ALTERNATIVE ANALYSIS REPORT
NORTHTOWN INC.
BCP SITE No. 915292
AMHERST, NEW YORK

PREPARED FOR:
Northtown Property Owner LLC
33 Boylston Street, Suite 3000
Chestnut Hill, Massachusetts

PREPARED BY:
GZA GeoEnvironmental of New York
Buffalo, New York

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TABLE OF CONTENTS

PAGE

TABLE OF CONTENTS (CONTINUED)

PAGE

TABLE OF CONTENTS (CONTINUED)

PAGE

1.0 INTRODUCTION

This Alternative Analysis Report (AAR) has been prepared by GZA GeoEnvironmental of New York (GZA) on behalf of Northtown Property Owner LLC (Northtown). This AAR is for the Northtown Inc. Brownfield Cleanup Program (BCP) Site No. C915292 (Site) which is located within a portion of the property located at address 3097 Sheridan Drive, Amherst, New York.

Northtown Property Owner LLC entered into a Brownfield Cleanup Agreement (BCA) on June 17, 2015 (replacing original party on BCA dated May 15, 2015) with the NYSDEC to remediate the site. A figure showing the site location and boundaries of this site is provided as Figure 1. The site was remediated in accordance with a NYSDEC approved Interim Remedial Measures (IRM) Work Plan dated March 2015 and amended March 22, 2016 to include additional soil and groundwater sampling and analysis.

1.1 BACKGROUND

The site is located within the Town of Amherst, Erie County, New York and is identified as two portions of land totaling 1.424 acres within a larger parcel located within the Northtown Plaza. The Northtown Plaza is bounded by Sheridan Drive to the north, Eggert Road to the south, other plaza buildings and Bailey Avenue to the east, and Niagara Falls Boulevard to the west.

The Site consists of commercial retail buildings and related driveways and parking areas. The Site is zoned commercial and is currently used for commercial retail use. Current and/or recent Site occupants include but are not limited to a former dry cleaner facility which used tetrachloroethene (PCE) and is believed to have been the source of the PCE contamination found, a subsequent dry cleaner facility which was used as a pick-up/drop off location for clothes that were dry cleaned at another facility which used PCE and is now vacant, an income tax preparation business, a physical fitness training facility, a grocery store, a men's retail clothing store, a pet supply store, and a meat market.

1.2 PREVIOUS INVESTIGATIONS

Phase I ESA:

In September of 2013, a Phase I Environmental Site Assessment (ESA) was performed of the Northtown Plaza Site for the future purchase of said property. Recognized Environmental Concerns (RECs) were identified during the due diligence, including the identification of heating oil underground storage tanks (USTs) and the listing of hazardous waste generation for the historic use of chlorinated solvents in dry cleaning operations.

Phase II ESA:

A Phase II ESA was performed in phases at the plaza property between January 2014 and May 2014. The RECs that were identified in the Phase I ESA were investigated during the Phase II ESA and limited impacts were identified as follows:

- Limited areas of impacted soil associated with two abandoned heating oil underground storage tanks (USTs). Samples collected to assess the impacted soils associated USTs were from the perimeter of visually stained area. The laboratory results did not indicate levels above unrestricted use soil cleanup objectives (SCOs) in these samples.

- A limited area of soil impacted by PCE associated with the former dry cleaner operations in the southwestern portion of the Site was identified. PCE concentrations in two soil samples exceeded its respective Part 375 commercial use SCO and industrial use SCO which were from depths greater than 6 feet bgs. The other fifty samples analyzed were below their respective commercial use SCOs.

- Sub-slab soil vapor and Indoor air impacted by PCE above its respective air guidance value (AGV) in a dry cleaner unit and an adjoining vacant unit (building 3, tenant spaces 14 & 13, respectively).

Groundwater impacts were not identified. PCE is no longer used in the dry cleaner unit on-site.

Brownfield Cleanup Program:

In December of 2014, Northtown Associates LLC, predecessors of Northtown Property Owner LLC, submitted a BCP application to NYSDEC. In the BCP application, three areas of interest (AOIs) were identified based on findings from the previous Phase II. AOIs 1 and 2, associated with two former fuel oil tanks, and AOI 3, associated with former on-site dry cleaning operations. In February 2015, NYSDEC approved Northtown Associates LLC., application for entry into the BCP, later amending the BCA to accommodate the new name of the property owner, Northtown Property Owner LLC.

Two additional investigations were performed in March and April of 2015 to delineate the vertical and lateral extent of chlorinated volatile organic compounds (CVOCs) at concentrations above the commercial SCOs at AOI 3 and to further assess the potential of soil vapor intrusion and shallow pore water impacts throughout AOI 3. Examination of the subsurface soil samples collected at the Site demonstrated four isolated areas of PCE impacts at AOI 3 that were of limited extent. Soil samples collected surrounding the four data points contained PCE at concentrations below the commercial use SCO, illustrating the limited extent of the higher concentrations of PCE. Soil gas samples collected near the east and west

boundaries of AOI 3 had low detections of PCE. Sub-slab vapor samples compared with corresponding indoor air samples for AOI 3 tenant spaces 7 – 12, not previously investigated, had low concentrations of chlorinated volatile organic compounds (CVOCs) observed in indoor air that are likely not the result of soil vapor. PCE was detected in sub-slab soil vapor from the dry cleaner, adjacent tenant space and building #2, directly west of AOI 3, and mitigation of these areas was selected. An Interim Remedial Measure (IRM) Work Plan was approved by the DEC to install sub-slab depressurization systems at these three locations as well as remove the USTs and impacted soil described above.

In May 2016, GZA collected groundwater samples from the three deep overburden wells on-site (MW-1, MW-2, and MW-3) and four vertical composite samples of shallow (0 to 4 feet) native soil from the three AOIs and submitted the samples for analysis for Target Analyte List (TAL) metals and pesticides via USEPA SW-846 Test Methods 6010 and 8151, respectively. According to the analytical results, no analytes were detected at concentrations above unrestricted use SCOs in the soil samples collected and submitted for analysis except for the metals chromium (detected at 32.6 ppm) and nickel (detected at 34.8 ppm) in a soil sample collected from AOI 3, identified as AOC-3-C-2-051916. These concentrations were below commercial use SCOs. The metals magnesium and sodium were collectively detected at concentrations above the NYSDEC Class GA Criteria in all three wells sampled; however, such are non-toxic and are common constituents of road salt heavily utilized in the Site area. Therefore, these detections do not represent a concern at the Site.

IRMs were completed at the Site to address the identified potential environmental exposure concerns associated with the three AOIs at the site. The IRMs included the following (Figure 1):

- Installation of sub-slab depressurization systems within tenant space 14 of Building 3 (GiRo Cleaners) in November and December 2015 and within Building 2 (Total Automotive) in January 2016;
- Removal of the two USTs and associated petroleum-impacted soils within AOI 1 and AOI 2; and
- Removal of solvent-impacted soil within AOI 3 to meet commercial use SCOs.

1.3 PURPOSE

This AAR summarizes the results of the completed IRMs and assesses remedial alternatives to remediate soil and pore water remaining on-site in AOI 3 at concentrations above unrestricted levels since implementation of the IRMs. The remedial alternatives are then screened and the most appropriate remedial alternatives for the Site conditions are then developed into the recommended remedial alternatives that are evaluated based on the environmental/human health benefits and cost.

Through implementation of IRMs, unrestricted use SCOs have been achieved for AOI 1 and AOI 2 and therefore no additional assessment of remedial alternatives is required in these areas.

1.4 OVERVIEW OF IRMs AND CONTAMINATION REMAINING ON-SITE

The site was remediated in accordance with the NYSDEC-approved Interim Remedial Measures Work Plan dated March 2015 and amended March 22, 2016 to include additional soil and groundwater sampling and analysis.

The factors considered during the selection of the remedy are those listed in 6NYCRR 375-1.8. The following were the components of the approved IRMs:

1. Removal and off-site disposal of the two inactive heating oil underground storage tanks within AOI 1 and AOI 2. The two tanks were registered with the NYSDEC under PBS #9-600735 and on August 29, 2016 given a status of "closed-removed."

2. Excavation and off-site disposal of petroleum-impacted soil associated with the removed USTs in AOI 1 and AOI 2 exceeding the unrestricted use SCOs for TCL VOCs and CP-51 list SVOCs and having nuisance characteristics, to depths of approximately 8 ft. bgs (AOI 1) and 10 ft. bgs (AOI 2). Approximately 209.51 tons of soil from AOI 1 and 816.12 tons of soil from AOI 2 was excavated. All of the excavated soil was disposed of off-site at a permitted facility.

3. Excavation and off-site disposal of soil in AOI 3 exceeding the commercial use SCOs for halogenated solvents, to depths ranging from approximately 15 to 20 ft. bgs. Approximately 1,882.62 tons of soil from within AOI 3 was excavated. All of the excavated soil was disposed of off-site at a permitted facility.

4. Installation of sub-slab depressurization systems (SSDS) within tenant space 14 of Building 3 (former on-site dry cleaning operations pick-up/drop off location, now vacant) and within Building 2 (now vacant) to mitigate vapor intrusion.

5. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to contamination remaining at the Site.

6. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement,

which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting;

7. Periodic certification of the institutional and engineering controls listed above.

1.4.1 AOI 1 AND AOI 2 – FUEL OIL USTS AND PETROLEUM-IMPACTED SOIL

GZA observed and documented the removal of the two USTs and associated petroleum-impacted soil from AOIs 1 and 2 on behalf of Northtown Property Owner LLC. On November 10 and 11, 2015, approximately one month prior to removal of the tanks, GZA mobilized to the Site with the owner's contractor who used an excavator to uncover the tanks to determine their dimensions, general conditions, contents, and distances from the nearby building foundations. GZA determined that the tank within AOI 1 was approximately 2,000 gallons in size and the tank within AOI 2 was approximately 500 gallons.

Tank removal activities began on December 7, 2015. Following removal of the tanks and tank contents, soil excavation activities began with removing soil from the tank graves exhibiting visual and/or olfactory evidence of petroleum impact. Soil samples were collected from the sidewalls and bottom of each excavation as appropriate utilizing the excavator bucket to assess for the presence of obvious petroleum contamination. Excavation progressed horizontally and vertically at each tank grave until soil did not exhibit visual and/or olfactory evidence of petroleum impact. If a sample did not meet these criteria, additional soil was removed in the area of the sample and additional samples assessed.

Upon removal of the soil exhibiting obvious petroleum impact, GZA collected confirmatory soil samples from the proposed final sidewalls and final bottom of each excavation at locations selected in consultation with the on-site NYSDEC field representative (Figures 2 and 3). Confirmatory samples were collected at a frequency of a minimum of one sample per every 900 square feet of excavation bottom area and a minimum of one sample per every 30 linear feet of excavation sidewall. Seven confirmatory samples were collected from the sidewalls and two confirmatory samples were collected from the bottom of the proposed final excavation limits of AOI 1. Four confirmatory samples were collected from the sidewalls and two confirmatory samples were collected from the bottom of the proposed final excavation limits of AOI 2. The samples were submitted to Paradigm Laboratory under chain of custody for analysis for TCL VOCs and CP-51 semi-volatile organic compounds (SVOCs) via USEPA SW-846 Test Methods

8260 and 8270, respectively, to verify that the final sidewalls and bottoms of the excavations met the commercial use SCOs for TCL VOCs and CP-51 list SVOCs. One field duplicate sample was collected from each AOI excavation and submitted for the same laboratory analysis as the corresponding field sample. With the exception of low concentrations of acetone, which is not a suspected site contaminant and often determined to be a laboratory contaminant, analytical results of all confirmatory samples from the AOI 1 and AOI 2 excavations were below the unrestricted use SCOs (Tables 1 and 2). A small amount of soil exhibiting nuisance characteristics remains at AOI1 directly adjacent to the south building #4 foundation footer. This material was left in place because of potential damage to the foundation if removed.

1.4.2 INSTALLATION OF SUB-SLAB DEPRESSURIZATION SYSTEMS

GZA observed and documented installation of the SSD systems in tenant space 14 within Building 3 (Gi-Ro Cleaners) and within Building 2 (former Total Automotive) by Mitigation Tech, a vapor mitigation specialist (Figure 4). The system for tenant space 14 was installed during November and December of 2015 and the system in Building 2 was installed in January 2016. The work was completed in general compliance with the NYSDOH document "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The work included a pre-construction site visit to identify features that could potentially interfere with the efficacy of the systems, collection of sub-slab air communication data, and determination of the most suitable designs for the systems. Vacuum and air flow measurements were collected to assess the functionality of each design, and configurations of the fan components were evaluated during installation of the systems. Refer to Appendix D for the Construction Completion Report for the two systems.

Following installation, Mitigation Tech performed sub-slab communication testing within tenant space 14 and Building 2 to confirm that the systems were maintaining a negative pressure of at least 0.004 water column inches (wci) below each slab relative to the air pressure above the slab. The results of the testing completed within tenant space 14 are shown on Figure 5. Vacuum beneath the slab was measured at four communication test points. Three of the four communication test points exhibited vacuum ranging between 0.017 and 0.022 wci, exceeding the minimum 0.004 wci of vacuum required by the design. The fourth communication test point exhibited a vacuum of 0.003 wci, slightly less than the targeted 0.004 wci of vacuum. However,

based on the location of the test point, very near the edge of the building footer, this vacuum measurement was not deemed a significant concern. Based on the results of the communication testing, it was determined that the entirety of sub-slab of tenant space 14 was being sufficiently depressurized. This tenant space has since been vacated and will remain vacant until eventual demolition of the building.

The results of the sub-slab communication testing completed within Building 2 is shown on Figure 6. Vacuum beneath the slab was measured at 11 communication test points. Six of the eleven communication test points exhibited vacuum ranging between 0.017 and 0.055 wci, exceeding the targeted minimum 0.004 wci of vacuum. Three of the communication test points, all in the southern portion of the building, could not be tested due to the presence of mud and water saturation directly beneath the concrete floor slab. The remaining two communication test points, also in the southern portion of the building, did not exhibit vacuum. The owner of Building 2 reported that there was likely a sub-slab water leak in the vicinity of the water service entrance in the southwestern corner of the building; such may have been responsible for the saturated conditions and resulting low vacuum measured in this portion of the building. Regardless, the NYSDEC and NYSDOH accepted the system performance of the SSD systems in both buildings.

GZA collected confirmatory indoor air samples from tenant space 14 and Building 2 on February 26, 2016, to determine if CVOCs were present in indoor air at elevated levels following installation and operation of the systems. One sample was collected from the eastern customer area of tenant space 14 and one sample was collected from the southern office/customer area of Building 2. One outdoor air sample was also collected near the southwestern exterior of Building 2, in the upwind direction.

According to the analytical results (Table 3), the concentration of PCE detected in indoor air within tenant space 14 was higher following installation of the system compared with the concentration detected prior to installation of the system; however, given the confirmation of depressurization within this tenant space, such was likely the result of off-gassing from dry-cleaned clothes that were routinely brought to the tenant space awaiting pickup by customers. No additional sampling is planned given that the tenant space is vacant and will remain so until the building in which it is housed is demolished pending the expiration of the remaining tenant space lease agreements.

Post SSDS sampling of indoor air from Building 2 showed very low concentrations of carbon tetrachloride (0.75 ug/m3) and PCE (2.7 ug/m3). This entire building/tenant space has since been vacated, and will remain vacant until demolition.

1.4.3 AOI 3 – REMOVAL OF SOLVENT-IMPACTED SOIL

GZA observed and documented the removal of solvent-impacted soil from AOI 3 on behalf of Northtown Property Owner LLC. Two excavations were completed. Excavation 1 consisted of the removal of solvent-impacted soil in the vicinity of and encompassing soil probe locations SP-23 and SP-62, at which PCE concentrations in soil were identified as exceeding commercial use SCOs at depths of approximately 12-14 ft. bgs and 16-17 ft. bgs, respectively. Excavation 2 consisted of the removal of solvent-impacted soil in the vicinity of and encompassing soil probe locations SP-47 and SP-56, at which PCE concentrations in soil were identified as exceeding industrial use SCOs and commercial use SCOs, respectively, at depths of approximately 6-8 ft. bgs (SP-47) and 14-15 ft. bgs (SP-56).

Soil excavation activities began at Excavation 1 with the removal of soil at probe location SP-23 exhibiting visual and/or olfactory evidence of solvent impact or which had elevated PID readings. Following completion of Excavation 1, soil was removed at Excavation 2 starting at probe location SP-56. Soil samples were collected from the sidewalls and bottom of each excavation as needed utilizing the excavator bucket to assess for the presence of solvent contamination. Excavation progressed horizontally and vertically at each excavation until soil did not exhibit visual and/or olfactory evidence of petroleum impact or exhibit significantly elevated PID readings. If a sample did not meet these criteria, additional soil was removed in the area of the sample and additional samples assessed. The excavations were completed to depths of approximately 15-20 ft. bgs, which encompassed the previously identified soil with solvent concentrations above commercial use SCOs at soil probe locations SP-23, SP-47, SP-56, and SP-62.

Upon removal of all soil exhibiting obvious significant solvent impact, GZA collected confirmatory soil samples from the proposed final sidewalls and final bottom of each excavation at locations selected in consultation with the on-site NYSDEC field representative, (Figure 7). Confirmatory samples were collected at a frequency of a minimum of one soil sample per every 900 square feet of excavation bottom area and a minimum of one soil sample per every 30 linear

feet of excavation sidewall. Five confirmatory soil samples were collected from the sidewalls and one confirmatory soil sample was collected from the bottom of the final excavation limits of Excavation 1. Eight confirmatory soil samples were collected from the sidewalls and two confirmatory soil samples were collected from the bottom of the final excavation limits of Excavation 2. The samples were submitted to Paradigm Laboratory under chain of custody for analysis for Halogenated Solvents via USEPA SW-846 Test Method 8260 to verify that the final sidewalls and bottoms of the excavations met the commercial use SCOs for Halogenated Solvents. One field duplicate sample was collected from each excavation. All analytical results of the final excavation dimensions were below the commercial use SCOs (Tables 4 and 5).

Figure 8 summarizes the results of the soil samples collected that exceeded the Unrestricted Use SCOs at the Site after completion of the previous Phase II investigation and Pre-Design Field Characterization. Soil located at the following locations contained contaminants that exceeded the unrestricted use SCOs, and was not excavated during the IRM: SP-11, SP-16, SP-36, SP-37, SP-44, SP-46, SP-48, SP-51, SP-55, SP-57 through SP-59, and SP-63 through SP-66 (Table 6). The locations represented by these borings is considered as areas of remaining contamination above the unrestricted use SCOs.

