PHASE II ENVIRONMENTAL SITE ASSESSMENT
FOR
4435-4445 MILITARY ROAD
TOWN OF NIAGARA, NIAGARA COUNTY,
NEW YORK

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July 2017

C&S Project No:

Q47.001.001

FOLLOWING TEXT

FIGURES

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EXECUTIVE SUMMARY

At the request of the Niagara County Department of Economic Development, C&S Engineers, Inc. (C&S) has completed this Phase II Environmental Site Assessment (ESA) report of Niagara County Tax Map ID No. 131.10-2-29 which is located at 4435-4445 Military Road, Town of Niagara, New York. The Subject Property is approximately 1.2 acres and is owned by Paul A. Grenga.

The purpose of this Phase II ESA is to advance the findings of the previously conducted Phase I ESA. The scope of the Phase II ESA includes: surface and subsurface soil collection and characterization, groundwater sample collection and characterization, waste container observations, analytical testing, and quality assurance, quality control, and data validation.

C&S Engineers, Inc. completed this Phase II Environmental Site Assessment consistent with the scope and limitations of ASTM E 1903-11. The results of this Phase II ESA include:

1. Approximately 110 tons of fill material in the BH-4 Area is contaminated with metals to a depth of one foot. Native soil is not contaminated.

2. Approximately 475 tons of fill material in the BH-9 Area is contaminated with chromium to a depth of two feet. Native soil is not contaminated.

3. Approximately 500 tons of fill material with slightly elevated radiation levels comprises the Radiological Fill Area to a depth of two feet. The highest rate measurements of radioactivity were recorded along Military Road. Native soil is not contaminated.

4. The borings and soil sampling completed throughout the remaining portions of the Site did not identify other impacts associated with the former uses of the Site as a dry cleaner or automotive repair facility. Additionally, no evidence of release from the in-ground hydraulic lifts was observed.

5. The additional borings completed around the former pump island detected three VOCs at concentrations exceeding the Unrestricted Use SCOs in one sample at a depth of six to seven feet. No evidence of petroleum impacts such as staining or free product was observed. The only evidence of subsurface impacts within the immediate vicinity of the former pump island has been high PID readings and concentrations of VOCs above Unrestricted Use from one sample. Therefore, the concentrations of VOCs encountered in this area is not a significant concern.

6. Due to high turbidity levels in the groundwater samples, some metal concentrations were detected above groundwater standards.

7. One VOC was detected in the MW-5 above groundwater standards. Considering that groundwater is not used as a source of drinking water in this area of Niagara County, no VOC odors were recorded during the investigation that would indicate

a soil vapor issue and exposure to groundwater is unlikely given its depth, the limited concentration of a single VOC does not warrant additional investigation or remediation.

8. Numerous containers ranging in size from a 250-gallon above ground storage oil tank to numerous one-gallon paint type containers were observed in the building. Many of the containers were not labeled and appeared to contain waste oil-like materials. A large portion of the containers were labeled as containing tire sealant. Prior to any intrusive building improvements, all containers should be sampled and disposed.

Based on the results, soil contamination appears to be limited to the top two feet of fill material that was observed throughout the Subject Property and relates to the nature of the fill material. Due to the shallow depth of the contamination within the fill, exposure to impacted soil is likely if any site improvement (i.e., earthwork) is conducted. Because no cover material is located above the fill, except for an asphalt parking lot in a certain area, it is possible that fill exposed at the Site's surface could impact users of the Site. Analytical results for surface soil samples had metal contaminants at concentrations exceeding Industrial and Commercial Use Soil Cleanup Objectives (SCOs), subsurface soil samples with metals at concentrations exceeding Commercial Use SCOs, and groundwater samples with metals and a Volatile Organic Compound (VOC) exceeding NYS Technical and Operational Guidance Series (TOGS).

To protect human health and the environment, the removal of impacted fill is recommended. The estimated total cost of remedial activities involving removal of fill material in contaminated areas, labor and equipment, disposal, backfill, and asphalt restoration is $197,258.

1.0 INTRODUCTION

Environmental Site Assessments (ESAs) were previously conducted at the property at 4435-4445 Military Road in the Town of Niagara, New York (the Site). These ESAs identified a number of environmental concerns that have the potential to have released contaminants into the environment. However, the previous ESAs did not completely characterize and/or delineate the concerns.

The purpose of this Phase II Environmental Site Assessment is to complete the characterization of environmental concerns and assess whether the soil and groundwater has been impacted by these concerns. As discussed below, the scope of the Phase II ESA includes: surface and subsurface soil collection and characterization, groundwater sample collection and characterization, waste container observations, and analytical testing.

This investigation was conducted over the course of several days. Surface and subsurface soil investigations took place on August 29 and 30, 2016. Groundwater sampling occurred on August 18, 29, and 30, 2016. An additional subsurface soil investigation around the former pump island took place on June 19, 2017.

