
SITE CHARACTERIZATION STUDY WORK PLAN

**FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VIRGINIA**

**VDEQ PC# 2016-3090
VDEQ VRP# 00673**



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APRIL 1, 2016

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1.0 INTRODUCTION

This Site Characterization Study (SCS) Work Plan (WP) provides a concise outline of the assessment activities proposed by ICOR, Ltd. (ICOR) to complete a SCS in advance of development of the Former Robinson Terminal North (herein referred to as the SITE) located at 500 and 501 North Union Street in Alexandria, Virginia. The activities will be conducted on behalf of Alexandria North Terminal, LLC, the developer of the SITE. Development of the SITE will entail grading, mass excavation, and construction of mixed residential, retail, and commercial-use, multi-story structures. Past property use and past surrounding property use has resulted in impact to soil and groundwater underlying the SITE. To date, the Commonwealth of Virginia Department of Environmental Quality (VDEQ) has assigned two Pollution Compliant (PC) numbers to the SITE (PC#s 2006-3131 and 2006-2016-3090 associated with suspect releases of petroleum from storage tanks). PC# 2006-3131 has been closed by the VDEQ and the other remains open. The SITE was also recently entered and deemed eligible for entrance into the VDEQ's Voluntary Remediation Program (VRP) and assigned VRP# 00673. The SITE was entered into the VRP to address non-petroleum impacts not typically addressed through the VDEQ's Petroleum Storage Tank Program (PSTP).

The WP details the proposed assessment activities to complete a SCS for the SITE that will satisfy both VDEQ PSTP mandates and VRP requirements. The proposed SCS activities are also anticipated to satisfy City of Alexandria environmental program requirements. In order to facilitate cleanup and future redevelopment of the SITE, the VDEQ has determined that the site activities may proceed simultaneously under a dual track assessment and remediation effort. This approach will allow the SITE to be eligible to participate in the VRP while also proceeding with required assessment and/or mandated remediation activities associated with the open PC. It is our understanding that the VRP Project Manager will serve as the point of contact for both tracks of the project and will coordinate both efforts. Since the PC-related assessment costs may be eligible for reimbursement, the WP has been structured to present the VRP activities separately from those associated with the PC activities.

Background information for the SITE, proposed development concept, and proposed assessment activities are discussed below.

2.0 SITE DESCRIPTION

The SITE is located at 500 and 501 North Union Street in Alexandria, Virginia, at the intersection of Oronoco Street and North Union Street. The SITE is comprised of two parcels, the 500 and 501 North Union Street parcels (herein referred to as the 500 and 501 Parcels, respectively), separated by North Union Street. The two parcels comprise approximately 3.2 acres of land. In past reports, the parcel addresses have also been listed as 1 and 101 Oronoco Street (corresponding to the 500 and 501 Parcels, respectively). A site location map is included as Figure 1. The SITE is situated in a mixed commercial and residential land use area. Adjacent property use is depicted on the aerial photograph included as Figure 2.

The SITE is currently improved with two 1-story, slab-on-grade brick and concrete warehouses (totaling approximately 91,800 square feet), a large concrete dock, railroad spur, a small wood-frame shed (near the dock), gravel and asphalt parking areas, and landscaping. The warehouses were constructed in 1966. The warehouse situated on the 500 Parcel is referred to as Warehouse #16. The warehouse situated on the 501 Parcel is referred to as Warehouse #10, #11, and #12. Three diesel USTs are buried on the northeastern portion of the 501 Parcel. The USTs are not currently in use and were previously used to store and dispense diesel fuel. Diesel fuel was dispensed via two dispensers located on the east-central portion of the 501 Parcel, next to the small wood shed. A site plan depicting existing conditions is included as Figure 3.

Topography at SITE is relatively flat. The SITE is bound to the north by Pendleton Street and railroad tracks across which is Oronoco Bay Park, to the east by the Potomac River, to the south by Oronoco Street across which is Founders Park and a residential building, and to the west by Dalton Wharf Office Center and North Union Street.

3.0 PROPOSED DEVELOPMENT

The proposed development of the 500 Parcel has not been finalized, but currently has Site Plan approval for a mixed-use hotel, retail, and residential building with below grade parking. The proposed development of the 501 Parcel will include construction of a multi-story residential complex with street-level (first floor) retail and commercial use. The complex will include one level of subsurface parking underlying the majority of the building footprint and will be constructed on a poured-concrete foundation. Proposed buildings will overlie the majority of the parcels, with walkways, patios, and landscaping covering the remaining open spaces. Current plans for the 501 Parcel include raising the grade several feet across much of the parcel to allow for final elevations above the flood zone. Construction of the subsurface parking level will require excavation and removal of approximately 8 to 11 feet of soil within the subsurface garage footprint. Proposed development is depicted on Figure 4 and development plans are included in Attachment 1.

Prior to development of the SITE, all existing structures and associated site improvements will be razed and removed. The three out-of-service USTs and associated dispensers will also be removed. Soil used to backfill and raise the grade of the 501 Parcel will be imported fill. Most of the soil generated during excavation for the footers and subsurface parking level is not expected to meet VDEQ reuse criteria and will require special handling and disposal or treatment; however, soil excavated from “clean” areas and/or found to meet VDEQ reuse requirements will be reused on or off site as backfill.

Based on groundwater measurement data obtained from the SITE, the subsurface parking level and building footings of the 501 Parcel building will be constructed at depths situated near or a few feet below the soil/groundwater interface (water table); thus, groundwater management during construction will be required. Groundwater management post-construction is not anticipated since the building will be constructed on a water-tight foundation (“bath tub” type) and will not include a foundation dewatering system. Groundwater management anticipated during construction includes dewatering and/or use of engineering controls (e.g., slurry wall,

sheeting and shoring, mudmat, etc.). Groundwater generated during dewatering will likely require monitoring and potentially treatment before discharge to meet federal and state regulatory requirements.

4.0 BACKGROUND

To date, numerous environmental assessments have been conducted at the SITE. A list of the historical environmental reports is provided below.

- **Site Characterization Report**, Robinson Terminal, 1 Oronoco Street, Alexandria, Virginia, prepared by Total Environmental Concepts, Inc. (TEC), dated January 25, 2007.
- **Soil and Groundwater Testing**, Robinson Terminal Warehouses, 500 and 501 N. Union Street, Alexandria, Virginia, prepared by ECS Mid-Atlantic, LLC (ECS), dated February 8, 2008.
- **Preliminary Subsurface Exploration and Geotechnical Engineering Analysis**, Robinson Terminal at Alexandria Waterfront, City of Alexandria, Virginia, prepared by ECS, dated February 14, 2008.
- **Phase I Environmental Site Assessment**, Robinson Terminal North, Alexandria, Virginia, prepared by WSP Environment & Energy, dated March 20, 2013.
- **Subsurface Exploration and Geotechnical Engineering Analysis**, Robinson Terminal North, Alexandria, Virginia, prepared by ECS, dated November 14, 2014.
- **Limited Phase II Environmental Site Assessment**, Robinson Terminal North, 1 and 101 Oronoco Street, Alexandria, Virginia, prepared by ICOR, dated December 15, 2014.

Based on the findings of historical environmental assessments, certain building materials require special handling and disposal prior to razing of the buildings, three USTs are buried beneath the 501 Parcel, and soil and groundwater beneath the parcels are impacted by the past industrial activities conducted at and adjacent to the SITE. USTs may also be buried beneath the southeastern corner of the 500 Parcel. The materials within the buildings requiring special handling and disposal will be removed prior to razing of the buildings and is not a subject of this WP. The findings of the assessments are summarized below. Soil and groundwater conditions and quality are discussed in Sections 5 and 6.

4.1 Historical Property Use

Based on the findings of the Phase I Environmental Site Assessment (Phase I), past site uses of concern at the 500 Parcel include bulk oil storage (1891-1941) and fertilizer storage (1907-1912), chemical mixing plant (1941-1966), and warehouse operations (1966-present). The VDEQ issued PC# 2016-3090 in relation to the past bulk storage of oil at the 500 Parcel (discussed in further detail in Section 4.2). Past site uses of concern at the 501 Parcel include coal storage (1885-1891), fertilizer and acid plant (1902-1941), sulfuric acid plant (1941-1968),

and warehouse operations (1968-present). The aforementioned past site operations included the storage and manufacturing of raw petroleum products and chemicals and generation of petroleum and chemical wastes. Another concern noted was a suspected presence of dioxin associated with a railroad car containing dioxin-impacted water parked on the railroad spur of the SITE; however, impacts associated with this incident appear to have been investigated by the United States Environmental Protection Agency (EPA) and addressed with no further assessment or cleanup required. Additionally, a 1985 newspaper report discussing sampling for dioxin at the former R.H. Bogle chemical plant, of which the 500 Parcel was a part, reported only two detections which were in river sediment and were described as being “well below what the agency regards as hazardous.”

Adjacent property use of concern includes fertilizer storage on the property to the south (1896-1912), city gas works and chemical manufacturing on the property to the southwest (1851-1959), and bulk oil storage (1891-1941) and chemical mixing plant (1941-1966) on the property to the west. Numerous assessment and cleanup activities have been conducted and continue to be conducted in relation to the former coal gasification facility. A treatment system associated with cleanup of impacts resulting from this facility is located beneath Oronoco Street, immediately adjacent to the 501 Parcel. The treatment system recovers coal tar from a storm water outfall before it discharges into the Potomac River. The approximate location of the treatment system is depicted on Figure 5.

4.2 Bulk Petroleum Storage and Petroleum USTs

The VDEQ issued PC# 2016-3090 in relation to the past bulk storage of oil at the 500 Parcel. The vast majority of the bulk storage facility appears to have been located on the adjacent properties to the west of the 500 Parcel. Past and recent assessments conducted at the 500 Parcel suggest the bulk of soil and groundwater underlying this parcel has been impacted by petroleum. Further assessment of the impacts will be performed as part of the SCS, as mandated by the VDEQ. Further assessment and cleanup associated with PC# 2016-3090 will be conducted with VDEQ approval, with costs eligible for reimbursement (through the VDEQ’s Petroleum Storage Tank Reimbursement Program [PSTRP]). Past documents suggest USTs may be buried beneath the southeastern portion of the 500 Parcel; however, no evidence of USTs (fillports, manways, vent pipes, etc.) were observed in the area. If USTs are unearthed during development, they will be properly closed via excavation and removal with notification and approval by the VDEQ.

In November 2005, a release of diesel fuel was suspected from one of the three diesel USTs located near the northeast corner of the 501 Parcel. The tanks were in use at the time of the suspected release. A release was suspected because a small volume of diesel fuel (12 ounces) was recovered from a tankfield monitoring well. Following the suspected release, all three of the tanks were precision (integrity) tested and found to be sound. The VDEQ assigned the suspect release PC# 2006-3131 and requested that a SCS be performed.

In April 2006, TEC advanced 13 test borings (designated TEC-B1 through TEC-B13) adjacent to the USTs and fuel dispensers. Monitoring wells were installed within seven of the borings (designated TEC-MW1 through TEC-MW7). The boring and well locations are depicted on Figure 4. During advancement of the borings, TEC collected soil samples for field and

laboratory analysis. The soil samples were submitted to a laboratory for analysis of gasoline and diesel range total petroleum hydrocarbons (TPH-GRO and TPH-DRO, respectively). TEC also checked the wells for the presence of free product on two occasions and collected groundwater samples for laboratory analysis from the wells on one occasion. The groundwater samples were submitted to a laboratory for analysis of TPH-GRO, TPH-DRO, benzene, toluene, ethylbenzene, total xylenes, methyl tertbutyl ether (MTBE), and naphthalene.

TEC noted evidence of impact to soil in only a few of the test borings advanced (TEC-B6 and TEC-B9) and the impacts appeared to be limited and localized. TPH-GRO and TPH-DRO were detected in soil samples collected from these borings at relatively low concentrations. A summary of the detections in soil are presented on Table 1A. Free product was not observed in the monitoring wells. MTBE was the only constituent detected in the groundwater samples and was detected in a few of the well samples (TEC-MW1 through TEC-MW4) at relatively low concentrations. A summary of the detections in groundwater are presented on Table 1B. Groundwater was encountered at depths ranging from approximately 6 to 8 feet below grade and groundwater flow was inferred to the east (towards the Potomac River) under both high and low tide conditions. TEC did not believe the limited and localized nature of impacts and relatively low detections of petroleum constituents in soil and groundwater warranted further assessment or cleanup and recommended “case closure” of PC# 2006-3131. PC# 2006-3131 is listed as closed by the VDEQ; thus, the VDEQ concurred with TEC’s recommendation.

It should be noted that the three USTs are currently out-of-service and are scheduled for removal in March 2016. If conditions noted during closure of the tanks warrant assessment and/or cleanup, ICOR anticipates the VDEQ will issue another PC number and require assessment and cleanup of any release as necessary. This WP does not address the removal of the three USTs. All costs associated with assessment and/or cleanup will be eligible for potential reimbursement (from the PSTRP) subject to the applicable deductible. In conjunction with the tank removal, the remaining wells associated with the past assessment of the three USTs (wells TEC-MW1 through TEC-MW7) will be inspected for the presence of free product. Several of the wells will also be resampled. The well inspection and sampling activities are discussed in Section 7.1.4. A summary of the tank removal activities and findings of the inspection and resampling will be included in the SCS findings report (discussed in Section 10.0).

4.3 Constituents of Potential Concern

Based on the findings of past assessments, constituents of potential concern (COPCs) detected in soil beneath the SITE include TPH-GRO, TPH-DRO, volatile organic compounds (VOCs), and metals. COPCs detected in groundwater beneath the SITE include TPH-GRO, TPH-DRO, VOCs, semi-VOCs (SVOCs), and metals. Other COPCs that may be a concern at the SITE and for which only limited investigation was conducted during past assessments include pesticides, herbicides, and polychlorinated biphenyls (PCBs). These COPCs will be further assessed as part of the proposed SCS.

4.4 VRP

The SITE was recently entered and deemed eligible for entrance into the VRP (and assigned VRP# 00673). The SITE was entered into the VRP to address non-petroleum impacts typically not addressed through the PSTP. The costs associated with VRP-related assessment will be tracked separately since they are not eligible for reimbursement from the VDEQ.

5.0 SITE GEOLOGY AND HYDROGEOLOGY

Topography at SITE is relatively flat. The elevation of the SITE is approximately 9 feet above mean sea level. The closest surface water body to the SITE is the Potomac River which bounds the SITE to the east. The site and area topography and the location of the above-referenced surface water body are depicted on Figure 1.

The SITE is located within the Atlantic Coastal Plain (ACP) physiographic province. The ACP physiographic province is characterized by a series of south-easterly dipping layers of relatively consolidated sandy clay deposits, with lesser amounts of gravel. The ACP sediments are estimated to be approximately 250 feet thick and are underlain by the eastward continuation of crystalline bedrock of the Piedmont physiographic province. Portions of the SITE are underlain by Quaternary Age river terrace deposits, Cretaceous Age deposits of the Potomac Group, and fill. The Potomac Group deposits consist of interbedded layers of sand, silt, clay, and gravel.

Based on observations made during historical assessments, the upper 4 to 15 feet of the SITE is underlain by fill. The fill varied in composition, with sand, silt, clay, brick, asphalt, organics, wood, and gravel noted. Beneath the fill materials, alluvial soil characterized by interbedded and alternating layers of sand, silty sand, and sandy gravel with varying amounts of clay were encountered to a depth ranging from 45 to 55 feet below grade. Beneath the alluvial soil, marine clay of the Potomac Group was encountered and extended to the maximum explored depth of 80 feet below grade. The encountered soil was consistent with regional geology.