As detailed in the FER, none of the confirmatory samples collected from the excavations within AOIs 1 and 2 contained contaminants at concentrations above unrestricted use SCOs or commercial use SCOs, with the exception of acetone which is a common laboratory contaminant (Tables 1 and 2). Some soil with nuisance characteristics of petroleum-impact had to be left on-site at the northern extent of the excavation within AOI 1 due to the location of that material relative to the nearby building footer; however, VOC and SVOC concentrations in sample collected from this material did not exceed unrestricted use SCOs.

In AOI 3, with the exception of sample EWall 1 of Excavation 1, all of the confirmatory samples collected from AOI 3 contained solvents at concentrations above unrestricted use SCOs (Tables 4 and 5) (note, sample location SWall 2 of Excavation 1, which contained PCE at a concentration greater than the commercial use SCO, was subsequently excavated); sample SWall3 was collected further south than Swall2 and contained PCE at a concentration well below the commercial use SCO, therefore, the areas around the two excavations in AOI3 are considered as areas of remaining soil with concentrations of VOCs below commercial use SCOs but potentially above unrestricted use SCOs.

As detailed in the previous site investigations, shallow pore water within AOI 3 contained solvent constituents at concentrations above the NYSDEC Class GA Criteria prior to implementation of the IRMs (Table 7, Figure 9); however, such was attributable to the solvent-impacted soil in this area, which has since been removed.

2.0 IDENTIFICATION OF REMEDIAL GOALS, STANDARDS, CRITERIA, GUIDELINES AND REMEDIAL ACTION OBJECTIVES

This section discusses the remedial goals and Remedial Action Objectives (RAOs) that were developed for the BCP Site based upon the results of Phase II and the Pre-Design Field Characterization (PDFC) for the current and potential future use of the property. Also included in this section is a description of Standards, Criteria and Guidance (SCGs) that were applicable or relevant to the IRM work completed, as well as the applicability of various cleanup tracks per the requirements of Part 375. The remedial goals for the BCP Site were developed based on the following:

- Prior to the IRM, the Site use was commercial and the anticipated future use was commercial;
- Site health exposure pathways identified under the pre-IRM conditions with respect to soil were ingestion, inhalation, and dermal contact; and
- Human health exposure pathways identified under the pre-IRM conditions with respect to indoor air and soil vapor were inhalation.

2.1 REMEDIAL GOALS AND CLEANUP TRACKS

The goal of the remedy selection process in the BCP is to select a remedy for the Site that is fully protective of public health and the environment, taking into account the current, intended, and reasonably anticipated future use of the Site.

2.2 POTENTIALLY APPLICABLE STANDARDS, CRITERIA AND GUIDELINES (SCGs) AND OTHER CRITERIA

The following subsections present the three categories of SCGs: chemical-specific, location-specific, and action-specific.

2.2.1 CHEMICAL -SPECIFIC SCGs

Chemical-Specific SCGs are typically technological or health risk-based numerical limitations on the contaminant concentrations in the ambient environment. They are used to assess the extent of remedial action required and to identify RAOs for a site. Chemical-Specific SCGs may be directly used as actual cleanup goals, or as a basis for establishing appropriate cleanup goals for the Contaminants of Concern (COCs) at a site.

SOIL

The chemical-specific SCGs used for AOI 1 and 2 of the BCP Site for soil impacted with petroleum and for AOI 3 for soil impacted with CVOCs were the NYSDEC Part 375

commercial use SCOs and the NYSDEC Commissioner Policy CP-51 Section V.G, Soil Cleanup Levels for Nuisance Conditions.

INDOOR AIR

The chemical-specific SCGs used for the BCP Site indoor air were the NYSDOH's "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006 (NYSDOH Guidance).

2.2.2 LOCATION -SPECIFIC SCGs

Location-specific SCGs apply to sites that contain features such as wetlands, floodplains, sensitive ecosystems or historic buildings that are located on, or in close proximity to the Site. Because the Site is located within a commercial retail complex in the Town of Amherst, location–specific SCGs were determined to be not applicable for the Site.

2.2.3 ACTION-SPECIFIC SCGs

Action-specific SCGs are usually administrative or activity-based limitations that guide how remedial actions are conducted. These may include record keeping and reporting requirements, permitting requirements, design and performance standards for remedial actions, and treatment, storage and disposal practices. Action-specific SCGs that were potentially applicable consisted of:

- 6 NYCRR Part 375 – Environmental Remediation Programs (December 2006)
- 6 NYCRR Part 595 - Releases of Hazardous Substances (August 1994)
- DER-2 – Making Changes to Selected Remedies (Revised April 2008)
- DER-10 – Technical Guidance for Site Investigation and Remediation (May 2010)
- DER-23 – Citizen Participation Handbook for Remedial Programs (March 2010)
- DER-32 – Brownfield Cleanup Program Applications and Agreements (July 2010)
- DER-33 – Institutional Controls – A Guide to Recording Institutional Controls (January 2011)
- CP-51 – Soil Cleanup Policy (December 2010)
- TAGM 3028 – "Contained-In" Criteria for Environmental Media
- Guidance for Evaluation Soil Vapor Intrusion in New York State (October 2006)
- ECL Article 27 - Collection, Treatment and Disposal of Refuse and Other Solid Waste
- 6 NYCRR Part 201 - Permits and Certificates
- 6 NYCRR Part 212 - General Process Emission Sources
- 6 NYCRR Part 257 - Air Quality Standards

2.2.4 REMEDIAL ACTION OBJECTIVES (RAOs)

This section presents the objectives for IRM activities that were conducted at the BCP Site to protect human health and the environment. To develop the RAOs, the following was completed:

- Identified COCs remaining in the environmental media at the BCP Site at concentrations that exceed their respective SCGs.
- Evaluated existing or potential exposure pathways in which the remaining contaminants may affect human health and the environment.
- Identified pathways having an existing or potential exposure concern.
- Identified chemical-specific SCGs that apply to the likely exposure routes for the COCs.
- Established RAOs for the COCs to reduce the potential for current and future exposure.

2.2.5 CONTAMINANTS OF CONCERN AND SCG GOALS

Applicable cleanup SCGs for the identified COCs were selected by comparing the chemical-specific SCGs appropriate to the current and potential future exposure pathways. The cleanup SCG was then selected based on the potential exposure scenarios and contaminated media at issue.

2.2.6 CONTAMINATED MEDIA AND EXPOSURE PATHWAYS

This subsection addresses the environmental media and describes the types of contaminants present, the current potential exposure pathways, and remedial objectives to reduce the potential for future exposure.

2.2.6.1 SURFACE SOIL

The majority of AOIs 1, 2, and 3 were covered either by pavement or with buildings prior to the IRM. Such is still the case currently. No surficial soil impacts were identified during the Phase II and PDFC (i.e. impacted soils are greater than six feet below ground surface).

2.2.6.2 SUBSURFACE SOIL PRIOR TO COMPLETION OF IRMs

A total of 15 different VOCs were detected above method detection limits in 35 of the 53 soil samples selected for VOC laboratory testing during the Phase II (Table 1, Figure 2). The detected concentrations of the 15 compounds were below their Commercial Soil Cleanup Objectives (COMMERCIAL USE SCO) with the exception of tetrachloroethene (PCE) at AOI 3. During the PDFC, 32 soil samples were collected and analyzed for CVOCs in AOI 3. Only two samples reported exceedances of the COMMERCIAL USE SCO for PCE.

PCE was detected above method detection limits in 52 of the soil samples collected in AOI 3 and analyzed as part of the Phase II and PDFC. These detections of PCE were located in the vicinity of the former dry cleaner. The detected concentrations of PCE exceeded its Unrestricted use SCO in 31 samples and the commercial use SCO in three sample locations:

- SP-23 (12-14);
- SP-47 (6-8);and
- SP-62 (16-17).

Exceedances for Industrial use SCO was reported in two sample locations:

- SP-47 (6-8') and
- SP-56 (14-15')

No other VOCs were detected exceeding their respective commercial use SCOs in the other 83 soil samples collected. The majority were below their respective Unrestricted use SCOs.

A total of nine different SVOCs were detected above method detection limits in three of the concentrations of the nine compounds were below their respective unrestricted use SCOs.

PCBs were not detected above method detection limits in the 12 soil samples selected for PCB laboratory testing.

Note that visual and olfactory evidence of fuel oil was encountered in the vicinity of both the southern heating oil UST (SP-33 in AOI 1) and western heating oil UST (SP-42 in AOI 2). NYSDEC was notified of these findings on May 9, 2014 and Spill#1401409 was assigned to the Site. Soil samples collected from near the outer edges of the apparent impacted soil/fill at AOI 1 and AOI 2 were below unrestricted use SCOs.

Potential exposure pathways for the contaminated subsurface soils prior to the IRM included ingestion, dermal contact and, to a lesser degree, inhalation by earthwork construction workers. The potential for exposure via these pathways was possible if uncontrolled access (e.g., excavation by unknowing personnel) to subsurface soils occurred. Additionally, the subsurface soils were a potential source of the soil vapor intrusion.

Remedial Action Objectives (RAOs):

The soil Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document are as follows:

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

As detailed in the FER, soil impacted at concentrations above the commercial use SCOs, appropriate for the intended future use of the Site, was removed from the Site and sub-slab depressurization systems were installed within areas with identified commercial use VOC impact to indoor air. However, CVOCs are still present in soil at concentrations above unrestricted use SCOs in AOI 3. Potential risks with these residuals will be mitigated by a Site Management Plan and Environmental Easement.