2.0 SITE DESCRIPTION

2.1 Location, Use, and Legal Description

The Site is located at 4435-4445 Military Road (SBL 131.10-2-29) within the Town of Niagara, Niagara County, New York. This property consists of a single parcel totaling approximately 1.2 acres with a vacant, single-story structure, and is owned by Paul A. Grenga. The Subject Property is shown in ***Figures 1 and 2***.

The Subject Property is classified for commercial use and consists of one commercial structure divided into portions which are further subdivided. Culbert's Wholesale Tire formerly used the southern portion of the building for specialized auto equipment and repair while the northern section was used for storage. Currently, the entire building is unoccupied. The Subject Property exterior near the buildings is primarily comprised of an asphalt pavement area. The northeasternmost portion of the Subject Property includes a wooded area and some grass cover. Further information concerning existing site conditions is summarized in Section 6.

2.2 Existing Environmental Information

A Phase I Environmental Site Assessment (ESA) was completed on the property identified as the Paul Grenga Property (SBL # 131.10-2-29) in December 2009 by the Iyer Environmental Group, PLLC. The Phase I ESA identified the following concerns:

- A 55-gallon drum and a number of small containers of waste oil/oily substance were in the rear of the property;
- Several dozen five-gallon containers of tire sealant were located in the building;
- Parts of the building were in disrepair and full of trash;
- Used tires, trash piles, and containers were located in the woods;
- Past use as a gasoline service station and potential previous gas pump island;
- Past use as a dry cleaner from the 1960s through the 1990s; and
- Part of the property was used as wholesale tire repair and vehicle repair.

Vehicle repair equipment and materials and hydraulic lifts are associated with the property. Based on the review of the Phase I ESA, there were no records of underground storage tanks (USTs); however, the history indicates that, the property was once used as a gasoline service station. Visual observations suggest a pump island may have been located on the property.

A September 2014 Phase II ESA Report documents the investigatory activities implemented to begin to characterize the concerns described above. The assessment included a container inventory; a geophysical survey; surface soil and subsurface soil sampling; a groundwater investigation; and radiological screening. Based on the results of the 2014 Phase II ESA, the following concerns remain at the Site:

- The surface and subsurface soil sampling identified elevated concentrations of one or more contaminants. Delineation will be required before the limits of any remedial excavations can be identified.
- No characterization information exists immediately adjacent to the hydraulic lifts.
- A geophysical survey was completed across the subject property. The survey did not discover USTs or associated piping. The former pump islands were identified during the survey. Soil sampling from the 2014 Phase II ESA indicated no petroleum contamination around the former pump island.
- The radiological results of the 2014 Phase II ESA were inconsistent with additional, follow on work performed by the USEPA's Emergency Response staff. Specifically, radiological impacts were identified during the 2014 Phase II ESA, but these measurements could not be confirmed by the USEPA.
- The groundwater monitoring wells were placed in areas away from the building, and the past operations of the building for dry cleaning purposes have the potential to have contaminated the groundwater in the immediate vicinity of the building.
- The floor drains are assumed to drain to the sewer, although this has not been confirmed. Potential impacts from the floor drains remain a concern.

3.0 METHODOLOGY

Based upon the EPA and independent review of the September 2014 Phase II ESA at the property, the primary areas of concern are metals in the surface soil, radiological concerns, turbidity and location of groundwater monitoring, and the potential for releases from waste containers inventoried at the Site. As outlined in the following subsections, the Phase II ESA program for this site included the following primary tasks:

1. Floor drain assessment
2. Surface soil characterization
3. Subsurface soil characterization
4. Groundwater characterization
5. Chemical Inventory
6. Quality assurance, quality control, and data validation

3.1 Floor Drain Assessment

On August 30, 2016, J.R. Swanson Plumbing Company performed a site visit to locate existing storm lines and their discharge points using high pressure jetting with use of a tracing dye and video inspection. Due to the unavailability of water and electric on-site, a generator was brought to the Site. The company attempted to use a camera to locate storm lines, but the line was filled with debris. A high pressure flush was used, but due to a broken pipe, the hose became stuck. After repeated removal attempts, the hose could not be removed from the line and was cut and left in place.

3.2 Surface Soil Characterization

Each soil sample retrieved from the geo-probe was observed for general soil type, estimated moisture content, and any evidence of contamination. A representative composite sample was collected for field screening with a PID.

C&S performed surface soil sampling to delineate the horizontal extent of metal contamination surrounding BH-4 and BH-9 at the Site and determine the need/costs for remediation. Prior to the sampling, a Dig Safely New York stakeout was conducted to locate subsurface utilities in the areas where the borings were to take place.

Because the sample BH-9 was collected from below the asphalt (but still identified as a surface soil sample), C&S completed a consistent approach to the collection of delineation samples around BH-9 that included the advancement of shallow borings.

