of, or petroleum- or chemical-like odor from, exposed soil, provided laboratory analytical data demonstrates concentrations of TPH not more than 500 mg/kg or the upper boundary defined by the receiving facility; if more than 500 mg/kg, the soil will be classified as High TPH Impacted, as set forth below;
- Detection of elevated concentrations of specific compounds such as petroleum, benzene, or other substances using field test kits.

HIGH TPH IMPACTED SOIL: Soil will be classified as high-level TPH Impacted soil if the following evaluation criteria is met:

- Previous or current laboratory analytical data for TPH above 500 mg/kg OR above the upper boundary defined by a low-level TPH receiving facility.

4.1.2 Impacted Soil Disposal

Impacted soil from the Subject Property is expected to be characterized and classified for disposal purposes as regulated, non-hazardous petroleum-impacted material. Petroleum-impacted soil may be shipped to the following facilities:

LOW TPH IMPACTED SOIL:

- Clean Earth of Greater Washington in Upper Marlboro, Maryland;
- Soil Safe Facility in Brandywine, Maryland; and
- EnviroSolutions landfill facility in Lorton, Virginia.

HIGH TPH IMPACTED SOIL:

- Clean Earth of Greater Washington in Upper Marlboro, Maryland; and
- Soil Safe Facility in Brandywine, Maryland.

The Environmental Technician will be responsible for transportation documentation, including but not limited to, Transport Manifests or Non-hazardous Waste Manifests. The Environmental Technician will be responsible for signing the Non-Hazardous Transport Manifests as an Agent for the Generator and for conducting all regulatory interactions.

The Contractor shall provide loading and transportation of petroleum impacted soil to the designated soil recycling / disposal facility. The Contractor and other subcontractors are not responsible for the collection and/or laboratory analysis of soil samples and are prohibited from collecting soil or water samples from the Subject Property for laboratory analysis.

The Contractor shall not transport impacted soil without properly signed transportation documentation from the Environmental Technician. The Contractor will provide the Environmental Technician with a copy of the trucker's signed Transport Manifests before the truck leaves the site. ALL TRUCKS TRANSPORTING TPH-IMPACTED SOIL WILL BE REQUIRED TO ARRIVE AT THE SELECTED DISPOSAL FACILITY FOR OFF-LOADING THE SAME DAY THAT THE LOAD IS MANIFESTED AND LEAVES THE SITE. All trucks containing impacted material will be appropriately covered before leaving the site. A wheel wash station will be used to eliminate the migration of contaminated material off-site

The Environmental Consultant will receive the final Transport Manifests from the receiving facility signed and dated with weight stamps to verify compliance.

4.1.3 Stockpiling of Excavated Soil

In the event that TPH-impacted soil is excavated but cannot be transported off site immediately, the soil will be stockpiled in a manner to prevent accidental cross-contamination or inadvertent contact. Potentially contaminated material requiring further testing may be temporarily stockpiled in intermediate areas located on site. The temporary stockpiles shall be located on site and away from on-going construction activity pending the results of laboratory analyses, if required. The Contractor must ensure that all impacted stockpiled material is stockpiled appropriately.

Temporary stockpiling of impacted or potentially impacted soil will include the following to prevent contaminated runoff or additional leaching of contaminants to groundwater:

- Impacted or potentially impacted soil will be placed upon and covered with poly sheeting or tarps;
- Clean soil berms or straw bales will be installed around stockpiles to prevent runoff from leaving the area;
- Stockpiles will not be permitted near stormwater management structures.

4.2 Impacted Water Management

All construction generated water (stormwater and groundwater) must be discharged in accordance with Federal and Local (DC Government) regulations for discharges. If discharge of water is necessary (not anticipated at this time) a permit will be required.

4.2.1 Temporary Water Treatment System

The Environmental Consultant will work with the Contractor on matters related to any water discharge permitting and compliance, including sampling and reporting requirements, and installing, monitoring, and removing any required treatment systems, if such becomes necessary. If treatment for water discharge compliance is necessary (not anticipated at this time), a typical temporary water treatment system configuration would consist of the following:

- The configuration of the system will be determined by ECC and the site construction superintendents, and will be based on available space, the expected volume, and the levels of contamination detected in the water.
- The system will be configured to allow sufficient separation of any free-phase petroleum, if necessary.
- The system will consist of separation tank(s), suspended solids (bag and/or sand) filters and granular activated carbon (GAC) adsorption vessels.
- Flow meters will be used to track discharge volumes. Date and flow volume data will be recorded on log sheets.
- During treatment, any recovered free-phase petroleum will be captured and retained in the separation tank(s) and will be removed by a licensed waste hauler when necessary.
- The layout of a typical GAC treatment system is shown on Figure 3 in Appendix A; multiple instances of this system may be used at the site based on the quantity of water that is generated.

4.3 Contingency Items

In the event that buried containers, drums, USTs, hydraulic lifts, oil/water separators, underground insulated power lines or other potential asbestos containing materials, are encountered, the Contractor is responsible for ceasing all activities and notifying the Environmental Technician and the Owner.

Discovered USTs must be handled and removed in accordance with the District of Columbia regulations. Other buried structures must be evaluated on a case-by-case basis for determination of proper disposal procedures.

If items such as buried containers, drums, USTs, hydraulic lifts, asbestos-containing materials, or oil/water separators are transported and disposed of off-site, the Contractor is required to submit copies of all documentation, including but not limited to, Bills of Lading, Material Shipping Records, Non-Hazardous, and/or Hazardous Waste Manifests to the Environmental Technician and the Development Manager.

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Appendix A

Figures 1, 2, and 3 and Table 1

TABLE 1
SELECTED CHEMICAL EXPOSURE LIMITS AND HEALTH EFFECTS

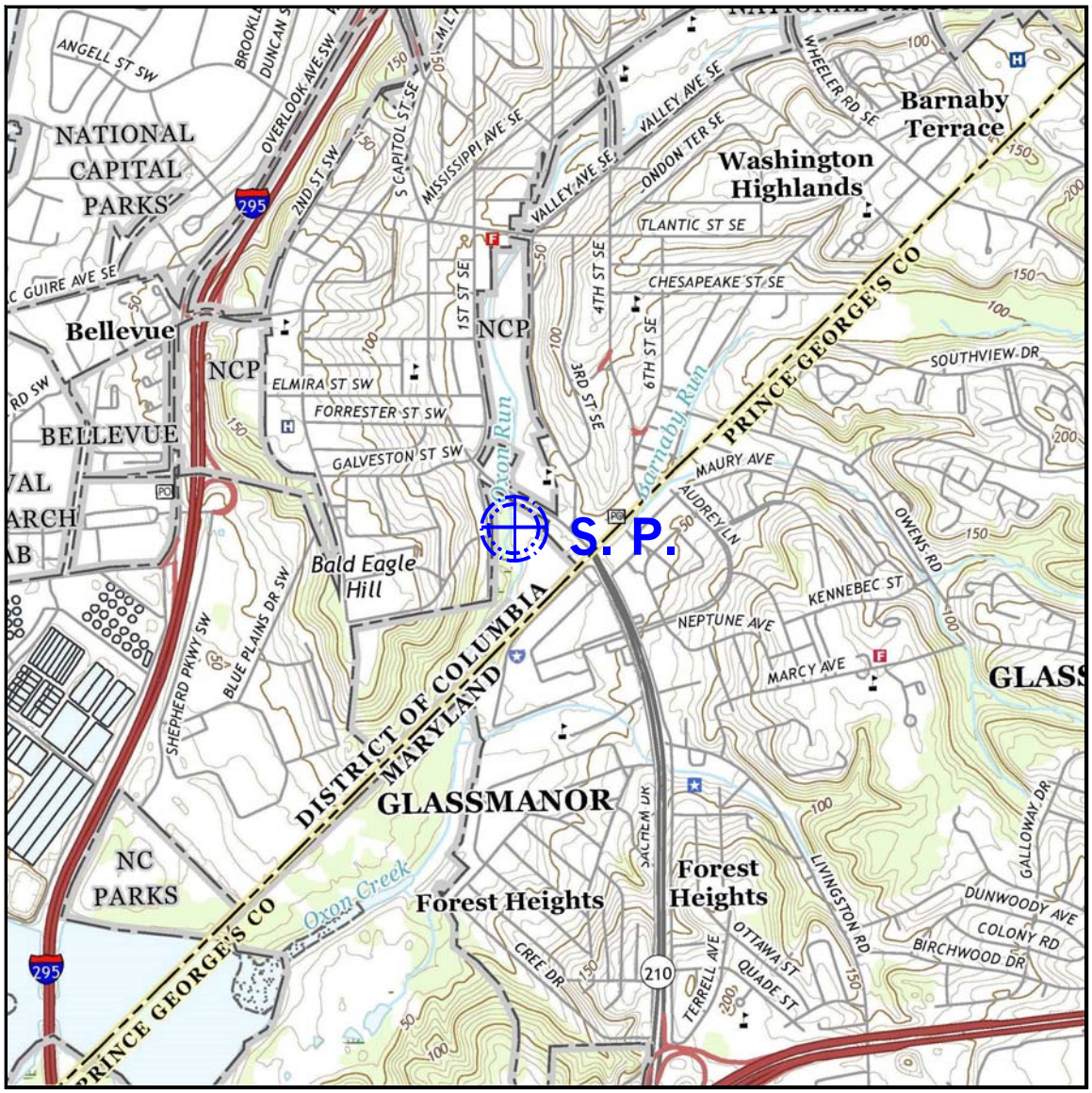
Chemical	PEL	IDLH Limit	Exposure Routes	Exposure Symptoms
Benzene	TWA = 1 ppm STEL = 5 ppm	500 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, skin, nose; respiratory system; giddiness; head, nausea, staggered gait; fatigue, anorexia, lassitude; dermatitis; bone marrow depression; [carcinogenic]
Toluene	TWA = 200 ppm	500 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, nose; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation; nervousness, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage; mucous membrane; narcosis, coma
Ethylbenzene	TWA = 100 ppm	800 ppm	Inhalation, Ingestion, skin and/or eye contact	Irritate eyes, skin, mucous membrane ;headache, dermatitis; narcosis, coma
Xylenes	TWA = 100 ppm	900 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	Irritate eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corn vacuolization; anorexia, nausea, vomit, abdominal pain; dermatitis
Naphthalene	TWA = 10 ppm STEL 15 ppm	250 ppm	Inhalation, Skin Absorption, Ingestion, skin and/or eye contact	irritation eyes; headache, confusion, excitement, malaise; nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage [potential occupational carcinogen]

All Information from: https://www.osha.gov/dts/chemicalsampling/toc/toc_chemsamp.html

PEL = Permissible Exposure Limit. TWA = 8 hour Time Weighted Average. STEL = Short Term Exposure Limit

IDHL = NIOSH Immediately Dangerous To Life or Health Concentration

FIGURE 1



U.S. GEOLOGICAL SURVEY 7.5-MINUTE TOPOGRAPHIC QUADRANGLE MAPPING
QUANTICO, VIRGINIA (2016)
OCCOQUAN, VIRGINIA (2016)
CONTOUR INTERVAL = 10 FEET

NORTH

S. P. = SUBJECT PROPERTY

TITLE: SITE LOCATION MAP	DATE: 6/7/2018	SCALE: 1 INCH = 2,000 FEET (0 — 2,000 — 4,000)	ecc Environmental Consultants and Contractors, Inc.
PROJECT: GROUND- MOUNTED SOLAR ARRAY AT OXON RUN 4669 SOUTH CAPITOL STREET, SOUTHEAST WASHINGTON, DISTRICT OF COLUMBIA 20032	DRAWN BY: SINA		
	APPROVED BY: DIEJ	PROJECT NUMBER: 18-13198	REGULATORY CASE NUMBER: N/A

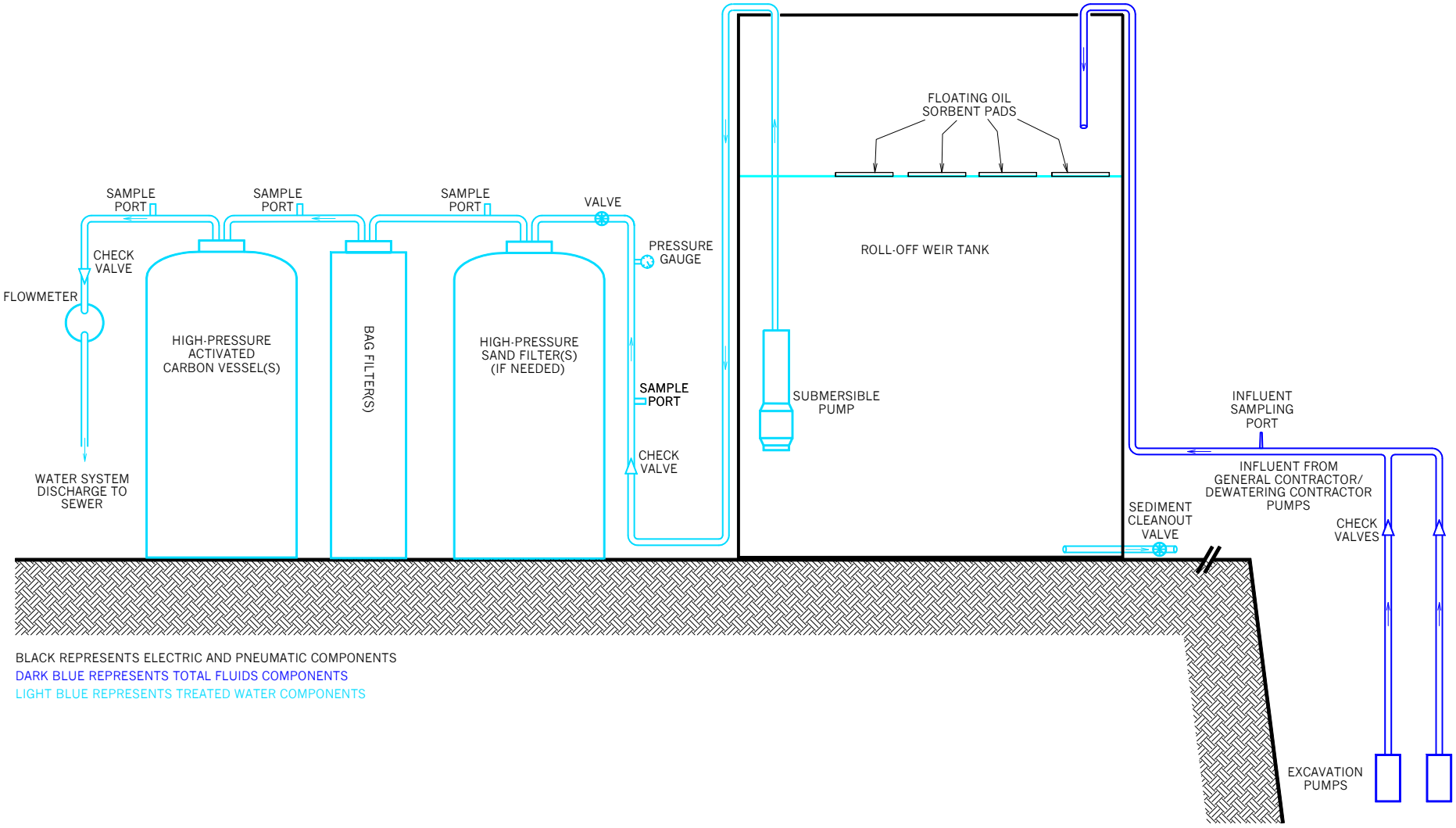
FIGURE 2

APPROXIMATE PROJECT BOUNDARY

2016 GOOGLE EARTH AERIAL PHOTOGRAPH

TITLE: SITE PLAN	DATE: 6/7/2018	NOT TO SCALE	ecc Environmental Consultants and Contractors, Inc.
PROJECT: GROUND-MOUNTED SOLAR ARRAY AT OXON RUN SOUTH CAPITOL STREET, S.e. AND SOUTHERN AVENUE S.E. WASHINGTON, DISTRICT OF COLUMBIA 20032	DRAWN BY: SINA		
	APPROVED BY: DIEJ	PROJECT NUMBER: 18-13198	REGULATORY CASE NUMBER: N/A

FIGURE 3



TITLE: TYPICAL TEMPORARY WATER TREATMENT SYSTEM DIAGRAM	DATE: 6/7/2018	NO SCALE	ecc Environmental Consultants and Contractors, Inc.
PROJECT: GROUND- MOUNTED SOLAR ARRAY AT OXON RUN 4669 SOUTH CAPITOL STREET SE WASHINGTON, DC 20032	DRAWN BY: SINA		
	APPROVED BY: DIEJ	PROJECT NUMBER: 18-13198	REGULATORY CASE NUMBER: N/A

Appendix B

Sign Off Sheet

Environmental Health and Safety and Impacted Material Management Plan
Review and Approval Sign-Off Sheet

This certifies that this EHASP and IMMP prepared by Environmental Consultants and Contractors (ECC), Inc., and dated June 22, 2018, have been reviewed by the undersigned representative(s) of the companies performing earthwork, excavation, soil removal and disposal, dewatering, and related development activities for the proposed ground-mounted solar array project at Oxon Run. The undersigned acknowledge that this document outlines recommended health and safety procedures related to the control of potential worker and environmental hazards from contaminants in soil and water at the site, which may be encountered during the performance of their site activities which intrude upon or disturb impacted soil and/or water. The undersigned acknowledge receipt of this document and recommended health and safety procedures outlined herein.