2.2.6.3 GROUNDWATER / PORE WATER

While a total of six different VOCs were detected above method detection limits in the three deep overburden groundwater samples collected during the Phase II for VOC laboratory testing, all detected concentrations of all six compounds were below their NYSDEC Class GA criteria. No Contaminants of Concern (COCs) were detected in the deep groundwater aquifer, encountered at depth of 53 to 57 feet bgs, with the exception of PCE below the NYSDEC Class GA criterion in one well at an estimated concentration of 0.46 ug/L. Six additional shallow monitoring wells were installed to depths of 20 feet bgs during the PDFC to characterize CVOC contamination of shallow pore water. During the PDFC, shallow groundwater was not directly observed; based on the composition of the fine grained matrix of the subsurface and very slow to lack of water recharge to the wells, water encountered in the shallow wells is not considered as groundwater from an aquifer but rather pore water from the tight clay till.

CVOCs were detected above the NYSDEC Class GA criteria in two of the five pore water samples submitted for analysis during the PDFC and was limited to the immediate vicinity of the most highly impacted soils within AOI 3 (Table 7). No CVOCs were detected in the samples collected from wells MW-4, MW-8, and MW-9. Well MW-5 was dry on the day of sample collection. PCE was detected at

a concentration of 21,700µg/L in sample MW-6 and at 32,900µg/L in sample MW-7. TCE was reported at a concentration of 2,690µg/L in sample MW-6. TCE was not detected above method detection limits in sample MW-7. Cis -1,2-DCE was reported at a concentration of 2,960µg/L in sample MW-6 (Dup) and at 389µg/L in sample MW-7. The source of this CVOC contamination in pore water was removed during the PCE-impacted soil removal of the IRM.

RAOs:

The groundwater RAOs for the Site as listed in the Decision Document are as follows:

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

As detailed above and in the FER, soil impacted at concentrations above the commercial use SCOs and the associated CVOC impacted pore water was removed from the Site.

2.2.6.4 SOIL VAPOR INTRUSION

A total of 29 individual VOCs were detected above method detection limits in the eight air samples sent for VOC laboratory testing during the Phase II as part of the soil vapor intrusion assessment. Of the 29 VOCs detected, seven of the compounds are included in the two decision matrices in the NYSDOH Guidance Document, as follows.

Matrix 1 – carbon tetrachloride, trichloroethene, and vinyl chloride

Matrix 2 – 1,1-dichloroethene, cis-1,2-dichloroethene, PCE, and 1,1,1-trichloroethane.

- Based on the indoor air and sub-slab sample concentrations of PCE detected within the dry cleaner unit, the decision matrices indicated that mitigation was needed to minimize potential exposure.

At the time of sampling, the dry cleaner unit contained clothing that were cleaned at an off-site location using PCE and returned to the dry cleaner unit to be picked up by customers. It is likely the indoor air concentration of PCE detected in the dry cleaner unit was primarily due to off-gassing from cleaned clothes in the vicinity of the air sampling. We note that the dry-cleaner is set to vacate the space this September.

- Based on the indoor air and sub-slab samples concentrations of PCE detected within the vacant former Manhattan Bagel unit, the decision matrices indicated that mitigation was needed to minimize the exposure scenario. However, that tenant space was vacant and will remain vacant until the building is demolished, therefore no SSDS was installed in the former Manhattan Bagel unit space.

- Additional soil vapor sampling of the adjacent tenant spaces and neighboring Total Automotive was completed during the PDFC at the request of the NYSDEC.

  PCE was detected at concentrations of 5.4µg/m^3 and 8.5µg/m^3 at the outdoor soil gas points Soil Gas- East and Soil Gas-West, respectively.

  None of the indoor air concentrations measured from within the main building of AOI 3 exceeded their respective Air Guidance Values (AGV) for PCE (100 µg/m^3) and TCE (5 µg/m^3). Importantly, based on the relative concentrations detected in the sub-slab samples within the main building adjacent tenant spaces of AOI 3 versus corresponding indoor air samples, it was determined to be very unlikely that the CVOCs noted in indoor air were the result of soil vapor intrusion. Given the low concentrations detected in indoor air, the CVOCs noted may have been the result of cleaning compounds or other anthropogenic sources associated with property usage.

  The soil vapor sample collected from the Total Automotive building during the PDFC, west of AOI 3, contained concentrations of PCE and related breakdown compounds of PCE at elevated concentrations. Indoor air collected from within the Total Automotive building did not contain CVOCs at concentrations of concern. The soil vapor issue associated with the Total Automotive building was not part of the RAOs, since it was outside of the boundaries for AOI 3 and not part of the BCP. A separate vapor intrusion mitigation system however, was installed in the Total Automotive building as part of the vapor intrusion mitigation efforts relating to the BCP. Since installation of the SSDS, this building has been vacated, the SSDS turned off, and the building will remain vacant until it is demolished.

RAOs:

The soil vapor RAO for the Site as listed in the Decision Document is as follows:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

As detailed in the FER, sub-slab depressurization systems were installed within areas with identified CVOC impact to indoor air. It also noted that soil gas concentrations will likely decrease as a result of the impacted soil removal. For this

reason, remedial alternatives for soil vapor intrusion to indoor air are not evaluated as part of this AAR Update.

3.0 PRELIMINARY SCREENING OF REMEDIAL ALTERNATIVES

3.1 INTRODUCTION

This section defines impacted media, and presents the preliminary screening of remedial actions that may be used to achieve the RAOs identified for this AAR Update, which consist of the following:

Soil

- Development and evaluation of potential remedial alternatives that are protective of human health and the environment; and
- Comparison of the potential remedial alternatives relative to the Evaluation Criteria to aid in the selection of the most appropriate final remedial alternative for the Site.

Groundwater/Pore Water

- Development and evaluation of potential remedial alternatives that are protective of human health and the environment; and
- Comparison of the potential remedial alternatives relative to the Evaluating Criteria to aid in the selection of the most appropriate final remedial alternative for the Site.

Potential remedial actions are evaluated during the preliminary screening on the basis of effectiveness and implementability. The purpose of the preliminary screening is to eliminate remedial actions that may not be effective based on anticipated Site conditions, or that cannot be implemented technically at the site; and, to narrow the list of alternatives that will be evaluated in greater detail later in this report.

The remedial actions include general response actions (e.g., containment/management, excavation, etc.) that may be accomplished using various remedial technologies evaluated in this section. During the preliminary screening, the intent is to identify general response actions and remedial technologies that may be appropriate for the Site conditions. The list of general response actions considered herein is intended to include those actions that are more appropriate for the BCP AOIs. Two main considerations are that the focal COC are:

1) CVOC impacts present in soil associated with the dry cleaner in AOI 3 at levels above the unrestricted use SCOs, but below commercial use SCOs after IRM implementation; and

2) CVOC impacts present in pore water associated with the dry cleaner in AOI 3 that may be at levels above the NYSDEC Class GA Criteria.

3.2 MEDIA OF CONCERN

This subsection presents the identified impacted media associated with the BCP to assist in evaluating remedial alternatives later in this report. The media are based on the information gathered as part of the previous Site investigations and results of confirmatory sampling conducted following the IRM excavations. For purposes of evaluation, the following two media have been identified that will be assessed for potential further remedial work:

- Residually-impacted CVOC soil present at the Site in AOI 3.
- Potentially impacted pore water present at the Site in AOI 3.

3.2.1 CONTAMINATED SOIL

During previous site investigations and at the conclusion of the IRM work, contaminants in soil were detected above their respective unrestricted use SCOs for CVOCs. As indicated on Figure 8, locations on-site with CVOCs in soil that may be above unrestricted use SCOs following the IRM work include the areas around Excavations 1 and 2 within AOI 3.

3.2.2 PORE WATER

During previous site investigations, CVOCs in pore water were detected within AOI 3 at concentrations above the NYSDEC Class GA Criteria.

The contaminated pore water was removed during the solvent-impacted hot spot soil excavation which included removal of wells MW-6 and MW-7 and surrounding soils.

3.3 SCREENING OF REMEDIAL TECHNOLOGIES

In accordance with NYSDEC DER-10, the criteria used for preliminary screening of remedial technologies include the following.

- Effectiveness - The effectiveness evaluation focuses on the degree to which a remedial action is protective of human health and the environment. An assessment is made of the extent to which an action:
    1. Reduces the mobility, toxicity and volume of contamination at the site;
    2. Meets the remediation goals identified in the remedial action objectives;
    3. Effectively handles the estimated areas and volumes of contaminated media;
    4. Reduces impacts to human health and the environment in the short-term during the construction and implementation phase; and

5. Is proven or reliable in the long-term with respect to the contaminants and conditions at the site.

Alternatives that do not provide adequate protection of human health and the environment are eliminated from further consideration.

- Implementability - The implementability evaluation focuses on the technical and administrative feasibility of a remedial action. Technical feasibility refers to the ability to construct and operate a remedial action for the specific conditions at the site and the availability of necessary equipment and technical specialists. Technical feasibility also includes the future maintenance, replacement and monitoring that may be required for a remedial action. Administrative feasibility refers to compliance with applicable rules, regulations, statutes and the ability to obtain permits or approvals from other government agencies or offices; and the availability of adequate capacity at permitted treatment, storage and disposal facilities and related services. Remedial actions that do not appear to be technically or administratively feasible, or that would require equipment, specialists or facilities that are not available within a reasonable period of time are eliminated from further consideration.