C&S collected samples at one-foot intervals below each of the sampling intervals at BH-4 and BH-9.

- C&S collected surface soil samples via direct-push borings in concentric circles outward from BH-9 (BH-9A through BH-9I) at the same depth interval as taken in the September 2014 Phase II (one to three feet below grade). The samples were analyzed for chromium.

- C&S collected surface soil samples in concentric circles outward from BH-4 (BH-4A through BH-4I). The samples were analyzed for arsenic, cadmium, chromium, copper, lead, and zinc.

Soil samples were collected using a decontaminated stainless steel spoon and placed directly into clean bottles supplied by Chemtech and placed on ice in a cooler. The soil samples were submitted under standard chain-of-custody procedures for laboratory analyses using United States Environmental Protection Agency (USEPA) methods. QA/QC samples included field duplicate, field blank, equipment rinsate blank, and matrix spike/matrix spike duplicate (MS/MSD) samples.

The samples immediately adjacent to the initial sample both horizontally and vertically were analyzed. Following receipt of the results:

- Where the samples concentrations were below the Soil Cleanup Objectives, no further sampling was requested.
- Where the sample concentrations were over the SCOs, the next sample in the sequence in that direction was analyzed. The process was repeated until concentrations less than the SCOs were reported in each direction.

To provide additional information, three borings around BH-4 and three borings around BH-9 were extended past the target sample depth of one to three feet and were advanced to 12-16 feet. Soils were assessed for visible impairment, olfactory indications of impairment, and total VOCs using a photoionization detector (PID). Sample locations were marked using a GPS.

3.3 Subsurface Soil Investigation

C&S implemented a two-day direct-push boring program from August 29 to August 30, 2016 at the following locations:

- Building perimeter (BH-13, BH-14, BH-15, BH-16 and BH-17)
- Adjacent to the hydraulic lifts in the garage bays to evaluate the integrity of the soil surrounding the lifts (BH-20 and BH-21)
- Within the "RAD Area" as designated in the September 2014 Phase II ESA to investigate radiological concerns (BH-18, BH-19, BH-22, BH-23, BH-24 and BH-25)
- Around former 2014 Phase II ESA soil boring BH-4 to investigate metal contamination (BH-4A through BH-4I)
- Around former 2014 Phase II ESA soil boring BH-9 to investigate chromium contamination (BH-9A through BH-9I)

Figure 3 shows the boring locations. Boring locations were planned for the discharge location(s) of the floor drains; however, no such locations were identified.

C&S implemented an additional direct-push boring program on June 19, 2017 around the former pump island. ***Figure 5*** shows the boring locations.

Nature's Way Environmental was contracted to advance soil borings using a truck-mounted, Geo-probe drilling unit. Each boring location was continuously sampled in 4-foot intervals using a two-inch by four-foot steel sampling tube fitted with a disposable acetate liner. All non-disposable sampling equipment was decontaminated between runs and between drill locations to avoid potential cross contamination of samples.

Material description and physical evidence of contamination (odors, staining or sheen) of each direct push sample was recorded on soil boring logs provided in ***Appendix A***.

A portion of each direct push sample was collected and placed in a plastic zip lock bag. Head space readings for each sample were conducted using a Mini-Rae 2000 photo-ionization detector ("PID") with an 11.7-volt lamp. The PID head space readings for all samples and the depths of the selected lab analysis samples were also recorded on the soil boring logs.

Within the "RAD Area," radiological levels were assessed by Greater Radiological Dimensions, Inc. (GRD). The radiological levels were measured using a Ludlum Model #2221 with a 44-10 gamma scintillation probe. To perform this work, GRD first established background levels throughout the Site by scanning various portions of the Site. The probe was then used to scan the soil samples as was also lowered into the boreholes. Results from the radiological survey are located in ***Appendix G.***

Subsurface samples were selected based on visual impairment, olfactory indications of impairment, utilization of a photoionization detector (PID) to identify "evidence of impairment" and depth. Samples in this Phase II ESA were mainly collected from urban fill on the Site. These samples were collected and placed in clean bottles supplied by the laboratory.

The 2016 soil samples were analyzed for metals and Target Compound List (TCL) semivolatile organic compounds (SVOCs) and volatile organic compounds (VOCs). Additionally, QA/QC samples included field duplicate, field blank, rinsate blank, and MS/MSD samples. The 2017 soil samples around the former pump island were analyzed for TCL VOCs.

3.4 Groundwater Investigation

Nature's Way Environmental was contracted to install four groundwater monitoring wells on the Subject Property from August 1 to August 2, 2016. One monitoring well was installed east of the building (MW-7), and three were installed just west of the building (MW-4, MW-5, and MW-6). ***Figure 3*** includes the well locations. These locations allowed for a more accurate assessment of groundwater and soil conditions adjacent to the building. In addition, three previously installed groundwater wells were located on the Site (MW-1, MW-2, and MW-3).