Based on groundwater measurements obtained from monitoring wells and findings of historical studies, the depth to groundwater at the SITE ranges from approximately 5 to 10.5 feet below grade and groundwater flow is to the east towards the Potomac River. The Potomac River is tidally influenced; however, data collected during a past study did not suggest that tidal change has a significant effect of groundwater flow. Select historical groundwater measurements obtained from the site wells and obtained during a recent ICOR assessment are summarized on Table 4.

Groundwater is not currently used and is not proposed for use in the future as a potable drinking water or irrigation water supply at the SITE. Based on ICOR's past experience, groundwater in the City of Alexandria is not used or approved for use as a potable water supply. Potable drinking water is provided to the SITE and surrounding area by the City of Alexandria. The City's potable water sources are surface water reservoirs.

6.0 SOIL AND GROUNDWATER QUALITY

To date, 31 test borings have been advanced and 9 permanent and 6 temporary groundwater monitoring wells have been installed at the SITE. The boring and well locations are depicted on Figure 5. A total of 57 soil samples have been collected for laboratory analysis during advancement of the borings. Groundwater samples were collected for laboratory analysis from each well on at least one occasion, with wells ECS-MW2 and ECS-MW4 sampled on two occasions.

Soil and groundwater quality were assessed through the collection of samples for visual inspection, field screening, and laboratory analysis. The soil analytical results were compared to the most-current VDEQ Tier II screening concentrations for unrestricted (residential) land use (VDEQ-T2SCUs) and VDEQ Tier III screening concentrations restricted (commercial/industrial) land use (VDEQ-T3SCRs). Applicability of the standards will ultimately be based on street-level (first floor) site use and any approved institutional/engineering controls. The groundwater analytical results were compared to the most-current VDEQ Tier III groundwater screening levels for restricted groundwater use unrestricted (residential) and commercial land use inhalation of indoor air (VDEQ-T3RGSLS and VDEQ-T3CGSLs, respectively) and VDEQ groundwater concentrations for a construction worker in a trench, water table not contacted and water table contacted (VDEQ-CWT-WTNCs and VDEQ-CWT-WTCs, respectively).

6.1 Soil Quality

Petroleum staining, petroleum odors, and elevated PID readings (above background) were noted in soil samples collected from test borings TEC-B6, TEC-B9, ICOR-SB2, ICOR-SB3, ICOR-SB6 through ICOR-SB9, and ECS-B7. The highest degree of impact was generally noted on the 500 Parcel (area where bulk oil storage was noted on and adjacent to the parcel). Staining and odors noted were consistent with oil and gasoline impacts.

Soil samples collected from the SITE were analyzed for some of the following analyses: TPH-GRO, TPH-DRO, VOCs, SVOCs, PCBs, pesticides, herbicides, and total and Toxic Characteristic Leaching Procedure (TCLP) metals. Total metals analyzed for include Resource Conservation and Recovery Act (RCRA) and Priority Pollutant List (PPL). The historical soil analytical results (obtained during the TEC and ECS studies) are summarized on Tables 1A and 2A, respectively, and the recent ICOR soil analytical results are summarized on Tables 5A and 5B. Detections of note are described below. Detections of note include detections in soil samples above VDEQ-T2SCUs and/or VDEQ-T3SCRs in samples collected above or within close proximity to the water table, within the proposed limits of mass excavation for the subsurface parking garage (aerial extent and depth), and detections likely to restrict or prevent the reuse of the soil on or off site (i.e., soil requiring special handling and disposal).

TPH-GRO and TPH-DRO

TPH-GRO were detected in 5 of the 18 soil samples submitted for this analysis and was detected at concentrations ranging from 0.62 to 370 milligrams per kilogram (mg/kg). TPH-DRO were detected in 26 of the 41 samples submitted for this analysis and was detected at concentrations ranging from 17 to 10,200 mg/kg. The VDEQ has not established screening concentrations for

TPH-GRO and TPH-DRO; however, the VDEQ has established petroleum-saturated soil standards and excavated soil with detections of petroleum must be properly managed and either reused or disposed of in accordance with the Virginia Solid Waste Management Regulations (SWMRs). Boring locations where TPH-GRO and/or TPH-DRO were detected at or above 50 mg/kg in soil (the reuse level in the SWMR below which such soils may be reused with only limited restrictions) and where soil will likely be disturbed during development include boring locations ECS-B1 through ECS-B6, ICOR-SB7, and ICOR-SB8. In general, the TPH-GRO and TPH-DRO concentrations were the highest on the 500 Parcel, closest to the former bulk petroleum storage facility.

VOCs

A total of 20 VOCs were detected in the soil samples submitted for this analysis. Of these, 4 were detected at concentrations above VDEQ-T2SCUs in soil samples collected above or within close proximity to the water table and within the proposed limits of excavation. VOCs were not detected above VDEQ-T3SCRs. The VOCs detected above VDEQ-T2SCUs are identified in Tables 2A and 5A.

Total Metals

Twelve total metals were detected in the soil samples submitted for this analysis. Of these, 11 were detected at concentrations above VDEQ-T2SCUs and 5 were detected at concentrations above VDEQ-T3SCRs in soil samples collected above or within close proximity to the water table and within the proposed limits of mass excavation. The total metals detected above VDEQ-T2SCUs and/or VDEQ-T3SCRs are identified in Tables 2A, 5A, and 5B.

TCLP Metals

Based on the elevated detection of metals in the shallow soil sample collected from ICOR boring ICOR-SB10 and ECS borings ECS-B7 and ECS-B8, these samples were additionally analyzed for TCLP RCRA metals to evaluate disposal options. As many as four TCLP metals (arsenic, barium, cadmium, and lead) were detected in the soil samples submitted for this analysis. Based on the concentrations of TCLP lead detected in the samples collected from borings ICOR-SB10 and ECS-B7, the soil, if excavated, would be considered a “hazardous waste” requiring special handling and disposal as such.

PCBs, Pesticides, and Herbicides

A total of four samples collected from ECS borings ECS-B3, ECS-B4, and ECS-B6 were analyzed for PCBs, pesticides, and herbicides with none detected above the RL.

Summary

The majority of impacts to soil at the SITE appear to be related to the former bulk storage of petroleum and storage and manufacturing of fertilizer. Based on the analytical data, the majority of soil proposed for excavation and removal during site development will meet criteria for disposal or treatment as a non-hazardous waste. Soil containing COPCs at concentrations below VDEQ reuse criteria may be reused on site or possibly off site with VDEQ approval. Soil excavated and removed from and immediately surrounding boring ECS-B2, ICOR-SB10, and ECS-B7 to a depth of at least 4 feet below grade will require special handling and disposal as a hazardous waste. Soil excavated or disturbed at or near boring locations ECS-B2, ECS-B7, and

ECS-B8 may also be characterized as hazardous waste based on the concentration of total arsenic detected at location ECS-B8 and total mercury detected at locations ECS-B2, ECS-B7, and ECS-B8. The approximate limits of soil that may be considered hazardous waste if excavated or disturbed is depicted on Figure 5.

6.2 Groundwater Quality

Petroleum free product was not noted in the permanent and temporary wells during the historical assessments. ICOR noted strong petroleum odors during sampling of temporary wells ICOR-SB7 and ICOR-SB8.

Groundwater samples collected from the SITE were analyzed for some or all of the following analyses: TPH-GRO, TPH-DRO, VOCs, SVOCs, and total and dissolved PPL metals. The historical groundwater analytical results (obtained during the TEC and ECS studies) are summarized on Tables 1B and 2B, respectively, and the recent ICOR groundwater analytical results are summarized on Table 6. Detections of note are described below. Detections of note include detections in groundwater samples above VDEQ-T3RGSLs, VDEQ-T3CGSLs, VDEQ-CWT-WTNCs, and VDEQ-CWT-WTCs.

TPH-GRO and TPH-DRO

TPH-GRO were detected in 6 of the 15 groundwater samples submitted for this analysis and was detected at concentrations ranging from 0.25 to 11 milligrams per liter (mg/l). TPH-DRO were detected in 10 of the 17 groundwater samples submitted for this analysis and was detected at concentrations ranging from 0.11 to 2.87 mg/l. The VDEQ has not established screening levels for TPH-GRO and TPH-DRO; however, concentrations above 1 mg/l are typically considered elevated and may warrant treatment of groundwater generated during dewatering prior to discharge. TPH-GRO were detected above 1 mg/l in the groundwater sample collected from the temporary well installed in boring ICOR-SB7. TPH-DRO were detected above 1 mg/l in the groundwater sample collected from the permanent well ECS-MW2 during the ECS sampling event; however, TPH-DRO was detected below 1 mg/l in the most-recent sample collected from this well. In general, the TPH-GRO and TPH-DRO concentrations were the highest on the 500 Parcel, closest to the former bulk petroleum storage facility.

VOCs

A total of 9 VOCs were detected in the groundwater samples submitted for this analysis. Of these, five were detected at concentrations above VDEQ-T3RGSLs and/or VDEQ-T3CGSLs and four were detected above VDEQ-CWT-WTCs. The VOCs detected above VDEQ-T3RGSLs, VDEQ-T3CGSLs, and/or VDEQ-CWT-WTCs are identified in Tables 2B and 6.

SVOCs

A total of 13 SVOCs were detected in the groundwater samples submitted for this analysis. Of these, two were detected at concentrations above VDEQ-T3RGSLs, VDEQ-T3CGSLs, and/or VDEQ-CWT-WTCs. The VOCs detected above VDEQ-T3RGSLs, VDEQ-T3CGSLs, and/or VDEQ-CWT-WTCs are identified in Tables 2B and 6.

Total and Dissolved Metals

A total of 13 total and 10 dissolved metals were detected in the groundwater samples submitted for these analyses. Of these, two were detected at concentrations above VDEQ-T3RGSLs and/or VDEQ-T3CGSLs. The total and dissolved metals detected above VDEQ-T3RGSLs and/or VDEQ-T3CGSLs are identified in Table 6.

Summary

The majority of impacts to groundwater at the SITE appear to be related to the former bulk storage of petroleum and storage and manufacturing of fertilizer. If dewatering is required during construction, the presence of COPCs in groundwater may warrant sampling and/or treatment of the recovered water before discharge. Groundwater sampling and/or treatment of discharge may also be required following development if the building will be constructed with a foundation dewatering system; however, current plans are to construct buildings with water-tight foundations (“bath tub” type) and without foundation dewatering systems.

7.0 PROPOSED SITE CHARACTERIZATION STUDY FIELD ACTIVITIES

The proposed SCS field activities are designed to fully evaluate the type, degree, and extent of impacts; evaluate risks posed by the impacts; and ultimately, develop a cleanup approach that allows for successful development of the parcels and minimizes risks to human health and the environment. The assessment activities will be conducted under the direct supervision of a Commonwealth of Virginia Certified Professional Geologist. The proposed assessment activities are detailed below.

7.1 PC# 2016-3090

This section details the assessment activities proposed by ICOR to complete a SCS mandated by PC# 2016-3090. The VDEQ issued PC# 2016-3090 in relation to the past bulk storage of oil at the 500 Parcel. The vast majority of the bulk storage facility appears to have been located on the adjacent properties to the west of the 500 Parcel. Past and recent assessments conducted at the 500 Parcel suggest the majority of soil and groundwater underlying this parcel has been impacted by varying levels of petroleum. Further assessment and cleanup associated with PC# 2016-3090 will be conducted with VDEQ approval, with costs eligible for reimbursement through the VDEQ’s PSTRP. All necessary PSTRP forms (Activity Authorization Forms [AAFs]) will be prepared and submitted to the VDEQ for review and approval before starting work.

The assessment will target areas where historical bulk storage of petroleum was conducted and portions of the SITE closest to off-site properties that were part of the former bulk storage facility (500 Parcel and western portion of the SITE). The assessment will also address areas perceived as “data gaps” based on the findings of past studies. The proposed assessment activities will include advancement of direct-sensing tooling to obtain real-time data; advancement of test borings; installation of temporary groundwater wells; installation of soil gas sampling points; collection of soil, groundwater, and soil gas samples for field screening and laboratory analysis; sensitive receptor survey; qualitative and quantitative risk analysis; remedial evaluation; and associated reporting.

7.1.1 Data Base Development

Prior to the start of field work, existing lithology and analytical data and scaled site drawings will be used to build an interactive database to be used by the project team. The database will be used to create plain-view maps, 3-dimensional depictions, and cross-sections of the impacts at the SITE and to input data generated during the delineation using real-time tooling (discussed in the following section). The database will also allow the project team to track the progress of the assessment in real time and readily compare construction plans (e.g., cut and fill plans) to mapped impacted zones.

7.1.2 Delineation Using Real-Time Tooling

To quickly and cost effectively delineate the horizontal and vertical extent of petroleum impacts to soil and groundwater at the SITE in real-time, a direct-push sampling rig will be used to advance down-hole, direct-sensing tooling in numerous locations. The tooling used will include a Membrane Interface Probe (MIP) and Hydraulic Profiling Tool (MiHpt) system equipped with three gas chromatograph detectors. The MIP and MiHpt will be used to measure petroleum compounds in soil and groundwater (MIP) and evaluate potential constituent migration pathways (MiHpt). The tooling is also expected to sense chlorinated solvents if present. The tooling will be advanced through holes cored in the concrete building slabs and parking lots. At all locations, the tooling will be advanced to a depth of approximately 25 feet below grade. At locations where significant impacts are noted to extend past the proposed 25 foot investigation depth, the MIP and MiHpt borings will be advanced to deeper depths in an attempt to fully delineate the vertical extent of impacts. As requested by the VDEQ, the MIP and MiHpt borings will be advanced to a depth corresponding to the top of the marine clay (estimated to be 40 to 45 feet below grade) at four locations. If there are concerns that deeper advancement of borings may result in impact to “clean” zones underlying “dirty” zones and/or deeper aquifers, the VDEQ will be notified to discuss the situation and provide guidance.

An estimated 25 to 30 borings will be advanced to provide good spatial coverage across the SITE, with an estimated 4 to 6 borings completed each day. The initial proposed borings will be biased to the 500 Parcel where the bulk of petroleum impacts have been noted to date. The initial proposed borings (a total of 20) are depicted on Figure 6. Additional borings will be advanced as warranted to address data gaps and complete the delineation.

A Laser Induced Fluorescence (LIF) tool will also be readily available during the real-time investigation to delineate petroleum free product should it be noted during the assessment. The data will be reviewed in the field by an experienced field geochemist and downloaded as collected into the project database for review by the project team. Several of the borings will be advanced adjacent to previous boring locations (ICOR-SB7, ICOR-SB8, and ICOR-SB10) to calibrate the equipment to available lithology and analytical data.

At the conclusion of advancement, each borehole will be properly abandoned by tremmie grouting from bottom of boring to surface. The vertical elevation and horizontal location of each boring will be surveyed by a Commonwealth of Virginia-licensed surveyor.

All reusable direct-push and downhole equipment that comes into direct-contact with soil is constructed of steel and will be properly decontaminated between boring locations. Investigation-derived wastes (IDWs) generated during sampling will be contained and properly disposed.

7.1.3 Soil Sampling

Soil samples will be collected from select real-time tooling borings for visual inspection of lithology and soil conditions, and laboratory analysis. The analytical data will be used to verify the presence of constituents not typically identified during advancement of real-time tooling (e.g., SVOCs), to obtain constituent-specific data (specific type of VOCs present), and to collect data for potential use in risk evaluation and soil management. The borings will be advanced using a direct-push sampling rig. The sampling rig will be used to advance acetate-lined barrel samplers. The acetate liners will be new, dedicated, and disposable. Soil sampling will be conducted continuously until a target depth is achieved (a depth corresponding to the maximum depth of the real-time tooling boring). Each sample core generated during advancement of the borings will be inspected for soil type (lithology) and evidence of impact (i.e., staining, odors, or elevated field screening readings). The entire length of each soil core collected above the water table will be screened in the field for the presence of volatile organic vapors (VOVs) using a photo-ionization detector (PID). Bag samples will also be collected at 2 to 5 foot intervals for screening from soil situated above the water table. Multiple soil samples will be collected from each boring for laboratory analysis.