4.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES

4.1 INTRODUCTION

As stated previously and as documented in the FER, completion of the IRM work achieved the RAOs set for the Site prior to the IRM work. This section presents a description of the alternatives for soil and pore water remaining at levels above unrestricted use, relative to the RAOs defined for this AAR, which consist of the following:

Soil

- Development and evaluation of potential remedial alternatives that are protective of human health and the environment; and
- Comparison of the potential remedial alternatives relative to the Evaluation Criteria to aid in the selection of the most appropriate final remedial alternative for the Site.

Groundwater/Pore Water

- Development and evaluation of potential remedial alternatives that are protective of human health and the environment; and

- Comparison of the potential remedial alternatives relative to the Evaluating Criteria to aid in the selection of the most appropriate final remedial alternative for the Site.

A comparative analysis of the alternatives, by media, is presented in Section 5.

4.2 SOIL AND PORE WATER ALTERNATIVES

Two remedial alternatives have been assembled for the soil and pore water contamination above unrestricted levels in AOI 3. An expanded description of each of the alternatives is provided below.

4.2.1 SOIL ALTERNATIVE NO. 1- NO ACTION

The No Action alternative involves taking no further action to remedy the condition of contaminated Site soils, and no action to maintain Institutional nor Engineering Controls. NYSDEC guidance requires that the No Action alternative be evaluated to provide a baseline for comparison against other alternatives in the detailed analysis of soil alternatives (Section 6.0).

4.2.2 SOIL ALTERNATIVE NO. 2- IMPLEMENTATION AND MONITORING OF ENGINEERING AND INSTITUTIONAL CONTROLS

Implementation and monitoring of engineering and institutional controls involves taking no further action to remedy the condition of contaminated Site soils, but does include maintaining the Institutional and Engineering Controls implemented as part of the previously completed IRM.

4.2.3 SOIL ALTERNATIVE NO. 3 – UNRESTRICTED USE SCOs EXCAVATION AND OFF-SITE DISPOSAL

The remedial actions associated with this alternative can be completed using traditional construction materials and equipment. Removal of soil with contamination above the unrestricted use SCOs in AOI 3 would fulfill the DER-10 requirement to assess an alternative that would achieve unrestricted use at the Site, relative to soil contamination, without the use of institutional controls. It is assumed that concentrations of CVOCs in pore water in AOI 3 (if any remain) following complete excavation of soils above unrestricted use SCOs would further decrease.

To achieve unrestricted use SCOs for AOI 3, the current building on the western portion of the Site would need to be demolished prior to excavation to access impacted soils that are known to be present beneath the dry cleaner tenant space. Currently, this alternative is not a practical option because the Site is used for commercial, retail, use and is being re-developed for similar commercial use. Remediation to unrestricted use standards is unnecessary.

5.0 DETAILED ANALYSIS OF ALTERNATIVES

5.1 INTRODUCTION

The purpose of the detailed analysis of alternatives is to present the relevant information to facilitate comparative selection of a recommended remedy for soil. During the detailed analysis, the alternatives established in Section 4.0 are compared on the basis of environmental benefits and costs using criteria established by NYSDEC in DER-10. This approach is intended to provide needed information to compare the merits of each alternative and select an appropriate remedy that satisfies the remedial action objectives for the Site.

This section first presents a summary of the nine evaluation criteria listed in DER-10. It also includes a comparison of three soil alternatives, based on the eight criteria for each environmental media of concern evaluation criteria (seven environmental criteria and cost). Comparisons of the alternatives in terms of the ninth criteria, Community Acceptance, are not included because such evaluations will be performed following review of this report by NYSDEC and the public comment period.

5.2 DESCRIPTION OF EVALUATION CRITERIA

Each remedial alternative is evaluated with respect to the nine criteria outlined in DER-10, as summarized below.

1. Short-Term Impacts and Effectiveness: This criterion addresses the impacts of the alternative during the construction and implementation phase until the RAOs are met. Factors to be evaluated include protection of the community during the remedial actions; protection of workers during the remedial actions; and the time required to achieve RAOs.

2. Long-Term Effectiveness and Permanence: This criterion addresses the long-term protection of human health and the environment after completion of the remedial action. An assessment is made of the effectiveness of the remedial action in managing the risk posed by untreated wastes and the long-term reliability of the remedial action.

3. Reduction of Toxicity, Mobility, and Volume: This criterion addresses the preference to selecting "remedial technologies that permanently and significantly reduce the toxicity, mobility and volume" of the contaminants of concern at a site. This evaluation consists of assessing the extent that the treatment technology destroys toxic contaminants, reduces mobility of the contaminants using irreversible treatment processes, and/or reduces the total volume of contaminated media.

4. Implementability: This criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of services and materials. Technical feasibility refers to the ability to construct and operate a remedial action for the specific conditions at a site and the availability of necessary equipment and technical specialists. Technical feasibility also includes the future operation and maintenance, replacement and monitoring that may be required for a remedial action. Administrative feasibility refers to compliance with applicable rules, regulations, statutes and the ability to obtain permits or approvals from other government agencies or offices; and the availability of adequate capacity at permitted treatment, storage and disposal facilities and related services.

5. Compliance with Applicable or Relevant and Appropriate SCGs and Remediation Goals: This criterion is used to evaluate the extent to which each alternative may achieve the proposed cleanup goals.

6. Overall Protection of Human Health and the Environment: This criterion provides an overall assessment of protection with respect to long-term and short-term effectiveness and compliance with cleanup goals.

7. Cost: The estimated capital costs, long-term operation and maintenance costs, and environmental monitoring costs are evaluated.

8. Land Use: This criterion provides an evaluation of the current, intended and reasonably anticipated future use of the BCP Site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved. The soil and indoor air alternatives evaluated as part of the Detailed Analysis in Sections 5.3.1 through 5.4.3 are compatible with the current Site use (commercial use), the reasonably anticipated future use (commercial use) and the areas surrounding the Site. Land Use is further discussed by media in the appropriate Comparative Analysis Sections 6.1.8 (Soil) and 6.2.8 (Indoor Air)

9. Community Acceptance: This criterion evaluates comments to be received from the public in response to Fact Sheets, public comment periods on documents and other planned Citizen Participation activities as outlined in the Citizen Participation Plan. This AAR was made available for public comment for a 45-day period ending on November 11, 2016. No comments were received from the public.

5.3 DETAILED ANALYSIS OF SOIL AND PORE WATER ALTERNATIVES

5.3.1 ALTERNATIVE No. 1 – NO ACTION

1. Short-Term Impact and Effectiveness: No potential short-term adverse environmental impacts and human exposures are anticipated during the implementation of this alternative because the Site was remediated through IRMs to be protective of human health and the environment under the current site use. As the site is redeveloped however, and occupancy conditions change and earth work is performed, this alternative would not be effective because it does not include implementation of necessary engineering and institutional controls.

2. Long-Term Effectiveness and Permanence: This alternative is not expected to provide long-term effectiveness for the soil and pore water impacts because although the Site was remediated through IRMs engineering and institutional controls are necessary to protect current and future site occupants from remaining contamination.

3. Reduction of Toxicity, Mobility, and Volume: The reduction of toxicity, mobility, and volume of contamination in the soil was completed during the IRMs and was designed to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls. This post-IRM alternative of no action would not reduce toxicity, mobility, nor volume of site contaminants.

4. Implementability: This alternative is readily implementable on a technical basis in that it involves no action.

5. Compliance with Standards, Criteria and Guidance (SCGs): This alternative does not comply with the chemical-specific SCGs for the Site because it lacks utilization of engineering and institutional controls.

6. Overall Protection of Human Health and the Environment: This alternative is not protective of human health and the environment as the Site. As it does not include implementation of necessary engineering and institutional controls. Uncontrolled access to the Site could lead to potential exposure to impacted soil if intrusive work were performed at the Site and workers were unaware or untrained regarding the contaminants.

7. Cost: No additional capital costs are anticipated for this alternative, as there would be no action.

5.3.2 ALTERNATIVE No. 2 – IMPLEMENTATION AND MONITORING OF ENGINEERING AND INSTITUTIONAL CONTROLS

1. Short-Term Impact and Effectiveness: No potential short-term adverse environmental impacts and human exposures are anticipated during the implementation of this alternative because the Site was remediated through IRMs to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls.

2. Long-Term Effectiveness and Permanence: This alternative is expected to provide long-term effectiveness and a permanent remedy for the soil and pore water impacts because the Site was remediated through IRMs to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls.

3. Reduction of Toxicity, Mobility, and Volume: The reduction of toxicity, mobility, and volume of contamination in the soil was completed during the IRMs and was designed to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls.

4. Implementability: This alternative is readily implementable on a technical basis, in that it involves routine operation, inspection, and monitoring of engineering and institutional controls.

5. Compliance with Standards, Criteria and Guidance (SCGs): This alternative complies with the chemical-specific SCGs for the Site, which were based on the current and future commercial use scenarios utilizing engineering and institutional controls.

6. Overall Protection of Human Health and the Environment: This alternative is protective of human health and the environment as the Site has been remediated through IRMs based on the current and future commercial use scenarios utilizing engineering and institutional controls. Uncontrolled access to the Site would not be anticipated to lead to potential exposure to impacted soil if intrusive work were performed at the Site and workers were unaware or untrained regarding the contaminants.

7. Cost: Minimal costs would be incurred for maintenance and monitoring of the institutional and engineering controls as specified in the Site Management Plan (SMP).