An auger rig was used to install the monitoring wells. The downhole equipment was decontaminated prior to initiation and between locations using a high pressure wash. The overburden wells were constructed to intersect the top of the water table. Each well was completed with 5 to 10 feet of 2-inch Schedule 40 0.010-slot well screen connected to an appropriate length of schedule 40 PVC well riser to complete the well. The annulus was sand packed with quartz sand to approximately one to two feet above the screened section,

and one to two feet of bentonite chips or pellets above the sand. The remaining annulus was grouted to ground surface. Each well was completed with at grade protective casing. Groundwater Monitoring Well Construction Logs are included in ***Appendix B***.

The groundwater monitoring wells were developed using a peristaltic pump and the removal of three well volumes. Groundwater sampling followed well development and was conducted using low-flow purging. Before and after purging the well, water levels were measured using an electric water level sounder capable of measuring to 0.01-foot accuracy. Water quality measurements such as pH, turbidity, dissolved oxygen, temperature, and conductivity were collected until stabilized. Calibration times, purging volumes, water levels and field measurements were recorded in a field log and are included in ***Appendix C***.

Groundwater samples were collected on August 18, 2016 from each well using low-flow purging methods. Groundwater samples were collected in clean bottle supplied by the lab and analyzed for TCL VOCs and SVOCs and TAL Metals. Due to high turbidity levels, the metals analysis included both total and dissolved concentrations.

QA/QC samples included trip blank, field duplicate, field blank, equipment rinsate blank, and MS/MSD samples.

3.5 Chemical Inventory

While all waste containers were inventoried during the 2014 Phase II ESA, these containers and areas were reassessed for the potential for release. The containers on-site were visually assessed for integrity and observance of spills or staining. The resulting inventory is included in ***Appendix E***.

3.6 Quality Assurance, Quality Control, and Data Validation

The laboratory data was reported in a Category B deliverables package to facilitate validation of the data. A third party validator reviewed the laboratory data and prepared a Data Usability Summary Report (DUSR). The validator evaluated the analytical results for the field samples and quality assurance/quality control samples and compared the findings to USEPA guidance to determine the accuracy and validity of the results. The results of the validation are discussed in ***Appendix F***, and the data summary tables included in this report include the validation results.

4.0 PHASE II ESA FINDINGS

This Phase II ESA is intended to provide additional characterization of contamination that was discovered during previous investigations at the Site. The scope of the Phase II ESA includes: surface soil characterization, subsurface soil characterization, groundwater characterization, chemical inventory, radiological survey, plumbing survey, and quality assurance, quality control, and data validation.

Throughout the remainder of this report, the areas of concern, or areas with known contamination, will be referred to as Areas 1 to 3:

Area 1	Metal contamination in the area of 2014 Phase II ESA soil boring BH-4
Area 2	Metal contamination in the area of 2014 Phase II ESA soil boring BH-9 Location of former pump island
Area 3	Area identified in the 2014 Phase II ESA to contain elevated radiation levels in the fill material

Subsurface soil investigation included 32 borings located across the Subject Property with various samples taken from these borings. Nine surface soil samples were collected in the vicinity of the previously known contaminated areas. Additionally, four groundwater monitoring observation wells were installed and sampled. ***Figure 3*** displays both soil borings and groundwater monitoring observation wells, including previous borings and wells from the 2014 Phase II Assessment. ***Figure 4*** shows the location of each contaminated area where Areas 1 to 3 are referred to as Areas of Concern #1 through #3, respectively. An additional subsurface soil investigation included eight borings around the former pump island with various samples taken from these borings. Because petroleum-like odors and high PID readings were detected, eleven samples were collected for analysis and delineation. The four subsurface soil samples with the highest PID readings were analyzed with the others put on hold. Underground storage tanks were not encountered around the former pump island. It is likely that these tanks were removed and not properly documented. During the investigation no evidence of significant petroleum impacts such as staining and free product was observed. ***Figure 5*** displays the former pump island soil boring locations.

Soil boring logs are provided in ***Appendix A*** while groundwater monitoring well construction logs are provided in ***Appendix B***.

4.1 Subsurface Conditions

4.1.1 Simplified Site Stratigraphy

Each soil sample retrieved from the geo-probe was observed for general soil type, estimated moisture content and any evidence of contamination. A representative composite sample was collected for field screening with a PID.

The soils from borehole samples were classified in the following simplified categories:

Asphalt/Gravel-	Asphalt and gravel sub-base thickness observed from the surface to two-and-a-half to seven inches deep.

Fill- Anthropogenic sources of any one, or mixture, of the material re-worked to build a site to a defined grade. This material can include:

Crushed Rock	Ash/Cinders	Lumber
Sand	Plastics	Metal
Silt	Ceramics	Construction Debris
Clay	Bricks	

Clay- Brown stiff and dense

Clayey Silt- Brown water bearing silt with some clay content

BH-4 Area (Area 1)

Fill material was observed from two inches to 10 inches below ground surface. Directly beneath the fill material was native clay.