However, the undersigned acknowledge that the Contractor shall be solely responsible for the health and safety of its employees, agents and lower-tier subcontractors for the duration of the work at the ground-mounted solar array project at Oxon Run. The Contractor shall comply with all applicable federal, state, and local health and safety requirements and standards relating to job site and employee safety, including, but not limited to, the Federal OSHA Occupational Safety and Health Act and equivalent Laws and Regulations. The Contractor shall prepare and implement is own health and safety program. ECC is not responsible for the creation, content, or implementation of the Contractor's health and safety program, nor is ECC responsible for the health and safety of Contractor's employees, agents, or lower-tier subcontractors.

If ECC observes an imminent danger situation and/or serious health or safety hazard, ECC will comply with its ethical and legal duty to take any action necessary to warn and remove persons at risk from harm's way, as soon as possible. This may include stopping work temporarily, if absolutely necessary in the judgment of the ECC representative, until the hazardous situation can be corrected.

Reviewed and Approved by:	Company:	Title:	Date:
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
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_____	_____	_____	_____
_____	_____	_____	_____

Appendix C

Air Sample Log Sheet

ECC CONSTRUCTION MONITORING DATA COLLECTION FORM

Site Name:	Project Number:	ECC Representative Name:	
Arrival Time:	Departure Time:	Date:	Day of Week:

Periodic Air or Excavated Soil Monitoring

Location Description or Map Reference	Air or Soil?	Max PID	Sample Retained?
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N

Periodic Air or Excavated Soil Monitoring

Location Description or Map Reference	Air or Soil?	Max PID	Sample Retained?
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N
	A S		Y N

Discharge Monitoring / Temporary Treatment System

Meter Readings	@ Arrival	@ Departure	Total Gallons
FM #1			
FM #2			
Bag Filters Changed?	Y N	Number Used:	
Effluent Sampling?	Y N	Analyses:	

Perimeter Air Monitoring

PID ID	Location	Time On	Time Off	Max PID

General Construction Notes:

Signature of ECC Representative:	Signature of Client/Owner Representative:	OFFICE USE ONLY DATA ENTERED (use blue for original ID)

WHITE - Office Archive YELLOW - Office File PINK - Site

Appendix D

Disposal Facility Permits

OIL OPERATIONS PERMIT

Oil Operations Permit Number	**2018-OPS-16102**
Effective Date	APR 24 2018
Expiration Date	APR 24 2023

Pursuant to the provisions of Title 4 of the Environment Article, Annotated Code of Maryland and regulations promulgated thereunder, the Department of the Environment, hereinafter referred to as the "Department," hereby authorizes:

Clean Earth, Inc.
334 South Warminster Road
Hatboro, Pennsylvania 19040

to operate an oil-contaminated soil facility:

Located at:
Clean Earth of Greater Washington, LLC
6250 Dower House Road
Upper Marlboro, Prince George's County 20772

to treat and store oil-contaminated soils in accordance with the special and general conditions imposed by this permit. **This permit does not authorize the storage or treatment of soils contaminated with any other material, except oil.**

This Oil Operations Permit is issued in addition to, and not in substitution of, the requirements of other permits or authorizations granted for this facility.

REPORT ANY OIL SPILL OR DISCHARGE OF OIL IMMEDIATELY
TO THE DEPARTMENT OF THE ENVIRONMENT
1-866-633-4686
(24 Hours)
AND THE APPROPRIATE FEDERAL AUTHORITY

OIL OPERATIONS PERMIT

Oil Operations Permit Number	2015-OPS-14480
Effective Date	APR - 7 2016
Expiration Date	APR - 7 2021

Pursuant to the provisions of Title 4 of the Environment Article, Annotated Code of Maryland and regulations promulgated thereunder, the Department of the Environment, hereinafter referred to as the "Department," hereby authorizes:

Soil Safe, Inc.
6700 Alexander Bell Drive, Suite 300
Columbia, Maryland 21046

to operate an oil-contaminated soil facility:

Located at:
Mattawoman Drive
Brandywine, Prince George's County
Maryland

to treat and store oil-contaminated soils in accordance with the special and general conditions imposed by this permit. **This permit does not authorize the storage or treatment of soils contaminated with any other material, except oil.**

This Oil Operations Permit is issued in addition to, and not in substitution of, the requirements of other permits or authorizations granted for this facility.

REPORT ANY OIL SPILL OR DISCHARGE OF OIL IMMEDIATELY
TO THE DEPARTMENT OF THE ENVIRONMENT
1-866-633-4686
(24 Hours)

AND THE APPROPRIATE FEDERAL AUTHORITY

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

April 16, 2010

Mr. Paul Farrell
EnviroSolutions, Inc.
11220 Assett Loop, Suite 201
Manassas, Virginia 20109

RE: Lorton CDD Landfill, Permit No. 331
Issuance of Minor Permit Amendment - Revised Operations Manual

Dear Mr. Farrell:

This letter was prepared in response to the email received February 26, 2010, from Thomas Ramsey, P.E., of Geosyntec Consultants, containing a revised Operations Manual for the Lorton Landfill dated February 2010. The revised plan appears to meet the requirements of 9 VAC 20-80-520.C. Operations manual. In accordance with 9 VAC 20-80-620.F.1.a and Table 7.2.G of the Virginia Solid Waste Management Regulations (VSWMR, 9 VAC 20-80 et seq.), incorporation of this plan into Permit No. 331 is a minor amendment.

In order to document this approval, please incorporate a copy of this letter, its attachment, and the revised Operations Manual into each copy of Permit No. 331.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date of service of this decision to initiate an appeal of this decision, by filing notice with:

David K. Paylor, Director
Virginia Department of Environmental Quality
ATTN: Waste Division
P.O. Box 1105
Richmond, Virginia 23218

In the event that this decision is served to you by mail, three days are added to that period. Please refer to Part Two of the rules of the Supreme Court of Virginia, which describes the required content of the Notice of Appeal, including specification of the Circuit Court to which an appeal is taken, and additional requirements governing appeals from decisions of administrative agencies.

Please be advised that, in accordance with 9 VAC 20-80-620.F.1.b.(2), the permittee must send a notice of this modification to the local governing body (Fairfax County) within 90 days of the date of approval of this change. It is also the responsibility of the applicant to obtain any other permits or authorizations that may be necessary.

If there are any questions, please contact Kathryn Perszyk, Solid Waste Permit Writer, at (703) 583-3856 or kjperszyk@deq.virginia.gov.

Respectfully,

Richard Doucette

Richard Doucette
Waste Program Manager

Enc: Permit Intro and Module I

cc: Larry Bayne, Furnace Associates, Inc.
Thomas Ramsey, P.E., Geosyntec Consultants
Rebecca Dietrich, DEQ-BRRO
Kathryn J. Perszyk, DEQ-NRO
DEQ-NRO Administrative File

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

SOLID WASTE FACILITY PERMIT
PERMIT NUMBER 331

Facility Name: Lorton Landfill

Facility Type: Construction/Demolition/Debris Landfill **Latitude:** 38° 41' 06"N

Site Location: Fairfax County **Longitude:** 77° 13' 56"W

Location Description: The facility is located on the east side of State Route 611 (Furnace Road) in Southern Fairfax County, west of the Interstate-95 corridor and about one mile south of Lorton Road.

Permit Limits: The total waste capacity for the site is approximately 10.0 million tons. There is approximately 5.8 million cubic yards of remaining landfill capacity, effective January 1, 2010. The estimated remaining site life is 7 years. This landfill life is based on a maximum disposal rate of 5,500 tons/day, an in-place waste density of 0.65 tons/cubic yard, and 286 operating days per year. Through an agreement with Fairfax County, the facility is required to close in 2018.

Background: The facility is privately owned by Furnace Associates, Inc., a subsidiary of EnviroSolutions, Inc., and is permitted to accept construction, demolition, and debris wastes within and outside the State of Virginia. The wastes accepted will conform to those wastes identified in Permit Attachment II-1. The total facility acreage is approximately 268 acres, with a permitted waste disposal area of approximately 164 acres. Of the 164 permitted acres, approximately 144 acres are underlain by a soil liner developed in accordance with groundwater-separation criteria established by Fairfax County in 1982. The groundwater separation from the bottom of waste in the 144-acre area is 10 feet or more depending on the permeability of the natural soils.

There are about 20 acres in the northwest corner of the site that are being developed with a synthetic liner and leachate collection system in accordance with the requirements of §9 VAC 20-80-260. The synthetic liner system is comprised of the following components (from top to bottom): a minimum 18-inch thick drainage/protective cover layer with a permeability exceeding 1×10^{-3} cm/sec; a geonet composite layer with a minimum average transmissivity of 5×10^{-4} m^2/sec; and a 60-mil high density polyethylene (HDPE) flexible membrane liner. This area has been split into three phases: Phase I consists of approximately 7.4 acres located to the eastern side of the expansion and was issued a Certificate to Operate on June 8, 2006; Phase II consists of approximately 6.6 acres located in the

center of the expansion and was issued a Certificate to Operate on October 15, 2008; and Phase III will be approximately 6.5 acres and located along the western side of the expansion.

Approximately 47 acres of the permitted disposal area have been capped with a soil final cover placed prior to May 2004. Closure of the remaining portions of the facility will be constructed in phases as the facility reaches final permitted grades. The facility has the option of using two different cover systems, either soil cover or synthetic cover. The soil final cover system for the facility contains (from top to bottom): 6-inch thick vegetative support layer; 18-inch thick layer of protective soil cover; 18-inch thick (minimum) infiltration layer consisting of local soil compacted to a permeability of $\leq 1.0 \times 10^{-5}$ cm/sec.; and 12-inch thick (nominal) intermediate cover. The synthetic final cover system for the facility contains (from top to bottom): 6-inch thick vegetative support layer; 18-inch thick layer of protective soil cover; Geocomposite drainage layer; 40-mil textured HDPE geomembrane; and 12-inch thick (nominal) intermediate cover.

Permit Amendment: This is the fifth amendment to Permit No. 331 and incorporates a revised Operations Manual for the Lorton Landfill into Permit No. 331. The revised Plan provides details on the use of a tractor trailer tipper at the working face.

THIS IS TO CERTIFY THAT:

Furnace Associates, Inc.
10001 Furnace Road
Lorton, Virginia 22079

is hereby granted a permit to construct, operate, and maintain the facility as described in the attached Permit Modules and the Permit Attachments cited in these Modules. These Permit Modules and Permit Attachments are as referenced hereinafter and are incorporated into and become a part of this permit.

The herein described activity is to be established, modified, constructed, installed, operated, used, maintained, and closed in accordance with the terms and conditions of this permit and the plans, specifications, and reports submitted and cited in the permit. The facility shall comply with all regulations of the Virginia Waste Management Board. In accordance with Chapter 14, §10.1 - 1408.1(D) of the Code of Virginia, prior to issuing this permit, any comments by the local government and general public have been investigated and evaluated and it has been determined that the proposed facility poses no substantial present or potential danger to human health or the environment. The permit contains such conditions and requirements as are deemed necessary to comply with the requirements of the Virginia Code, the regulations of the Board, and to prevent substantial or present danger to human health or the environment.

Failure to comply with the terms and conditions of this permit shall constitute grounds for the revocation or suspension of this permit and for the initiation of necessary enforcement actions.

The permit is issued in accordance with the provisions of §10.1-1408.1.A, Chapter 14, Title 10.1, Code of Virginia (1950) as amended.

Issued: August 18, 1981
Amendment 1: September 19, 2006
Amendment 2: April 4, 2007
Amendment 3: January 17, 2008
Amendment 4: April 30, 2008

APPROVED:

Thomas A. Faha
Regional Director

4 - 16 - 10
Amendment 5

Appendix E

Phase II Environmental Site Assessments

Environmental Consultants and Contractors

43045 John Mosby Highway
Chantilly, Virginia 20152
703-327-2900
www.eccfirst.com

August 22, 2014

Mr. Sal Rincione
BrightFarms, Inc.
211 East 48th Street
New York, New York 10017
srincione@brightfarms.com

Ref: Phase II Environmental Site Assessment
BrightFarms Greenhouse Lease Area
0 South Capitol Street, SW
Washington, D.C. 20032
ECC Project Number 14-11603

Dear Mr. Rincione,

Environmental Consultants and Contractors, Inc., (ECC) is pleased to submit this Phase II Environmental Site Assessment (Phase II ESA) report for the property identified as portions of District of Columbia Parcels 02470034 and 02460053, located in Southwest Washington, DC, the *Subject Property*. Although an address is not currently assigned, the Subject Property is located at approximately 4669 South Capitol Street, SW. The Subject Property occupies 4.59 acres and is centered at approximately 38° 49' 17.04" North latitude and 77° 0' 12.96" West longitude.

ECC's Phase I Environmental Site Assessment (Phase I ESA) identified the following *recognized environmental conditions (RECs)*:

- A former gasoline service station operated on the east-adjacent property (addressed 4635 South Capitol Street, S.W.), and an existing gasoline station (addressed 4665 South Capitol Street, S.W.) is located approximately 100 feet east of the Subject Property. Groundwater flow direction on these properties is towards the southwest, towards the Subject Property. Petroleum contaminants originating from these properties have the potential to impact soil and groundwater quality on the Subject Property.
- ECC observed soil mounds on the southwestern portion of the Subject Property. These soil mounds appear to have been dumped on the Subject Property. The origin and soil quality of the soil mounds are not known.

Purpose and Scope

The purpose of this Phase II ESA was to address the potential migration of off-site petroleum contaminants from the nearby existing and former gasoline services stations and to determine if the soil mounds located on the Subject Property have been impacted by petroleum contaminants. ECC was authorized by Mr. Paul Lightfoot of BrightFarms, Inc., on June 13, 2014, to complete activities per ECC's contract dated June 11, 2014. The scope of this investigation included the installation of seven (7) direct-push (GeoProbe) borings to depths ranging up to 25 feet below grade and three hand augered soil borings to depths of 1 foot below the mound surfaces. Each direct-push soil boring was completed as a temporary piezometer to facilitate the collection of groundwater samples. Soil boring locations are provided on Figure 1. The investigation specifically included:

- Permitting of the drilling operation in accordance with District of Columbia Department of Consumer and Regulatory Affairs (DCRA) and Department of the Environment (DDOE) regulations. Permitting included preparation of a boring installation work plan.
- Clearance of the site through Miss Utility and a private utility locator.
- Collection of continuous soil samples from the surface to the termination of each GeoProbe soil boring. Soil samples were screened for volatile organic compound (VOC) vapors using a PhotoIonization Detector (PID).
- Selection of soil samples from each boring for laboratory analysis based on field screening results. Soil samples were submitted for the following laboratory analyses:
    - Total Petroleum Hydrocarbons, Diesel Range Organics (TPH-DRO) by EPA Method 8015C - 13 samples;
    - Total Petroleum Hydrocarbons, Gasoline Range Organics (TPH-GRO) by EPA Method 8015C - 13 samples;
    - Benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tertiary butyl ether(MTBE); and naphthalene by EPA Method 8021B - 13 samples;
    - Primary Pollutant (PP) Metals by EPA Method 200.8 - 3 samples;
    - Pesticides by EPA Method 8081 - 3 samples; and
    - Herbicides by EPA Method 8150 - 3 samples.
- Completion of each GeoProbe soil boring as a temporary groundwater piezometer using 1-inch diameter schedule 40 PVC piping.
- Collection of groundwater samples from six of the seven temporary piezometers and submission for the following laboratory analyses:
    - TPH-DRO by EPA Method 8015C - 6 samples;
    - TPH-GRO by EPA Method 8015C - 6 samples; and
    - VOCs by EPA Method 8260 - 6 samples.
- Removal of piezometer piping and abandonment of the GeoProbe soil borings using a bentonite slurry in accordance with DDOE regulations.
- Installation of 3 hand augered soil borings and collection of soil samples in soil mounds.

