SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

Alexandria Waterfront Implementation Project
ALEXANDRIA, VIRGINIA

Prepared for:
City of Alexandria

Prepared by:

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1.0 INTRODUCTION AND PURPOSE

This Supplemental Phase II Environmental Site Assessment has been prepared by Johnson, Mirmiran and Thompson (JMT) at the request of the City of Alexandria in accordance with Exhibit 2.1.1(A), Scope of Phase 1A Services for the Alexandria Waterfront Implementation Project (hereafter referred to as *the project*), Article 2, Section D, Item 2.

The objective of this supplemental investigation was to provide further characterization of soils and groundwater underlying *the project* in areas not addressed in the previous Phase I and Phase II ESA investigations conducted by Roux Associates in 2022. Additionally, as installation of underground stormwater detention chambers were originally proposed for Waterfront Park portion of the project area, soil cores were proposed; subsequent design changes removed the subsurface detention chambers, and a pump station extending to an approximate depth of 31 feet below ground surface (bgs) was designed. Five soil cores (one converted to a groundwater well) were proposed in the pump station area to collect soil and water samples which were to be composited and analyzed for a proper waste disposal characterization in accordance with Virginia Administrative Code (9VAC20-81 – Solid Waste Management Regulations, and 9VAC20-60 –Virginia Hazardous Waste Regulations).

2.0 BACKGROUND

The project area is approximately 25 acres in size. It consists of several waterfront properties along the Potomac River in Alexandria, Virginia, a city with a population of approximately 155,000 residents. See Figures 1 and 2 for the project area.

The Alexandria Waterfront has historically been a primarily industrial area of Alexandria, Virginia. It was converted to commercial and residential usage in recent years. According to the Phase I ESA (Roux Associates, 2022), activities in the waterfront area consisted of coal storage, agricultural chemical warehouses, iron foundries and munitions manufacturing. As the waterfront was historically a low-lying area along the Potomac River, fill material from unknown sources was likely imported to create land suitable for construction and development.

A Phase II ESA (Roux Associates, 2022) provided a preliminary environmental field investigation designed to determine if contaminants are present in soils, groundwater, sediments and/or surface water within the project area. Eleven (11) soil borings were advanced to depths between 10 and 30 feet. Of these, four soil borings (BH-04, GI-10, GI-11, PS-02P) showed evidence of contamination from field screening observations. Multiple semi-volatile organic compounds (SVOCs) were detected above Virginia Tier II Residential Soil Screening Levels (SSLs). All 11 soil samples detected naphthalene above Tier II Residential SSLs. Multiple soil borings had

concentrations of metals, including Aluminum, Antimony, Arsenic, Cadmium, and Copper, Mercury, Silver, Vanadium, and Selenium, above Tier II Residential SSLs, and all 11 soil samples had detections of Iron, Cobalt, and Manganese above Tier II Residential SSLs. Soil sample BH-04 (9-9.5 ft.) detected pesticides (Delta-BHX) in concentrations above the Tier II Residential SSL.

Five (5) soil borings (GI-13P, GI-15P, PS-02P, PS-04AP, and PS-04P) were converted to groundwater monitoring wells within the project rea. Groundwater was sampled for volatile organic compounds (VOCs), SVOCs, Target Analyte List (TAL) metals, dissolved metals and pesticides. Several TAL and dissolved metals (aluminum, arsenic, cobalt, iron, lead, and manganese) were detected above Tier II Residential Groundwater Screening Levels (GWSLs) and/or Tier III Direct Contact Construction Worker GWSLs throughout the project area. SVOCs, and VOCs were detected below applicable standards, and no pesticides were detected.

Sediment samples were analyzed for metals, PCBs, pesticides and SVOCs and VOCs. Multiple sediment samples had exceedances for Antimony, Arsenic, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Nickle Selenium, Silver and Zinc. Only one sediment sample (BH-10) returned concentrations of PCBs (PCB-1254 and 1260) above Region 3 Screening values. Pesticides were detected above USEPA Region 3 Screening Values and include Beta BHC (sample BH-10), Gamma-BHC (Sample (BH-3 and BH-12) and P, p'-DDE (BH-12). Multiple sediment samples had concentrations of SVOCs including 2-Methylnaphthalene, 4-Methylphenol, Anthracene, Benzo[a]anthracene, Benzo[a]pyrene, Benzo[a]fluoranthene, Benzo[g,h,i]perylene, Bis(2-ethylhexyl) phthalate, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, and Pyrene above USEPA Region 3 Screening Values . All six sediment samples had detections of Acenaphthene, Acenaphthylene, Benzo[b]fluoranthene, and Indeno [1,2,3-cd]pyrene above USEPA Region 3 Screening Values.