BH-9 Area (Area 2)

Soil borings were advanced in the parking lot on the eastern half of the Site. Asphalt thickness ranged from two-and-a-half inches to seven inches. Fill material was observed beneath the asphalt to 25 inches. Directly beneath the fill material was native clay.

Radiological Fill Area (Area 3)

Soil borings were advanced in the parking lot on the eastern half of the Site. Asphalt thickness ranged from two-and-a-half inches to seven inches. Fill material was observed beneath the asphalt to 12 to 24 inches. Directly beneath the fill material was native clay.

Other Soil Borings

Fill material was observed from six inches to 18 inches below ground surface. Directly beneath the fill material was native clay. Water saturated clayey silt soils were observed from 14 to 16 feet below ground surface.

4.1.2 Hydrogeologic Conditions

The uppermost groundwater-bearing zone beneath the Site is located in silty soils between ten and 13 feet below grade. Groundwater flows outward in the south and west directions.

Table 1-1: Summary of Groundwater Monitoring Wells

Well ID	*Groundwater Depth (ft.)*	*Elevation (ft.)*	*Groundwater Elevation (ft.)*
MW-2[a]	10.08	599.00	588.92
MW-3[a]	11.63	600.86	589.23
MW-4[b]	12.12	600.81	588.69
MW-5[b]	11.04	600.29	589.25
MW-6[b]	11.43	599.51	588.08
MW-7[b]	11.18	600.04	588.86

Notes: a – Existing well; b – Newly installed well

4.2 Results

4.2.1 Soil Sampling Results

4.2.1.1 Soil Results – Areas of Concern

Table 2-1 provides a table of detected metals and ***Appendix D*** includes the laboratory analytical report. In 2014, Phase II ESA surface soils in the soil boring BH-4 and soils located underneath the asphalt of BH-9 contained arsenic, cadmium, chromium, copper, lead, and zinc concentrations above NYSDEC SCOs. Because these samples were identified as 'surface soil samples', this report will remain consistent with that nomenclature.

Surface soil samples were collected in concentric circles around the location of BH-4. Samples were analyzed only for the metal parameters listed above.

BH-4 Area (Area 1)

Surface Soils

Seven of the nine surface soil samples contained metal concentration above Unrestricted, Residential and Restricted Residential Uses. One surface soil sample, BH-4A, located adjacent to BH-4, contained arsenic above Industrial Use SCOs and copper above Commercial Use SCOs.

Near-surface Soils

No metals were detected above SCOs in soil samples collected at one foot below ground surface.

Metal contaminants appear to be limited to the top one foot of soil, and located in the area around former BH-4 soil boring and BH-4A at concentrations above Commercial and Industrial Use SCOs. Metal concentrations diminish beyond this location to concentrations above the Restricted Residential Use SCOs.

BH-9 Area (Area 2)

Near-surface Soils

All nine samples collected underneath the asphalt, at approximately one foot below grade, contained chromium at concentrations above the Commercial and the Industrial Use SCOs. Cadmium was analyzed, but samples collected from underneath the asphalt surface did not contain concentrations that exceeded the Unrestricted Use SCO. The highest concentration of cadmium was detected in BH-9A at 1.82 mg/kg. This is inconsistent with the 2014 Phase II ESA which had a concentration of cadmium at 3.07 mg/kg.

Subsurface Soils

Five of the nine samples collected at two feet below grade contained chromium concentrations above the SCOs, including the Unrestricted Use SCO (BH-9B), the Restricted Residential Use SCO (BH-9I) and the Commercial Use SCO (BH-9D, BH-9E and BH-9F). The remaining four samples had chromium concentrations below the Unrestricted Use SCO. The next sample interval was native soil collected at three feet

below the surface. These locations contain chromium concentrations below the Unrestricted Use SCO.

Radiological Fill Area (Area 3)

Greater Radiological Dimensions, Inc. (GRD) conducted radiological screening of soil borings collected from the area of radiological contamination discovered in the 2014 Phase II ESA. This area was an approximate outline delineation of the radiation impacted area based on exhibited elevated levels of radioactivity in former soil boring locations B-10, B-11, and B-12. The radioactive slag was only located in the fill material located underneath the asphalt surface to a depth of approximately one-foot.

On arrival at the Site, GRD recorded the local background radiation level at 5,287 counts per minute (cpm), then screened five soil boring cores immediately after the acetate liner was cut open. Borings were completed to the west of the former soil boring location BH-10 (along Military Road) and along the building. Neither soil borings nor radiological screening was conducted south of BH-10 to delineate the southernmost extent of the radiological contamination at this time. The radiological survey is located in ***Appendix G.*** The radiation levels in the soil cores ranged from 4,800 to 7,100 cpm. In addition to screening the soil cores, GRD collected 1 minute readings from the soil boring holes. One minute readings ranged from 5,289 to 13,736 cpm. Two locations, BH-24 and BH-25, had readings that were slightly over twice the background level.