5.3.3 ALTERNATIVE No. 3 – UNRESTRICTED USE SCOs SOIL EXCAVATION AND OFF-SITE DISPOSAL

1. Short-Term Impacts and Effectiveness: Potential short-term adverse environmental impacts and human exposures are anticipated during the implementation of this alternative. Disturbance of impacted soil could present short term exposure risks during excavation and handling of the soil.

2. Long-Term Effectiveness and Permanence: This alternative is considered an adequate, reliable, and permanent remedy for soil and, as such, the risks involved with the migration of contaminants and direct contact with soil contaminants above unrestricted use SCOs would be reduced.

3. Reduction of Toxicity, Mobility, and Volume: This alternative involves the removal and off-site disposal of the soil contamination above unrestricted use SCOs. The toxicity, mobility and volume of this contamination would be reduced by excavation of contaminated soils.

4. Implementability: This alternative is implementable on a technical basis with standard construction methods and equipment for areas outside of the building footprints that would not undermine foundations. Materials and services necessary for construction are readily available. Implementation of this alternative would require coordination with site occupants. Some of the areas requiring soil excavation are located within active parking/drive areas, making implementability very difficult during business hours of operation. Excavations near the building may require additional engineering evaluation and support. Excavation under buildings, such as in AOI 3, would require demolition and would not be readily implementable at this time. Further, the site has been remediated to commercial use standards. Since the site is and will remain a commercial site, further remediation to achieve unrestricted use standards is unnecessary and impractical.

5. Compliance with Applicable or Relevant and Appropriate SCGs and Remediation Goals: This alternative is expected to meet the chemical-specific SCGs for the soils within the excavations. No location-specific SCGs were identified. Action-specific SCGs (e.g., OSHA regulations) will be met during construction activities.

6. Overall Protection of Human Health and the Environment: This alternative is considered to be protective of human health and the environment with respect to soil. Implementation of this alternative would result in remediation of soil.

7. Cost: Total costs for this alternative are estimated to exceed $500,000.

6.0 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES

Based on the analysis provided above, the two remedial alternatives (#2 and #3) for soil and pore water media of concern are compared below on the basis of six environmental and one cost criteria.

6.1 SOIL AND PORE WATER ALTERNATIVES

6.1.1 SHORT TERM IMPACTS AND EFFECTIVENESS

As the Site has already been remediated to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls, only remedial alternatives 2 and 3 would be effective in the short term. The removal alternative 3 could pose short term impacts to human health to remedial workers during the excavation and handling of impacted soil.

6.1.2 LONG TERM IMPACTS AND EFFECTIVENESS

As the Site has already been remediated to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls, remedial alternatives 2 and 3 would both be effective in the long term.

6.1.3 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

As the Site has already been remediated to be protective of human health and the environment under the current and future commercial use scenarios utilizing engineering and institutional controls, alternative No. 3 would reduce the volume of contaminants relative to a hypothetical future unrestricted use scenario.

6.1.4 IMPLEMENTABILITY

Alternatives No. 2, and 3 are both administratively implementable. However, Alternative 3 is not considered to be readily implementable as it would require removal of the building prior to significant soil excavation and backfilling. Alternative 3 is also very costly and would pose short term health and safety risks to users of the site during excavation activities.

6.1.5 COMPLIANCE WITH ARAR SCGs AND REMEDIAL GOALS

Both alternatives evaluated are considered to be in compliance with action-specific SCGs.

6.1.6 OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

Alternative 2 would mitigate exposure to human and ecological receptors through implementation of land use restrictions and future monitoring. Alternative 3 would mitigate exposure by removing soil that does not meet the Unrestricted Use SCOs. As stated in the remedial goals and remedial action objective section, the proposed land use is a commercial facility. As such, Alternatives 2 and 3 are equally suited for overall protection of human health and the environment at the Site.

Alternative Nos. 2 and 3 would each be protective of human health and the environment. The primary difference between the alternatives is that:

- Alternative 2 is protective under the current and future commercial use scenarios.

- Alternative 3 is protective under a hypothetical future unrestricted use scenario, and therefore is more protective than Alternative No. 2. However, Alternative No. 3 is not readily implementable because it would require removal of the building that contains the former dry cleaner followed by extensive excavation of impacted soil and backfilling. Alternative 3 is also unnecessary because the site has been remediated to commercial use standards and the site is, and will remain, a commercial site.

6.1.7 COST

Alternative No. 2 requires only the implementation and monitoring of engineering and institutional controls as specified in the Site Management Plan, which has minimal additional cost.

Alternative No. 3, which includes excavation of contaminated soils above unrestricted use SCOs, has the highest capital cost estimated to exceed $500,000.

6.1.8 LAND USE

Alternative Nos. 2, and 3 are compatible with the current BCP Site use (commercial use), the reasonably anticipated future use (commercial use) and the areas surrounding the BCP Site.

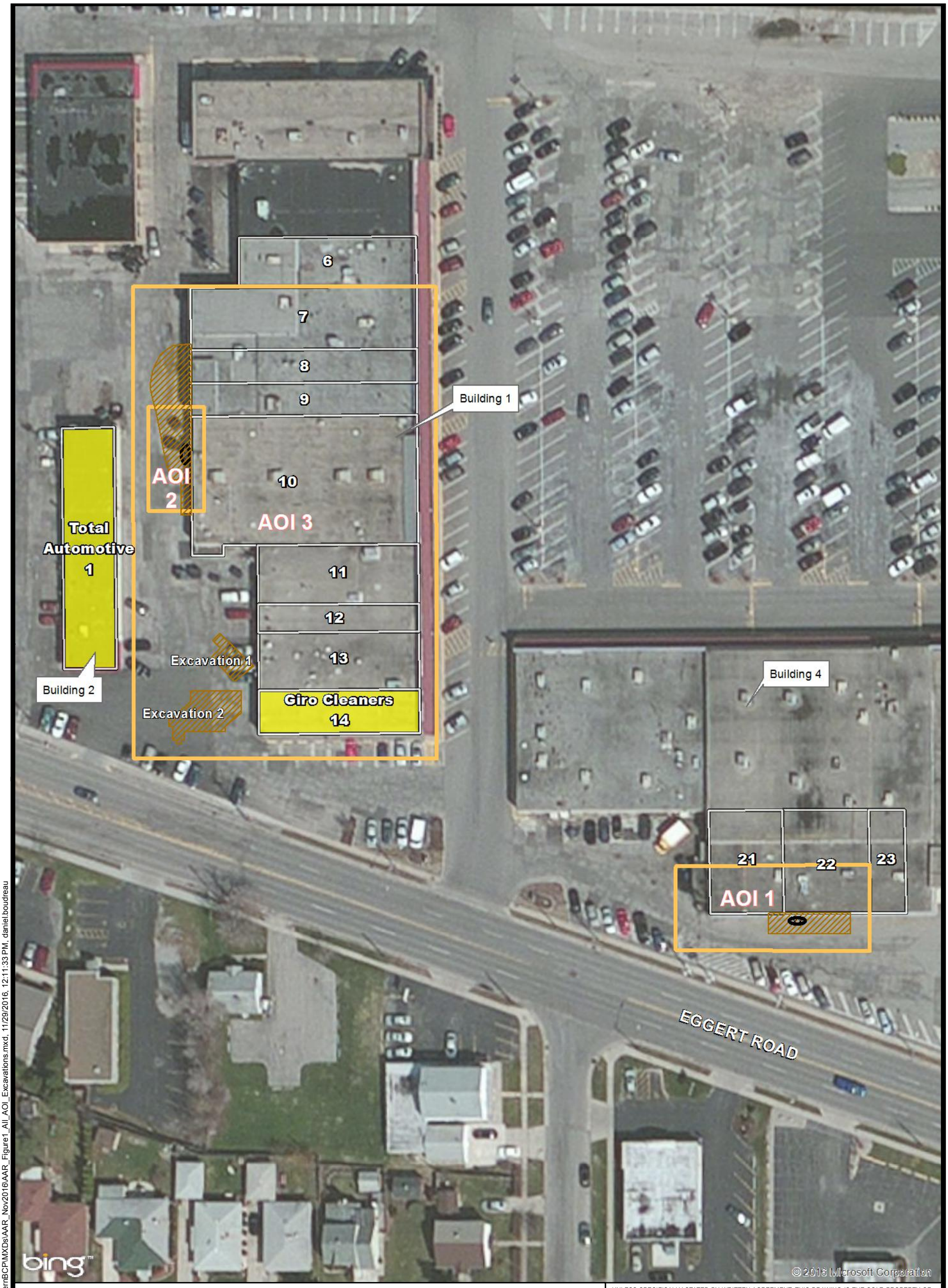
7.0 RECOMMENDED REMEDIAL ALTERNATIVE

The following remedial alternative is recommended to be implemented at the BCP Site.

7.1 REMEDIAL ALTERNATIVE NO. 2

Remedial alternative No. 2 (Implementation and Monitoring of Engineering and Institutional controls) is recommended. The Site has been remediated through IRMs to be protective of human health and the environment for the current and future commercial use scenarios utilizing engineering and institutional controls. Additional remediation to be protective of human health and the environment under a hypothetical and unlikely unrestricted use scenario (Alternative No. 3) would not be readily implementable and would be costly relative to Alternative No. 2.