FIGURE 1

2012 GOOGLE EARTH AERIAL PHOTOGRAPH

TITLE: SITE PLAN	DATE: 7/28/14	NOT TO SCALE	ecc Environmental Consultants and Contractors, Inc.
PROJECT: BRIGHTFARMS GREENHOUSE LEASE AREA SOUTH CAPITOL STREET, S.W. AND SOUTHERN AVENUE S.E. WASHINGTON, DISTRICT OF COLUMBIA 20032	DRAWN BY: WEB		
	APPROVED BY: N/A	PROJECT NUMBER: 14-11603	REGULATORY CASE NUMBER: N/A

Subsurface Investigation

The scope of services performed as part of this Phase II ESA conforms to the *Drilling Work Plan*, dated June 24, 2014, prepared by ECC and approved by the DDOE. Miscellaneous Soil Boring Permit number SB1400355, dated July 2, 2014, was issued by the District Department of Consumer and Regulatory Affairs (DCRA) for installation of the soil borings. Copies of the *Drilling Work Plan* and the Miscellaneous Soil Boring Permit are presented in Attachment A.

Soil Boring Installation and Sampling

On July 9, 2014, ECC supervised the installation of seven (7) direct-push (GeoProbe®) environmental soil borings (identified as GP-1 through GP-7) to depths ranging up to 25 feet below grade. Macrocore soil samples were recovered continuously from the surface to the termination depth of each boring. All drilling equipment was decontaminated prior to entering the Subject Property and between borings; new acetate macrocore liners were used to obtain soil samples for each interval of GeoProbe sampling. Sampling and field screening activities were conducted in accordance with EPA Region III and DDOE sampling protocols. The boring locations are shown on Figure 1. Soil boring logs are provided in Attachment B.

Volatile organic compound (VOC) vapor measurements of collected soil samples were obtained using a Photoionization Detector (PID) for field screening purposes. Each recovered soil sample was split and containerized; one portion was allowed sufficient time to volatilize (a minimum of 15 minutes per sample), after which headspace VOC vapor readings were recorded on boring log sheets. The other portion of each soil sample was retained for potential laboratory analysis.

Soil samples were retained from selected borings and submitted under Chain of Custody to Phase Separation Science (PSS), Inc., in Baltimore, Maryland, for the following laboratory analyses:

- TPH-DRO and TPH-GRO by EPA method 8015C - 13 samples;
- BTEX, MTBE, and naphthalene by EPA method 8021B - 13 samples;
- PP Metals by EPA Method 200.8 - 3 samples;
- Pesticides by EPA Method 8081 - 3 samples; and
- Herbicides by EPA Method 8150 - 3 samples.

During installation of the soil borings, fill material consisting of silty sand with brick fragments, organic roots, glass fragments, burnt debris/wood, and metal fragments was observed at depths extending up to 20 feet below grade. Fill material was underlain by fine- to coarse-grained gravely sand with quartz and sandstone fragments.

Hand Auger Soil Borings and Sampling

On July 9, 2014, ECC installed three hand augered soil borings in soil stockpiles on the southwestern portion of the site. The hand augers were extended approximately three feet into the stockpiles and soil samples were recovered from each boring for laboratory analysis. The soil samples were screened for VOCs using a PID prior to packaging the samples for submission to the laboratory. Soil samples were retained from selected borings and submitted under Chain of Custody to Phase Separation Science (PSS), Inc., in Baltimore, Maryland, for the following laboratory analyses:

- TPH-DRO and TPH-GRO by EPA method 8015C - 3 samples;
- BTEX, MTBE, and naphthalene by EPA method 8021B - 3 samples.

Groundwater Sampling

ECC completed GeoProbe borings GP-1 through GP-7 as temporary piezometers constructed of pre-cleaned 1-inch diameter, Schedule 40, Tri-Lock PVC casing and 0.020-inch machine slotted Tri-Lock screen. ECC personnel made several attempts to gauge the temporary piezometers on July 9, 2014, to 0.01 foot precision using an oil-water interface probe for detection of free-phase petroleum and measurement of static water levels. Due to the turbidity of the water and suspended sediment particles, accurate groundwater depths could not be determined. Groundwater was encountered at depths ranging from approximately 17 feet to 25 feet below grade during installation of the soil borings. Clean disposable bailers were used to collect groundwater samples from temporary piezometers GP-2 through GP-7; groundwater was not encountered in GP-1.

Groundwater samples were submitted under Chain of Custody to PSS for the following laboratory analyses:

- TPH-DRO and TPH-GRO by EPA method 8015C; and
- VOCs by EPA method 8260.

Results

Vapor-Phase Contamination

VOC vapor measurements of soil samples collected from the GeoProbe soil borings were obtained using a PID for field screening purposes. VOC vapor concentrations were typically not detected above 10 part per million by volume (ppmv) from depths ranging from 0 to 15 feet

below grade. VOC vapor concentrations ranging from 42 ppmv to 919 ppmv were detected in soil samples collected near the groundwater interface in borings GP-3 through GP-7.

VOC vapor concentrations were not detected during screening of soil samples from the hand augered borings.

The PID screening results of the collected soil samples are shown in Table 1. Complete PID screening results are presented on the borings logs in Attachment B.

Residual-Phase (Soil) Contamination

Laboratory analytical results of petroleum compounds detected in soil samples collected during this investigation are presented in Table 1. Laboratory analytical results are provided in Attachment C.

Table 1 - Laboratory Results of Residual-Phase (Soil) Petroleum Compounds

Sample Location	Sample Depth (feet)	PID (ppmv)	TPH (mg/kg)		VOCs (µg/kg)					
			-DRO	-GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene
GP-1	7	0	**8.9**	< 0.60	< 1.2	< 1.2	< 1.2	< 3.5	< 1.2	< 1.2
	14	0	**22**	< 0.12	< 1.2	< 1.2	< 1.2	< 3.6	**3.5**	< 1.2
GP-2	5 - 10	**1**	**38**	< 0.12	< 1.2	< 1.2	< 1.2	< 3.5	**1.7**	< 1.2
GP-3	23 - 25	**94**	< 4.3	**0.29**	< 1.1	< 1.1	**1.1**	**1.3**	< 1.1	**3.8**
GP-4	19	**146**	**10**	**85**	**410**	**270**	**540**	**450**	**490**	**1,600**
GP-5	18	**42**	**4.9**	**5.4**	**11**	**21**	**31**	**20**	**14**	**87**
GP-6	4	**3**	**33**	< 0.11	< 1.1	< 1.1	< 1.1	< 3.4	< 1.1	< 1.1
	25	**586**	**15**	**530**	**1,700**	**2,100**	**6,400**	**7,300**	**820**	**8,300**
GP-7	10	0	**57**	< 0.11	< 1.1	< 1.1	< 1.1	< 3.4	< 1.1	**1.2**
	18	**919**	**210**	**240**	**430**	**730**	**3,900**	**9,300**	**230**	**11,000**
HA-1	1	0	**46**	< 0.19	< 1.9	< 1.9	< 1.9	< 5.7	< 1.9	< 1.9
HA-2	1	0	**35**	< 0.12	< 1.2	< 1.2	< 1.2	< 3.5	< 1.2	< 1.2
HA-3	1	0	**60**	< 0.13	< 1.3	< 1.3	< 1.3	< 3.8	< 1.3	< 1.3
DDOE Tier 0 Standard			100	100	5	9,600	40	3,860	---	---
DDOE Tier 1 RBSLs Resident Child			2,120,000	54,400	20.3	100,000	163	3,860	932	754
DDOE Tier 1 RBSLs Resident Adult			2,120	54.4	5.06	100,000	40.8	3,860	233	188
DDOE Tier 1 RBSLs Commercial Worker			14,600,000	376,000	33.6	691,000	270	26,700	1,550	1,250
DDOE Tier 1 RBSLs Construction Worker			127,000,000	1,040,000,000	691,000	64,600,000	3,180,000	23,900,000	8,490,000	4,160,000

Bold = values detected above method detection limit;
DDOE Tier 0 Standard = empirical standards, based on District of Columbia Underground Storage Tank Regulations;
DDOE Tier 1 RBSL = Risk-Based Screening Levels, based on DDOE Risk-Based Technical Guidance, Updated June 2011;
Red = values detected at or above the DDOE Tier 0 Standard; Highlight = values detected at or above DDOE Tier 1 RBSLs for Commercial Workers;
mg/kg = milligrams per kilogram, equivalent to parts per million, ppm; µg/kg = micrograms per kilogram, equivalent to parts per billion, ppb;
ppmv = parts per million by volume; < X = analyte was not detected at or above X mg/kg or X µg/kg; ---= Not applicable or Not tested.

DDOE Tier 0 Screening Levels and Tier 1 Risk-Based Screening Levels (RBSLs) for soil are also presented in Table 1. The DDOE UST program uses a tiered method for evaluating impacted UST sites. Tier 0 Screening Levels are those below which no further action would be

required by the DDOE. Tier 1 RBSLs are adopted from the Risk-Based Corrective Action (RBCA) Guidance developed by The District of Columbia to evaluate leaking UST sites. Tier 1 RBSLs for soil are conservative risk-based levels developed for a number of different human receptors and different pathways. In general, Tier 1 RBSLs represent contaminant concentrations below which affected media would not require corrective action under a specified site use scenario.

Laboratory analysis of the soil samples recovered from the soil mounds detected low concentrations of TPH-DRO, ranging from 35 to 60 parts per million (ppm). Benzene, toluene, ethylbenzene, and xylene (BTEX), MTBE and naphthalene concentrations were not detected in soil samples from the soil mounds.

Low to moderate concentrations of TPH-DRO was detected in six of seven GeoProbe soil borings and all three hand augered soil borings. TPH-GRO was detected at low concentrations at GP-3 and GP-5, and at moderate concentrations at GP-4, GP-6, and GP-7. Elevated concentrations of VOCs consistent with gasoline fuel were detected at GP-4, GP-6, and GP-7. DDOE Tier 0 Standards and DDOE Tier I RBSLs for several VOCs were exceeded at borings GP-4, GP-6, and GP-7.

Laboratory analytical results of metals and pesticides compounds detected in soil samples collected from GeoProbe borings GP-2, GP-5, and GP-7 are presented in Table 2. Soil samples from GeoProbe borings were also submitted for herbicides analysis; herbicides were not detected at or above laboratory method detection limits. Laboratory analytical results are provided in Attachment C.

EPA Region 3 Regional Screening Levels (RSLs), presented in Table 2, are risk-based screening levels derived from equations combining exposure assumptions with chemical-specific toxicity values. The derived screening levels are not cleanup standards, but are meant to determine whether levels of contamination found at a site warrant further investigation or cleanup, or whether no further investigation or action may be required.

Table 2 - Residual-Phase (Soil) Metal Compounds and Detected Pesticides

Sample Location	Sample Depth (feet)	PID (ppmv)	Metals (mg/kg)													Pesticides (mg/kg)		
			Antimony	Arsenic	Beryllium	Cadmium	Total Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	DDT	DDD	DDE
GP-2	1	0	< 2.2	**3.4**	< 2.2	< 2.2	**10**	**16**	**13**	< 0.088	**4.6**	< 2.2	< 2.2	< 1.8	**14**	< 0.0045	< 0.0045	< 0.0045
GP-5	3	0	< 2.7	**5.7**	< 2.7	< 2.7	**27**	**26**	**270**	**0.84**	**16**	< 2.7	< 2.7	< 2.2	**180**	**0.010**	**0.022**	**0.020**
GP-7	3	**4**	< 2.3	**2.4**	< 2.3	< 2.3	**16**	**13**	**11**	< 0.093	**17**	< 2.3	< 2.3	< 1.9	**33**	< 0.0046	< 0.0046	< 0.0046
EPA RSL Industrial Soil			470	3.0	2,300	980	† 6.3	47,000	800	40	---	5,800	5,800	---	350,000	8.6	9.6	6.8

Bold = values detected above method detection limit; DDT = 4,4-DDT = 4,4-Dichlorodiphenyltrichlorethane; DDD = 4,4-DDD; DDE = 4,4-DDE;
EPA RSL Industrial Soil = EPA Regional Screening Level for Industrial Soil (May 2014), THQ = 1.0; **Red** = values detected at or above the EPA RSL;
mg/kg = milligrams per kilogram, equivalent to parts per million, ppm; µg/kg = micrograms per kilogram, equivalent to parts per billion, ppb;
< X = analyte was not detected at or above the detection limit of X mg/kg or X µg/kg; --- = Not applicable or Not tested.
† Chromium screening level is based on hexavalent chromium (Cr-VI). Significantly different screening levels exist for trivalent and hexavalent chromium. Hexavalent chromium has higher toxicity, but typically constitutes a very small portion of total chromium. The total chromium values detected are unlikely to contain levels of hexavalent chromium above the Cr-VI screening level.

The detected arsenic concentrations in soil samples from the GeoProbe borings exceeded the EPA Industrial Soil RSL of 3.0 mg/kg with concentrations ranging from 2.4 mg/kg to 5.7 mg/kg. The arsenic concentrations detected on the Subject Property are within the range of natural background concentrations. The Agency for Toxic Substances and Disease Registry (ATSDR) states that arsenic concentrations in soil generally range from 1 to 40 mg/kg, with an average of 5 mg/kg.[1] The detected chromium concentrations exceeded the hexavalent chromium EPA Industrial Soil RSL of 6.3 mg/kg with concentrations ranging from 10 to 27 mg/kg. Significantly different screening levels exist for trivalent and hexavalent chromium. Hexavalent chromium (Cr-VI) has higher toxicity, but typically constitutes a very small fraction of total chromium concentrations. The detected total chromium concentrations are unlikely to contain levels of hexavalent chromium above the Cr-VI screening level. The pesticide 4,4-dichlorodiphenyltrichlorethane (DDT), and degradation compounds DDD and DDE were detected at trace concentrations at GP-5. No other pesticides or herbicides were detected at or above laboratory method detection limits.

Dissolved-Phase (Groundwater) Contamination

Clean disposable bailers were used to collect groundwater samples from temporary piezometers GP-2 through GP-7. Laboratory analytical results of groundwater samples collected during this investigation are presented in Table 3. Copies of the laboratory analytical results are provided in Attachment C.

The District of Columbia RBCA RBSLs are presented in Table 3. The DDOE uses U.S. EPA Maximum Contaminant Levels (MCLs) as its Tier 0 Standards. The U.S. EPA MCLs are legally enforceable maximum permissible levels for contaminants in drinking water delivered to users of public water supply systems. The EPA MCLs are sometimes used as guidance criteria by regulatory officials to determine action levels for groundwater contamination assessments. No MCL has been set for MTBE; however, the EPA has established a drinking water advisory for MTBE, based upon taste and odor considerations, of 20 to 40 µg/L and has concluded that these levels provide a large margin of safety from toxic effects.

The District of Columbia developed the RBCA process to evaluate leaking underground storage tank (LUST) sites. The Tier 1 RBSLs are conservative risk based levels developed for a number of different human receptors and two different pathways. The site-specific application of RBSLs requires the development of a site conceptual exposure scenario and the selection of target levels for only those pathways that are complete. In general, Tier 1 RBSLs represent contaminant concentrations below which affected media would not require remediation for unrestricted (residential) land use.

[1] Agency for Toxic Substances and Disease Registry (ASTDR), *Public Health Statement for Arsenic*. December 2003.

TPH-DRO and TPH-GRO were detected at concentrations below their respective DDOE Tier 1 RBSLs in each groundwater sample. BTEX compounds were detected at low to moderate concentrations at GP-4 through GP-7. Naphthalene was detected at low to moderate concentrations at GP-4, GP-6, and GP-7. Cyclohexane, methyl-cyclohexane, and isopropylbenzene were detected at moderate concentrations at GP-4 through GP-7; isopropylbenzene was also detected at a trace concentration at GP-3.

Due to the chemical properties of the water sample collected from GP-2, PSS performed a 100 times dilution prior to analyzing the sample for VOCs. As a result, the method detection limits were raised 100 times higher than those for the other groundwater samples. VOCs were not detected at GP-2, but could be present below their respective method detection limits.

Benzene was detected at concentrations above its DDOE Tier 0 Standard in samples from GP-5, GP-6, and GP-7, and ethylbenzene was detected above its Tier 0 standard in samples from GP-6 and GP-7. Ethylbenzene was also detected above its DDOE Tier 1 RBSL for Commercial Workers at GP-7. Although ethylbenzene and MTBE were not detected above the method detection limits at GP-2, concentrations could be present above their respective DDOE Tier 0 Standards. DDOE Tier 0 Standards and Tier 1 RBSLs do not exist for cyclohexane, methyl-cyclohexane, and isopropylbenzene.