Surface water samples were analyzed for total metals, dissolved metals SVOCs, Pesticides and VOCs. All six surface water samples displayed detections of total metals including Aluminum, Barium, and Iron above USEPA Region 3 Screening Values. Additionally, all six surface water samples detected dissolved Barium above Region 3 Screening Values. One sample (BH-16) had concentrations of two SVOC analytes (2-Methylnaphthalene and Naphthalene) above USEPA Region 3 Screening Values. Only one surface water sample returned a detection of toluene above Region 3 Screening Values. Pesticides were detected below applicable standards in all surface water samples.

An extensive review of all contaminant concentrations is included in the prior Phase II ESA (Roux Associates, 2022). Findings indicated that a supplemental Phase II ESA should take place to provide further characterization of the project area and assess specific areas of the property for the presence of hazardous materials.

3.0 2024 PHASE II ESA INVESTIGATION ACTIVITIES

3.1 Soil Boring Installation and Sampling

Garland H. Moore III, CPG of JMT and its drilling subcontractor (DMY) mobilized a Geoprobe Direct Push Rig to the project area to collect soil samples at various depths at 24 locations distributed across the project area as shown on Figure 2. Table 1 (see next page) lists the sample locations, planned/achieved boring depth, sample depth, rationale, and comments. Soils were logged and described using the Unified Soil Classification System (USCS). See Appendix A for soil boring logs.

TABLE 1: PHASE II ESA DRILLING/SAMPLING LOCATIONS AND RATIONALE				
BORING/ WELL ID	**DRILLING LOCATION**	**PLANNED BORING DEPTH (FT)**	**ACHIEVED BORING DEPTH (FT)**	**RATIONALE, SAMPLE DEPTH, COMMENTS**
P-5/MW-2	King Street Park	11	15	Site Characterization, 8-10 ft
P-8	Union Street	5.5	2.5	Site Characterization, refusal at 2.5 ft., not sampled
P-9	Union Street	5.5	10	Site Characterization, 4-6 ft
P-10	Thompson Street	5.5	10	Site Characterization, 3-5 ft
P-12	Cameron Street	5.5	10	Site Characterization, 4-6 ft
P-13	Cameron Street	5.5	10	Site Characterization, 3-5 ft
P-14	King Street	5.5	10	Site Characterization, 3-5 ft
P-15	King Street	5.5	10	Site Characterization, 4-6 ft
P-16	King Street	13	15	Site Characterization, 4-6 ft
P-17	Strand Street	13	15	Site Characterization, 4-7 ft
P-18	Strand Street	5.5	10	Site Characterization, 3-5 ft
P-19*	Waterfront Park	31	15	Hazardous Waste Characterization, Composite (0-15 ft)
P-20*	Waterfront Park	31	35	Hazardous Waste Characterization, Composite (0-30 ft)
P-21*	Waterfront Park	31	35	Hazardous Waste Characterization, Composite (0-30 ft)
P-22*	Waterfront Park	31	Not achieved	No recovery, not sampled
P-23/MW-1*	Waterfront Park	31	35	Hazardous Waste Characterization, 3.5 ft (VOCs only), Composite (0-30 ft)
P-24	Prince Street	5.5	10	No recovery, not sampled
P-25	Prince Street	5.5	10	Site Characterization, 5 ft (Metals only)
P-26	Prince Street	5.5	10	Site Characterization, 5-7 ft
P-27	Strand Street	5.5	10	Site Characterization, 4-6 ft
P-28	Bequest Garden	11	10	Site Characterization, 4-6 ft (Metals only)
P-29	Duke Street	5.5	10	Site Characterization, 6 ft (Metals, Pesticides, PCBs, SVOCs only)
P-30	Duke Street	5.5	10	Site Characterization, 4-6 ft
P-31	Duke Street	5.5	10	No recovery, not sampled

Note:

1. * P-19 through P-23 in Waterfront Park were located based on the proposed location of a pump station in Waterfront Park; accordingly, each boring was composited into a single sample (Composite 1) for waste characterization.
2. See Section 3.6 regarding planned borings P-1 through P-4, P-6, P-7, P-11.