The samples will be submitted to a VDEQ-certified laboratory for analysis of some or all of the following: TPH-GRO and TPH-DRO using EPA Method 8015, Target Compound List (TCL) VOCs using EPA Method 5035/8260B, and TCL semi-VOCs (SVOCs) using EPA Method 8270C or D. The samples collected for analysis will be collected directly from the sample cores (acetate liners) and will be grab samples. The VOC samples will be collected using TerraCore® samplers or equivalent. Each soil sample will be collected from an approximately 1-foot soil interval targeted for sampling. The sample containers will be labeled, placed in an ice-filled cooler, and shipped to the project laboratory within 48 hours for analyses.

All reusable direct-push equipment that comes into direct-contact with soil is constructed of steel and will be properly decontaminated between sampling locations. IDWs generated during sampling will be contained and properly disposed.

The vertical elevation and horizontal location of soil sampling locations will be surveyed by a Commonwealth of Virginia-licensed surveyor.

7.1.4 Groundwater Sampling

As mentioned in Section 4.2, the remaining wells associated with the past assessment of the three USTs (wells TEC-MW1 through TEC-MW7) will be inspected for the presence of free product in conjunction with the removal of the USTs. Several of the wells will also be resampled. The samples will be submitted to a VDEQ-certified laboratory for analysis of some or all of the following: TPH-GRO and TPH-DRO using EPA Method 8015, TCL VOCs using EPA Method

5035/8260B, and TCL SVOCs using EPA Method 8270C or D. The samples collected for analysis will be unfiltered grab samples. The sample containers will be labeled, placed in an ice-filled cooler, and shipped to the project laboratory within 48 hours for analyses.

Groundwater samples will be collected from several borings for laboratory analysis to evaluate for constituents not typically identified during advancement of real-time tooling (e.g., SVOCs), to obtain constituent-specific data (specific type of VOCs present), and to collect data for potential use in risk evaluation. The samples will be collected from temporary wells installed within select soil test borings or test borings advanced solely for assessment of groundwater. The temporary wells will also be used to evaluate for the presence of floating free product, determine the thickness of floating free product, to measure groundwater elevations, and assess groundwater flow beneath the SITE. The wells will be constructed of a minimum of 1-inch inner diameter well casing and screen. The well materials will be new, dedicated, and disposable. The wells will be installed to a depth corresponding to approximately 10 feet below the soil/groundwater interface and will be constructed with a minimum of 15 feet of screen, with the screen positioned to straddle the water table (to allow for the detection of floating petroleum free product should it be present). The screen will be surrounded by filter pack and will include a bentonite seal to ground surface.

Well measurements will be collected from the wells on several occasions and will include measuring depth to free product and depth to water using an oil/water interface probe. The new wells and select existing wells will be properly developed and sampled on at least one occasion to assess groundwater quality. Sampling will be performed using EPA low-flow sampling techniques. The samples will be submitted to a VDEQ-certified laboratory for analysis of some or all of the following: TPH-GRO and TPH-DRO using EPA Method 8015, TCL VOCs using EPA Method 5035/8260B, and TCL SVOCs using EPA Method 8270C or D. The samples collected for analysis will be unfiltered grab samples. The sample containers will be labeled, placed in an ice-filled cooler, and shipped to the project laboratory within 48 hours for analyses.

All reusable direct-push equipment that comes into direct-contact with soil or groundwater during well installation is constructed of steel and will be properly decontaminated between sampling locations. All sampling supplies will be new, dedicated, and disposable; however, if sampling equipment will be reused it will be properly decontaminated between sampling wells. IDWs generated during sampling will be contained and properly disposed.

The vertical elevation and horizontal location of soil sampling locations will be surveyed by a Commonwealth of Virginia-licensed surveyor.

The data collected during the real-time tooling assessment and groundwater sampling will be used to design a monitoring well network if warranted for long-term groundwater monitoring. If long-term groundwater monitoring is deemed necessary, the proposed monitoring well network will be discussed and presented in the SCS report.

7.1.5 Soil Gas Sampling

Soil gas sampling will be performed to assess the potential for vapor intrusion (VI) into proposed structures. Both sub-slab and deep soil gas samples will be collected. The sub-slab samples will be collected beneath the existing 500 Parcel building floor slab since the actual construction depths have not yet been finalized with an approved site plan. Deep soil gas samples will be collected within the footprint of the proposed 501 Parcel building garage. The deep and sub-slab sampling procedures are discussed in the following sections and are consistent with those recommended by the VDEQ and Interstate Technology Regulatory Council's (ITRC's) *Technical and Regulatory Guidance, Vapor Intrusion Pathway: A Practical Guideline* (January 2007).

The vertical elevation and horizontal location of soil gas sampling locations will be surveyed by a Commonwealth of Virginia-licensed surveyor.

Sub-Slab Soil Gas Sampling

Sub-slab soil gas samples will be collected from an estimated four locations from the proposed 500 Parcel building footprint. The soil gas sampling points will be biased to locations where the highest degree of VOC impacts are noted during the real-time tooling assessment. The samples will be collected directly under the existing warehouse building concrete floor slab. Each sub-slab soil gas sample will be collected from a Vapor Pin® installed within a 3/4-inch diameter corehole drilled through the concrete floor slab. A Vapor Pin® consists of a reusable stainless steel vapor point surrounded by new, dedicated, and disposable silicone tubing that is driven into a corehole. The silicone tubing provides an air-tight seal with the concrete. The sampling locations will be placed in areas comprised of bare concrete.

On the day following installation and after sufficient purging (at least 0.5 liters), the samples will be collected in Summa canisters over an 8 hour time period. The Summa canisters will be provided by a VDEQ-certified laboratory. Immediately following sampling, each Summa canister will be labeled and transported to the laboratory within 48 hours of collection. The sub-slab soil gas samples will be submitted for analysis of VOCs using EPA Method TO15.

At the conclusion of sampling, each Vapor Pin® will be removed and the resulting coreholes will be restored with concrete or concrete sealer.

Deep Soil Gas Sampling

Deep soil gas samples will be collected from an estimated four locations within the footprint of the proposed 501 Parcel building garage. The soil gas sampling points will be biased to locations where the highest degree of VOC impacts are noted during the real-time tooling assessment. The samples will be collected from vapor points installed using a direct-push sampling rig. The borings will be advanced through the existing warehouse building concrete floor slab. The samples will be collected from a depth of approximately 2 feet above the soil/groundwater interface. The vapor points will consist of new, dedicated, and disposable 0.5-foot stainless steel GeoProbe® soil gas sampling probes attached to new, dedicated, and disposable high density polyethylene (HDPE) tubing lowered through borehole or rods to approximately 6-inches from the bottom of the borehole. The probe will be surrounded by

approximately 1.5 feet of sand filter pack (which includes approximately 6-inches of filter pack above and below the probe). The remaining open borehole will be backfilled with hydrated granular bentonite and/or bentonite grout to grade. The tubing inlet will be fitted with a new, dedicated, and disposable cap.

On the day following installation and after sufficient purging (at least 1 tubing and filter pack volume), the samples will be collected in Summa canisters over an 8 hour time period. The Summa canisters will be provided by a VDEQ-certified laboratory. Immediately following sampling, each Summa canister will be labeled and transported to the laboratory within 48 hours of collection. The deep soil gas samples will be submitted for analysis of VOCs using EPA Method TO15.

At the conclusion of deep soil gas sampling, the tubing will be cut below grade and the disturbed area will be restored with concrete.

7.2 VRP

This section details the assessment activities proposed by ICOR to complete a SCS meeting VRP requirements. The SITE was recently entered and deemed eligible for entrance into the VRP. The SITE was entered into the VRP to address non-petroleum impacts associated with storage and manufacturing of raw chemicals and generation of chemical wastes. The costs associated with VRP-related assessment will be tracked separately since they are not eligible for reimbursement from the VDEQ. Past and recent assessments conducted at the SITE suggest the main non-petroleum COPCs are related to metals; however, several other COPCs may be a concern and require further assessment (e.g., herbicides, pesticides, and PCBs).

The assessment will target areas where chemicals were manufactured and stored at the SITE and SITE property boundaries shared with off-site properties of concern. The assessment will also address areas perceived as “data gaps” based on the findings of past studies. The proposed assessment activities will include some or all of the following: advancement of direct-sensing tooling to obtain real-time data; advancement of test borings; installation of temporary groundwater wells; installation of soil gas sampling points; collection of soil, groundwater, and soil gas samples for field screening and laboratory analysis; sensitive receptor survey; qualitative and quantitative risk analysis; remedial evaluation; and associated reporting.

7.2.1 *Data Base Development*

Prior to the start of field work, existing lithology and analytical data associated with non-petroleum COPCs will be added to the interactive database to be used by the project team. The database will be used to create plain-view maps, 3-dimensional depictions, and cross-sections of the impacts at the SITE and to input data generated during the delineation using real-time tooling (if warranted and discussed in the following section). The database will also allow the project team to track the progress of the assessment in real time and readily compare construction plans (e.g., cut and fill plans) to mapped impacted zones.

7.2.2 Delineation Using Real-Time Tooling

Past data does not support the presence of widespread non-petroleum VOCs typically assessed using MIPs (e.g., chlorinated solvents). If noted during the PC-related assessment and not covered within the assessed area for the PC assessment, the MIPs and MiHpt will be used to measure the horizontal and vertical extent of non-petroleum VOCs in soil and groundwater and evaluate potential constituent migration pathways. If the data indicates dense non-aqueous phase liquids that typically “sink” in water are present (e.g., chlorinated solvents), the MIP and MiHpt borings will be advanced to deeper depths in an attempt to fully delineate the vertical extent of impacts. The assessment using MIPs and MiHpt will be performed as discussed in Section 7.1.2.

7.2.3 Soil Sampling

To assess soil for non-petroleum COPCs and to collect data for use in risk evaluation, soil samples will be collected from an estimated 10 locations at the SITE. The boring locations will be selected based on the findings of the real-time tooling assessment and to provide good spatial coverage of the SITE. The borings will be advanced using a direct-push sampling rig with sampling procedures consistent with those detailed in Section 7.1.3. Both surface and subsurface samples will be collected from each boring for laboratory analysis. Surface samples will be collected from the upper 18 inches of soil underlying the SITE.

The samples will be submitted to a VDEQ-certified laboratory for analysis of some or all of the following: PPL metals using EPA Method 6010A or B, TCL VOCs using EPA Method 5035/8260B, TCL SVOCs using EPA Method 8270C or D, herbicides using EPA Method 8151A, pesticides using EPA Method 8081B, and PCBs using EPA Method 8082A. If the metal chromium is detected at elevated concentrations, select chromium samples will also be analyzed for chromium VI using EPA Method 7196A to determine if chromium is present in this form (the most hazardous type). The samples collected for analysis will be collected directly from the sample cores (acetate liners) and will be grab samples. The VOC samples will be collected using TerraCore® samplers or equivalent. Each soil sample will be collected from an approximately 1-foot soil interval targeted for sampling.

The vertical elevation and horizontal location of soil sampling locations will be surveyed by a Commonwealth of Virginia-licensed surveyor.

7.2.4 Groundwater Sampling

To assess groundwater for non-petroleum COPCs and to collect data for use in risk evaluation, groundwater samples will be collected from an estimated five locations for laboratory analysis. The samples will be collected from temporary wells installed within select soil test borings or test borings advanced solely for assessment of groundwater. Temporary well installation and sampling will be consistent with protocols detailed in Section 7.1.4.

Well measurements will be collected from the wells on several occasions and will include measuring depth to free product and depth to water using an oil/water interface probe. The new wells and select existing wells will be developed and sampled on at least one occasion to assess

groundwater quality. The samples will be submitted to a VDEQ-certified laboratory for analysis of some or all of the following: PPL metals using EPA Method 6010A or B, TCL VOCs using EPA Method 5035/8260B, TCL SVOCs using EPA Method 8270C or D, herbicides using EPA Method 8151A, pesticides using EPA Method 8081B, and PCBs using EPA Method 8082A. If the metal chromium is detected at elevated concentrations, select chromium samples will also be analyzed for chromium VI using EPA Method 7196A to determine if chromium is present in this form (the most hazardous type).

The vertical elevation and horizontal location of soil sampling locations will be surveyed by a Commonwealth of Virginia-licensed surveyor.

The data collected during groundwater sampling will be used to design a monitoring well network if warranted for long-term groundwater monitoring. If long-term groundwater monitoring is deemed necessary, the proposed monitoring well network will be discussed and presented in the SCS report.

7.2.5 Soil Gas Sampling

ICOR believes that the soil gas sampling discussed in Section 7.1.5 will also satisfy VRP requirements; thus, no additional soil gas sampling is proposed at this time. If it becomes warranted, the WP will be amended.

8.0 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

After the degree and extent of impacts to soil, groundwater, and soil gas are assessed, potential sensitive receptors (human and ecological) at the SITE (in its current condition, during construction, and in its proposed development scenario) will be identified and the risk to the receptors will be evaluated through comparison of the analytical data to applicable VDEQ risk-based screening levels (representing a qualitative risk assessment [RA]). For initial screening purposes, groundwater analytical data collected in close proximity to the Potomac River will also be compared Virginia Water Quality Standards (VWQSs). It should be noted that risk-based screening levels for TPH-GRO and TPH-DRO in soil or groundwater have not been established by the VDEQ. TPH-GRO and TPH-DRO concentrations detected in soil will be compared to VDEQ petroleum-saturated soil standards and SWMRs. TPH-GRO and TPH-DRO concentrations detected in groundwater in samples collected in close proximity to the Potomac River will be compared to VWQSs (which have been established for these constituents). If the analytical data suggests a risk exists and further evaluation is warranted, the risks will be further evaluated using applicable VDEQ guidance for quantitative and site-specific RAs. The costs associated with evaluating risks associated with non-petroleum impacts will be tracked and separated from those related to PC impacts.

9.0 REMEDIAL ACTION EVALUATION

Upon completion of the SCS, a determination will be made as to the type of cleanup, engineering controls, and institutional controls warranted at the SITE. The cleanup goals and objectives will be based on proposed land use and development and achievement of quantitative risk-based cleanup goals (established by the RA). After the most-viable options are discussed with and selected by the project team with concurrence from the VDEQ, ICOR will begin preparation of a Remedial Action Work Plan (RAWP) for any necessary remediation. The RAWP will also include cleanup, engineering controls, and institutional controls warranted to address non-petroleum impacts. The costs associated with development of cleanup, engineering controls, and institutional controls warranted to address non-petroleum impacts will be tracked and separated from those related to PC impacts. Upon completion, the RAWP will be submitted to the VDEQ for review and comment.