Table 3 - Dissolved-Phase (Groundwater) Sample Results

Sample Location	TPH (mg/L)		VOCs (µg/L)								
	-DRO	-GRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Naphthalene	Cyclohexane	Methyl-cyclohexane	Isopropyl-benzene
GP-2	**0.26**	**0.52**	< 100	< 100	< 100	< 300	< 100	< 100	< 1,000	< 1,000	< 100
GP-3	**0.47**	**0.39**	< 1.0	< 1.0	< 1.0	< 3.0	< 1.0	< 1.0	< 10	< 10	**1.1**
GP-4	**4.1**	**7.9**	< 1.0	**1.1**	**63**	< 3.0	< 1.0	**3.9**	**150**	**220**	**74**
GP-5	**1.9**	**2.0**	**14**	< 1.0	**2.6**	**2.8**	< 1.0	< 1.0	**36**	**25**	**10**
GP-6	**20**	**16**	**110**	**11**	**880**	**544**	< 5	**390**	**150**	**140**	**160**
GP-7	**49**	**15**	**200**	**35**	**1,400**	**648**	< 10	**280**	**200**	**150**	**160**
DDOE Tier 0 Standard	---	---	5	1,000	700	10,000	† 20	---	---	---	---
DDOE Tier 1 RBSLs Resident Child	245	38.8	270	900,000	826	20,050	64,200	764	---	---	---
DDOE Tier 1 RBSLs Resident Adult	245	38.8	67.6	900,000	206	20,050	16,100	191	---	---	---
DDOE Tier 1 RBSLs Commercial Worker	1,710	271	448	6,220,000	1,370	142,000	106,000	1,270	---	---	---
DDOE Tier 1 RBSLs Construction Worker	---	---	13,800,000	7,670,000,000	42,200,000	175,000,000	3,310,000,000	39,500,000	---	---	---

Bold = values detected above method detection limit; DDOE Tier 0 Standard = EPA MCLs; † EPA Advisory Level for MTBE;
DDOE Tier 1 RBSL = Risk-Based Screening Levels, based on DDOE Risk-Based Technical Guidance, Updated June 2011;
Red = values detected at or above the DDOE Tier 0 Standard; Highlight = values detected at or above the DDOE Tier 1 RBSL for Commercial Workers;
mg/L = milligrams per liter, equivalent to parts per million, ppm; µg/L - micrograms per liter, equivalent to parts per billion, ppb;
ND = non-detect = analyte was not detected at or above detection limits; --- = Not applicable or Not tested.

Conclusions and Recommendations

Conclusions

This Phase II ESA was performed to determine if nearby gas stations have impacted soil and/or groundwater quality on the Subject Property, and to determine if soil dumped on the property is contaminated with petroleum compounds.

Low-level petroleum contamination was documented in soil mounds located on the southwestern portion of the Subject Property. TPH-DRO concentrations detected in soil samples from the soil mounds ranged from 35 to 60 ppm. BTEX, MTBE and naphthalene concentrations were not detected in soil samples from the soil mounds.

Low- to moderate-level petroleum contamination was detected in shallow and deep soil at the GeoProbe boring locations. The highest concentrations of petroleum contamination were encountered in borings GP-4, GP-6, and GP-7 near the soil-groundwater interface; soil contamination detected at the soil-groundwater interface is attributed to contaminant migration via groundwater from an off-site source. Petroleum compound concentrations in soil above DDOE Tier 0 Screening Levels, DDOE Tier 1 RBSLs for Commercial Workers, or both, were detected in four of 13 soil samples. Metals concentrations were detected within the range of natural background concentrations in all three soil samples collected on the Subject Property. The pesticide DDT and its degradation compounds DDD and DDE were detected at trace concentrations at GP-5. Herbicides were not detected at or above laboratory method detection limits in any of the soil samples.

Fill material consisting of silty sand with brick fragments, organic roots, glass fragments, burnt debris/wood, and metal fragments was observed at depths extending up to 20 feet below grade across the Subject Property. Fill material was underlain by fine- to coarse-grained gravely sand with quartz and sandstone fragments.

Low- to moderate-level petroleum contamination was detected in groundwater on the Subject Property. Contaminant concentrations in groundwater above DDOE Tier 0 Standards, DDOE Tier 1 RBSLs for Commercial Workers, or both, were detected in three of six groundwater samples.

The detected contaminant concentrations do not appear to present an unacceptable risk under the proposed commercial use scenario. Proper management of impacted soils during any future excavation is required. Note that a vapor intrusion assessment was not performed during this initial investigation.

Redevelopment Recommendations

Excavation to construct the greenhouses is expected to be minimal and generally will not exceed depths of 42 inches (for construction of footings). Soil contamination was primarily detected at depths near the water table interface (17 - 25 feet bgs), and the extent of contaminated soil in the upper soil profile is expected to be limited based on field screening and soil sampling obtained during this investigation. ECC recommends development of a contingency budget for incremental costs associated with disposal of petroleum-impacted soil which may be encountered during construction. Contaminated soil encountered during redevelopment activities must be handled and disposed of in accordance with DDOE regulations. An Impacted Material Management Plan (IMMP) should be prepared prior to construction/excavation to outline identification, classification, sorting, and disposal of contaminated material.

An Environmental Health and Safety Plan (EHASP) should be implemented during construction/excavation to document and negate risks to worker and area resident health and safety during excavation. The plan should include a description of environmental monitoring and construction oversight activities to be performed during excavation.

Based on the depth to groundwater encountered on the Subject Property (approximately 17 feet to 25 feet below grade) dewatering will likely not be required during construction. If site dewatering is necessary, all construction-generated water (surface water, rain water, and groundwater) should be evaluated and discharged in accordance with an appropriate discharge permit.

Volatile compound concentrations in groundwater were below DDOE Tier 1 RBSLs (Resident Child) with the exception of the ethylbenzene concentration detected at GP-7. GP-7 appears to lie within the footprint of the proposed greenhouses, near their western edge; GP-2, GP-3 and GP-4 also lie within or near the footprint of the greenhouses. The D.C. RBCA guidance considers the representative contaminant concentration in groundwater to be the average concentration in wells adjacent to an existing building or within the footprint of a future building when assessing the indoor inhalation pathway. The average ethylbenzene concentration for groundwater samples from GP-2, GP-3, GP-4 and GP-7 is 366 ppm, below the DDOE Tier 1 RBSL (826 ppm) and the Tier 0 RBSL (700 ppm). Based on the low contaminant concentrations detected in groundwater and depth to groundwater on the site, the potential for vapor intrusion into the proposed greenhouses appears to be minimal.

ECC does not recommend additional investigation at this time, but if future geotechnical investigations will be performed on the Subject Property, ECC recommends consideration of additional soil and groundwater sampling and environmental laboratory analyses in order to further delineate the extent of contamination.

It is ECC's opinion that the risk of vapor intrusion into the proposed greenhouses is minimal based on the detected contaminant concentrations and the depths to groundwater. Further

assessment of the potential for vapor intrusion into the proposed greenhouses can be made by conducting soil gas sampling.

Regulatory Recommendations

The DDOE guidance for reporting petroleum releases indicate: "any authorized agent of a responsible party; any person who tests, installs, or removes tanks; any person who engages in site investigation, assessment, remediation, or geotechnical exploration; or any public utility company or authorized agent of a public utility company who knows of, or has reason to know of a release, or has reason to suspect a release from an underground storage tank shall inform the owner or operator immediately and shall notify the Director within twenty-four (24) hours of first having knowledge of the suspected release or release."[2] ECC recommends reporting the findings of this investigation to the DDOE.

Limitations

The opinions and recommendations provided are based upon the type and extent of ECC's assessment. In conducting this investigation, our professional opinions and judgments have been made based upon the information gathered, our experience in the area with similar projects, and in accordance with generally accepted professional environmental practice under similar circumstances. The information presented is based upon the presumption that existing site soil and groundwater conditions do not deviate appreciably from those observed and described during the subsurface sampling performed as part of this investigation. Site soil and groundwater conditions are representative of conditions at the specified location and on the specific dates on which they were observed. The passage of time may result in changing conditions at the site.

ECC's recommendations are based on the finding's of this investigation and the scope of the proposed development. Should additional information become available with regard to site history or future planned use, ECC reserves the right to alter its recommendations regarding additional site activities and/or remedial activities.

[2] District of Columbia Municipal Regulations (DCMR) (Underground Storage Tank Regulations), published at 40 DCR 7835 (November 12, 1993), at 43 DCR 2799 (May 24,1996) and at 46 DCR 40 (October 1, 1999).

If you have any questions or comments regarding this report, please feel free to contact this office at 703-327-2900.

Sincerely,
for ECC, Inc.

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attachments

Attachment A

Due Diligence Drilling Work Plan
and
Miscellaneous Soil Boring Permit

Drilling work plan Not Included

Attachment B

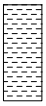
Boring Logs

LEGEND

For Soil Borings and Monitoring Wells

WELL CONSTRUCTION SYMBOLS:


CEMENT GROUT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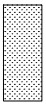

CLEAN SAND PACK


SCREEN


GROUNDWATER LEVEL

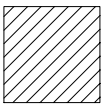
SAMPLE TYPES:

AC = Auger Cuttings
AR = Air Rotary (Dust)
GP = GeoProbe
HA = Hand-Auger Cuttings
RC = Rock Coring
NQ = Rock Coring
SS = Split Spoon

OTHER ABBREVIATIONS:

N/A = Not Applicable
N/R = No Instrument Response
N/T = Not Tested

SOIL SYMBOLS: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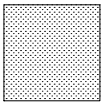
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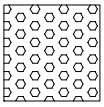
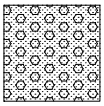

MEDIUM TO COARSE SAND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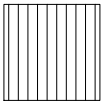
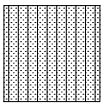

SILT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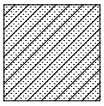
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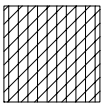
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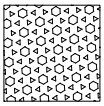
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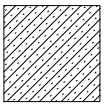
ASPHALT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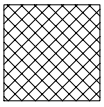
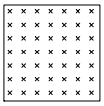
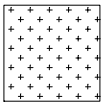

FILL / ORGANIC MATERIAL


FRACTURED ROCK OR SAPROLITE


COMPETENT ROCK (BEDROCK)

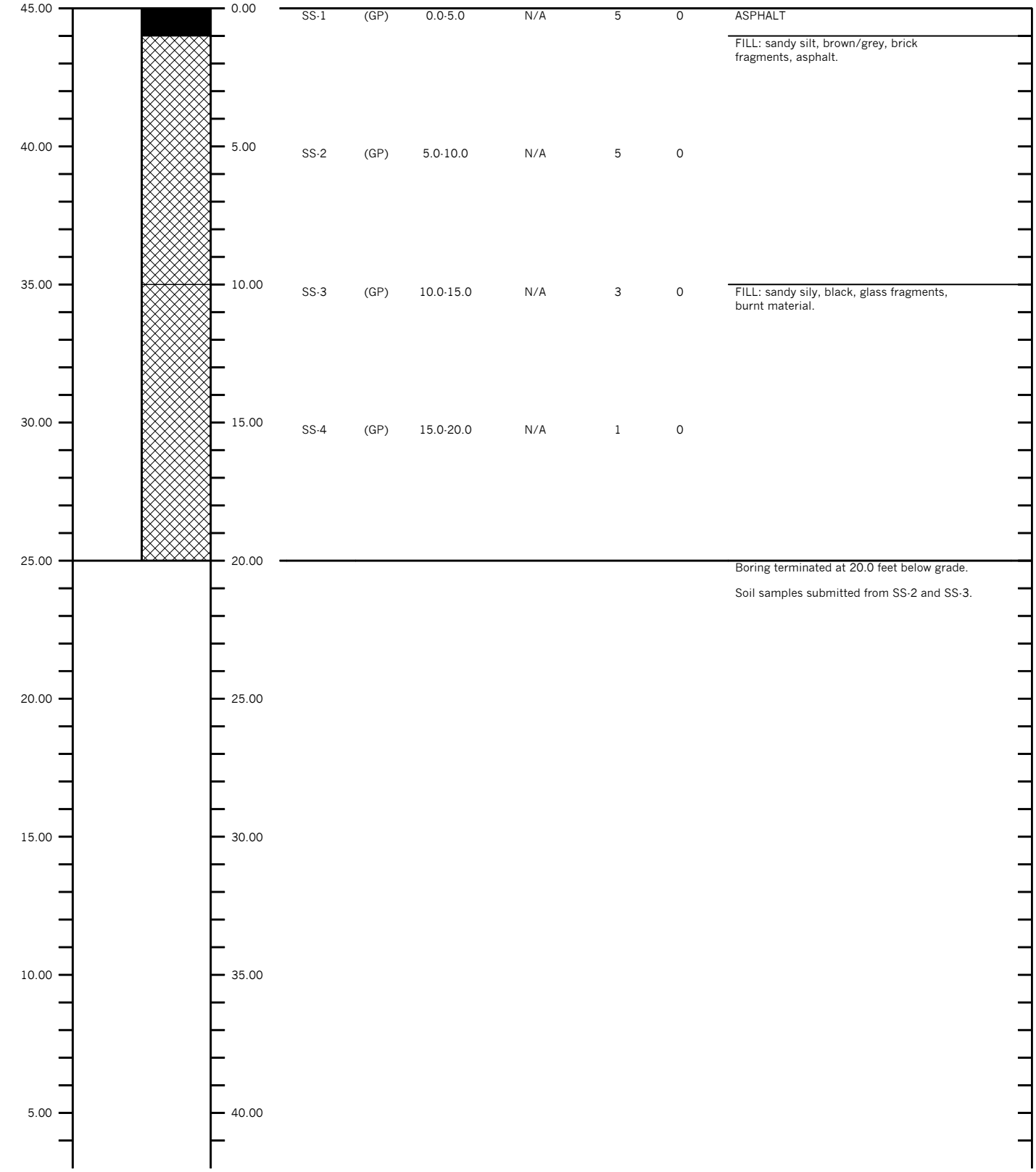
Bright Farms Greenhouse Lease Area (~4.5 acres)
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-1

Soil boring only
(Monitoring well not installed)
Surface Elevation = 45.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 20.0 feet

MSL Elev. (ft)	Depth (ft)	Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
45.00	0.00	SS-1	(GP)	0.0-5.0	N/A	5	0	ASPHALT
								FILL: sandy silt, brown/grey, brick fragments, asphalt.
40.00	5.00	SS-2	(GP)	5.0-10.0	N/A	5	0	
35.00	10.00	SS-3	(GP)	10.0-15.0	N/A	3	0	FILL: sandy sily, black, glass fragments, burnt material.
30.00	15.00	SS-4	(GP)	15.0-20.0	N/A	1	0	
25.00	20.00							Boring terminated at 20.0 feet below grade.
								Soil samples submitted from SS-2 and SS-3.
20.00	25.00							
15.00	30.00							
10.00	35.00							
5.00	40.00							

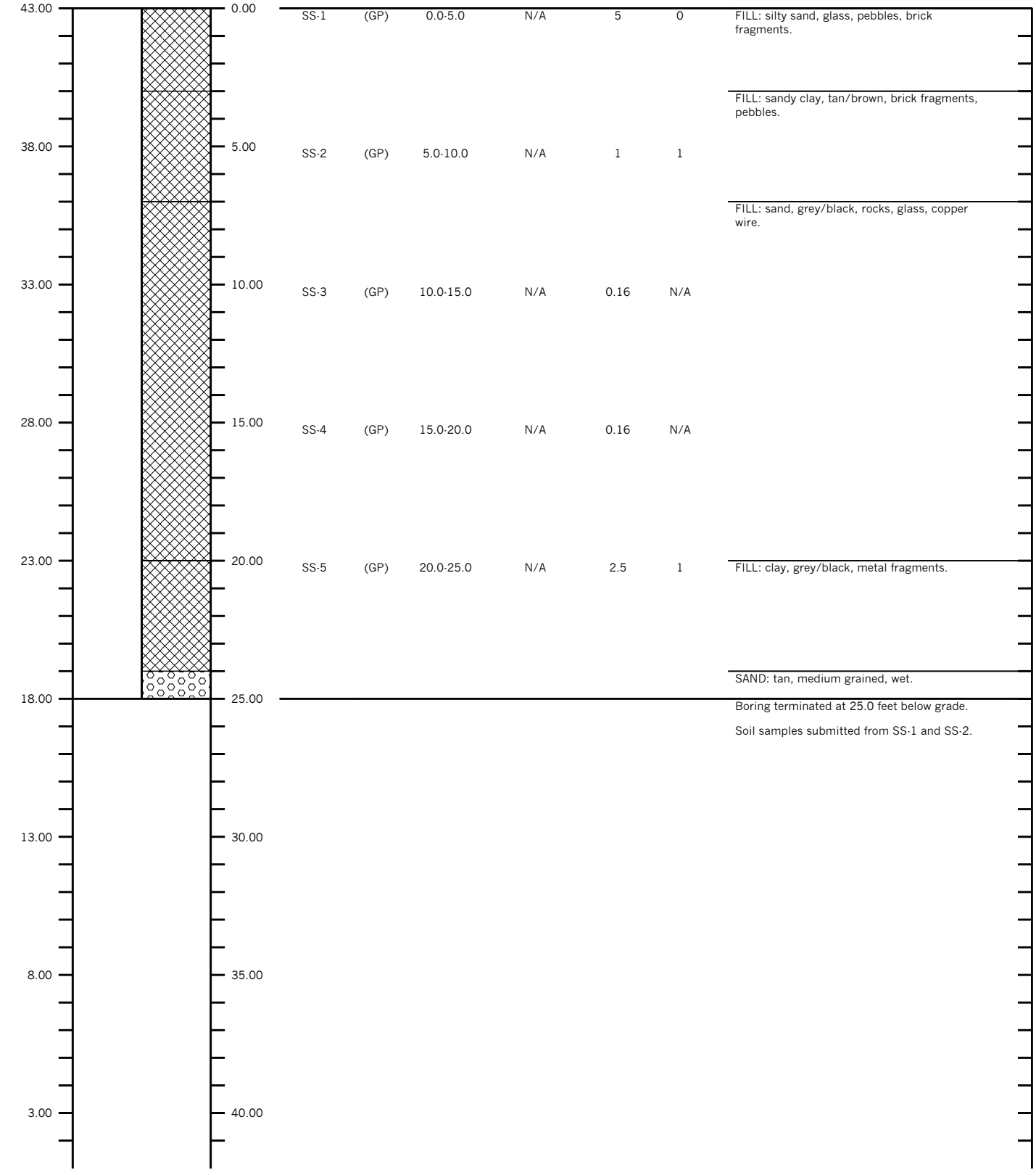


Bright Farms Greenhouse Lease Area (~4.5 acres)
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-2