Samples were collected from either observed impacts of suspected contamination or, in the absence of observed impacts, from the vadose zone immediately above the soil/water interface. Groundwater at the site was highly variable with depths ranging from 0.5 feet to 10 feet below grade.

The recovered soil cores for each location (four from the Waterfront Park area) were combined into a clean container and thoroughly mixed, after which a composite sample was collected (Composite 1).

After soil borings were completed at each location, boreholes were backfilled with soil recovered at the same location or bentonite grout for locations where all soils are retained for composite sampling. All boring locations in pavement were patched with asphalt prior to proceeding to the next probe location.

3.2 Monitoring Well Installation, Development, and Groundwater Sampling

Soil borings P-23 (located in the Waterfront Park area) and P-5 (located in King Street Park) were converted to groundwater monitoring wells (MW-1 and MW-2, respectively). They were over-drilled with 4-inch hollow stem augers to a minimum of 5 ft into the observed water table. Each well was constructed using a 10-foot length of 2-inch diameter, schedule-40 PVC factory-slotted well screen connected to a varying length of 2-inch diameter, schedule-40 PVC well riser pipe to the existing ground surface. The monitoring wells were installed with a locking well cap contained in an 8-inch steel, flush-mounted manhole cover. Number 3 sand filter pack was placed in the annular space of each well from the termination depth of the boring to approximately two feet above the well screen followed by approximately two feet of 3/8-inch bentonite pellets and neat cement grout to the ground surface. Refer to Appendix B for Monitoring Well Completion Logs.

The newly installed groundwater monitoring wells were gauged for the presence of free phase petroleum and developed by repeated surging/hand bailing of a minimum of 3-5 well volumes of water to remove fines from the well screen and encourage groundwater flow into the well. After development, the wells were allowed to settle for a minimum of 24 hours, after which groundwater elevations were gauged and groundwater samples were collected with a low flow peristaltic pump and polyethylene tubing for laboratory analysis. Groundwater in each well exhibited very turbid conditions, even after allowing the groundwater to settle out for multiple days.

3.3 Chemical Analytical Methods

Soil samples collected were analyzed for the following suite of analyses selected to generally characterize near surface soils and determine the potential for previously unidentified hazardous materials that will require special handling and disposal:

- Metals by Method SW6010D
- Pesticides by Method SW8081B
- Polychlorinated Biphenyls (PCBs) by Method SW8082A
- SVOCs by Method 8270E

- VOCs by Method 8260D
- Total Petroleum Hydrocarbons (TPH) - Diesel Range Organics (DRO) by Method 8015
- TPH – Gasoline Range Organics (GRO) by Method 8015
- TCLP analyses were completed as necessary for metals that may exceed the TCLP regulatory level in accordance with screening "Rule of 20"

The composite soil sample (Composite 1) collected from the Waterfront Park area near the proposed underground stormwater detention chamber locations was analyzed for the above methods and the following additional parameters selected to determine if the excavated material falls into the hazardous category, thus requires special handling procedures and disposal facilities. The additional parameters are as follows:

- Reactivity, Ignitability, Corrosivity (RIC) by various methods
- Selenium, Vanadium, Thallium, Zinc by Method 6010-D
- Cyanide (Total and Reactive) by Method 9021B
- Sulfides (Reactive) by Method 9215
- TPH – Oil Range Organics (ORO) by Method 8015
- Total Organic Carbon (TOC) by Method 9060A
- Toxicity Characteristic Leaching Procedure (TCLP) by various methods

Groundwater samples were analyzed for the following parameters:

- Metals by Method SW6010D
- Pesticides by Method SW8081B
- PCBs by Method SW8081A
- SVOCs by Method 8270E
- VOCs by Method 8260D
- TPH – DRO by Method 8015
- TPH – GRO by Method 8015

3.4 DATA QUALITY

DMY decontaminated drilling equipment before and between each borehole. Personnel utilized industry-standard decontamination of equipment procedures as required and clean sample gloves for each sample to prevent cross contamination. The collected samples were placed in clean, labeled laboratory-supplied sample containers appropriate for the individual analyses and maintained on ice in sample coolers pending transport to Enthalpy Analytical, Richmond, VA for analysis. Enthalpy Analytical is an Environmental Laboratory Approval Program (ELAP) certified lab and is approved for performing all analyses and procedures in Virginia. The selected laboratory performed all analyses in accordance with accepted EPA SW-846 methods.

It should be noted that the groundwater detection limits for dissolved metals samples (beryllium, cobalt, vanadium, and mercury) were higher-than or equal-to the VADEQ Volunteer Remediation Program Tier II Residential Tap Water standards. These results are categorized as non-detections by the laboratory.