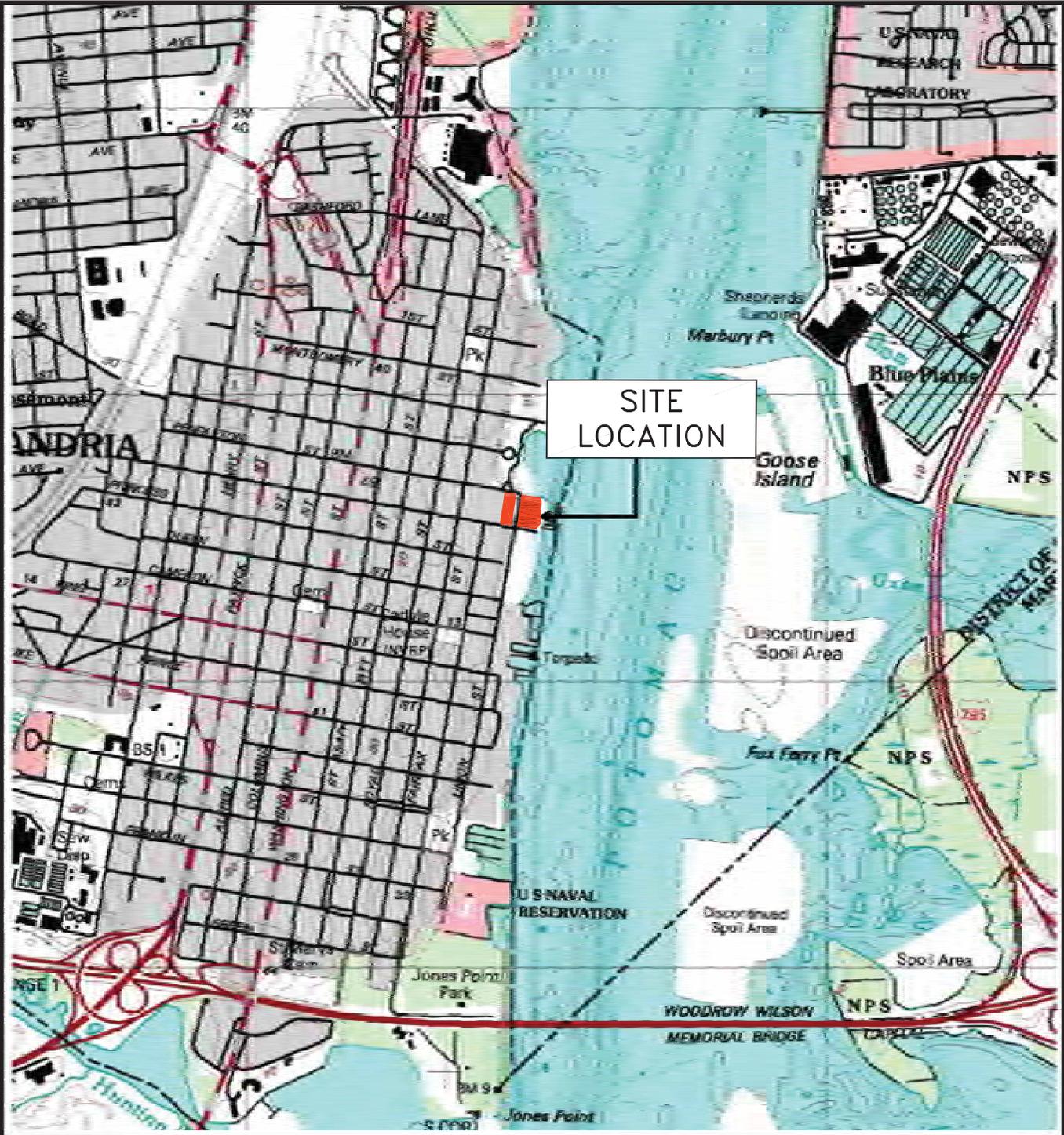
10.0 SITE CHARACTERIZATION REPORT

The findings of the SCS will be presented in a Site Characterization Report (SCR), prepared according to PSTP and VRP requirements. The SCR will include a detailed summary of assessment activities conducted and findings, sensitive receptor survey, quantitative RA, remedial evaluation, and ICOR's recommendations for moving the project forward. The costs associated with discussions concerning non-petroleum impacts will be tracked and separated from those related to PC impacts. Upon completion, the SCR will be submitted to the VDEQ for review and comment.

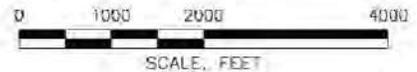
11.0 SCHEDULE

The SCS will commence immediately upon approval of this WP and any required pre-work PSTRP forms. The VDEQ, City of Alexandria, and other key stakeholders will be notified at least 2 weeks in advance of the start of any field work.

FIGURES



REFERENCE:
 7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE
 ALEXANDRIA, VIRGINIA
 PHOTOREVISED 1994 SCALE 1:24,000



SITE LOCATION

DESIGNED BRUZZESI	DATE 2/19/16
DRAWN CONNELLY	DATE 2/19/16

FORMER ROBINSON TERMINAL NORTH
 500 AND 501 NORTH UNION STREET
 ALEXANDRIA, VA

ICOR LTD.
 PO BOX 406
 MIDDLEBURG, VIRGINIA 20118

PROJECT NO. 16.CI.001	SCALE: AS SHOWN
DRAWING NO.	FIGURE 1



MICROSOFT CORPORATION 2016



AERIAL PHOTOGRAPH

DESIGNED BRUZZESI	DATE 02/19/16
DRAWN CONNELLY	DATE 02/19/16

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

ICOR LTD.
PO BOX 406
MIDDLEBURG, VIRGINIA 20118

PROJECT NO. 16.CI.001	SCALE: AS SHOWN
DRAWING NO.	FIGURE 2



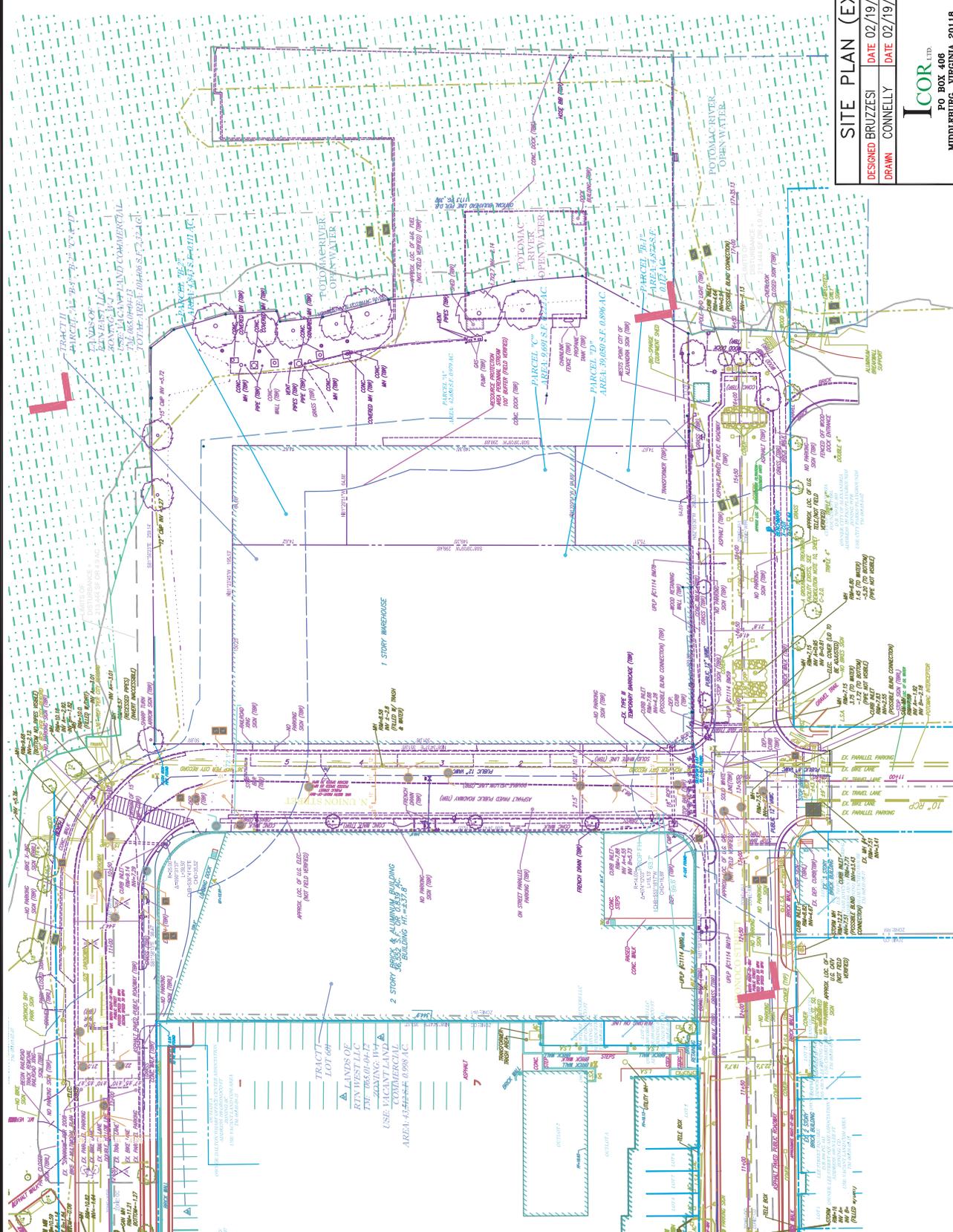
SITE PLAN (EXISTING CONDITIONS)

DESIGNED BRUIZESI DATE 02/19/16
 DRAWN CONNELLY DATE 02/19/16

FORMER ROBINSON TERMINAL NORTH
 500 AND 501 NORTH UNION STREET
 ALEXANDRIA, VA

ICOR LTD.
 PO BOX 406
 MIDDLEBURG, VIRGINIA 20118

PROJECT NO. 16-CI-001 SCALE: AS SHOWN
 DRAWING NO. FIGURE 3





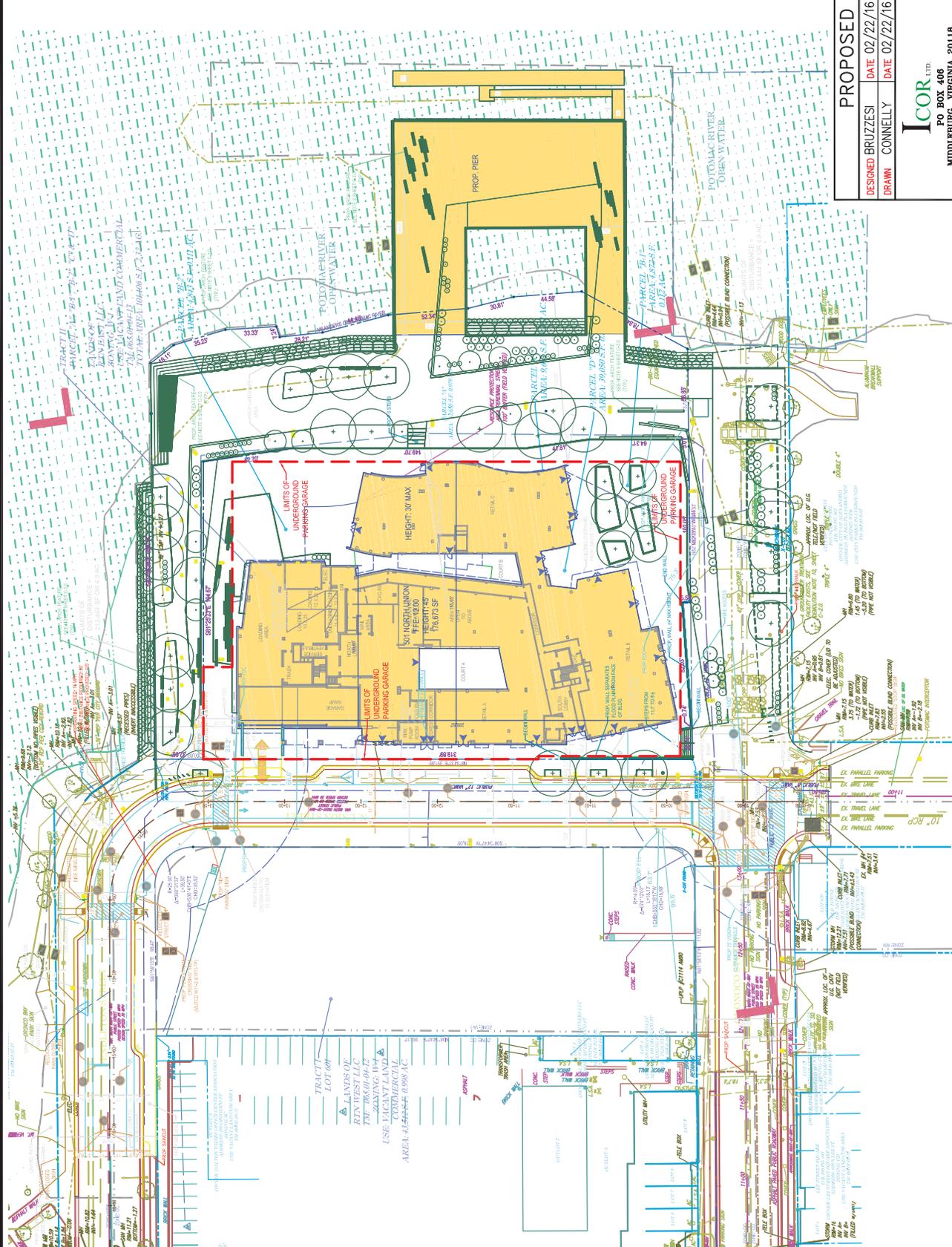
PROPOSED DEVELOPMENT

DESIGNED: BRUIZESI DATE: 02/22/16
 DRAWN: CONNELLY DATE: 02/22/16

FORMER ROBINSON TERMINAL NORTH
 500 AND 501 NORTH UNION STREET
 ALEXANDRIA, VA

ICOR LTD.
 PO BOX 406
 MIDDLEBURG, VIRGINIA 20118

PROJECT NO. 16-CI-001 SCALE: AS SHOWN
 DRAWING NO. FIGURE 4



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500 NORTH UNION
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LEGEND

- ⊕ EXISTING WELL (APPROXIMATE LOCATION)
- HISTORICAL BORING (APPROXIMATE LOCATION)
- ⊗ GROUNDWATER AND SOIL GAS SAMPLE LOCATION FOR ALEXANDRIA TOWN GAS SITE (2006)
- ⊕ PRODUCT RECOVERY WELL FOR ALEXANDRIA TOWN GAS SITE
- ICOR SOIL AND GROUNDWATER TEST BORING
- ICOR SOIL TEST BORING