Soil boring only
(Monitoring well not installed)
Surface Elevation = 43.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 25.0 feet



MSL Elev. (ft)	Depth (ft)	Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
43.00	0.00	SS-1	(GP)	0.0-5.0	N/A	5	0	FILL: silty sand, glass, pebbles, brick fragments.
								FILL: sandy clay, tan/brown, brick fragments, pebbles.
38.00	5.00	SS-2	(GP)	5.0-10.0	N/A	1	1	
								FILL: sand, grey/black, rocks, glass, copper wire.
33.00	10.00	SS-3	(GP)	10.0-15.0	N/A	0.16	N/A	
28.00	15.00	SS-4	(GP)	15.0-20.0	N/A	0.16	N/A	
23.00	20.00	SS-5	(GP)	20.0-25.0	N/A	2.5	1	FILL: clay, grey/black, metal fragments.
								SAND: tan, medium grained, wet.
18.00	25.00							Boring terminated at 25.0 feet below grade.
								Soil samples submitted from SS-1 and SS-2.
13.00	30.00							
8.00	35.00							
3.00	40.00							

ECC

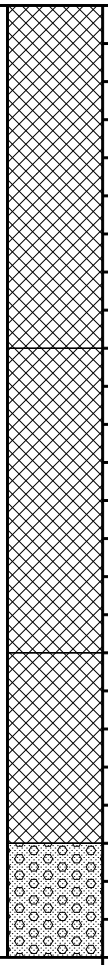
Bright Farms Greenhouse Lease Area
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-3

Soil boring only
(Monitoring well not installed)
Surface Elevation = 44.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 25.0 feet

MSL Elev. (ft)	Depth (ft)	Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
44.00	0.00	SS-1	(GP)	0.0-5.0	N/A	4	0	FILL: sand, brown, trace mica/glass/brick fragments.
39.00	5.00	SS-2	(GP)	5.0-10.0	N/A	2.5	2	
								FILL: silty sand, black, glass, burnt debris.
34.00	10.00	SS-3	(GP)	10.0-15.0	N/A	1	7	
29.00	15.00	SS-4	(GP)	15.0-20.0	N/A	3	9	
								FILL: sandy clay, grey, soft.
24.00	20.00	SS-5	(GP)	20.0-25.0	N/A	4	94	
								SAND: tan, sandstone and quartz fragments.
19.00	25.00							Boring terminated at 25.0 feet below grade.
14.00	30.00							
9.00	35.00							
4.00	40.00							



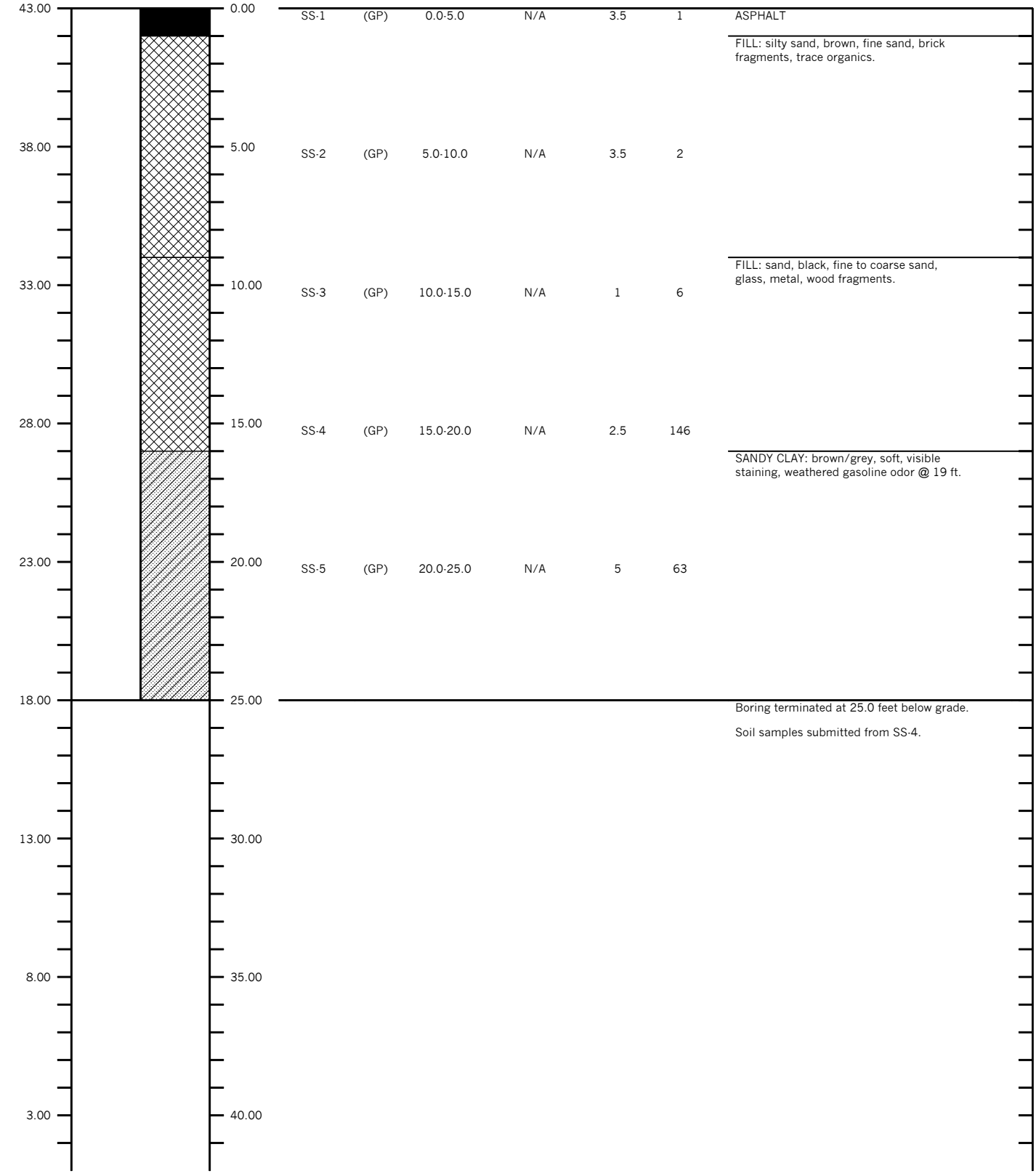
ECC

Bright Farms Greenhouse Lease Area (~4.5 acres)
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-4

Soil boring only
(Monitoring well not installed)
Surface Elevation = 43.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 25.0 feet



Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
SS-1	(GP)	0.0-5.0	N/A	3.5	1	ASPHALT FILL: silty sand, brown, fine sand, brick fragments, trace organics.
SS-2	(GP)	5.0-10.0	N/A	3.5	2	
SS-3	(GP)	10.0-15.0	N/A	1	6	FILL: sand, black, fine to coarse sand, glass, metal, wood fragments.
SS-4	(GP)	15.0-20.0	N/A	2.5	146	SANDY CLAY: brown/grey, soft, visible staining, weathered gasoline odor @ 19 ft.
SS-5	(GP)	20.0-25.0	N/A	5	63	
						Boring terminated at 25.0 feet below grade. Soil samples submitted from SS-4.

ECC

Bright Farms Greenhouse Lease Area
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-5

Soil boring only
(Monitoring well not installed)
Surface Elevation = 40.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 20.0 feet

MSL Elev. (ft)	Depth (ft)	Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
40.00	0.00	SS-1	(GP)	0.0-5.0	N/A	5	0	FILL: sand brown, fine grained, trace brick and rock fragments.
35.00	5.00	SS-2	(GP)	5.0-10.0	N/A	3	6	
								FILL: sandy clay, grey, soft, moist.
								FILL: sand, black, fine grained, burnt debris, glass.
30.00	10.00	SS-3	(GP)	10.0-15.0	N/A	0.5	10	
25.00	15.00	SS-4	(GP)	15.0-20.0	N?A	4	42	
								GRAVELY SAND: brown, fine to coarse grained, wet and gasoline odor and grey staining at 17 feet.
20.00	20.00							Boring terminated at 20.0 feet below grade.
								Soil samples submitted from SS-1 and SS-4.
15.00	25.00							
10.00	30.00							
5.00	35.00							
0.00	40.00							

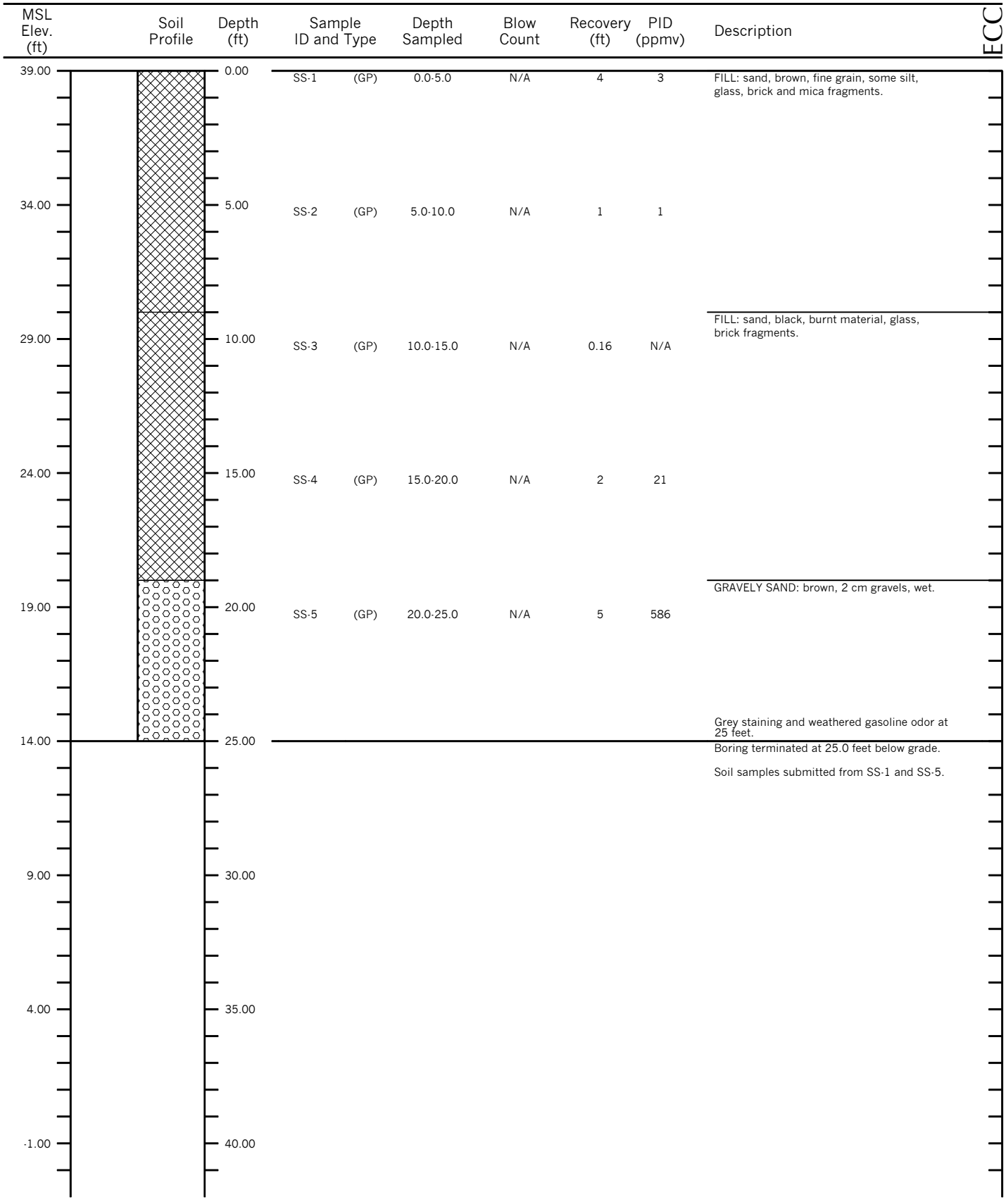
ECC

Bright Farms Greenhouse Lease Area
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-6

Soil boring only
(Monitoring well not installed)
Surface Elevation = 39.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 25.0 feet



MSL Elev. (ft)	Depth (ft)	Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
39.00	0.00	SS-1	(GP)	0.0-5.0	N/A	4	3	FILL: sand, brown, fine grain, some silt, glass, brick and mica fragments.
34.00	5.00	SS-2	(GP)	5.0-10.0	N/A	1	1	
29.00	10.00	SS-3	(GP)	10.0-15.0	N/A	0.16	N/A	FILL: sand, black, burnt material, glass, brick fragments.
24.00	15.00	SS-4	(GP)	15.0-20.0	N/A	2	21	
19.00	20.00	SS-5	(GP)	20.0-25.0	N/A	5	586	GRAVELY SAND: brown, 2 cm gravels, wet.
14.00	25.00							Grey staining and weathered gasoline odor at 25 feet.
								Boring terminated at 25.0 feet below grade.
								Soil samples submitted from SS-1 and SS-5.
9.00	30.00							
4.00	35.00							
-1.00	40.00							

ECC

Bright Farms Greenhouse Lease Area
City of Washington, DC
ECC Project No. 14-11603
Driller: Ground Zero
Field Geologist: Nich Allen
Date Drilled: July 9, 2014

Geologic Boring Log

Boring No. GP-7

Soil boring only
(Monitoring well not installed)
Surface Elevation = 41.00 feet (est.)
Groundwater Elev. Unknown
Total Depth of Boring = 25.0 feet

MSL Elev. (ft)	Depth (ft)	Sample ID and Type		Depth Sampled	Blow Count	Recovery (ft)	PID (ppmv)	Description
41.00	0.00	SS-1	(GP)	0.0-5.0	N/A	3	4	FILL: sandy silt, grey/brown, micaceous, fine grained, brick fragments.
36.00	5.00	SS-2	(GP)	5.0-10.0	N/A	2	0	
31.00	10.00	SS-3	(GP)	10.0-15.0	N/A	0.5	1	FILL: sand, black, fine to medium grained, burnt wood, glass, moist.
26.00	15.00	SS-4	(GP)	15.0-20.0	N/A	2	919	
								GRAVELY SAND: brown, fine to coarse grained, black staining and weathered gasoline odor at 18 ft., wet at 18 ft.
21.00	20.00	SS-5	(GP)	20.0-25.0	N/A	5	637	
16.00	25.00							Boring terminated at 25.0 feet below grade.
								Soil samples submitted from SS-1, SS-2 and SS-4.
11.00	30.00							
6.00	35.00							
1.00	40.00							

ECC

Attachment C

Laboratory Analytical Data Sheets

Laboratory Results Not Included

FINAL

PHASE II ESA REPORT
OXON RUN

4669 South Capitol Street, SW, Washington, DC

Prepared for

Department of Energy and Environment
Government of the District of Columbia

May 4, 2018

Prepared by

45610 Woodland Road, Suite 400, Sterling, VA 20166
(703) 444-7000

CONTENTS

1.0 INTRODUCTION

Evaluation of the potential for environmental impacts at the Oxon Run Property located at 4669 South Capitol Street, SW, Washington, DC 20032 (Subject Property) was undertaken at the request of the District of Columbia Department of Energy and Environment (DOEE) by Tetra Tech, Inc. (Tetra Tech). The objective of this Phase II Environmental Site Assessment (ESA) is to evaluate if previous site activities have adversely impacted the Subject Property. The findings of the ESA are presented in this report. **Attachment 1** presents the Sample Location Map; **Attachment 2** provides the Analytical Summary Tables for Soil and Groundwater samples; and **Attachment 3** presents the complete Laboratory Analytical Results for Soil and Groundwater samples.