3.5 INVESTIGATION DERIVED WASTE

Drill cuttings from P-5 and P-23, monitoring well development and purged water, and PPE were containerized and carried offsite by the driller in labeled 55-gallon drums pending characterization of contents, manifesting and offsite transport and disposal. At the time of this report's draft issuance, the investigation derived waste remains with the driller pending disposal.

3.6 WORKPLAN DEVIATIONS

Several workplan deviations arose during the investigation and are described below.

- Due to poor drilling recovery and/or subsurface refusal, no samples could be collected in planned soil borings P-8, P-22, P-24, and P-31.
- Four locations (P-23, P-25, P-28, and P-29) had insufficient volume recovered to sample for all planned analytical parameters. After consultation with Skanska, JMT prioritized parameters as follows: RCRA Metals, PCBs/Pesticides, DRO/GRO, and VOCs based on volume recovered.
- Due to subsurface drilling refusal, three soil borings (P-19, P-20, and P-21) could not be advanced to planned depths within Waterfront Park in their original locations. These borings were relocated approximately 20 ft north to be successfully advanced, and samples collected.
- Soil borings P-1 through P-4, P-6 and P-7 were originally planned for Founder's Park. This area was subsequently removed from the work scope. In addition, P-11 was originally located on Cameron Street, east of P-12 in an area of brick pavers. After discussion with Skanska, this location was eliminated to avoid damage to the pavers.

4.0 RESULTS

The following subsections detail soil and groundwater conditions from the project area as observed through laboratory testing and visual observations. Laboratory reports are provided in Appendix C.

4.1 SOIL QUALITY

All soil sample results were compared to Virginia Voluntary Remediation Program (VRP) Tier II Residential SSLs and VRP Tier III Industrial SSLs. TPH DRO and GRO samples were compared to disposal criteria for Virginia 9VAC20-81-660 – Soil Contaminated with Petroleum Products. TCLP results are compared to EPA Title 40 Chapter I, Subchapter I, Part 261, Subpart C, Section 261.24, Table 1. The subsequent discussion is separated into constituent groups, except for Composite 1 which is presented last. Refer to Table 2 for analytical results in soil. See Figure 3 for a soil exceedance summary map.

VOCs

VOCs and TPH-GRO were detected in several samples, but no samples exceeded Tier II Residential or Tier III Industrial SSLs.

SVOCs

SVOCs were detected in most samples (P-5, P-9, P-10, P-12, P-13, P-14, P-15, P-16, P-17, P-18, P-26, P-27, P-30, and Composite 1). Exceedances for non-TPH analytes were only noted in P-30 (4-7 ft), where benzo(a)pyrene was detected at 4.89 mg/kg above the Tier II Residential SSL of 1.1 mg/kg. No Tier III Industrial SSLs were exceeded for non-TPH analytes.

Thirteen (13) soil samples (P-5, P-9, P-10, P-12, P-13, P-14, P-15, P-16, P-17, P-18, P26, P-27, and P-30) had TPH-DRO concentrations that exceeded Tier II Residential SSLs. Five of these samples (P-5, P-10, P-18, P-26, P-27) also exceeded Tier III Industrial SSLs.

Four (4) soil samples (P-5, P-10, P-26, P-27) also had TPH-DRO concentrations in the VA TPH Disposal Criteria Range of 50 mg/kg to 500 mg/kg, and one soil sample (P-18) had a concentration in the VA TPH Disposal Criteria Range greater than 500 mg/kg.

Metals

Arsenic exceeded the Tier II Residential SSL (3.5 mg/kg) in seven soil samples (P-5, P-10, P-16, P-18, P-27, P-29, and P-30) with results ranging from 3.51 to 8.91 mg/kg. Lead exceeded the Tier II Residential SSL (400 mg/kg) and Tier III Industrial SSL (800 mg/kg) in sample P-5 (8-10 ft) with a result of 3,600 mg/kg. No other soil samples exceeded Tier II Residential or Tier III Industrial SSLs for metals.

Samples P-5, P-10, P-18, and P-27 have lead concentrations greater than 100 ppm, which required TCLP analysis based on the screening "Rule of 20". This rule is used to equate a TAL analysis with a predicted TCLP results.

Total lead concentrations greater than 100 ppm can exceed the TCLP regulatory limit. As such, TCLP analyses were ordered on these samples to determine the waste classification. TCLP results indicated non-hazardous conditions.