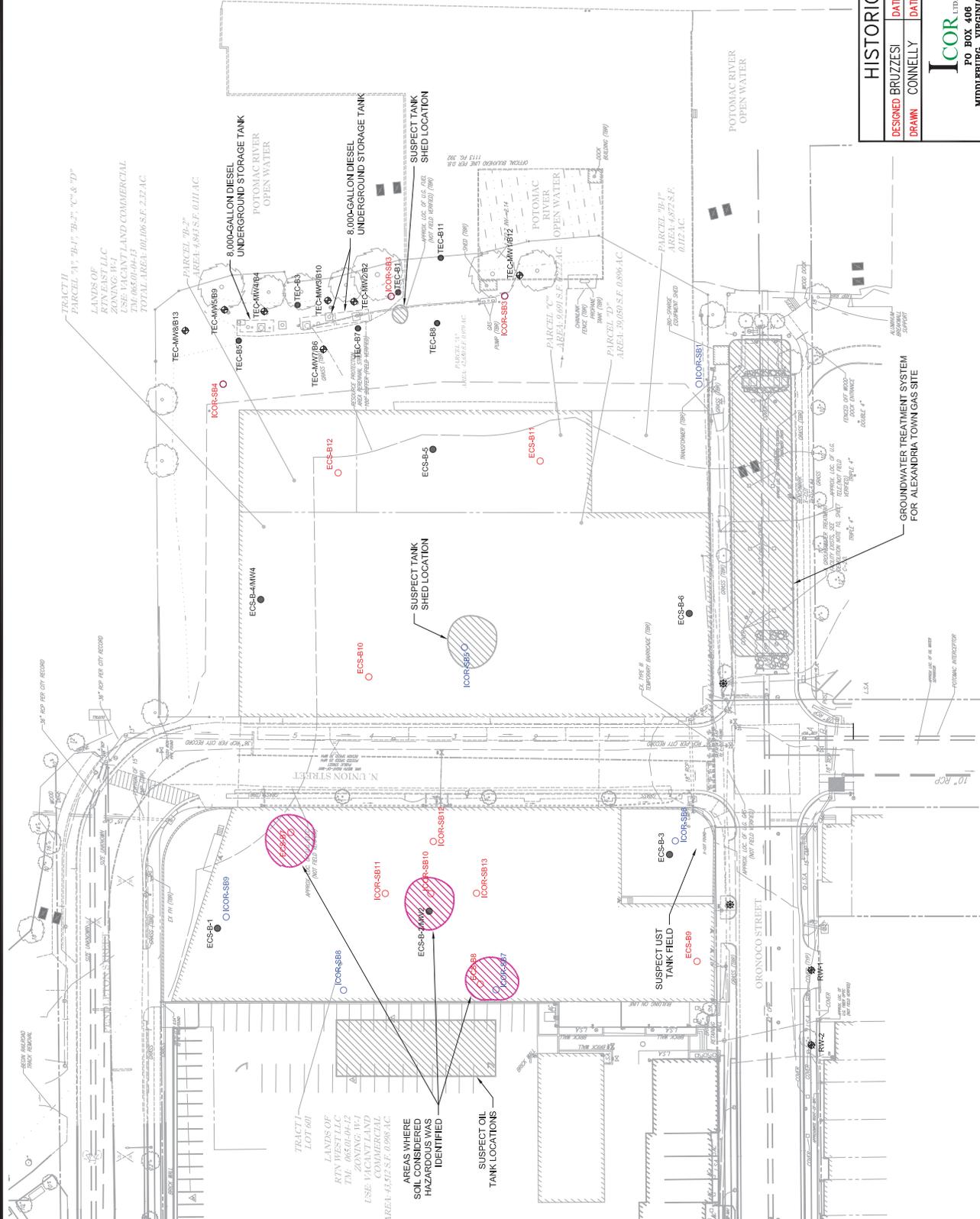
HISTORICAL SAMPLE LOCATIONS

DESIGNED: BRUZZESI DATE: 02/23/16
 DRAWN: CONNELLY DATE: 02/23/16

FORMER ROBINSON TERMINAL NORTH
 500 AND 501 NORTH UNION STREET
 ALEXANDRIA, VA

ICOR LTD.
 P.O. BOX 406
 MIDDLEBURG, VIRGINIA 20118

PROJECT NO. 16-Cl-001 SCALE: AS SHOWN
 DRAWING NO. FIGURE 5





LEGEND

- EXISTING WELL (APPROXIMATE LOCATION)
- HISTORICAL BORING (APPROXIMATE LOCATION)
- ⊗ GROUNDWATER AND SOIL GAS SAMPLE LOCATION FOR ALEXANDRIA TOWN GAS SITE (2006)
- ⊕ PRODUCT RECOVERY WELL FOR ALEXANDRIA TOWN GAS SITE
- ICOR SOIL AND GROUNDWATER TEST BORING
- ICOR SOIL TEST BORING
- ⊕ PROPOSED REAL-TIME SHALLOW ASSESSMENT BORING LOCATIONS
- ⊕ PROPOSED REAL-TIME DEEP ASSESSMENT BORING LOCATIONS



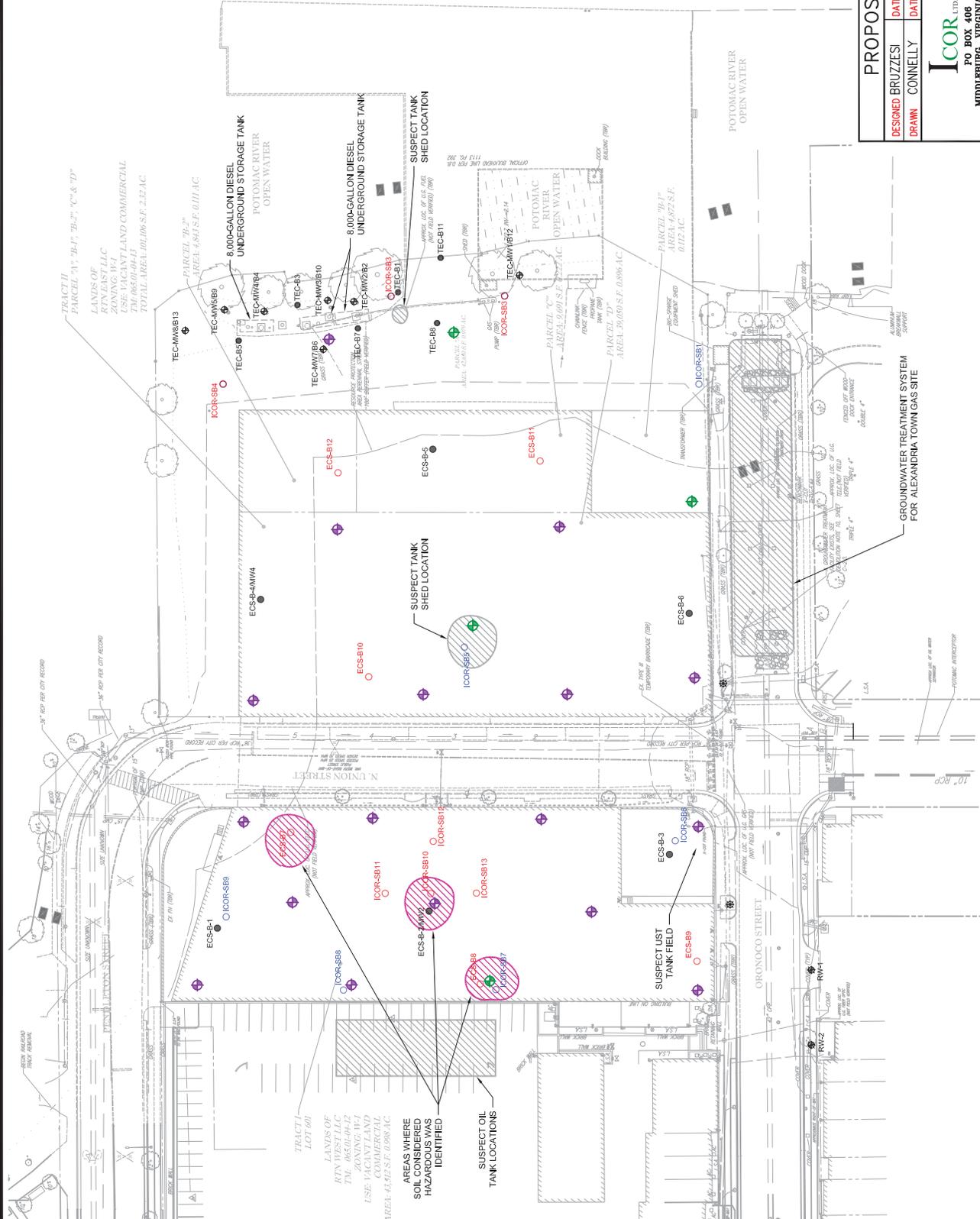
PROPOSED SAMPLE LOCATIONS

DESIGNED: BRUZZESI DATE: 02/23/16
 DRAWN: CONNELLY DATE: 02/23/16

FORMER ROBINSON TERMINAL NORTH
 500 AND 501 NORTH UNION STREET
 ALEXANDRIA, VA

ICOR LTD.
 P.O. BOX 406
 MIDDLEBURG, VIRGINIA 20118

PROJECT NO. 16-CL-001 SCALE: AS SHOWN
 DRAWING NO. FIGURE 6



GROUNDWATER TREATMENT SYSTEM
 FOR ALEXANDRIA TOWN GAS SITE

AREAS WHERE
 SOIL CONSIDERED
 HAZARDOUS WAS
 IDENTIFIED

SUSPECT OIL
 TANK LOCATIONS

SUSPECT TANK
 SHED LOCATION

POTOMAC RIVER
 OPEN WATER

POTOMAC RIVER
 OPEN WATER

POTOMAC RIVER
 OPEN WATER

POTOMAC RIVER
 OPEN WATER

TABLES

TABLE 1A. TEC SOIL ANALYTICAL RESULTS

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	VDEQ-T2SCU	VDEQ-T3SCR	TEC-B1 (11-12)	TEC-B2 (12-16)	TEC-B3 (11-12)	TEC-B4 (9-10)	TEC-B6 (11-12)	TEC-B7 (10-12)	TEC-B8 (7-8)	TEC-B9 (12-14)	TEC-B10 (12-14)	TEC-B11 (9-11)	TEC-B12 (7-8)	TEC-B13 (11-12)
Date:				4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06	4/26/06
TPH															
TPH-GRO	mg/kg	NE	NE	ND	ND	ND	ND	ND	ND	ND	0.62	ND	ND	0.62	ND
TPH-DRO	mg/kg	NE	NE	ND	ND	ND	ND	ND	ND	ND	17	ND	ND	17	19

NOTES:
(11-12) = designates depth sample was collected below ground surface
TPH = total petroleum hydrocarbons
TPH-DRO = diesel range TPH
TPH-GRO = gasoline range TPH
mg/kg = milligrams per kilogram
VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ) Tier II screening concentration for unrestricted use soil (residential)
VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)
ND = not detected above analytical method reporting limit
Bold and center justification designates target compound was detected at a concentration above RL
Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 1B. TEC GROUNDWATER ANALYTICAL RESULTS

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	VDEQ-T3RGSL	VDEQ-T3CGSL	VDEQ-CWT		TEC-MW1	TEC-MW2	TEC-MW3	TEC-MW4	TEC-MW5	TEC-MW6	TEC-MW7
				WTNC	WTC							
Date:				Dermal Contact & Incidental Ingestion	Inhalation							
TPH												
TPH-GRO	mg/L	NE	NE	NE	NE	ND						
TPH-DRO	mg/L	NE	NE	NE	NE	ND						
VOCs												
Benzene	ug/L	941	941	1050	863	15	15	ND	ND	ND	ND	ND
Toluene	ug/L	1920	8070	63100	35000	1020	1020	ND	ND	ND	ND	ND
Ethylbenzene	ug/L	27.6	27.6	3380	1410	61	61	ND	ND	ND	ND	ND
Total Xylenes	ug/L	492	2070	5940	11100	87.4	87.4	ND	ND	ND	ND	ND
Methyl-t-butyl ether	ug/L	1330	1970	397000	152000	585	585	1	67	ND	ND	ND
Naphthalene	ug/L	3.98	20.1	73.5	557	0.722	0.722	ND	ND	ND	ND	ND

NOTES:

- TPH = total petroleum hydrocarbons
- TPH-DRO = diesel range TPH
- TPH-GRO = gasoline range TPH
- VOCs = volatile organic compounds
- ug/L = micrograms per liter
- mg/L = milligrams per liter
- VDEQ = Commonwealth of Virginia Department of Environmental Quality
- VDEQ-T3RGSL = VDEQ Tier III residential groundwater screening level
- VDEQ-T3CGSL = VDEQ Tier III commercial groundwater screening level
- VDEQ-CWT = VDEQ contaminants of concern for a construction worker in a trench
- WTNC = water table not contacted
- WTC = water table contacted
- ND = not detected above analytical method reporting limit
- ND = not detected above analytical method reporting limit
- Bold and center justification designates target compound was detected at a concentration above RL
- Green highlighting designates target compound was detected at a concentration above the RL in at least 1 sample
- Yellow highlighting designates target compound was detected at a concentration above the VDEQ screening level in at least 1 sample

TABLE 2A. ECS SOIL ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	VDEQ-T2SCU	VDEQ-T3SCR	ECS-B1			ECS-B2			ECS-B3								
				(1-2-5) 1/3/08	(2-5-4) 1/3/08	(8.5-10) 1/3/08	(18.5-20) 1/3/08	(2.5-4) 1/3/08	(5-6.5) 1/3/08	(8.5-10) 1/3/08	(13.5-15) 1/3/08	(1-2-5) 1/3/08	(8.5-10) 1/3/08	(13.5-15) 1/3/08	(26.5-30) 1/3/08			
Date:																		
TPH																		
TPH-DRO	mg/kg			NA	10200	7060	ND	56	NA	17	70	115	40	ND	27			
VOCs																		
Benzene	ug/kg	97.7	5400	NA	ND	2.8	ND	ND	NA	NA	11	9.8	5120	ND	ND	ND	ND	
2-Butanone (MEK)	ug/kg	1250	20000000	NA	ND	ND	ND	ND	NA	7.3	ND	ND	ND	ND	ND	ND	ND	
n-Butylbenzene	ug/kg	14200	51000000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
sec-Butylbenzene	ug/kg	NE	10000000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
tert-Butylbenzene	ug/kg	NE	10000000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
Carbon Disulfide	ug/kg	492	370000	NA	ND	ND	ND	ND	NA	NA	17	8.6	ND	ND	ND	ND	ND	
Ethylbenzene	ug/kg	5400	27000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
Isopropylbenzene (Cumene)	ug/kg	3410	1100000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
p-Isopropyltoluene	ug/kg	NE	NE	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
Methyl-t-butyl ether	ug/kg	41.7	220000	NA	ND	ND	ND	ND	NA	NA	ND	4.2	ND	ND	2.7	3.2	ND	
Naphthalene	ug/kg	26.2	18000	NA	136	70	ND	ND	NA	NA	204	7.4	ND	84	ND	ND	ND	
n-Propylbenzene	ug/kg	5360	21000000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
Styrene	ug/kg	5600	3600000	NA	ND	ND	ND	ND	NA	NA	ND	ND	ND	ND	ND	ND	ND	
Toluene	ug/kg	31100	4500000	NA	7.7	13	3.4	4.2	NA	4.2	4.7	70	196	5.6	2.7	ND	ND	
1,2,4-Trimethylbenzene	ug/kg	115	26000	NA	ND	13	ND	ND	NA	NA	14	16	ND	10	ND	ND	ND	
1,3,5-Trimethylbenzene	ug/kg	658	1000000	NA	ND	13	ND	ND	NA	NA	14	7.5	ND	11	ND	ND	ND	
Total Xylenes	ug/kg	63000	270000	NA	3.4	14.1	ND	ND	NA	NA	16.3	58	ND	11.1	ND	ND	ND	
RCRA Metals																		
Arsenic	mg/kg	3.4	30	NA	4.3	NA	NA	NA	NA	1090	NA	NA	NA	NA	NA	NA	NA	
Barium	mg/kg	1500	19000	NA	82.3	NA	NA	NA	NA	90.9	NA	NA	NA	NA	NA	NA	NA	
Cadmium	mg/kg	7	80	ND	ND	NA	NA	NA	NA	23.6	NA	NA	NA	NA	NA	NA	NA	
Chromium	mg/kg	0.29	5.6	16.3	NA	NA	NA	NA	NA	17.5	NA	NA	NA	NA	NA	NA	NA	
Lead	mg/kg	270	800	14.9	NA	NA	NA	NA	NA	297	NA	NA	NA	NA	NA	NA	NA	
Mercury	mg/kg	1	4.3	ND	ND	NA	NA	NA	NA	75.1	NA	NA	NA	NA	NA	NA	NA	
Selenium	mg/kg	5.1	510	ND	ND	NA	NA	NA	NA	10.3	NA	NA	NA	NA	NA	NA	NA	
Silver	mg/kg	1.19	510	ND	ND	NA	NA	NA	NA	1.41	NA	NA	NA	NA	NA	NA	NA	

NOTES:

(10-15.5) = designates depth sample was collected below ground surface

TPH = total petroleum hydrocarbons

TPH-GRO = gross TPH

TPH-RO = dissolved TPH

VOCs = volatile organic compounds

RCRA = Resource Conservation and Recovery Act

ug/kg = micrograms per kilogram

mg/kg = milligrams per kilogram

NA = not analyzed

ND = not detected above the analytical method reporting limit

VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ)

Tier II screening concentration for unrestricted use soil (residential)

VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)

Green highlighting designates target compound was detected at a concentration above RL

Yellow highlighting designates target compound was detected at a concentration above RL in at least 1 sample

Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 2A. ECS SOIL ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	VDEQ-T2SCU	VDEQ-T3SCR	ECS-B4			ECS-B5						
				(5-6-5) 1/3/08	(13-5-15) 1/3/08	(23-5-25) 1/3/08	(28-5-30) 1/3/08	(2-5-4) 1/3/08	(5-6-5) 1/3/08	(8-5-10) 1/3/08	(28-5-30) 1/3/08	(33-5-35) 1/3/08	
Date:													
TPH													
TPH-DRO	mg/kg	NE	NE	22	22	22	ND	95	NA	20	58	ND	ND
VOCs													
Benzene	ug/kg	97.7	5400	ND	6.3	4.6	ND	ND	NA	ND	ND	ND	3.7
2-Butanone (MEK)	ug/kg	1250	20000000	ND	ND	ND	ND	ND	NA	ND	7.3	ND	ND
n-Butylbenzene	ug/kg	14200	51000000	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
sec-Butylbenzene	ug/kg	NE	100000000	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
tert-Butylbenzene	ug/kg	NE	100000000	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Carbon Disulfide	ug/kg	492	3700000	ND	ND	ND	ND	ND	NA	3.3	ND	ND	11
Ethylbenzene	ug/kg	5400	270000	2.2	5.1	4.9	ND	ND	NA	ND	ND	ND	7
Isopropylbenzene (Cumene)	ug/kg	3410	1100000	ND	ND	2.5	ND	ND	NA	ND	ND	ND	ND
p-Isopropyltoluene	ug/kg	NE	NE	ND	ND	ND	ND	ND	NA	166	226	ND	419
Methyl-t-butyl ether	ug/kg	41.7	220000	ND	ND	2.6	ND	ND	NA	ND	ND	ND	ND
Naphthalene	ug/kg	26.2	18000	ND	66	155	4.9	ND	NA	14	5.9	ND	27
n-Propylbenzene	ug/kg	5360	21000000	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Styrene	ug/kg	5600	36000000	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND
Toluene	ug/kg	31100	45000000	16	11	29	ND	ND	NA	4.5	5.7	ND	8.4
1,2,4-Trimethylbenzene	ug/kg	115	260000	4.9	6.5	12	ND	4	NA	11	9.8	ND	9.3
1,3,5-Trimethylbenzene	ug/kg	658	10000000	4.7	2.8	5	ND	ND	NA	4.6	3.8	ND	2.8
Total Xylenes	ug/kg	63000	2700000	12.2	9	24.7	ND	ND	NA	ND	3.3	ND	3.7
RCRA Metals													
Arsenic	mg/kg	3.4	30	NA	NA	NA	NA	NA	7	NA	NA	NA	NA
Barium	mg/kg	1500	190000	NA	NA	NA	NA	NA	99.7	NA	NA	NA	NA
Cadmium	mg/kg	7	80	NA	NA	NA	NA	NA	3.79	NA	NA	NA	NA
Chromium	mg/kg	0.29	5.6	NA	NA	NA	NA	NA	25.8	NA	NA	NA	NA
Lead	mg/kg	270	800	NA	NA	NA	NA	NA	11.5	NA	NA	NA	NA
Mercury	mg/kg	1	4.3	NA	NA	NA	NA	NA	0.25	NA	NA	NA	NA
Selenium	mg/kg	5.1	510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	1.19	510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

- (10-15) = designates depth sample was collected below ground surface
- TPH = Total Petroleum Hydrocarbons
- TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics
- TPH-GRO = gasoline range TPH
- VOCs = volatile organic compounds
- RCRA = Resource Conservation and Recovery Act
- ug/kg = micrograms per kilogram
- mg/kg = milligrams per kilogram
- NA = not analyzed
- ND = not detected above the analytical method reporting limit
- VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ)
- Tier II screening concentration for unrestricted use soil (residential)
- VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)
- RL = residential use soil
- Green highlighting designates target compound was detected at a concentration above the RL in at least 1 sample
- Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 2A. ECS SOIL ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	VDEQ-T2SCU	VDEQ-T3SCR	ECS-B6						
				(5-6-5) 1/3/08	(8.5-10) 1/3/08	(13.5-15) 1/3/08	(18.5-20) 1/3/08	(23.5-25) 1/3/08	(28.5-30) 1/3/08	
Date:										
TPH	mg/kg	NE	NE	142	111	31	68	NA	33	
VOCs										
Benzene	ug/kg	97.7	5400	977	ND	16	ND	NA	NA	ND
2-Butanone (MEK)	ug/kg	1250	20000000	ND	ND	ND	ND	NA	NA	ND
n-Butylbenzene	ug/kg	14200	5100000	366	ND	3.2	ND	NA	NA	3.6
sec-Butylbenzene	ug/kg	NE	10000000	ND	ND	26	ND	NA	NA	ND
tert-Butylbenzene	ug/kg	NE	10000000	ND	ND	11	ND	NA	NA	ND
Carbon Disulfide	ug/kg	492	370000	ND	ND	ND	ND	NA	NA	ND
Ethylbenzene	ug/kg	5400	270000	1360	ND	6.4	ND	NA	NA	ND
Isopropylbenzene (Cumene)	ug/kg	3410	1100000	ND	ND	8.4	ND	NA	NA	ND
p-Isopropyltoluene	ug/kg	NE	NE	473	ND	3.8	ND	NA	NA	ND
Methyl-t-butyl ether	ug/kg	41.7	220000	ND	ND	ND	ND	NA	NA	ND
Naphthalene	ug/kg	26.2	18000	ND	ND	5.2	5500	NA	NA	ND
n-Propylbenzene	ug/kg	5360	21000000	ND	ND	5.8	ND	NA	NA	2.7
Styrene	ug/kg	5600	3600000	ND	ND	ND	ND	NA	NA	ND
Toluene	ug/kg	31100	4500000	3800	238	36	ND	NA	NA	2.9
1,2,4-Trimethylbenzene	ug/kg	115	26000	1050	ND	18	ND	NA	NA	19
1,3,5-Trimethylbenzene	ug/kg	658	1000000	1870	ND	11	ND	NA	NA	9.8
Total Xylenes	ug/kg	63000	270000	4209	361	38	ND	NA	NA	3.5
RCRA Metals										
Arsenic	mg/kg	3.4	30	NA	NA	NA	NA	6.6	NA	NA
Barium	mg/kg	1500	19000	NA	NA	NA	NA	46	NA	NA
Cadmium	mg/kg	7	80	NA	NA	NA	NA	NA	ND	NA
Chromium	mg/kg	0.29	5.6	NA	NA	NA	NA	19.9	NA	NA
Lead	mg/kg	270	800	NA	NA	NA	NA	39.5	NA	NA
Mercury	mg/kg	1	4.3	NA	NA	NA	NA	0.06	NA	NA
Selenium	mg/kg	5.1	510	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	1.19	510	NA	NA	NA	NA	NA	NA	NA

NOTES:
 (10-13.3) = designates depth sample was collected below ground surface
 (10-13.3) = total petroleum hydrocarbons
 TPH-DRO = diesel range TPH
 TPH-GRO = gasoline range TPH
 VOCs = volatile organic compounds
 RCRA = Resource Conservation and Recovery Act
 ug/kg = micrograms per kilogram
 mg/kg = milligrams per kilogram
 NA = not analyzed
 ND = not detected above the analytical method reporting limit
 VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ)
 Tier II screening concentration for unrestricted use soil (residential)
 VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)
 Bold and center justification designates target compound was deleted at a concentration above RL
 Green highlighting designates target compound was deleted at a concentration above the RL in at least 1 sample
 Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 2B. ECS GROUNDWATER ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	VDEQ-T3RGSL	VDEQ-T3CGSL	WTNC	VDEQ-CWT		ECS-MW2	ECS-MW4
					Dermal Contact & Incidental Ingestion	WTC Inhalation		
Date:							1/4/08	1/4/08
TPH								
TPH-DRO	mg/L	NE	NE	NE	NE	NE	2.87	0.99
VOCs								
Benzene	ug/L	941	941	1050	863	15	60	ND
Naphthalene	ug/L	3.98	20.1	73.5	557	0.722	ND	8.6
Total Xylenes	ug/L	492	2070	5940	11100	87.4	3.1	4.2
SVOCs								
Acenaphthene	ug/L	NE	NE	NE	2870	NE	ND	17
Acenaphthylene	ug/L	NE	NE	NE	1460	NE	ND	10
Dimethyl phthalate	ug/L	NE	NE	NE	37500	NE	3.9	ND
Fluorene	ug/L	NE	NE	NE	4250	NE	ND	5.6
2-Methylnaphthalene	ug/L	NE	NE	NE	56.5	NE	ND	2.3
Naphthalene	ug/L	3.98	20.1	73.5	557	0.722	ND	8.3
Phenanthrene	ug/L	NE	NE	NE	1430	NE	ND	2.2

NOTES:

TPH = total petroleum hydrocarbons
 TPH-DRO = diesel range TPH
 VOCs = volatile organic compounds
 SVOCs = semi-VOCs
 ug/L = micrograms per liter
 mg/L = milligrams per liter
 VDEQ = Commonwealth of Virginia Department of Environmental Quality
 VDEQ-T3RGSL = VDEQ Tier III residential groundwater screening level
 VDEQ-T3CGSL = VDEQ Tier III commercial groundwater screening level
 VDEQ-CWT = VDEQ contaminants of concern for a construction worker in a trench
 WTNC = water table not contacted
 WTC = water table contacted
 ND = not detected above analytical method reporting limit
 Bold and center justification designates target compound was detected at a concentration above RL
 Yellow highlighting designates target compound was detected at a concentration above the VDEQ screening level in at least 1 sample

TABLE 3. ICOR TEST BORING SUMMARY

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Test Boring ID	Date Advanced	Test Boring Depth (feet BGS)	Soil Information						Groundwater Sample Laboratory Analyses
			Staining Observed (feet BGS)	Odors Noted (feet BGS)	PID Reading Range (in PPM)	Laboratory Sample Analyses		Approximate Depth to Groundwater (feet BGS)	
						Depth (feet BGS)	Analyses		
ICOR-SB1	10/8/13	13.5	NO	NO	0.0 - 0.0	NO	NO	5.4	TPH-GRO, TPH-DRO, TCL VOCs, Total and Dissolved PPL Metals
ICOR-SB2	10/8/13	15.0	NO	3.0 - 10.0 (oil and gasoline)	0.0 - 25.4	3.0 - 4.0 5.0 - 6.0	PPL Metals TPH-GRO, TPH-DRO, TCL VOCs, TCL SVOCs	6.0	NO
ICOR-SB3	10/8/13	15.0	10.0 - 12.0 (oil)	10.0 - 12.0 (oil)	0.0 - 4.0	NO	NO	10.0	NO
ICOR-SB4	10/8/13	10.0	NO	NO	0.0 - 0.0	NO	NO	9.0	NO
ICOR-SB5	10/8/13	15.0	NO	NO	0.0 - 0.0	6.0 - 7.0	TPH-GRO, TPH-DRO, TCL VOCs, TCL SVOCs, PPL Metals	9.9	TPH-GRO, TPH-DRO, TCL VOCs, Total and Dissolved PPL Metals
ICOR-SB6	10/8/13	15.0	NO	12.0 - 15.0 (oil)	0.0 - 8.2	2.0 - 3.0	PPL Metals	10.5	TPH-GRO, TPH-DRO, TCL VOCs, Total and Dissolved PPL Metals
ICOR-SB7	10/8/13	15.0	NO	5.0 - 15.0 (oil from 5.0 - 7.0 and oil and gasoline from 7.0 - 15.0)	0.0 - 163.0	7.5 - 8.5	TPH-GRO, TPH-DRO, TCL VOCs, TCL SVOCs, PPL Metals	8.0	TPH-GRO, TPH-DRO, TCL VOCs, Total and Dissolved PPL Metals

TABLE 3. ICOR TEST BORING SUMMARY

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Test Boring ID	Date Advanced	Test Boring Depth (feet BGS)	Soil Information						Approximate Depth to Groundwater (feet BGS)	Groundwater Sample Laboratory Analyses
			Staining Observed (feet BGS)	Odors Noted (feet BGS)	PID Reading Range (in PPM)	Laboratory Sample Analyses				
						Depth (feet BSG)				
ICOR-SB8	10/8/13	15.0	NO	1.0 - 15.0 (oil and gasoline)	46.1 - >451.0	2.0 - 3.0	PPL Metals	8.1	TPH-GRO, TPH-DRO, TCL VOCs, TCL SVOCs	
						5.0 - 6.0	TPH-GRO, TPH-DRO, TCL VOCs, TCL SVOCs			
ICOR-SB9	10/8/13	17.0	NO	2.0 - 6.0 (oil)	0.0 - 2.8	4.5 - 5.5	PPL Metals	10.1	TPH-GRO, TPH-DRO, TCL VOCs, Total and Dissolved PPL Metals	
ICOR-SB10	10/8/13	15.0	NO	NO	0.0 - 0.0	2.0 - 3.0	PPL Metals	8.5	NO	
ICOR-SB11	10/8/13	15.0	NO	NO	0.0 - 0.0	5.5 - 6.5	TPH-GRO, TPH-DRO, TCL VOCs, PPL Metals	9.1	NO	
ICOR-SB12	10/8/13	15.0	NO	NO	0.0 - 0.0	6.0 - 7.0	PPL Metals	10.0	NO	
ICOR-SB13	10/8/13	15.0	NO	NO	0.0 - 0.0	5.5 - 6.5	TPH-GRO, TPH-DRO, PPL Metals, Chromium VI	9.0	NO	

NOTES:

Elevations are estimated from site plans
BSG = below surface grade
PPM = parts per million
Yellow highlighting indicates observation of note

TABLE 4. WELL CONSTRUCTION INFORMATION

FORMER ROBINSON TERMINAL NORTH
 500 AND 501 NORTH UNION STREET
 ALEXANDRIA, VA

WELL ID	DATE INSTALLED	WELL DIAMETER (inches ID)	WELL MATERIAL	TOTAL DEPTH (feet BSG)	SCREEN INTERVAL (feet BSG)	DEPTH TO GROUNDWATER (feet BSG on 5/4/06)	DEPTH TO GROUNDWATER (feet BSG on 10/9/13)
TEC-MW1	4/27/06	1	PVC	10.0	UKN	5.64	NM
TEC-MW2	4/27/06	1	PVC	16.0	UKN	6.79	NM
TEC-MW3	UKN	1	PVC	UKN	UKN	7.00	NM
TEC-MW4	4/27/06	1	PVC	12.0	UKN	7.05	NM
TEC-MW5	4/27/06	1	PVC	16.0	UKN	7.89	NM
TEC-MW6	4/28/06	1	PVC	16.0	UKN	6.40	NM
TEC-MW7	4/27/06	1	PVC	12.0	UKN	6.49	NM
ECS-MW2	12/20/07	1	PVC	UKN	UKN	NP	10.08
ECS-MW4	12/27/07	1	PVC	UKN	UKN	NP	5.19
ICOR-SB1	10/8/13	1	PVC	13.5	3.5 - 13.5	NP	5.39
ICOR-SB5	10/8/13	1	PVC	14.0	4.0 - 14.0	NP	9.89
ICOR-SB6	10/8/13	1	PVC	13.0	3.0 - 13.0	NP	10.51
ICOR-SB7	10/8/13	1	PVC	13.0	3.0 - 13.0	NP	8.01
ICOR-SB8	10/8/13	1	PVC	13.5	3.5 - 13.5	NP	8.09
ICOR-SB9	10/8/13	1	PVC	18.0	8.0 - 18.0	NP	10.06
ICOR-SB12	10/8/13	1	PVC	14.0	4.0 - 14.0	NP	9.06

NOTES:

- ID = inner diameter
- BSG = below surface grade
- UKN = unknown
- NP = well not present
- NM = not measured