Specific terms and conditions were detailed in the work plan dated October 13, 2017, which was authorized by DOEE on November 14, 2017. The findings and conclusions of this report are not scientific certainties, but rather, probabilities based on professional judgment derived from the data gathered during the course of this ESA. Tetra Tech is not able to verify that the Subject Property or adjoining land does not contain hazardous substances, petroleum products, or other latent conditions beyond that detected or observed during this ESA. The possibility exists that contaminants detected have migrated through air, soil, or groundwater. However, identifying the origin of the contaminants is not within the scope of this project. In addition, the ability to accurately assess the environmental risks associated with transport in these media is beyond the scope of this assessment. The opinions expressed by Tetra Tech with reference to the Subject Property only pertain to conditions that existed at the Subject Property during the time that the ESA was conducted. No guarantees or warranties are either expressed or implied.

The objective of this ESA is to evaluate whether previous industrial activities have adversely affected the subsurface quality of the Subject Property. Phase II ESA activities were completed in general conformance with the proposal submitted to the DOEE on October 13, 2017. Minor deviations included that groundwater samples were attempted at soil borings SB-1 and SB-3 through SB-6; however, the groundwater yield was not sufficient enough to collect samples for laboratory analysis at these locations. In addition, method holding times were not met for soil samples from soil borings SB-13 and SB-14 for volatile organic compounds (VOC) due to delays in transit of the courier service used. DOEE authorized to Tetra Tech to complete analysis of these samples on January 9, 2018.

Phase II ESA activities included conducting a subsurface assessment within the Subject Property boundaries and adjacent to three former building concrete slabs. Tetra Tech understands the future development of the Site is proposed to include a recreational area and solar farm. The Phase II ESA was not designed to delineate environmental impacts but to identify whether the potential for surface and subsurface impacts exists.

1.1 Site Description

The Subject Property is located at 4669 South Capitol Street, SW, Washington, DC 20032 and forms part of the southeastern boundary between the District of Columbia and Maryland. The Subject Property is composed of three parcels identified by Square Suffix Lot (SSL) Numbers 6274-0801, 6274-0802 and 0246-0061 in the District of Columbia property tax records. At the time of this investigation, the Subject Property parcels consisted of open grassland, riparian grass/woodland, gravel areas, three concrete

pads and contained portions of two streams, Oxon Run and Barnaby Run. Tetra Tech observed areas of building construction debris (concrete, brick and timber) and evidence of other waste materials throughout the Subject Property.

The Subject Property is bound to the north by South Capitol Street, SE, with the Ingenuity Prep Public Charter School, Oxon Run Park and residential development beyond; to the east by, a Rite Aid, followed by an Exxon gasoline station 7-Eleven convenience store and Oxon Run Drive along the southwest perimeter. and South Capitol Street, SE, a Shell gasoline station, additional commercial and residential development, and Indian Head Parkway (not shown on map) beyond; to the south by Oxon Run Drive with Eastover Shopping Center and parkland beyond; and to the west by 1st Street, SW, with residential development beyond (**Figure 1 of Attachment 1**).

1.2 Geology and Hydrogeology

The Subject Property is located within the Coastal Plain physiographic province, which extends across most of the eastern half of the District of Columbia. The Coastal Plain is characterized by areas of low relief and underlying geology consists of inter-bedded layers of sand, shells, gravel, silt, and clay sediments that range in age from Jurassic to Holocene. The sequence is generally wedge-shaped and dips and thickens eastward. Soil types in the vicinity of the Subject Property consist of (i) Luka-Lindside-Cordous; fluvial deposits underlain by stratified alluvial sediment, and (ii) Udorthents or fill material; manmade cuts, fills or otherwise disturbed land.

The depth to groundwater in the Coastal Plain region can vary greatly. The Subject Property lies within the extent of the coastal plain surficial aquifer, with historic depths to groundwater varying from 8 feet to 24 feet below ground surface (bgs). Prior investigations at the Subject Property have encountered groundwater at depths ranging from 17 feet to 25 feet bgs. A detailed hydrogeological study to evaluate the direction of groundwater flow was beyond the scope of this Phase II ESA; however, based upon prior investigations in the vicinity of the Subject Property, and interpretation of local topography, the general groundwater flow direction is assumed to be southwest, towards Oxon Run.

1.3 Project Background

According to information provided by DOEE, the Site was previously intended to be used by BrightFarms, Inc., for future greenhouse farming operations. Environmental Consultants and Contractors (ECC) identified soil and groundwater contamination at the Subject Property from a prior Phase II ESA, dated August 22, 2014. The ECC Phase II ESA included seven soil borings advanced by direct push technology and the collection of six groundwater samples. In addition, three shallow soil samples were collected via hand auger.

Contamination identified from soil and groundwater sampling was determined to likely be the result of the operation of former and existing retail gasoline stations, located to the east and northeast of the Subject Property, as well as other former industrial activities that took place in the surrounding areas. Information obtained from DOEE indicates a Leaking UST (LUST) case was previously opened in association with the adjacent Rite Aid (a former Sunoco gasoline station), but the case was considered closed in 2010. BrightFarms, Inc. did not purchase or develop the Subject Property as proposed, and it has remained vacant since August 2014. DOEE also provided information that the eastern portion of the Subject Property was previously used as a District Department of Public Works maintenance or fueling

station. Concrete pads in place associated with the former suspected fueling operations were observed on the eastern portion of the Subject Property. Assessment of this area was not completed in association with the previous ECC Phase II ESA.

2.0 SAMPLING METHODOLOGY

This section describes utility location services provided for the Subject Property prior to the collection of samples. In addition, this section describes the soil and groundwater sampling methodology utilized at the Subject Property.

2.1 Utility Location

Prior to collecting subsurface samples on January 3, 2018, Tetra Tech contacted the Washington, DC One-Call utility locator service to request identification of buried utilities on and around the Subject Property. Tetra Tech also contracted Ground Penetrating Radar Services (GPRS) of Haymarket, Virginia, to locate utilities in the vicinity of proposed boring locations. The utility location was performed for health and safety purposes to ensure personnel completing the subsurface sampling did not encounter utility lines and as an additional measure to protect subsurface infrastructure.

2.2 Soil Sampling

On January 3 through 5, 2018, 14 soil borings (SB-1 through SB-14) were advanced at the Subject Property (**Attachment 1, Figure 1**). The soil borings were advanced by GSI Mid Atlantic, Inc. (GSI) of Bel Air, Maryland using a track-mounted Geoprobe incorporating continuous sampling direct push methods.

One (1) soil boring was completed adjacent to the Exxon gas station, at the eastern boundary of the Subject Property (SB-1), one (1) soil boring was completed adjacent to the eastern-most concrete pad (SB-2), two (2) soil borings were completed adjacent to the concrete pad on the south-east Subject Property boundary (SB-3 and SB-5), one (1) soil boring was completed adjacent to Barnaby Run on the southeast Subject Property boundary (SB-4), two (2) soil borings were completed adjacent to the southern-most concrete pad (SB-6 and SB-7), one (1) soil boring was completed in the center of the Subject Property (SB-8), four (4) soil borings were completed along the western Subject Property boundary with 1st Street, SW (SB-9 through SB-12) and two (2) soil borings were completed on the northeast Subject Property boundary with South Capitol Street, SE (SB-13 and SB-14).

Soil borings were advanced until they encountered groundwater and temporary monitoring wells could be set. Soil borings SB-1 through SB-8 were advanced to approximately 25 feet bgs, SB-9 through SB-12 were advanced to approximately 15 feet bgs, and soil borings SB-13 and SB-14 were advanced to approximately 20 feet bgs. The boring locations were backfilled with hydrated bentonite pellets once sampling activities concluded.

Two (2) soil samples were collected from each boring location for the purpose of characterizing potential environmental impacts. Soil was continuously collected every two (2) feet and examined in the field for lithologic characterization and evidence of environmental impacts. In instances where field evidence (visual, olfactory, or elevated photoionization detector [PID] readings) of contamination was identified prior to the end of the boring, the soil sample was collected at the depth at which the contamination was identified. If soil impacts were not observed in the borings, soil samples were collected from an interval between 0 to 2 feet bgs and the deepest interval before groundwater was encountered. Groundwater was encountered at depths ranging from approximately 8 feet to 23 feet bgs in the soil borings advanced at the Subject Property.

General soil lithologies encountered at the boring locations consisted of fill material composed of silty sand with debris and wastes from surface grade to approximately 14 to 28 feet bgs in soil borings SB-1 through SB-8, SB-13, and SB-14. Beneath the fill, the soil is composed of either clayey silt or fine sand from approximately 17 to 22 feet bgs with generally sandy gravel with silt to approximately 28 feet bgs. The soil lithologies in SB-9 through SB-12 generally consist of silty sand from the surface to approximately 8 feet bgs with sandy gravel between approximately 8 to 15 feet bgs. Groundwater was generally encountered between approximately 20 to 23 feet bgs in SB-1 through SB-8, SB-13, and SB-14, and between approximately 7 to 9 feet bgs in SB-9 through SB-12. Petroleum odor and elevated PID readings were observed in borings SB-4 and SB-14. The highest PID reading was 81.3 parts per million (ppm) located between 18 to 20 feet bgs in SB-14.

Fourteen soil samples (from 0 to 2 feet bgs in each soil boring) were retrieved from the soil borings and analyzed for the following parameter in accordance with the approved work plan:

- Total Petroleum Hydrocarbons-Gasoline Range Organics (TPH-GRO), via U.S. Environmental Protection Agency (EPA) Method 8015C;
- TPH-Diesel Range Organics (TPH-DRO), via EPA Method 8015C;
- Benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE), and naphthalene, via EPA Method 5035 and 8260B;
- Priority Pollutant Metals, via EPA Method 6020A and 7471C;
- Pesticides, via EPA Method 8081B; and
- Herbicides, via EPA Method 8151A.

An additional 14 soil samples were retrieved from the soil borings below the surface samples and analyzed for the following parameters in accordance with the approved work plan:

- TPH-GRO, via EPA Method 8015B;
- TPH-DRO, via EPA Method 8015B; and
- BTEX, MTBE, and naphthalene, via EPA Method 5035 and 8260B.

Tetra Tech personnel performed sample handling and soil classification. Soil samples intended for laboratory analysis were packaged, labeled, placed on ice in a cooler, and shipped via FedEx to TestAmerica Laboratories, Inc., (TestAmerica) in Pittsburgh, Pennsylvania. Chain-of-custody documentation was initiated in the field and accompanied the samples to the laboratory. Soil analytical laboratory results are summarized in **Tables A-1 and A-2 of Attachment 2**. The complete laboratory analytical reports are presented in **Attachment 3**.

One (1) equipment blank was collected for each day of soil sampling. Aqueous equipment blanks were collected by running laboratory-provided deionized water over non-dedicated sampling equipment utilized during soil sampling. Laboratory results indicated equipment blank samples were non-detect for the samples collected on January 4, 2018; however, the equipment blank submitted for January 4, 2018 had low detections of TPH-DRO and arsenic, chromium, antimony, and nickel. Tetra Tech does not consider the detection to be indicative of major issues with the laboratory analytical results.

2.3 Groundwater Sampling

Groundwater was encountered in soil borings SB-1 through SB-8, SB-13, and SB-14 between approximately 20 to 28 feet bgs at the Subject Property, and between approximately 7 to 9 feet bgs in

soil borings SB-9 through SB-12 and temporary monitoring wells were installed in each location. All temporary wells placed in the soil borings were constructed of a PVC pipe with 10 feet of 0.01-inch slotted screen set to intersect the water table, and the remaining length set as PVC riser. The water bearing formation consisted of a sandy gravel; however, soil borings SB-1 and SB-3 through SB-6 did not produce enough volume for a sample to be collected.

The wells were each purged with a peristaltic pump and dedicated tubing set to a low flow setting for approximately three well volumes. In addition, the turbidity of the purge water was monitored visually during purging. The samples were collected with the peristaltic pump; however, no sample passed through the head of the peristaltic pump. The peristaltic pump was stopped after purging was completed and the remaining groundwater in the suction line was collected in the sample container. Each of the temporary wells were removed from the borehole after groundwater sampling activities had completed and the boreholes were backfilled and finished as described in Section 2.2.

One (1) groundwater sample was collected from the temporary well in soil borings SB-2 and SB-7 through SB-14 and analyzed for the following parameters in accordance with the approved work plan:

- TPH-GRO, via EPA Method 8015B;
- TPH-DRO, via EPA Method 8015B; and
- BTEX, MTBE, and naphthalene, via EPA Method 8260B.

The groundwater samples collected from the Subject Property intended for laboratory analysis were packaged, labeled, placed on ice in a cooler, and shipped via FedEx to TestAmerica in Pittsburgh, Pennsylvania. Chain-of-custody documentation was initiated in the field and accompanied the samples to the laboratory. Groundwater analytical laboratory results are summarized in **Table A-3 of Attachment 2**. The complete laboratory analytical reports are presented in **Attachment 3**.

3.0 ANALYTICAL RESULTS

This section presents a discussion of the regulatory screening levels used to evaluate the laboratory analytical data. The laboratory analytical results for the soil and groundwater samples collected at the Subject Property are summarized.

3.1 Applicable Regulations and Screening Levels

Tetra Tech compared the analytical results of the soil and groundwater samples to the DOEE Toxic Substances Division Underground Storage Tank Branch, *District of Columbia Risk-Based Corrective Action Technical Guidance (Risk-Based Decision Making) Tier 0 Standards, Tables 5-8 and 5-9, Risk-Based Screening Levels (RBSLs) for a Resident Child and Adult for Surficial Soil Ingestion, Inhalation (Vapor Emissions and Particulates), and Dermal Contact, and Table 5-10, RBSLs for a Commercial Worker for Surficial Soil Ingestion, Inhalation (Vapor Emissions and Particulates), and Dermal Contact*, dated June 2011 (DOEE 2011) where the target hazard index is 1 and the target risk level is 1×10^{-6}. The standards were selected based on the potential for shallow soil disturbance associated with the development of a future solar farm and/or park. In addition, soil samples were compared to the *EPA Regional Screening Level (RSL)* for Residential and Industrial Soil where the target hazard index is 1 and the target risk is 1×10^{-6}, dated November 2017 (EPA 2017). Groundwater sample results were also compared to the District of Columbia Groundwater Protection and Quality Standards dated July 2, 1993 for Class G1, which applies to all groundwater in the District. As identified in DC Code 8-103.04 DCMR 1155, if a criterion is not defined, the enforcement standard shall be based on best available knowledge including EPA water quality criteria (DCMR 1993).

Although the Subject Property is not considered a residential facility in the EPA RSLs or DOEE regulatory documents, Tetra Tech, at the direction of the DOEE, applied the residential standards to the Subject Property to use EPA and DOEE's most conservative screening levels, based on the potential future use of the Subject Property as a park. Residential standards were considered because the Subject Property may pose a risk to children playing in a recreational area and is currently zone for residential use. Should commercial development of the Subject Property occur, commercial standards shall be considered as the residential standards may not be applicable.

3.2 Soil Analytical Results

PID readings of total volatile organic compound vapors reached a maximum of 81.3 ppm in SB-14 during the completion of this Phase II ESA. Subsurface soil samples were collected at the 0-2 foot bgs interval and the interval of the highest field evidence of contamination in each of the soil borings. Subsurface soil samples were selected based on field evidence, including visual, olfactory, and/or significantly elevated PID readings.

Table 1. PID Readings in Soil Borings

Soil Boring	PID Reading (ppm)	Depth (bgs)
SB-1	0.0	Throughout
SB-2	0.0	Throughout
SB-3	0.0	Throughout
SB-4	0.0	Throughout
SB-5	0.0	Throughout

SB-6	0.0	Throughout
SB-7	0.0	Throughout
SB-8	0.0	Throughout
SB-9	0.0	Throughout
SB-10	0.0	Throughout
SB-11	0.0	Throughout
SB-12	0.0	Throughout
SB-13	0.0	Throughout
SB-14	81.3	18 to 20 feet

Based on the soil sample analytical results, VOCs were not detected in the soil samples collected from the soil borings with the exception of SB-14. The VOCs ethylbenzene, toluene, total xylenes, and naphthalene were the only VOCs detected above the laboratory method detection limits (MDL) in the soil samples collected from soil boring SB-14 at the Subject Property. Each of the detections identified in SB-14 were below the applicable EPA and DOEE regulations. Results of VOC analysis of the soil samples are summarized in **Table A-1 of Attachment 2**. The TestAmerica laboratory analytical results are provided in **Attachment 3**.

Based on the soil sample analytical results, pesticides Dichlorodiphenyldichloroethane (4,4-DDD), Dichlorodiphenyldichloroethylene (4,4-DDE), Dichlorodiphenyltrichloroethane (4,4-DDT), alpha-chlordane, gamma-chlordane, and endrin were the only pesticides detected above the laboratory MDL in the soil samples collected from soil borings SB-1, SB-3, SB-5, SB-6, SB-7, SB-12, SB-13, and SB-14. No herbicides were detected above the MDL in the collected samples. Each of the pesticide detections identified at the Subject Property were below residential and industrial EPA RSLs. The DOEE has not published RBSLs for the contaminants identified above. Results of pesticide and herbicide analysis of the soil samples are summarized in **Table A-1 of Attachment 2**. The TestAmerica laboratory analytical results are provided in **Attachment 3**.