Pesticides and PCBs

All soil samples analyzed for PCBs or pesticides displayed results below sample detection limits.

Composite 1

In addition to VOCs, SVOCs, metals, PCBs, and pesticides, the Composite 1 sample was also analyzed for hazardous waste characterization, which includes the analysis for three additional metals (vanadium, thallium, and zinc) as well as sulfides, TPH Oil, TOC, Reactivity, Ignitability, Corrosivity, and TCLP. No VOCs, PCBs, or pesticides were detected in the Composite 1 sample. All TCLP results were seen with results below sample detection limits and are considered non-detects by the lab. The composite sample was determined as non-corrosive, non-ignitable (>65 °C), and non-reactive. TPH DRO and ORO concentrations were seen in this sample within VA TPH Disposal Criteria Range of 50 mg/kg to 500 mg/kg with concentrations of 223 mg/kg and 148 mg/kg, respectively. Concentrations for TPH DRO and ORO also exceed VRP Tier II Industrial SSLs (44 mg/kg) and VRP Tier II Residential SSLs (9.6 mg/kg). Metals detections were identified for arsenic, barium, chromium, lead, and mercury, however, none exceeded Tier II Residential or Tier III Industrial SSLs.

4.2 GROUNDWATER QUALITY

Analytical results from groundwater samples MW-1 and MW-2 were compared to the VRP Residential Tapwater Tier II GWSLs, and VRP Direct Contact Construction Worker Groundwater Tier III GWSLs. Refer to Table 3 for a summary of groundwater analytical results and Figure 4 for a summary of groundwater quality exceedances.

The USGS 7.5 Minute Quadrangle Topographic Maps were reviewed to assess the location of the *project area* with respect to surface water features and to determine inferred groundwater flow. Based upon the topography in the project area vicinity and expected hydrologic conditions, inferred groundwater flow in subsurface materials is expected to generally travel in an eastward direction, towards the Potomac River.

MW-1

MW-1 represents groundwater within the Composite 1 location comprising soil borings P-19, P-20, P-21, P-22, and P-23.

- **VOCs**: MW-1 exceeded VRP Residential Tapwater Tier II GWSLs for three VOC constituents, including 1,2,4-trimethylbenzene with a concentration of 43.7 ug/L (GWSL: 5.6 ug/L), 1,3,5-trimethylbenzene with a concentration of 11.9 ug/L (GWSL: 6 ug/L), and naphthalene with a concentration of 8.45 ug/L (GWSL: 0.61 ug/L). There were no other VOC exceedances (including TPH-GRO) for this sample location.

- **SVOCs**: TPH-DRO was detected in MW-1 (7.06 ug/L) below the VRP Residential Tapwater Tier II GWSL of 10 ug/L and Tier III Direct Contact Construction Worker Groundwater SL of 22.79 ug/L. No SVOC exceedances were identified.

- **Metals**: VRP Residential Tapwater Tier II GWSLs for arsenic (10 ug/L) and iron (1,400 ug/L) were exceeded in MW-1 (14.8 ug/L and 1,580 ug/L, respectively). There were no exceedances of Tier III Direct Contact Construction Worker Groundwater for metals.

- **Pesticides and PCBs**: No pesticide or PCB detections were identified in MW-1.

MW-2

MW-2 represents groundwater at the P-5 soil boring location.

- **VOCs**: There were no exceedances for MW-2.

- **SVOCs**: TPH-DRO was detected in MW-2 (1.10 ug/L) below the VRP Residential Tapwater Tier II GWSL of 10 ug/L and Tier III Direct Contact Construction Worker GWSL of 22.79 ug/L. No SVOC exceedances were identified.

- **Metals**: MW-2 exceeded the VRP Residential Tapwater Tier II GWSL for iron with a concentration of 12,300 ug/L. There were no exceedances of Tier III Direct Contact Construction Worker GWSLs for metals.

- **Pesticides and PCBs**: No pesticide or PCB detections were identified in MW-2.

5.0 ADEQUACY OF INVESTIGATION

Phase II ESAs do not provide an exhaustive assessment of environmental conditions on a property or eliminate all uncertainty but are designed to meet an agreeable objective. For the purposes of this investigation, the objective was to further assess the environmental condition of the property as a supplement to the Phase II ESA completed by Roux Associates on July 19, 2022. Despite several workplan deviations described in Section 3.6,

the completed activities and test results provide an adequate assessment of the project area to fulfill the objective of this investigation.