FIGURES



Legend:

- Building Layout
- Installation Area For Sub-slab Depressurization Systems
- Approximate BCP Site Boundary - Includes AOI 1, 2 & 3
- Approximate UST Location
- Approximate Soil Excavations

Source: Erie County GIS Mapping Website
Notes: All features should be considered approximate

0 60 120
SCALE IN FEET

N W E S

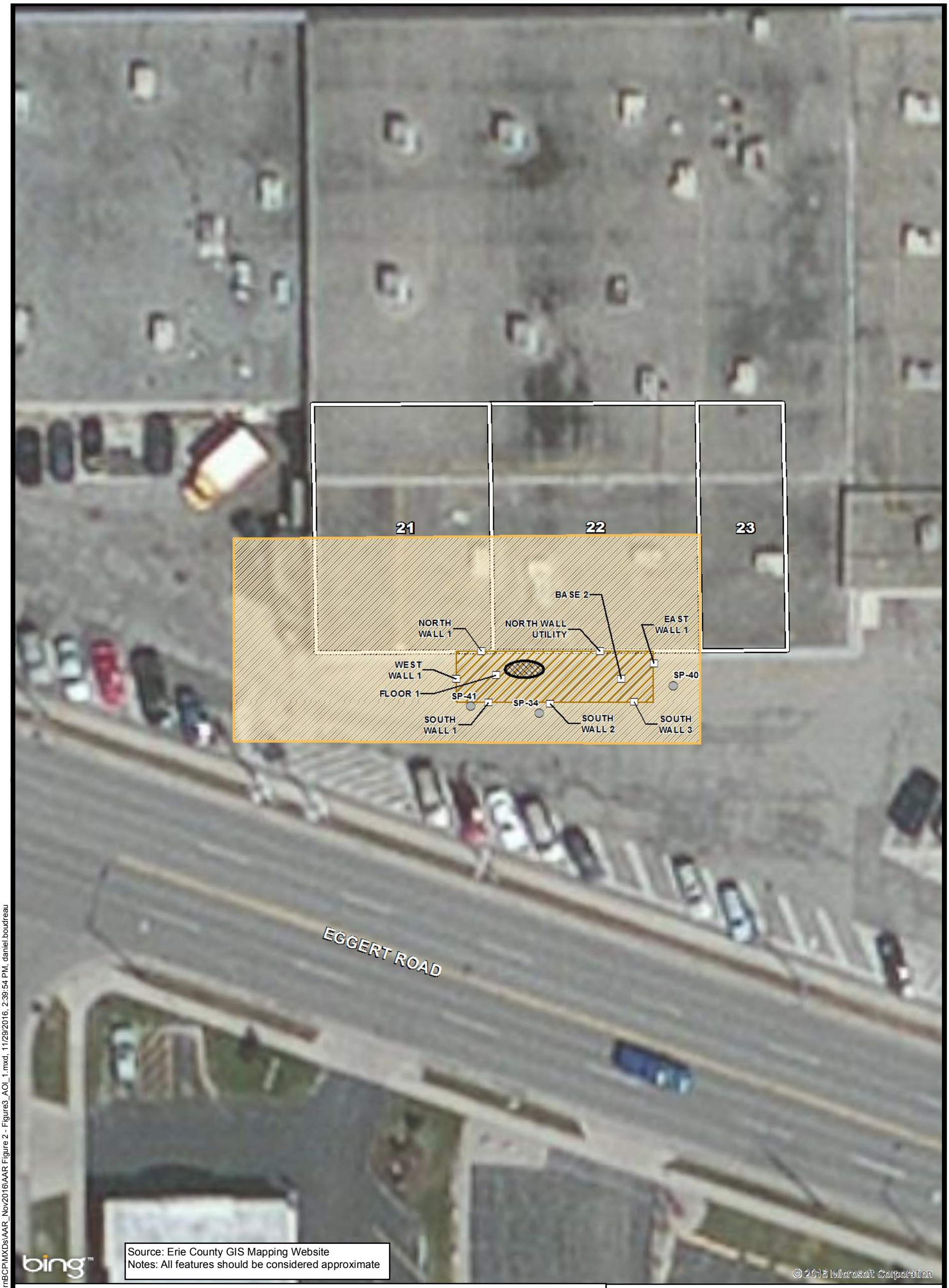
NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternative Analysis Report
SITE REMEDIATION

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
NORTHTOWN PROPERTY OWNER, LLC

PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE 1
DESIGNED BY: TGB	DRAWN BY: PCF	SCALE: 1 in = 60 ft	
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	



Legend:

- Approximate BCP Site Boundary-Includes AOI 1
- Building Layout

Confirmation Sample Locations

- < Unrestricted Use SCOs
- > = Unrestricted Use SCOs

Boring Locations

- < Unrestricted Use SCOs
- > = Unrestricted Use SCOs
- No Field Evidence of Contamination Not Sampled

UST Removal/Soil Excavation

- Approximate UST Location
- Approximate Soil Excavation

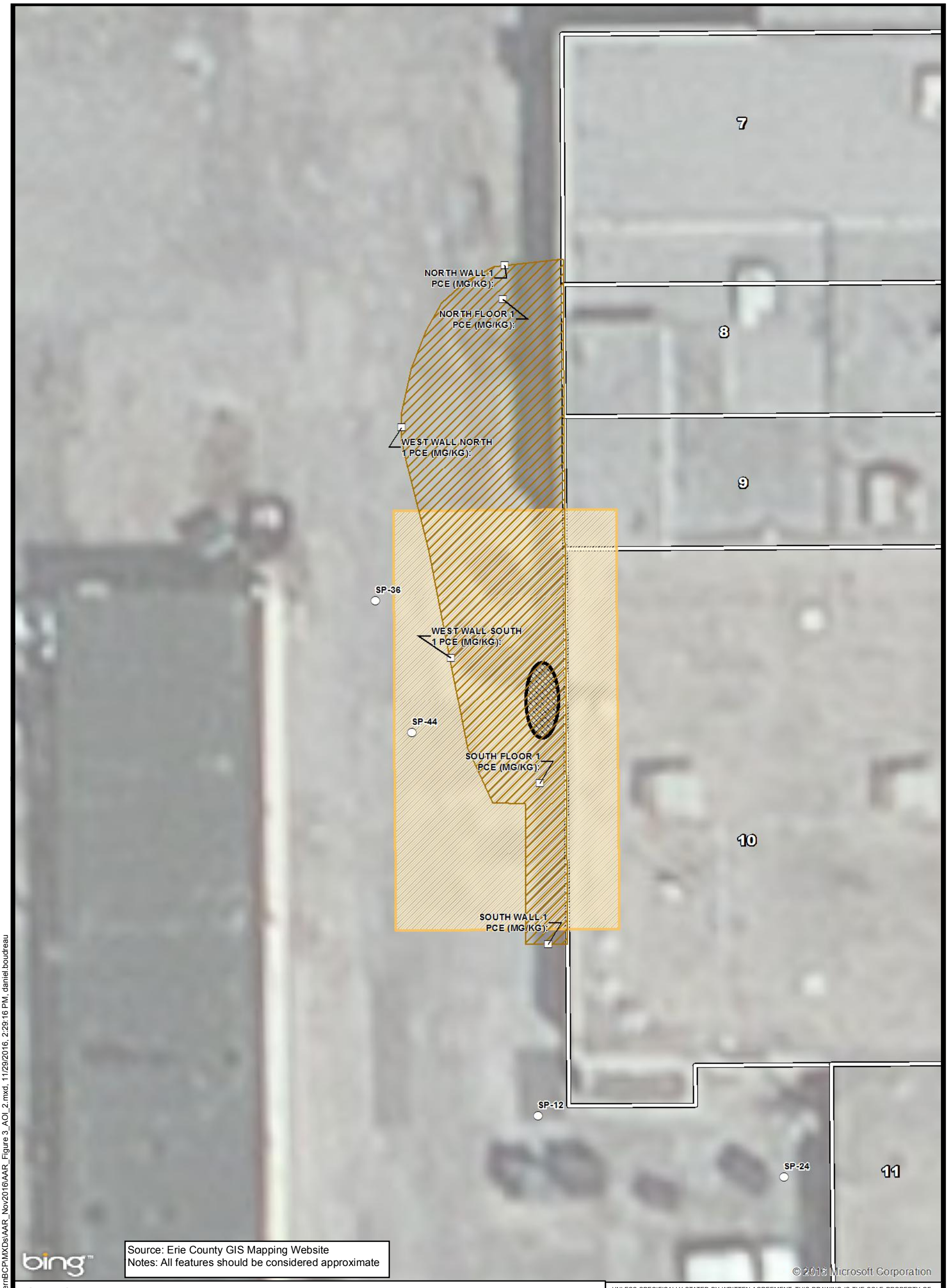
N W E S

0 25 50
SCALE IN FEET

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternative Analysis Report
AOI 1 - UST REMOVAL/SOIL EXCAVATION

PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		NORTHTOWN PROPERTY OWNER, LLC	
PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE 2
DESIGNED BY: TGB	DRAWN BY: DCF	SCALE: 1 in = 25 ft	
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	



Legend:

- Approximate BCP Site Boundary-Includes AOI 1
- Building Layout

Confirmation Sample Locations

- < Unrestricted Use SCOs
- > = Unrestricted Use SCOs

Boring Locations

- < Unrestricted Use SCOs
- > = Unrestricted Use SCOs
- No Field Evidence of Contamination Not Sampled