Based on the soil sample analytical results, each of the priority pollutant metals were detected above the laboratory MDL in the soil samples collected from the soil borings at the Subject Property. Each of the detections identified at the Subject Property were below the residential and industrial EPA RSLs and DOEE regulations except for arsenic. Arsenic was detected above the residential EPA RSL in each soil boring and above the industrial RSL in SB-1 through SB-4, SB-6, SB-7, and SB-10 through SB-14 at concentrations ranging from 3.0 milligrams per kilogram (mg/kg) to 6.7 mg/kg. Although the DOEE has not published a RBSL for metals and EPA has not published RSLs for total chromium, nickel, and thallium, DOEE typically refers to the Maryland Anticipated Typical Concentration (ATC) for select metals (as discussed below). Results of metals analysis of the soil samples are summarized in **Table A-2 of Attachment 2**. The TestAmerica laboratory analytical results are provided in **Attachment 3**.

Based on the soil sample analytical results, TPH-DRO was detected above the laboratory MDL in the soil samples collected from each of the soil borings at the Subject Property. TPH-DRO was detected above the EPA residential soil RSL and DOEE Tier 0 RBSL in SB-2 through SB-6, SB-13, and SB-14 at concentrations ranging from 98 mg/kg to 1,000 mg/kg with the highest concentrations in the vicinity of the former Department of Public Works (DPW) operation area, where reported fueling occurred. In addition, TPH-DRO was detected above the EPA industrial RSL in SB-5. TPH-DRO was not detected above remaining DOEE RBSLs. TPH-GRO was detected above the laboratory MDL in soil borings SB-1, SB-

2, and SB-14. TPH-GRO was detected at a concentration of 1,000 mg/kg which is above the EPA residential and industrial RSLs and the DOEE Tier 0 RBSL in the soil sample collected from SB-14, in the vicinity of the existing and former fueling stations located adjacent and to the northeast of the Subject Property. Results of TPH analysis of the soil samples are summarized in **Table A-2 of Attachment 2**. The TestAmerica laboratory analytical results are provided in **Attachment 3**.

3.3 Groundwater Analytical Results

Based on the groundwater analytical results, VOCs were not detected in groundwater samples collected from soil borings SB-1 and SB-7 through SB-13. In boring SB-2, MTBE was the only analyzed VOC detected, but it was below applicable regulatory limits. In boring SB-14, six VOCs (benzene, ethylbenzene, MTBE, naphthalene, toluene and total xylenes) were detected in concentrations above the laboratory MDL. Of these detections, only the concentration of benzene (30 micrograms per liter [µg/L]) was detected above applicable regulatory limits.

Based on the groundwater analytical results, TPH-DRO was present in concentrations above the laboratory MDL in each of the 10 groundwater samples collected at the Subject Property, at concentrations ranging from an estimated 390 µg/L to 21,000 µg/L. TPH-GRO was only detected in SB-14 above the laboratory MDL at a concentration of 21,000 µg/L. Detected concentrations of TPH-DRO and TPH-GRO were not above the DOEE RBSLs, and Groundwater Protection and Quality Standards are not published for TPH-DRO and TPH-GRO.

Results of VOC and TPH analysis of the groundwater samples are summarized in **Table A-3 of Attachment 2**. The TestAmerica laboratory analytical results are provided in **Attachment 3**.

4.0 CONCLUSIONS

The following discussion summarizes the analytical results of the Phase II ESA and draws related conclusions.

4.1 Soil and Groundwater Investigation Conclusions

The soil sample analytical results indicate detections of ethylbenzene, toluene, total xylenes, and naphthalene in the soil sample SB-14; however, detections were below the applicable regulatory standards. Soil sample analytical results indicated detectable concentrations of the pesticides 4,4-DDD, 4,4-DDE, 4,4-DDT, alpha-chlordane, gamma-chlordane, and endrin in soil samples collected from SB-1, SB-3, SB-5, SB-6, SB-7, SB-12, SB-13, and SB-14. In each instance, concentrations of pesticides were below the applicable regulatory standards, therefore additional assessment is not considered to be warranted.

Soil sample analytical results indicate detectable concentrations of each of the priority pollutant metals in soil samples collected from each of the soil borings on the Subject Property. Each of the detections at the Subject Property were below the residential and industrial EPA RSLs and DOEE regulations except for arsenic. Arsenic was detected above the residential EPA RSL in each soil boring and above the industrial RSL in SB-1 through SB-4, SB-6, SB-7, and SB-10 through SB-14. While the District does not presently publish background concentrations of arsenic in soil, the State of Maryland, adjacent to the Subject Property, has published that the ATC of arsenic in soils in eastern Maryland is 3.6 mg/kg. The ATC represents the mean concentration plus one standard deviation for samples collected in the background study. The range of detected arsenic concentrations was reported to be between 1.7 mg/kg and 6.7 mg/kg. The detected concentrations of arsenic on the Subject Property during this Phase II ESA fall within this range. Therefore, the concentrations of arsenic observed at the Subject Property are not considered to be indicative of contamination and further assessment of arsenic in soil is not considered to be necessary.

Soil sample analytical results indicate detectable TPH-DRO above the laboratory MDL in the both surficial and subsurface soil samples collected from each of the soil borings at the Subject Property. TPH-DRO was detected above the EPA residential soil RSL and DOEE Tier 0 RBSL in SB-2 through SB-6, SB-13, and SB-14. In addition, TPH-DRO was detected above the EPA industrial RSL in SB-5. TPH-GRO was detected above the EPA residential and industrial RSLs and the DOEE Tier 0 RBSL, but below the remaining RBSLs in the soil sample collected from SB-14. The TPH-GRO and DRO exceedances are primarily driven by conservative residential standards, with only the TPH-DRO concentration from SB-5 (collected from a depth of 9-10 feet) and the TPH-GRO concentration of SB-14 (collected from a depth of 16-17 feet) exceeding the industrial soil RSL. Regarding the residential exceedances, of the 10 exceedances, seven were collected at depths greater than 10 feet below grade, and are therefore unlikely to be encountered by someone utilizing the Subject Property as a park or by construction workers conducting shallow (less than four feet) excavations. The remaining exceedances are relatively low (98 mg/kg, 99 mg/kg, and 350 mg/kg) and are located adjacent to or nearby the concrete pads previously used for commercial site purposes. These pads will be likely removed and the surrounding area cleaned of debris during the construction of a park. Regarding the two industrial exceedances, both occur below a depth that would be encountered during typical commercial redevelopment. In addition, while these concentrations (1,000 mg/kg of TPH-DRO and 1,000 mg/kg of TPH-GRO respectively) exceed

the EPA RSLs and the District's Tier 0 Standards, they are orders of magnitude below the DOEE's surficial soil ingestion, inhalation (vapor emissions and particulates), and dermal Contact RBSL of 230,000 mg/kg for TPH-DRO and 465,000 mg/kg for TPH-GRO which would likely be utilized in any environmental cleanup based on the proposed use of the Subject Property. These factors and the frequency of occurrence (two samples out of 28) indicate that the TPH-DRO and TPH-GRO concentrations at these locations are isolated pockets of contamination unlikely to warrant regulatory attention or further assessment.

Groundwater analytical results indicate detectable concentrations of benzene, ethylbenzene, MTBE, naphthalene, toluene and total xylenes from two boring locations, SB-2 and SB-14. However, only the concentration of benzene (30 µg/L) in SB-14 was reported at concentrations above the applicable DOEE Groundwater Protection and Quality Standard (5 µg/L). The Subject Property and the surrounding area are serviced by DC Water, the local municipal water utility; groundwater is not utilized as a source of drinking water. In addition, the groundwater at the Subject Property is located at a depth not likely to be encountered by visitors to the Subject Property. However, a LUST case (LUST #2015005) was previously open in association with the former gasoline service station where the current Rite Aid facility is located. Additional assessment may be warranted in association with this facility.

Groundwater analytical results also indicate detectable concentrations of TPH-DRO in soil borings SB-2, and SB-7 through SB-14 and detections of TPH-GRO in soil boring SB-14. In no instances are concentrations of TPH-DRO or TPH-GRO in groundwater above applicable regulatory standards, therefore additional assessment is not considered to be warranted.

5.0 RECOMMENDATIONS

The following discussion summarizes the recommendations of the Phase II ESA at Oxon Run.

Based on elevated concentrations of TPH in soil and groundwater and benzene in groundwater, Tetra Tech recommends this information should be submitted to the DOEE Underground Storage Tank Branch. A review of the existing and former fueling stations located adjacent and to the northeast of the Subject Property, and review of the Subject Property data should be evaluated to determine if a LUST case should be opened.

This report was prepared with the understanding that the proposed future use of the Subject Property is for redevelopment into a solar farm and/or park. In the event the Subject Property is developed as a solar farm, Tetra Tech recommends that any soils disturbed or excavated as part of the construction be properly characterized and disposed of in accordance with applicable regulations. In addition, Tetra Tech recommends that during the removal of the concrete pads, the soil in the vicinity of borings SB-3, SB-4, and SB-6 also be removed to a depth of approximately two feet (based on analytical data) and disposed of offsite in accordance with applicable regulations.

In this Phase II ESA, VOC and TPH concentrations were detected in groundwater samples collected from the Subject Property. Retail gasoline stations were also noted to be in close proximity of the Subject Property. Therefore, vapor intrusion potential should be assessed in the event structures are constructed on the Subject Property in the future.

6.0 REFERENCES

District Department of Energy and Environment (DOEE), Toxic Substances Division, Underground Storage Tanks Branch. 2011. *District of Columbia Risk-Based Corrective Action Technical Guidance (Risk-Based Decision Making)*. Washington, D.C. June.

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Environmental Consultants and Contractors. 2014. *Phase II Environmental Site Assessment, BrightFarms Greenhouse Lease Area, 0 South Capitol Street, SW, Washington, D.C. 20032, ECC Project Number 14-11603*. Chantilly, Virginia. August 22.

Maryland Department of the Environment. 2008. Cleanup Standards for Soil and Groundwater, Interim Final Guidance. June.

U.S. Environmental Protection Agency (EPA). 2017. Regional Screening Levels for Chemical Contaminants at Superfund Sites. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2017 [Accessed January 29]

ATTACHMENT 1
FIGURES

Legend

- Soil Boring Location
- Existing Concrete Pads
- Site Boundary
- Stream

N W E S

0 75 150 300 450 Feet

Figure 1
Soil Boring Location Plan

4669 South Capitol Street, SW,
Washington, DC 20032

TETRA TECH

ATTACHMENT 2
ANALYTICAL SUMMARY TABLES

Table A-1: Soil Sample Analytical Results - Pesticides, Herbicides, BTEX, Naphthalene, and MTBE
Oxon Run
4669 South Capitol Street, SW
Washington, DC

Boring ID	Sample ID	Sample Depth (bgs)	Boring Location	Pesticides by EPA Method 8081B (mg/kg)						Herbicides by EPA Method 8150A (mg/kg)	VOCs by EPA Method 8260C (mg/kg)			
				4,4-DDD	4,4-DDE	4,4-DDT	alpha-Chlordane	gamma-Chlordane	Endrin	Varies	Ethylbenzene	Naphthalene	Toluene	Xylenes, Total
SB-1	SB-1-(0-2)	2 feet	Northeast corner of Subject Property, adjacent to offsite gas station.	**0.00074 J**	**0.00063 J**	U (0.00073)	U (0.00048)	U (0.00045)	U (0.00075)	ND	U (0.022)	U (0.033)	U (0.017)	U (0.044)
SB-1	SB-1-(17-18)	18 feet		NA	ND	ND	ND	ND	ND	ND	U (0.024)	U (0.036)	U (0.019)	U (0.047)
SB-2	SB-2-(0-2)	2 feet	Northeast corner of Subject Property, south of access road, east of northern concrete pad.	U (0.0052)	U (0.0039)	U (0.0073)	U (0.0048)	U (0.0045)	U (0.0075)	ND	U (0.022)	U (0.034)	U (0.018)	U (0.045)
SB-2	SB-2-(14-15)	15 feet		NA	NA	NA	NA	NA	NA	ND	U (0.020)	U (0.031)	U (0.016)	U (0.041)
SB-3	SB-3-(0-2)	2 feet	Eastern edge of Subject Property, north of central concrete pad.	**0.012 J**	**0.017 J**	U (0.014)	U (0.0094)	U (0.0088)	U (0.015)	ND	U (0.021)	U (0.032)	U (0.017)	U (0.043)
SB-3	SB-3-(19-20)	20 feet		NA	NA	NA	NA	NA	NA	ND	U (0.026)	U (0.039)	U (0.020)	U (0.052)
SB-4	SB-4-(0-2)	2 feet	Eastern edge of Subject Property, south of central concrete pad, north of southern concrete pad.	U (0.012)	U (0.0088)	U (0.016)	U (0.011)	U (0.010)	U (0.017)	ND	U (0.027)	U (0.041)	U (0.021)	U (0055)
SB-4	SB-4-(14-15)	15 feet		NA	ND	ND	ND	ND	ND	ND	U (0.030)	U (0.045)	U (0023)	U (0.059)
SB-5	SB-5-(0-2)	2 feet	Eastern edge of Subject Property, south of central concrete pad, adjacent to access road.	**0.024 J**	**0.021 J**	U (0.016)	U (0.010	U (0.0097)	U (0.016)	ND	U (0.027)	U (0.041)	U (0.021)	U (0.054)
SB-5	SB-5-(9-10)	10 feet		NA	NA	NA	NA	NA	NA	ND	U (0.024)	U (0.036)	U (0.019)	U (0.048)
SB-6	SB-6-(0-2)	2 feet	Center of Subject Property, West of access road.	**0.018**	**0.021**	U (0.00073)	**0.0061**	**0.0065**	**0.0053**	ND	U (0.021)	U (0.032)	U (0.016)	U (0.042)
SB-6	SB-DUP-2	2 feet		U (0.011)	U (0.008)	U (0.015)	U (0.0098)	U (0.0091)	U (0.015)	ND	U (0.023)	U (0.035)	U (0.018)	U (0.046)
SB-6	SB-6-(27-28)	28 feet		NA	NA	NA	NA	NA	NA	ND	U (0.020)	U (0.030)	U (0.015)	U (0.039)
SB-7	SB-7-(0-2)	2 feet	Southern portion of Subject Property, north of southern concrete pad.	**0.037**	**0.033**	**0.020**	U (0.00049)	U (0.00045)	U (0.00076)	ND	U (0.025)	U (0.037)	U (0.019)	U (0.049)
SB-7	SB-7-(17-18)	18 feet		NA	NA	NA	NA	NA	NA	ND	U (0.022)	U (0.033)	U (0.017)	U (0.044)
SB-8	SB-8-(0-2)	2 feet	Southern portion of Subject Property, south of southern concrete pad.	U (0.00051)	U (0.00039)	U (0.00072)	U (0.00048)	U (0.00044)	U (0.00074)	ND	U (0.021)	U (0.031)	U (0.016)	U (0.041)
SB-8	SB-8-(16-17)	17 feet		NA	NA	NA	NA	NA	NA	ND	U (0.023)	U (0.034)	U (0.018)	U (0.046)
SB-9	SB-9-(0-2)	2 feet	Western portion of Subject Property, west of Oxon Run, south of 1st Street SW.	U (0.00050)	U (0.00038)	U (0.00070)	U (0.00046)	U (0.00043)	U (0.00072)	ND	U (0.021)	U (0.032)	U (0.017)	U (0.042)
SB-9	SB-9-(4-5)	5 feet		NA	NA	NA	NA	NA	NA	ND	U (0.022)	U (0.033)	U (0.017)	U (0.044)
SB-10	SB-10-(0-2)	2 feet	Western portion of Subject Property, west of Oxon Run, east of 1st Street SW.	U (0.00051)	U (0.00038)	U (0.00072)	U (0.00047)	U (0.00044)	U (0.00073)	ND	U (0.022)	U (0.034)	U (0.018)	U (0.045)
SB-10	SB-10-(8-9)	9 feet		NA	NA	NA	NA	NA	NA	ND	U (0.025)	U (0.038)	U (0.020)	U (0.050)
SB-11	SB-11-(0-2)	2 feet	Western portion of Subject Property, west of Oxon Run, east of intersection of 1st Street SW and Joliet Street.	U (0.00052)	U (0.00039)	U (0.00073)	U (0.00048)	U (0.00045)	U (0.00075)	ND	U (0.022)	U (0.033)	U (0.017)	U (0.044)
SB-11	SB-DUP-1	2 feet		U (0.00050)	U (0.00038)	U (0.00071)	U (0.00047)	U (0.00043)	U (0.00072)	ND	U (0.021)	U (0.032)	U (0.017)	U (0.042)
SB-11	SB-11-(4-5)	5 feet		NA	NA	NA	NA	NA	NA	ND	U (0.024)	U (0.036)	U (0.019)	U (0.048)
SB-12	SB-12-(0-2)	2 feet	Northwest corner of Subject property, west of Oxon Run.	U (0.00055)	**0.005**	**0.0014 J**	U (0.00052)	U (0.00048)	U (0.00080)	ND	U (0.025)	U (0.038)	U (0.020)	U (0.051)
SB-12	SB-12-(7-8)	8 feet		NA	NA	NA	NA	NA	NA	ND	U (0.023)	U (0.035)	U (0.018)	U (0.047)
SB-13	SB-13-(0-2)	2 feet	Northern portion of Subject property, east of Oxon Run.	**0.0065**	**0.0040**	**0.052**	U (0.00050)	U (0.00047)	U (0.00078)	ND	U (0.024) H	U (0.036) H	U (0.019) H	U (0.048) H
SB-13	SB-13-(16-17)	17 feet		NA	NA	NA	NA	NA	NA	ND	U (0.025) H	U (0.038) H	U (0.020) H	U (0.050) H
SB-14	SB-14-(0-2)	2 feet	Northern portion of Subject property, east of Oxon Run, adjacent to Rite Aid.	**0.0054**	**0.0013 J**	U (0.00077)	**0.0015 J**	**0.0021**	U (0.00079)	ND	U (0.024) H	U (0.036) H	U (0.019) H	U (0.048) H
SB-14	SB-14-(16-17)	17 feet		NA	NA	NA	NA	NA	NA	ND	**0.450 H**	**1.400 H**	**0.880 H**	**0.480 J,H**
EPA Residential Soil RSL*				**1.9**	**2.0**	**1.9**	**NS**	**NS**	**19**	**NS**	**5.8**	**3.8**	**4,900**	**580**
EPA Industrial Soil RSL*				**9.6**	**9.3**	**3.6**	**NS**	**NS**	**250**	**NS**	**25**	**17**	**47,000**	**2.5**
DOEE Tier 0 Standard*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**0.040**	**NS**	**9.6**	**3.86**
DOEE RBSLs for a Residential Child*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**78.6**	**469**	**6,230**	**10,500**
DOEE RBSLs for Residential Adult*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**176**	**262**	**58,000**	**76,800**
DOEE RBSLs for a Commercial Worker*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**232**	**322**	**81,100**	**98,200**