A reading from the former soil boring location BH-10 had a count rate of 41,308 cpm, above seven times the background level.

4.2.1.2 Soil Results – Site-Wide Sampling

Table 2-2 provides a table of detected VOCs and ***Appendix D*** includes the laboratory analytical report.

VOCs

Samples collected for VOCs from soil borings BH-15, BH-16, BH-20 and BH-26 did not contain concentrations above NYSDEC SCOs.

SVOCs

Samples collected for SVOCs from soil borings BH-15, BH-16, BH-20 and BH-26 did not contained concentrations above NYSDEC SCOs.

4.2.1.3 Soil Results – Pump Island Subsurface Soil Sampling

Table 2-3 provides a table of detected VOCs and ***Appendix D*** includes the laboratory analytical report.

One of the four samples collected (B-25-6-7 FT) contained VOC concentrations above the SCOs. Ethylbenzene, p/m-Xylene, and o-Xylene were detected at concentrations that exceeded the Unrestricted Use SCO. The remaining three samples had VOC concentrations below the Unrestricted Use SCOs.

4.2.2 Groundwater Results

A total of five groundwater samples were collected. Four samples were collected from each of the wells installed for this Phase II investigation (MW-4, 5, 6 and 7) and one sample was collected from MW-2, which was installed in 2014. ***Table 3-1*** provides a table of detected parameters and ***Appendix D*** includes the laboratory analytical report.

VOCs

All five groundwater samples contained low level concentrations of VOCs, mostly below NYSDEC standards. The sample collected at MW-5 contained 1,2-Dichloroethane concentrations slightly above the standard. The NYSDEC drinking water standard for 1,2-Dichloroethane is 0.60 ug/L, while the reported the concentration in MW-5 was 3.5 ug/L.

SVOCs

All five groundwater samples contained low level concentrations of SVOCs, below NYSDEC standards.

Metals

All five groundwater samples contained concentrations of aluminum, iron, and sodium above NYSDEC standards. Four samples contained concentrations of manganese above standards, and lead was detected in two samples at concentrations slightly above the standards.

4.3 Chemical Inventory

C&S conducted a general drum, container and miscellaneous material inventory. Numerous containers (over 100) of various sizes and shapes were observed in the building and directly behind the building (east side). Many of the containers were not labeled and appeared to contain waste oil-like materials. A large portion of the containers were labeled as containing tire sealant. The building and property contained numerous tires and also had florescent lights. A detailed inventory of the various containers and materials located by the section of the building they were observed is provided in ***Appendix E***. ***Figure 3*** depicts the various sections of the building denoted in the inventory. Containers found, ranged in size and condition from a 250-gallon above ground storage oil tank to numerous one-gallon paint type containers. Due to the extent and unknown nature of many of the containers, sampling was not completed as part of the Phase II ESA.

A specialty disposal company that opens and samples containers of unknown contents and properly disposes of chemicals/waste streams is recommended for the classification and removal of the various containers and their contents prior to any intrusive activities regarding the building. Following removal of the tires and chemicals, the floor of the building should be evaluated for potential discharges to the environment. If evidence of such releases are observed, additional sampling should be undertaken.

5.0 DISCUSSION

5.1 Soil Contamination

Soil contamination in all three areas appears to be limited to the fill material overlying native soil.

BH-4 Area (Area 1)

Metal contaminants appear to be limited to the top one foot of soil, and located in the area around former BH-4 soil boring and BH-4A at concentrations above Commercial and Industrial Use SCOs. Metal concentrations diminish beyond this location to concentrations below the Commercial Use SCOs.

This area covers a space of approximately 1,900 square feet to a depth of one foot. This equates to approximately 110 tons of contaminated material.

BH-9 Area (Area 2)

Chromium contamination is limited to the top two feet of fill material located beneath the asphalt parking lot. The area of contamination, as defined in our soil boring program, covers approximately 4,100 square feet to a depth of two feet, resulting in approximately 475 tons of contaminated material.

Sampling has indicated that chromium contamination is limited to the fill material and does not extend to the native soil. Currently, exposure to the fill material is unlikely due to a layer of asphalt covering the parking lot. If site improvements are planned that would include removing the asphalt layer or excavation and exposing the fill material, steps should be taken to limit exposure to contaminated fill and dispose of excavated material to a regulated landfill.

Radiological Fill Area (Area 3)

C&S confirmed that the top two feet of fill material located on-site contain slightly elevated levels of radiation, varying between two and seven times the background level. The highest borehole readings came from locations closer to Military Road. In conversations with field staff from GRD, it is possible that radioactive fill material was used for Military Road improvements completed 15 or more years ago and contaminated fill material would be primarily closest to Military Road.