6.0 CONCLUSIONS

Results generally indicate some degree of relatively low-level contamination in soil and groundwater for metals, SVOCs, and VOCs in the project area. Most exceedances were above Tier II levels, but below Tier III levels, with at least one notable exception. Lead from soil boring P-5 was detected at 4.5 times the Tier III Industrial SSL. However, TCLP analyses for lead from P-5, P-10, P-18, and P-27 soil borings indicated non-hazardous conditions. TPH concentrations indicate some level of petroleum impacted soil. Considerations for disposal of soils at the project area are discussed in Section 7.0.

Results for groundwater at monitoring wells MW-1 and MW-2 indicate low-level contamination for VOCs and metals. 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene and Naphthalene exceeded Tier II residential levels. Dissolved Arsenic and Iron exceeded Tier II residential levels. SVOCs, pesticides and PCBs were not detected in either monitoring well. Although several workplan deviations were necessary, they did not substantially impact the quality or objective of the investigation.

7.0 RECOMMENDATIONS

The following actions and considerations are recommended based on the results of this investigation:

- Development of a Health and Safety Plan (HASP) that includes steps to eliminate exposure to harmful contaminants detected. The HASP should also detail Personal Protective Equipment (PPE) required to be worn by workers.

- Development of an Environmental Management Plan which will detail how to manage contaminated soils and groundwater encountered during construction. Refer to considerations below. Specifics recommendations for soils and water handling are provided below:

    - **Soil**

        - Soil disposal facilities will need to approve of laboratory analyses prior to material acceptance. All removed contaminated soil must be stockpiled, sampled, and disposed of according to guidelines detailed in the Virginia Administrative code (9VAC20-81 – Solid Waste Management Regulations, and 9VAC20-60 – Virginia) by a licensed transporter to an appropriate waste disposal facility. If soil is stockpiled on site prior to disposal, the stockpile will require containment, an impermeable barrier (such as

plastic sheeting) and berming to prevent offsite movement or infiltration into the groundwater.

- A Transportation and Environmental Services Permit from the City of Alexandria will need to be obtained by the contractor for project excavation and any stockpiling of soil.

- TPH DRO and BTEX concentrations at several sample locations necessitate specific disposal facility designs per Virginia Administrative Code (9VAC20-81-660 – Solid Waste Management Regulations, Soil Contaminated with petroleum products):

- Concentration of TPH greater than 50 mg/kg and less than 500 mg/kg and total BTEX less than 10 mg/kg (P-5, P-10, P-26, P-27, and Composite 1) may be approved for permitted landfills equipped with liners and leachate collection systems.

- Concentrations of TPH greater than 500 mg/kg soil (P-18) cannot be disposed of in any landfill unless the facility permit expressly allows such disposal.

- **Groundwater**

  - Based on sampling results and non-hazardous contaminants detected, groundwater dewatered from project area excavations will likely need to be containerized and pre-treated, prior to disposal within local storm sewers or an appropriate disposal facility. A discharge permit and pre-treatment (e.g., sock filter for suspended solids) will be required from DEQ. Notification to the City of Alexandria will be required as part of the permit registration and monthly water quality monitoring of treated effluent will be required. Additional groundwater sampling and analysis may be required to design an appropriate groundwater treatment system and to apply for the VPDES General permit.

8.0 SIGNATURES OF PHASE II ASSESSORS

We declare that to the best of our professional knowledge and belief, that this assessment was conducted in conformance with the general requirements of the ASTM Standard Practice for Phase II Environmental Site Assessments (E1903-19). It was also conducted in accordance with a site-specific workplan under the supervision of an Environmental Professional as defined in §312.10 of 40 CFR 312.

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9.0 REFERENCES

American Society for Testing and Materials Standard Practice for Environmental Site Assessments, Phase II Environmental Site Assessment Process (ASTM E1903-19).

Roux Associates, Phase I Environmental Site Assessment, Union and King Street, Alexandria, Virginia, February 22, 2022.

Roux Associates, Phase II Environmental Site Assessment, Union and King Street, Alexandria, Virginia, July 19, 2022.

9VAC20-160-90. Remediation levels. per Virginia Administrative Code Title 9 Chapter 160: Voluntary Remediation Regulations, January 29, 2014.

Virginia Voluntary Remediation (VRP) Program Screening Levels Based on the Virginia Unified Risk Assessment Model (VURAM) 3.2.2 August 2023.