Only detected analytes are presented

Notes:

Bold results indicate the concentration reported was above laboratory Method Detection Limits.

Shaded results indicate the concentration reported was at or above regulatory limits.

DOEE - Department of Energy & Environment

EPA - United States Environmental Protection Agency

J - Estimated Concentration

H - Sample was prepared or analyzed beyond the specified holding time

mg/kg - Milligram per kilogram

NA - Not applicable because sample not analyzed

ND - Non Detect

NS - No Standard

RBSL - Risk-Based Screening Level

RSL - Regional Screening Level

* Regulatory Values obtained from the DOEE Toxic Substances Division Underground Storage Tank Branch, *District of Columbia Risk-Based Corrective Action Technical Guidance (Risk-Based Decision Making) Tier 0 Soil Screening Levels; Tables 5-8 and 5-9, RBSLs for a Residential Child and Adult, and Table 5-10, RBSLs for a Commercial Worker, Surficial Soil Ingestion, Inhalation (Vapor Emissions and Particulates), and Dermal Contact* dated June 2011; and the EPA RSL for Residential Soil, dated November 2017.

U - Analyte was not detected above the laboratory Method Detection Limits

VOC - Volatile Organic Compound

Table A-2: Soil Sample Analytical Results - Metals, TPH-DRO, and TPH-GRO
Oxon Run
4669 South Capitol Street, SW
Washington, DC

Boring ID	Sample ID	Sample Depth (bgs)	Boring Location	Metals by EPA Method 6020A/7471B (mg/kg)													TPH by EPA Method 8015D (mg/kg)	
				Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Nickel	Selenium	Silver	Thallium	Zinc	Mercury	Diesel Range Organics [C10 - C28]	Gasoline Range Organics [C6 - C10]
SB-1	SB-1-(0-2)	2 feet	Northeast corner of Subject Property, adjacent to offsite gas station.	**0.10 J**	**5.4**	**2.3**	**0.15**	**13**	**31**	**12**	**44**	**7.1**	**0.055 J**	**0.17**	**73**	**0.0095 J**	**43**	U (0.076)
SB-1	SB-1-(17-18)	18 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**65**	**0.099 J**
SB-2	SB-2-(0-2)	2 feet	Northeast corner of Subject Property, south of access road, east of northern concrete pad.	**0.52**	**4.4**	**0.31**	**0.24**	**23**	**28**	**91**	**51**	**0.77**	**0.47**	**0.089 J**	**110**	**0.45**	**9.8 J**	U (0.074)
SB-2	SB-2-(14-15)	15 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**340**	**0.083 J**
SB-3	SB-3-(0-2)	2 feet	Eastern edge of Subject Property, north of central concrete pad.	**0.49**	**6.7**	**0.76**	**0.38**	**24**	**21**	**67**	**30**	**0.97**	**0.38**	**0.082 J**	**72**	**0.16**	**350**	U (0.074)
SB-3	SB-3-(19-20)	20 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**270**	U (0.078)
SB-4	SB-4-(0-2)	2 feet	Eastern edge of Subject Property, south of central concrete pad, north of southern concrete pad.	**0.31 F1**	**5.2 F1**	**0.51**	**0.076 J**	**18 F1/F2**	**18 F1/F2**	**96 F2**	**11 F1/F2**	**1.1 F1**	**0.071 J**	**0.15**	**58 F1**	**0.35 F1**	**98**	U (0.083)
SB-4	SB-4-(14-15)	15 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**420**	U (0.091)
SB-5	SB-5-(0-2)	2 feet	Eastern edge of Subject Property, south of central concrete pad, adjacent to access road.	**0.38**	**1.8**	**0.26**	**0.18**	**31**	**23**	**52**	**91**	**0.43 J**	**0.17**	**0.055 J**	**40**	**0.13**	**23**	U (0.081)
SB-5	SB-5-(9-10)	10 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,000**	U (0.076)
SB-6	SB-6-(0-2)	2 feet	Center of Subject Property, West of access road.	**2.6**	**6.4**	**0.40**	**0.53**	**20**	**130**	**270**	**20**	**0.88**	**3.0**	**0.10 J**	**210**	**1.3**	**62**	U (0.073)
SB-6	SB-DUP-2	2 feet		**0.15 J**	**1.7**	**0.12**	**0.076 J**	**47**	**12**	**13**	**200**	**0.23 J**	**0.070 J**	**0.023 J**	**16**	**0.10**	**99**	U (0.076)
SB-6	SB-6-(27-28)	28 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**21**	U (0.068)
SB-7	SB-7-(0-2)	2 feet	Southern portion of Subject Property, north of southern concrete pad.	**0.19 J**	**3.3**	**0.54**	**0.067 J**	**9.8**	**10**	**27**	**7.2**	**0.79**	**0.030 J**	**0.11 J**	**32**	**1.5**	**80**	U (0.077)
SB-7	SB-7-(17-18)	18 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**20**	U (0.073)
SB-8	SB-8-(0-2)	2 feet	Southern portion of Subject Property, south of southern concrete pad.	**0.12 J**	**2.2**	**0.23**	**0.042 J**	**51**	**19**	**11**	**170**	**0.36 J**	**0.029 J**	**0.050 J**	**17**	**0.035**	**33**	U (0.074)
SB-8	SB-8-(16-17)	17 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**62**	U (0.073)
SB-9	SB-9-(0-2)	2 feet	Western portion of Subject Property, west of Oxon Run, south of 1st Street SW.	**0.15 J**	**2.0**	**0.46**	**0.12**	**11**	**14**	**19**	**3.7**	**0.82**	**0.059 J**	**0.050 J**	**15**	**0.034 J**	**12 J**	U (0.074)
SB-9	SB-9-(4-5)	5 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U (8.0)	U (0.069)
SB-10	SB-10-(0-2)	2 feet	Western portion of Subject Property, west of Oxon Run, east of 1st Street SW.	**0.18 J B**	**3 B**	**0.35 F1**	**0.040 J**	**14 B F1**	**9.3**	**9.2**	**3.8**	**0.47 J**	**0.023 J**	**0.062 J**	**16**	**0.016 J**	**11 J**	U (0.073)
SB-10	SB-10-(8-9)	9 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U (8.6)	U (0.072)
SB-11	SB-11-(0-2)	2 feet	Western portion of Subject Property, west of Oxon Run, east of intersection of 1st Street SW and Joliet Street.	**0.12 J**	**3.1**	**0.50**	**0.030 J**	**10**	**6.6**	**12**	**4.7**	**1.1**	**0.042 J**	**0.12**	**16**	**0.070**	**24**	U (0.075)
SB-11	SB-DUP-1	2 feet		**0.15 J**	**3.5**	**0.53**	**0.035 J**	**12**	**7.7**	**13**	**5.8**	**1.2**	**0.035 J**	**0.15**	**19**	**0.079**	**17 J**	U (0.073)
SB-11	SB-11-(4-5)	5 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U (8.2)	U (0.070)
SB-12	SB-12-(0-2)	2 feet	Northwest corner of Subject property, west of Oxon Run.	**0.33**	**3.3**	**0.38**	**0.24**	**12**	**14**	**67**	**7.7**	**0.84**	**0.20**	**0.094 J**	**37**	**0.089**	**30**	U (0.081)
SB-12	SB-12-(7-8)	8 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U (8.9)	U (0.075)
SB-13	SB-13-(0-2)	2 feet	Northern portion of Subject property, east of Oxon Run.	**0.32**	**6.2**	**0.78**	**0.065 J**	**14**	**17**	**22**	**15**	**1.3**	**0.039 J**	**0.14**	**48**	**0.027 J**	**15**	U (0.078)
SB-13	SB-13-(16-17)	17 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**280 F1/F2**	U (0.082)
SB-14	SB-14-(0-2)	2 feet	Northern portion of Subject property, east of Oxon Run, adjacent to Rite Aid.	**0.31**	**3.9**	**0.65**	**0.16**	**20**	**22**	**45**	**10**	**1.1**	**0.99**	**0.15**	**53**	**0.20**	**12 J**	**0.230**
SB-14	SB-14-(16-17)	17 feet		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**120**	**1,000**
EPA Residential Soil RSL*				**31**	**0.68**	**160**	**71**	**NS***	**3,100**	**400**	**NS**	**390**	**390**	**NS**	**23,000**	**11**	**96**	**110**
EPA Industrial Soil RSL*				**470**	**3**	**2,300**	**980**	**NS***	**47,000**	**800**	**NS**	**5,800**	**5,800**	**NS**	**350,000**	**46**	**440**	**600**
DOEE Tier 0 Standard*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**100**	**100**
DOEE RBSLs for a Residential Child*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**230,000**	**465,000**
DOEE RBSLs for Residential Adult*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**1,860,000**	**4,080,000**
DOEE RBSLs for a Commercial Worker*				**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**2,020,000**	**5,560,000**

Only detected analytes are presented

Notes:

Bold results indicate the concentration reported was above laboratory Method Detection Limits.

Shaded results indicate the concentration reported was at or above regulatory limits.

B - Compound was found in the blank and sample

bgs - below ground surface

DOEE - Department of Energy & Environment

EPA - United States Environmental Protection Agency

F1 - MS and/or MSD Recovery is outside acceptance limits

F2 - MS/MSD RPD exceeds control limits

J - Estimated Concentration

NA - Not applicable because sample not analyzed for metals.

ND - Non Detect

NS - No Standard

mg/kg - Milligram per kilogram

RBSL - Risk-Based Screening Level

RSL - Regional Screening Level

* Regulatory Values obtained from the DOEE Toxic Substances Division Underground Storage Tank Branch, *District of Columbia Risk-Based Corrective Action Technical Guidance (Risk-Based Decision Making) Tables 5-8 and 5-9, RBSLs for a Residential Child and Adult, and Table 5-10, RBSLs for a Commercial Worker* , dated June 2011 and the EPA RSL for Residential Soil, Surficial Soil Ingestion, Inhalation (Vapor Emissions and Particulates), and Dermal Contact, dated November 2017. TPH regulatory values additionally obtained from DOEE Toxic Substances Division Underground Storage Tank Branch, District of Columbia Risk-Based Corrective Action Technical Guidance (Risk-Based Decision Making), Tier 0 Soil Screening Levels.

TPH - Total Petroleum Hydrocarbon

U - Analyte was not detected above the Method Detection Limit

VOC - Volatile Organic Compound

Table A-3: Groundwater Sample Analytical Results - BTEX, Naphthalene, MTBE, TPH-DRO, and TPH-GRO
Oxon Run
4669 South Capitol Street, SW
Washington, DC

Boring ID	Sample ID	Boring Location	VOCs by EPA Method 8260C (µg/L)								TPH by EPA Method 8015C (µg/L)	
			Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	m-Xylene & p-Xylene	o-Xylene	Xylenes, total	Diesel Range Organics [C10 - C28]	Gasoline Range Organics [C6 - C10]
SB-2	SB-2-W	Northeast corner of Subject Property, south of access road, east of northern concrete pad.	U (0.60)	U (0.51)	**1.0**	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**2,800**	U (49)
SB-7	SB-7-W	Southern portion of Subject Property, north of southern concrete pad.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**1,200**	U (49)
SB-8	SB-8-W	Southern portion of Subject Property, south of southern concrete pad.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**1,600**	U (49)
SB-9	SB-9-W	Western portion of Subject Property, west of Oxon Run, south of 1st Street SW.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**520**	U (49)
SB-10	SB-10-W	Western portion of Subject Property, west of Oxon Run, east of 1st Street SW.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**580**	U (49)
SB-11	SB-11-W	Western portion of Subject Property, west of Oxon Run, east of intersection of 1st Street SW and Joliet Street.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**700**	U (49)
SB-12	SB-12-W	Northwest corner of Subject property, west of Oxon Run.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**390 J**	U (49)
SB-12	SB-DUP-W		U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**540**	U (49)
SB-13	SB-13-W	Northern portion of Subject property, east of Oxon Run.	U (0.60)	U (0.51)	U (0.59)	U (0.79)	U (0.46)	U (0.48)	U (0.41)	U (0.89)	**7,200**	U (49)
SB-14	SB-14-W	Northern portion of Subject property, east of Oxon Run, adjacent to Rite Aid.	**30**	**550**	**16 J**	**90**	U (11)	**600**	U (10)	**600**	**21,000**	**21,000**
District of Columbia Groundwater Protection and Quality Standards*			**5**	**700**	**20**	**NS**	**11,000**	**NS**	**NS**	**10,000**	**NS**	**NS**
DOEE RBSLs for Residential Child*			**591,000**	**1.81^{e+6}**	**1.42^{e+8}**	**1.69^{e+6}**	**1.97^{e+9}**	**NS**	**NS**	**4.49^{e+7}**	**5.43^{e+8}**	**8.54^{e+7}**
DOEE RBSLs for Residential Adult*			**148,000**	**453,000**	**3.55^{e+7}**	**424,000**	**1.97^{e+9}**	**NS**	**NS**	**4.49^{e+7}**	**5.43^{e+8}**	**8.54^{e+7}**
DOEE RBSLs for Commercial Worker*			**199,000**	**608,000**	**4.77^{e+7}**	**569,000**	**2.76^{e+9}**	**NS**	**NS**	**6.28^{e+7}**	**7.60^{E+8}**	**1.20^{E+8}**

Only detected analytes are presented

Notes:
Bold results indicate the concentration reported was above laboratory Method Detection Limits.
Shaded results indicate the concentration reported was at or above regulatory limits.
DOEE - Department of Energy & Environment
MTBE - Methyl Tert Butyl Ether
ND - Non Detect
NS - No Standard
J - Estimated Concentration
* Regulatory Values obtained from the DOEE Toxic Substances Division Underground Storage Tank Branch, District of Columbia Risk-Based Corrective Action Technical Guidance (Risk-Based Decision Making) Tables 5-8 and 5-9, Risk-Based Screening Levels for a Residential Child and Adult: Domestic use of Water, and Table 5-10, Risk-Based Screening Levels for a Commercial Worker: Indoor Air Inhalation, dated June 2011 and District of Columbia Groundwater Protection and Quality Standards for Class G1 groundwater, dated July 3, 1993.
RBSL - Risk-Based Screening Level
TPH - Total Petroleum Hydrocarbon
µg/L - Micrograms per Liter
U - Analyte was not detected above the Method Detection Limit
VOC - Volatile Organic Compound

ATTACHMENT 3
LABORATORY ANALYTICAL RESULTS

Laboratory Results Not Included