The area of contamination, as defined in our soil boring program, covers approximately 4,400 square feet to a depth of two feet, resulting in approximately 500 tons of contaminated material.

Site Wide Sampling

The borings and soil sampling completed throughout the remaining portions of the Site did not identify other impacts associated with the former uses of the Site as a dry cleaner or automotive repair facility. Additionally, no evidence of release from the in-ground hydraulic lifts was observed.

Former Pump Island Sampling

The borings and soil sampling completed around the former pump island located in Area 2 detected three VOCs above the Unrestricted Use SCOs in one sample. No evidence of petroleum impacts such as staining or free product was observed. The only evidence of subsurface impacts within the immediate vicinity of the former pump island has been high PID readings and concentrations of VOCs above Unrestricted Use from one sample. Therefore, the concentrations of VOCs encountered in this area is not a significant concern.

5.2 Groundwater Contamination

Samples collected from the five monitoring wells indicate no significant impacts to groundwater from the former uses of the property. One well contained a single VOC, 1,2-Dichloroethane, that exceeded NYSDEC groundwater standards. This has been the only VOC detected above groundwater standards in this investigation as well as the 2014 Phase II ESA. Two site investigations have not produced evidence that indicates a contaminant plume exists adjacent to or beneath the building.

Considering that groundwater is not used as a source of drinking water in this area of Niagara County, no VOC odors were recorded during the investigation that would indicate a soil vapor issue, and exposure to groundwater is unlikely given its depth, the limited concentration of a single VOC does not warrant additional investigation or remediation.

During the collection of groundwater samples turbidity levels remained high likely due to the influence of the silty groundwater bearing zone. High turbidity levels in the samples likely caused some metal concentrations to slightly exceed NYSDEC standards. Additionally, the primary metals of concern in BH4 and BH9 were not detected in the groundwater samples at elevated concentrations. These concentrations do not represent a significant concern.

6.0 FINDINGS

C&S Engineers, Inc. completed this Phase II Environmental Site Assessment consistent with the scope and limitations of ASTM E 1903-11. Based on information gathered during the course of this Phase II Environmental Site Assessment of the Subject Property, the following has been identified:

1. Approximately 110 tons of fill material in the BH-4 Area is contaminated with metals to a depth of one foot. Native soil is not contaminated.

2. Approximately 475 tons of fill material in the BH-9 Area is contaminated with chromium to a depth of two feet. Native soil is not contaminated.

3. Approximately 500 tons of fill material with slightly elevated radiation levels comprises the Radiological Fill Area to a depth of two feet. The highest rate measurements of radioactivity were recorded along Military Road. Native soil is not contaminated.

4. The borings and soil sampling completed throughout the remaining portions of the Site did not identify other impacts associated with the former uses of the Site as a dry cleaner or automotive repair facility. Additionally, no evidence of release from the in-ground hydraulic lifts was observed.

5. The additional borings completed around the former pump island detected VOCs at concentrations exceeding the Unrestricted Use SCOs in one sample at a depth of six to seven feet. However, this is not a significant concern.

6. Due to high turbidity levels in the groundwater samples, some metal concentrations were detected above groundwater standards.

7. One VOC was detected in the MW-5 above groundwater standards. Considering that groundwater is not used as a source of drinking water in this area of Niagara County, no VOC odors were recorded during the investigation that would indicate a soil vapor issue and exposure to groundwater is unlikely given its depth, the limited concentration of a single VOC does not warrant additional investigation or remediation.

8. Numerous containers ranging in size from a 250-gallon above ground storage oil tank to numerous one-gallon paint type containers were observed in the building. Many of the containers were not labeled and appeared to contain waste oil-like materials. A large portion of the containers were labeled as containing tire sealant. Prior to any intrusive building improvements, all containers should be sampled and disposed.

Based on the results, the soil contamination appears to be limited to the top 2 feet of fill material that was observed throughout the Subject Property and relates to the nature of the fill material. Due to the shallow depth of the contamination within the fill, exposure to impacted soil is likely if any site improvement (i.e., earthwork) is conducted. Because no cover material is located above the fill, except for an asphalt parking lot, it is possible that fill exposed at the Site's surface could impact users of the Site.

7.0 RECOMMENDATIONS

To protect human health and the environment, the following is recommended:

Removal of fill material in the BH-4 Area (Area 1)

All fill material within the boundaries of Area 1 on ***Figure 4*** should be removed down to native material (approximately 1 foot) and re-graded with clean backfill.

ESTIMATED COSTS

- Labor and Equipment – $8,000
  - Assumes 2 days to complete work
  - Labor includes – supervisor, 1 laborer and 1 operator
  - Equipment includes – excavator and equipment truck
- Transportation and Disposal – $3,850
  - Assumes 110 tons of material
  - Disposal cost is $35.00 per ton
- Backfill – $1,100
  - Assumes $10.00 per ton for topsoil
  - Includes trucking costs
  - Assumes the replacement of 110 tons of material
  - No compaction testing
  - No seeding

Removal of fill material in BH-9 Area (Area 2) and Radiological Fill Area (Area 3)

All fill material within the boundaries of Area 2 and Area 3 on ***Figure 4*** should be removed down to native material (approximately two feet) and re-grade the area with clean backfill and restore the asphalt parking lot.