TABLE 5A. ICOR SOIL ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	CAS No.	VDEQ-T2SCU	VDEQ-T3SCR	ICOR-SB2(3-4)	ICOR-SB2(5-6)	ICOR-SB5(6-7)	ICOR-SB6(2-3)	ICOR-SB7(7.5-8.5)	ICOR-SB8(2-3)	ICOR-SB8(7.5-8.5)	ICOR-SB9(4.5-5.5)
Date:					10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013
TPH EPA 8015												
TPH-GRO	mg/kg		NE	NE	NA	1.2	<0.11	NA	240	NA	370	NA
TPH-DRO	mg/kg		NE	NE	NA	77	420	NA	3800	NA	42	NA
TCL VOCs EPA 8260B												
Acetone	ug/kg	67-64-1	2750	63000000	NA	<23	<23	NA	<2200	NA	<2400	NA
Isopropylbenzene	ug/kg	98-82-8	3410	110000	NA	15	<5.6	NA	<560	NA	<600	NA
Methylcyclohexane	ug/kg	108-87-2	NE	NE	NA	41	<23	NA	<2200	NA	16000	NA
Naphthalene	ug/kg	91-20-3	26.2	18000	NA	14	7.4	NA	<560	NA	<600	NA
TCL SVOCs EPA 8270C												
Fluoranthene	ug/kg	206-44-0	230000	2200000	NA	260	<190	NA	<740	NA	<200	NA
Pyrene	ug/kg	129-00-0	65500	1700000	NA	210	<190	NA	<740	NA	<200	NA
PPL Metals EPA 6020A												
Antimony	mg/kg	7440-36-0	3.1	41	<2.4	NA	<2.1	<2.6	<2.8	<2.8	<2.2	<2.8
Arsenic	mg/kg	7440-38-2	3.4	30	2.8	NA	3.8	11	130	600	12	3.6
Chromium	mg/kg	7440-47-3	0.29*	63*	20	NA	<2.1	26	11	22	12	10
Copper	mg/kg	7440-50-8	3.10	4100	18	NA	4.6	200	7.6	18	5.0	12
Lead	mg/kg	7439-92-1	270	800	15	NA	16	32	4.7	9.1	7.2	60
Mercury	mg/kg	7439-97-6	0.94	4	<0.095	NA	<0.084	<0.10	<0.11	<0.11	<0.089	0.56
Nickel	mg/kg	7440-02-0	39.1	2000	22	NA	<2.1	26	5.9	21	22	9.4
Selenium	mg/kg	7782-49-2	5.1	510	<2.4	NA	<2.1	<2.6	<2.8	<2.8	<2.2	<2.8
Silver	mg/kg	7440-22-4	1.19	510	<2.4	NA	<2.1	<2.6	<2.8	<2.8	<2.2	<2.8
Thallium	mg/kg	7440-28-0	0.078	1	<1.9	NA	<1.7	<2.1	<2.2	<2.2	<1.8	<2.2
Zinc	mg/kg	7440-66-6	584	31000	68	NA	<8.4	1100	33	63	37	5000
Chromium VI EPA 7196A												
Chromium VI	mg/kg	18540-29-9	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
TCLP RCRA Metals EPA 3010A/6020A												
Arsenic	ug/L	7440-38-2	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Lead	ug/L	7439-92-1	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
 (0.5-1.5) = designates depth sample was collected below ground surface
 TPH = total petroleum hydrocarbons
 TPH-DRO = diesel range TPH
 TPH-GRO = gasoline range TPH
 U/L = Target Compound List
 VOCs = volatile organic compounds
 SVOCs = semi-volatile organics
 PCBs = polychlorinated biphenyls
 PPL = Pesticide Pollution List
 TCLP = Toxic Characteristic Leaching Procedure
 RCRA = Resource Conservation and Recovery Act
 EPA 8260B = United States Environmental Protection Agency SW-846 analytical method
 ug/kg = micrograms per kilogram
 mg/kg = milligrams per kilogram
 ug/L = micrograms per liter
 NA = not analyzed
 VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ) Tier II screening concentration for unrestricted use soil (residential)
 VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)
 <1.0 = not detected above analytical method reporting limit (RL)
 * = total chromium (chromium III and VI)
 Bold and center justification designates target compound was detected at a concentration above RL
 Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 5A. ICOR SOIL ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	CAS No.	VDEQ-T2SCU	VDEQ-T3SCR	ICOR-SB10(2-3)	ICOR-SB10(5.5-6.5)	ICOR-SB11(5.5-6.5)	ICOR-SB12(6-7)	ICOR-SB13(5.5-6.5)
Date:					10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013
TPH EPA 8015	mg/kg		NE	NE	NA	NA	<0.12	NA	<0.12
TPH-GRO	mg/kg		NE	NE	NA	NA	<4.8	NA	<5.1
TPH-DRO	mg/kg		NE	NE	NA	NA		NA	
TCL VOCs EPA 8260B									
Acetone	ug/kg	67-64-1	2750	63000000	NA	NA	77	NA	NA
Isopropylbenzene	ug/kg	98-82-8	3410	1100000	NA	NA	<5.9	NA	NA
Methylcyclohexane	ug/kg	108-87-2	NE	NE	NA	NA	<24	NA	NA
Naphthalene	ug/kg	91-20-3	26.2	18000	NA	NA	<5.9	NA	NA
TCL SVOCs EPA 8270C									
Fluoranthene	ug/kg	206-44-0	230000	2200000	NA	NA	<210	NA	NA
Pyrene	ug/kg	129-00-0	65500	1700000	NA	NA	<210	NA	NA
PPL Metals EPA 6020A									
Antimony	mg/kg	7440-36-0	3.1	41	12	<2.3	<3.0	<2.0	<2.8
Arsenic	mg/kg	7440-38-2	3.4	30	1300	190	3.9	3.1	9.9
Chromium	mg/kg	7440-47-3	0.29*	63*	18	19	24	22	30
Copper	mg/kg	7440-50-8	310	4100	1800	270	21	16	59
Lead	mg/kg	7439-92-1	270	800	2200	10	12	14	17
Mercury	mg/kg	7439-97-6	0.94	4	7.8	0.17	0.19	0.15	0.24
Nickel	mg/kg	7440-02-0	39.1	2000	13	18	23	24	21
Selenium	mg/kg	7782-49-2	5.1	510	8.2	<2.3	<3.0	<2.0	<2.8
Silver	mg/kg	7440-22-4	1.19	510	15	<2.3	<3.0	<2.0	<2.8
Thallium	mg/kg	7440-28-0	0.078	1	3.0	<1.8	<2.4	<1.6	<2.2
Zinc	mg/kg	7440-66-6	584	31000	2100	620	61	1700	1700
Chromium VI EPA 7196A	mg/kg								
Chromium VI	mg/kg	18540-29-9	NE	NE	NA	NA	NA	NA	<0.97
TCLP RCRA Metals EPA 3010A/6020A									
Arsenic	ug/L	7440-38-2	NE	NE	1.4	NA	NA	NA	NA
Lead	ug/L	7439-92-1	NE	NE	7.8	NA	NA	NA	NA

NOTES:
 (0.5-1.5) = designates depth sample was collected below ground surface
 TPH = total petroleum hydrocarbons
 TPH-DRO = diesel range TPH
 TPH-GRO = gasoline range TPH
 TCL = Target Compound List
 SVOCs = volatile organic compounds
 PCBs = polychlorinated biphenyls
 PRLs = Priority Pollutant List
 TCLP = Toxic Characteristic Leaching Procedure
 RCRA = Resource Conservation and Recovery Act
 EPA 8260B = United States Environmental Protection Agency SW-846 analytical method
 mg/kg = milligrams per kilogram
 ug/L = micrograms per liter
 NA = not analyzed
 VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ) Tier II screening concentration for unrestricted use soil (residential)
 VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)
 * = total chromium (chromium III and VI)
 Bold and center justification designates target compound was detected at a concentration above RL
 Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 5B. 2014 GEOTECHNICAL INVESTIGATION SOIL ANALYTICAL RESULTS

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	CAS No.	VDEQ-T2SCU	VDEQ-T3SCR	ECS-B7(2.5-10)	ECS-B8(2.5-4)	ECS-B9(2.5-10)	ECS-B10(4-10)	ECS-B11(5-10)	ECS-B12(5-10)
Date:					10/6/14	10/7/14	10/7/14	10/8/14	10/10/14	10/8/14
RCRA Metals EPA 6020A										
Arsenic	mg/kg	7440-38-2	3.4	30	1600	1900	11	6.8	18	7.7
Barium	mg/kg	7440-39-3	1500	22000	320	190	81	170	140	81
Cadmium	mg/kg	7440-43-9	7	98	17	12	<2.7	<2.6	<2.7	<2.9
Chromium	mg/kg	7440-47-3	3*	63*	27	20	21	5.4	15	3.4
Lead	mg/kg	7439-92-1	270	800	1500	370	15	59	600	160
Mercury	mg/kg	7439-97-6	0.94	4	27	20	<0.11	0.18	0.23	0.27
Selenium	mg/kg	7782-49-2	5.1	580	10	6.0	<2.7	<2.6	3.2	<2.9
Silver	mg/kg	7440-22-4	1.58	580	12	2.8	<2.7	<2.6	5.9	<2.9
TCLP RCRA Metals EPA 3010A/6020A										
Arsenic	ug/L	7440-38-2	NE	NE	2.0	6.3	NA	NA	NA	NA
Barium	ug/L	7440-39-3	NE	NE	<1.0	1.0	NA	NA	NA	NA
Cadmium	ug/L	7440-43-9	NE	NE	0.063	0.070	NA	NA	NA	NA
Chromium	ug/L	7440-47-3	NE	NE	<0.050	<0.050	NA	NA	NA	NA
Lead	ug/L	7439-92-1	NE	NE	0.75	<0.050	NA	NA	NA	NA
Mercury	ug/L	7439-97-6	NE	NE	<0.0020	<0.0020	NA	NA	NA	NA
Selenium	ug/L	7782-49-2	NE	NE	<0.050	<0.050	NA	NA	NA	NA
Silver	ug/L	7440-22-4	NE	NE	<0.050	<0.050	NA	NA	NA	NA

NOTES:
(2.5-4) = designates depth sample was collected below ground surface
TCLP = Toxic Characteristic Leaching Procedure
RCRA = Resource Conservation and Recovery Act
EPA 6020A = United States Environmental Protection Agency SW-846 analytical method
mg/kg = milligrams per kilogram
ug/L = micrograms per liter
NA = not analyzed
VDEQ-T2SCU = Commonwealth of Virginia Department of Environmental Quality (VDEQ) Tier II screening concentration for unrestricted use soil (residential)
VDEQ-T3SCR = VDEQ Tier III screening concentration for restricted use soil (commercial/industrial)
<1.0 = not detected above analytical method reporting limit (RL)
* = total chromium (chromium III and VI)
Bold and center justification designates target compound was detected at a concentration above RL
Yellow highlighting designates target compound was detected at a concentration above a VDEQ screening concentration in at least 1 sample

TABLE 6. ICOR GROUNDWATER ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	CAS No.	VDEQ-T3RGSL	VDEQ-T3CGSL	VDEQ-CWT		ECS-MW2	ECS-MW4	ICOR-SB1(GW)	ICOR-SB5(GW)	ICOR-SB6(GW)	ICOR-SB7(GW)	ICOR-SB8(GW)	ICOR-SB9(GW)
					WTNC	WTC Dermal Contact & Incidental Ingestion								
Date:														
TPH EPA 8015														
TPH-GRO	mg/L		NE	NE	NE	NE	2.8	<0.1	<0.1	0.25	0.21	0.18	11	0.25
TPH-DRO	mg/L		NE	NE	NE	NE	0.91	0.15	0.17	0.30	0.11	0.16	0.93	0.77
TCL VOCs EPA 8260B														
Benzene	ug/L	71-43-2	941	941	1050	863	15	<1.0	<1.0	49	50	1.7	57	7.4
Cyclohexane	ug/L	110-82-7	102	429	9780	NE	3420	<1.0	<1.0	<1.0	<1.0	<1.0	710	<1.0
Ethylbenzene	ug/L	100-41-4	27.6	27.6	3380	1410	61	<1.0	<1.0	15	7.7	<1.0	80	<1.0
Isopropylbenzene	ug/L	98-82-8	88.7	373	3450	6400	92.5	<1.0	<1.0	3.5	<1.0	1.2	<1.0	<1.0
Methylcyclohexane	ug/L	108-87-2	17.7	74.5	650	NE	624	<1.0	<1.0	<1.0	<1.0	<1.0	520	<1.0
Naphthalene	ug/L	91-20-3	3.98	20.1	73.5	557	0.722	<1.0	<1.0	29	27	<1.0	50	19
Toluene	ug/L	108-88-3	1920	8070	63100	35000	1020	<1.0	<1.0	<1.0	<1.0	<1.0	16	1.7
m,p-Xylenes	ug/L	108-38-3	71.5	149	1330	5270	21.8	<2.0	<2.0	4.8	2.9	<2.0	76	<2.0
o-Xylene	ug/L	95-47-6	51.9	207	1830	5870	21.9	<1.0	<1.0	21	3.2	<1.0	<1.0	<1.0
TCL SVOCs EPA 8270C														
Acenaphthene	ug/L	83-32-9	NE	NE	NE	2870	NE	<1.0	7.2	<5.0	<5.0	<5.0	<1.0	27
Acenaphthylene	ug/L	208-96-8	NE	NE	NE	1460	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	8.5
Anthracene	ug/L	120-12-7	NE	NE	NE	7660	NE	<1.0	<5.0	<1.0	<5.0	<5.0	<1.0	7.3
Biphenyl (Diphenyl)	ug/L	92-52-4	3.31	13.9	1800	1160	1.23	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	9.3
Carbazole	ug/L	86-74-8	NE	NE	NE	NE	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	8.7
Dibenzofuran	ug/L	132-64-9	NE	NE	NE	47.1	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	22
Fluoranthene	ug/L	206-44-0	NE	NE	NE	304	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	12
Fluorene	ug/L	86-73-7	NE	NE	NE	4250	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	30
Naphthalene	ug/L	91-20-3	3.98	20.1	73.5	557	0.722	<1.0	<5.0	8.4	<5.0	<5.0	<1.0	13
Phenanthrene	ug/L	85-01-8	NE	NE	NE	1430	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	25
Pyrene	ug/L	129-00-0	NE	NE	NE	866	NE	<1.0	<5.0	<5.0	<5.0	<5.0	<1.0	8.7
Total PPL Metals EPA 6020A														
Antimony	ug/L	7440-36-0	NE	NE	NE	NE	NE	<5.0	<5.0	<5.0	<5.0	<5.0	NA	9.9
Arsenic	ug/L	7440-38-2	NE	NE	NE	NE	95	38	120	480	400	15	NA	370
Beryllium	ug/L	7440-41-7	NE	NE	NE	NE	26	<1.0	<1.0	60	1.8	<1.0	NA	<1.0
Cadmium	ug/L	7440-43-9	NE	NE	NE	36	31	<1.0	13	32	6.7	<1.0	NA	2.5
Chromium	ug/L	7440-47-3	NE	NE	NE	NE	26.6	<1.0	24	270	39	<1.0	NA	3.5
Copper	ug/L	7440-50-8	NE	NE	NE	24600	NE	<1.0	700	2000	790	1.4	NA	150
Lead	ug/L	7439-92-1	NE	NE	NE	NE	1100	14	530	610	290	3.2	NA	76
Mercury	ug/L	7439-97-6	0.067	0.281	5.59	NE	0.895	<0.20	0.38	0.26	<0.20	<0.20	NA	0.40
Nickel	ug/L	7440-02-0	NE	NE	NE	4750	NE	<1.0	38	1500	33	2.9	NA	6.6
Selenium	ug/L	7782-49-2	NE	NE	NE	3080	NE	<1.0	3.7	5.8	7.6	<1.0	NA	<1.0
Silver	ug/L	7440-22-4	NE	NE	NE	469	NE	<1.0	3.7	<1.0	<1.0	<1.0	NA	<1.0
Thallium	ug/L	7440-28-0	NE	NE	NE	24.6	NE	<1.0	1.0	1.0	<1.0	<1.0	NA	<1.0