ESTIMATED COSTS

- Labor and Equipment – $25,000
  - Assumes 1 week to complete work.
  - Labor includes – supervisor, 1 laborer and 1 operator
  - Equipment includes – excavator, loader, and equipment truck
- Transportation and Disposal – $76,624
  - Assumes 475 tons of chromium contaminated material. Transportation and disposal cost is $35.00 per ton.
  - Assumes 500 tons of radioactive fill material. Estimates transportation and disposal cost is $ 120.00 per ton.
- Backfill – $9,750
  - Assumes the replacement of 975 tons of material at $10 per ton
  - Includes trucking costs
  - Costs for compaction testing not included
- Asphalt Restoration – $10,000
  - Includes removal of existing asphalt

Additional costs include remedial design, observation, and reporting ($45,000) and a ten percent contingency ($17,433).

The estimated total cost of remedial activities involving removal of fill material in contaminated areas, labor and equipment, disposal, backfill, and asphalt restoration is $197,258.

Additional work to be completed may include:

Demolition

After the removal of tires, debris, and containers from the property along with asbestos abatement, the building could be demolished and demolition debris disposed of off-site.

ESTIMATED COSTS

- Tires, Debris, and Container Removal – $17,500
- Asbestos Abatement – $35,000
    - Estimate based on Sienna's October 29, 2013 asbestos survey
- Demolition and Off-Site Disposal – $62,500
    - Demolition and disposal estimate based on contractor rough estimate
- Preceding costs assume prevailing wage rates. An average was used within a cost estimate range.

Additional costs include a ten percent contingency ($11,500). The estimated total cost of demolition is $126,500.

8.0 DISCLAIMER

C&S's conclusions are based on conditions that existed on the Subject Property in 2016. Past and present conditions that could not be observed were established on the basis of documents. C&S cannot attest to the completeness of accuracy of these materials.

This report was prepared by C&S expressly and exclusively for use by Niagara County and the Town of Niagara, and their successors and/or assigns. Except where specifically stated to the contrary, the information contained herein was provided to C&S by others and has not been verified independently or otherwise examined to determine its accuracy, completeness, or feasibility. In addition, C&S may have had to rely upon the assumptions, especially as to future conditions and events. Accordingly, neither C&S nor any person acting on its behalf (a) makes any warranty or representation, whether expressed or implied, concerning the usefulness of the information contained in this report, or (b) assumes liabilities with respect to the use of or for damages resulting from the use of any information contained in this Environmental Site Assessment (ESA) report. Further, C&S cannot promise that any assumed conditions will come to pass.

No one is authorized to rely on this report for any purpose, except to the extent that such reliance is specifically authorized in writing by C&S. Any person who intends to take action, which is in any way related to or affected by the information contained herein, should independently verify all such information. The report speaks only as of the date issued. C&S has no responsibility for updating the information herein, and therefore, it should not be assumed that any information contained herein in this ESA continues to be accurate subsequent to 180 days from the date of the site inspection.

It would be extremely expensive, and perhaps not possible, to conduct an investigation that would ensure the detection of environmental impacts at the subject site, which now are, or in the future might be, considered hazardous. This investigation does not guarantee that C&S discovered all the environmental impacts at the Subject Properties. Similarly, a property which, in fact, is unaffected by environmental impacts at the time of the assessment may later, due to natural phenomena or other intervention, become contaminated.

Except where stated to be the contrary, this ESA has been prepared solely on the basis of readily available visual observation. Except where stated to be the contrary, no demolition or removal by C&S has been accomplished to reveal hidden conditions. No testing such as the testing of materials, equipment, or systems has been performed to verify current conditions or to predict future conditions.

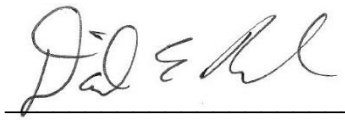
Future regulatory modifications, agency interpretation, or policy changes may affect the compliance status of the property.

A title search, indoor air quality, and wetland surveys were not requested as part of this project. These topics require specialized expertise. A specialty survey can be performed upon request.

ENVIRONMENTAL PROFESSIONAL STATEMENT AND QUALIFICATIONS

We declare that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312.

We have the specific qualifications based on education, training, and experience (as summarized on the resumes which follow this page) to assess a property of the nature, history and setting of the Subject Property. To the best of our knowledge and belief, C&S Engineers Inc. has developed and performed all appropriate inquiries in general conformance with the standards and practices set forth in 40 CFR Part 31.



Daniel E. Riker, P.G.
Managing Geologist