TABLE 6. ICOR GROUNDWATER ANALYTICAL RESULTS (DETECTIONS ONLY)

FORMER ROBINSON TERMINAL NORTH
500 AND 501 NORTH UNION STREET
ALEXANDRIA, VA

Sample ID:	Units	CAS No.	VDEQ-T3RGSL	VDEQ-T3CGSL	VDEQ-CWT		ECS-MW2	ECS-MW4	ICOR-SB1(GW)	ICOR-SB5(GW)	ICOR-SB6(GW)	ICOR-SB7(GW)	ICOR-SB8(GW)	ICOR-SB9(GW)
					WTNC	WTC								
					Dermal Contact & Incidental Ingestion	Inhalation								
Date:							10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013	10/08/2013
Zinc	ug/L	7440-66-6	NE	NE	220000	NE	19000	<20	6900	21000	1800	28	NA	8200
Dissolved PPL Metals EPA 6020A														
Arsenic	ug/L	7440-38-2	NE	NE	NE	NE	1.4	<1.0	14	420	38	5.0	NA	25
Beryllium	ug/L	7440-41-7	NE	NE	NE	NE	<1.0	<1.0	<1.0	32	<1.0	<1.0	NA	<1.0
Cadmium	ug/L	7440-43-9	NE	NE	36	NE	<1.0	<1.0	6.4	39	<1.0	<1.0	NA	<1.0
Chromium	ug/L	7440-47-3	NE	NE	26.6	NE	<1.0	<1.0	<1.0	250	<1.0	<1.0	NA	<1.0
Copper	ug/L	7440-50-8	NE	NE	246000	NE	<1.0	<1.0	52	1000	3.0	<1.0	NA	<1.0
Lead	ug/L	7439-92-1	NE	NE	NE	NE	<1.0	<1.0	2.9	820	<1.0	<1.0	NA	<1.0
Mercury	ug/L	7439-97-6	0.067	NE	NE	NE	<0.20	<0.20	<0.20	0.25	<0.20	<0.20	NA	<0.20
Nickel	ug/L	7440-02-0	NE	NE	4750	NE	1.5	<1.0	24	1500	3.8	<1.0	NA	3.0
Selenium	ug/L	7782-49-2	NE	NE	3080	NE	<1.0	<1.0	1.7	4.3	7.2	<1.0	NA	<1.0
Zinc	ug/L	7440-66-6	NE	NE	220000	NE	130	<20	4200	23000	530	<20	NA	6400

NOTES:
 TPH = total petroleum hydrocarbons
 TPH-DRO = diesel range TPH
 TPH-GRO = gasoline range TPH
 TCL = Target Compound List
 VOCs = volatile organic compounds
 SVOCs = semi-VOCs
 PCBs = polychlorinated biphenyls
 PPL = Priority Pollutant List
 EPA 8260B = United States Environmental Protection Agency SW-846 analytical method
 ug/L = micrograms per liter
 mg/L = milligrams per liter
 VDEQ = Commonwealth of Virginia Department of Environmental Quality
 VDEQ-T3RGSL = VDEQ Tier III residential groundwater screening level
 VDEQ-T3CGSL = VDEQ Tier III commercial groundwater screening level
 VDEQ-CWT = VDEQ contaminants of concern for a construction worker in a trench
 WTNC = water table not contacted
 WTC = water table contacted
 <1.0 = not detected above analytical method reporting limit (RL)
 Bold and center justification designates target compound was detected at a concentration above RL
 Yellow highlighting designates target compound was detected at a concentration above the VDEQ screening level in at least 1 sample

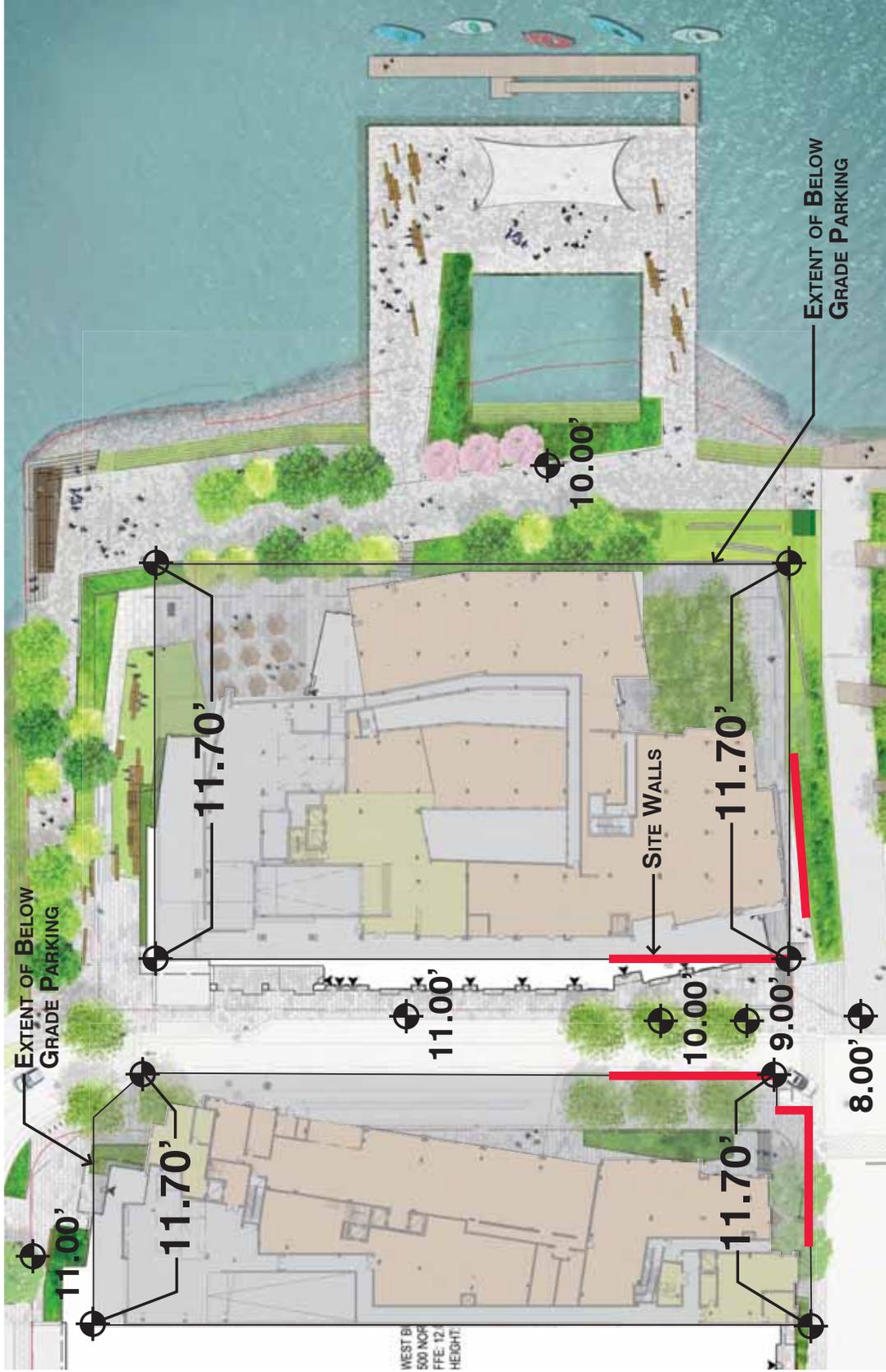
ATTACHMENT 1

DEVELOPMENT PLANS

*[All Development Plans are shown for
illustrative purposes and subject to change]*

SITE PLAN

TOP OF GROUND
FLOOR SLAB
MINIMUM = **11.70'**

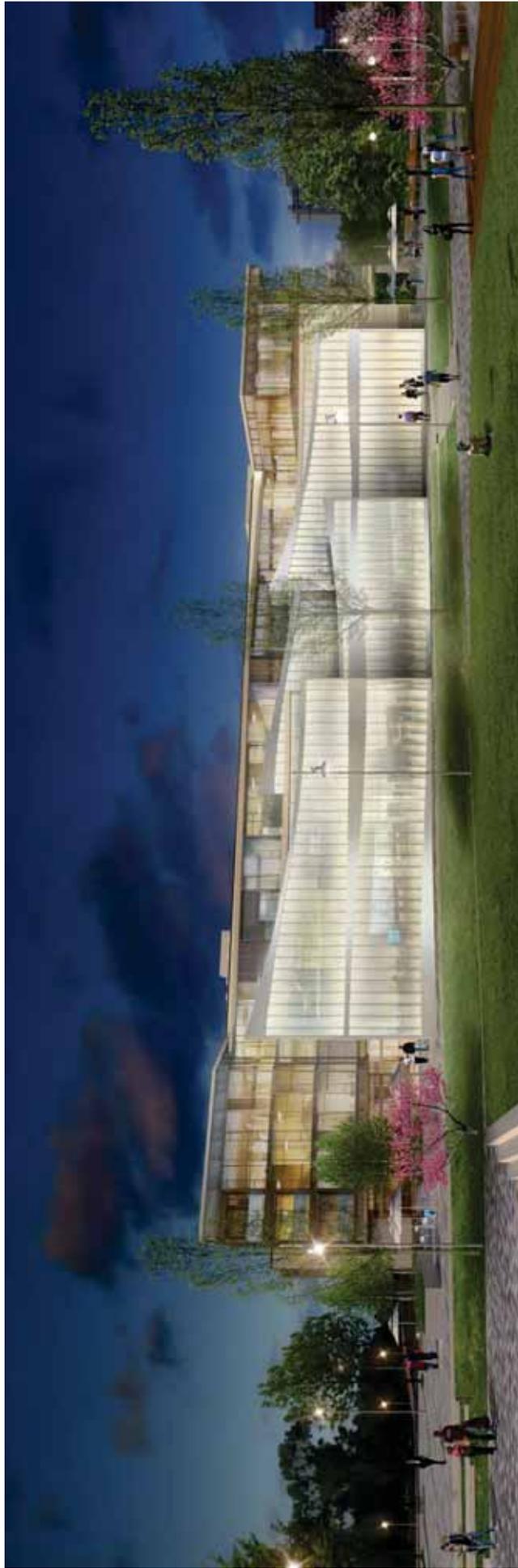
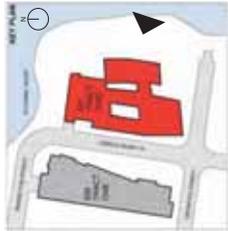


Date:
FALL 2015

Phase:
PROJECT OVERVIEW

Project:
500/501 Union
Alexandria, Virginia

EAST BUILDING EAST PERSPECTIVE



Project:
500/501 Union
Alexandria, Virginia

Phase:
PROJECT OVERVIEW

Date:
FALL 2015



EAST BUILDING PAVILION PERSPECTIVES



NORTHEAST PERSPECTIVE



SOUTHEAST PERSPECTIVE



SOUTHEAST AERIAL



EAST PERSPECTIVE

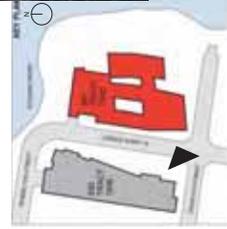
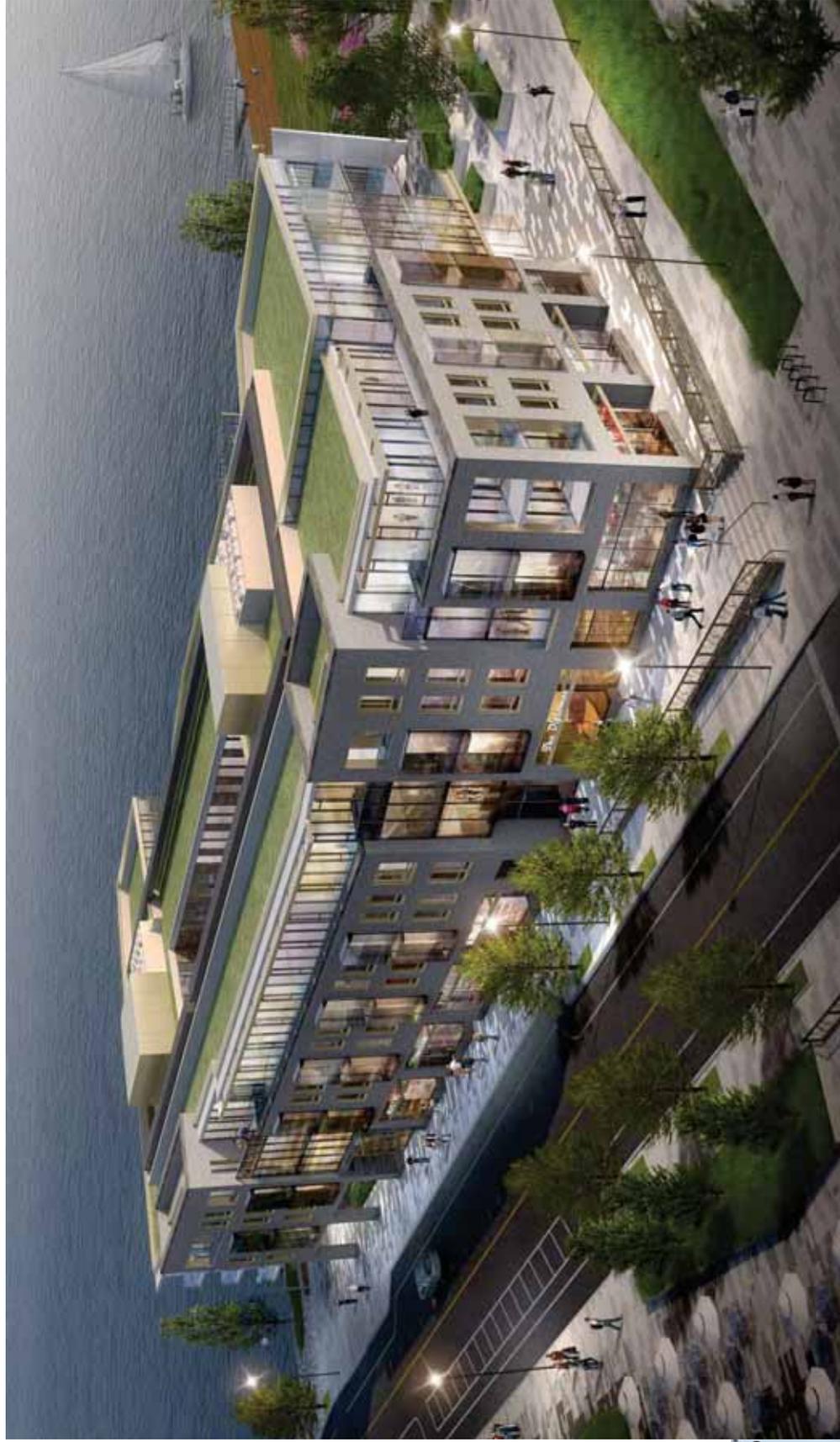
Project:
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Phase:
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EAST BUILDING SOUTHWEST AERIAL



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500/501 Union
Alexandria, Virginia

Phase:
PROJECT OVERVIEW

Date:
FALL 2015



SOUTHEAST PERSPECTIVE WEST BUILDING

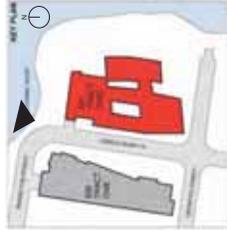


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Phase:
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Project:
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Alexandria, Virginia

EAST & WEST BUILDING NORTH PERSPECTIVE



Project:
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Alexandria, Virginia

Phase:
PROJECT OVERVIEW

Date:
FALL 2015