UST Removal/Soil Excavation

- Approximate UST Location
- Approximate Soil Excavation

N W E S

0 15 30

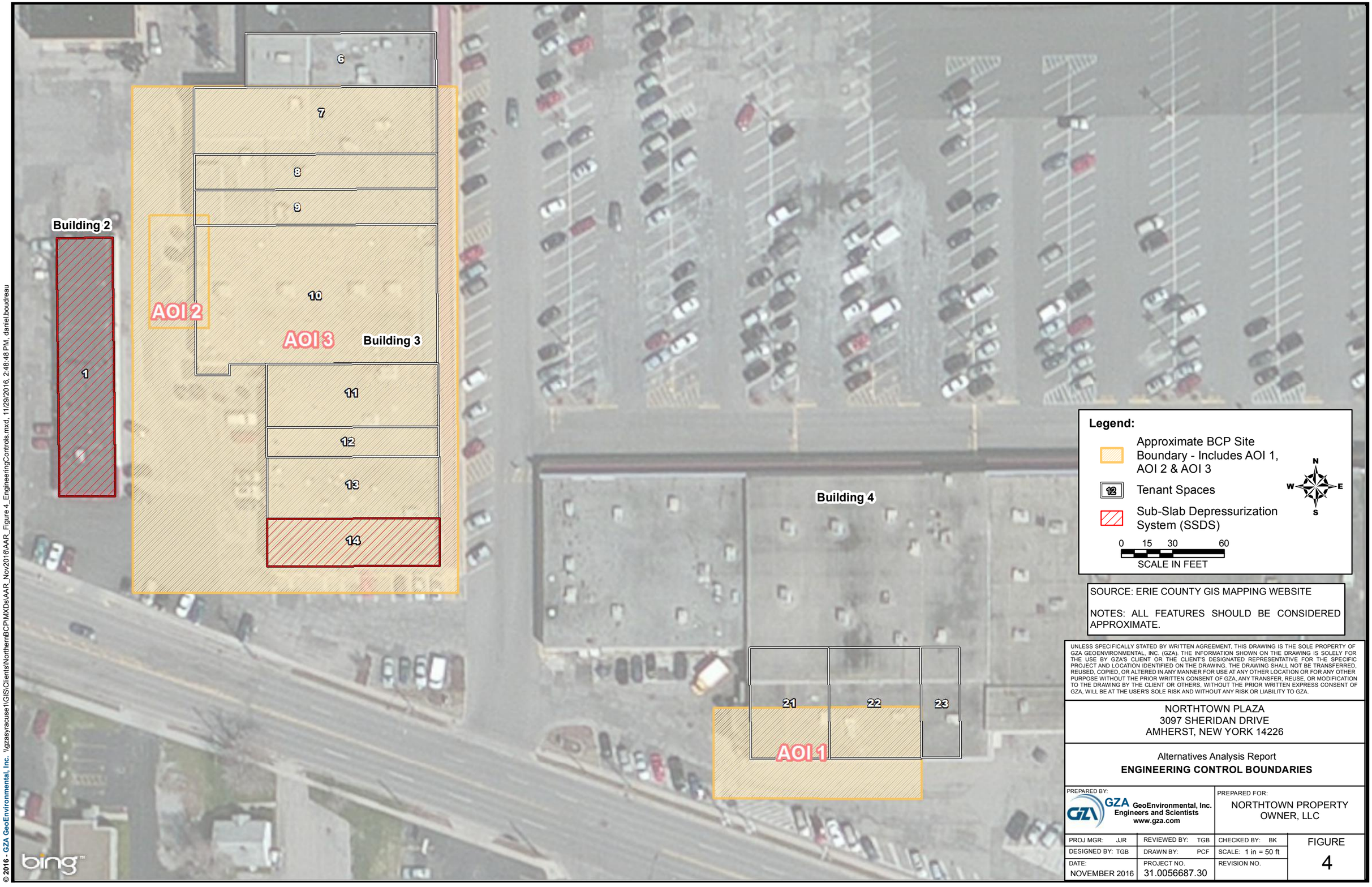
SCALE IN FEET

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternative Analysis Report

AOI 2 - UST REMOVAL/SOIL EXCAVATION

PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		NORTHTOWN PROPERTY OWNER, LLC	
PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE 3
DESIGNED BY: TGB	DRAWN BY: DCF	SCALE: 1 in = 15 ft	
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	



Legend:

- Approximate BCP Site Boundary - Includes AOI 1, AOI 2 & AOI 3
- 12 Tenant Spaces
- Sub-Slab Depressurization System (SSDS)

0 15 30 60
SCALE IN FEET

N W E S

SOURCE: ERIE COUNTY GIS MAPPING WEBSITE

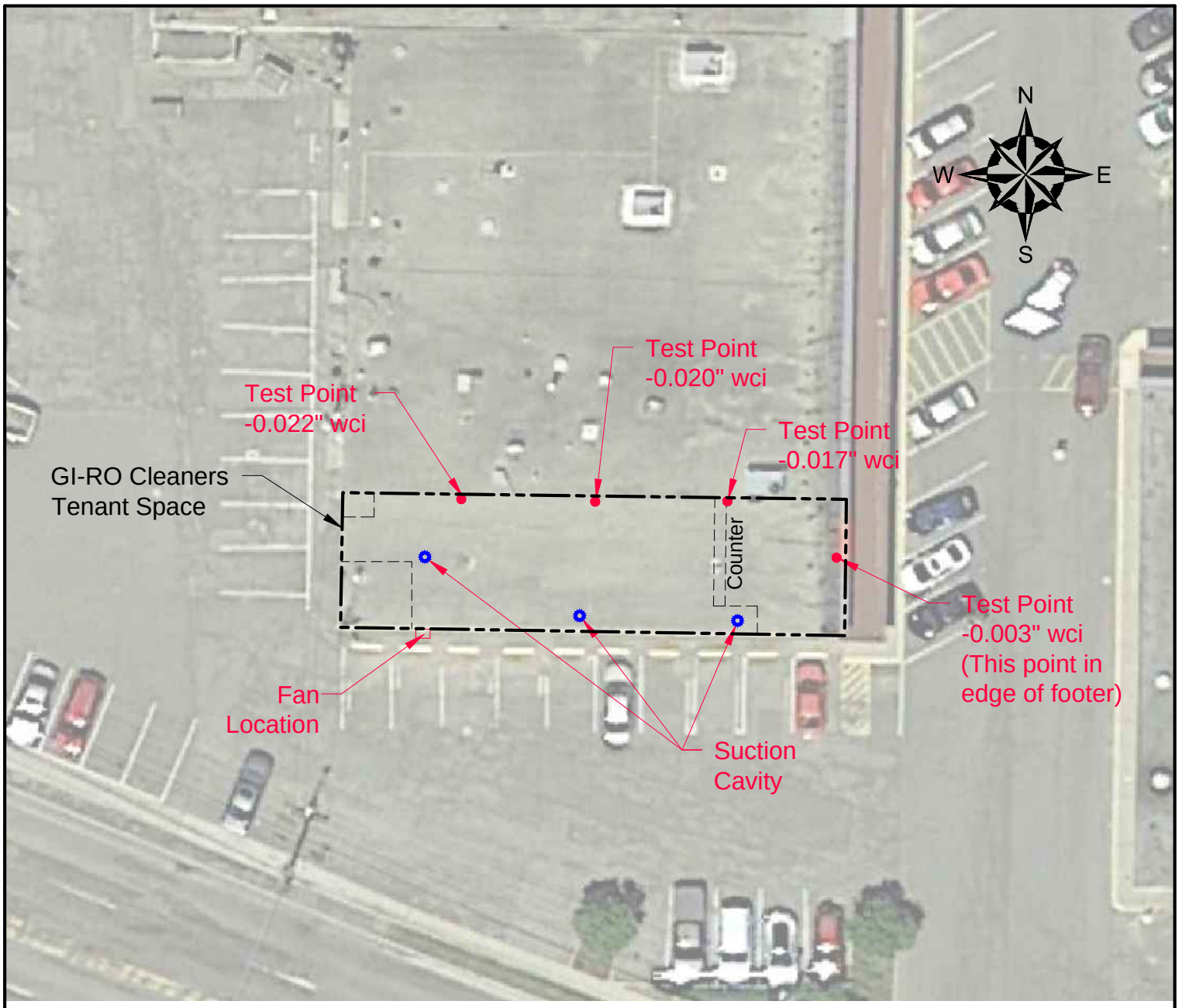
NOTES: ALL FEATURES SHOULD BE CONSIDERED APPROXIMATE.

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternatives Analysis Report
ENGINEERING CONTROL BOUNDARIES

PREPARED BY:	PREPARED FOR:
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	NORTHTOWN PROPERTY OWNER, LLC

PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE 4
DESIGNED BY: TGB	DRAWN BY: PCF	SCALE: 1 in = 50 ft	
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	



NOTES:

1. BASE MAP ADAPTED FROM AERIAL PHOTOGRAPH DOWNLOADED FROM GOOGLE EARTH.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

LEGEND:

- APPROXIMATE LOCATION OF COMMUNICATION TEST POINT SHOWN WITH COMMUNICATION VACUUM VALUE MEASURED IN WATER COLUMN INCHES (wci)
- APPROXIMATE LOCATION OF SUCTION CAVITY

0 15 30 60

SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

PREPARED BY:
GZA GeoEnvironmental of N.Y.
Engineers and Scientists
535 WASHINGTON STREET 11th FLOOR
BUFFALO, NEW YORK 14203
(716) 685-2300

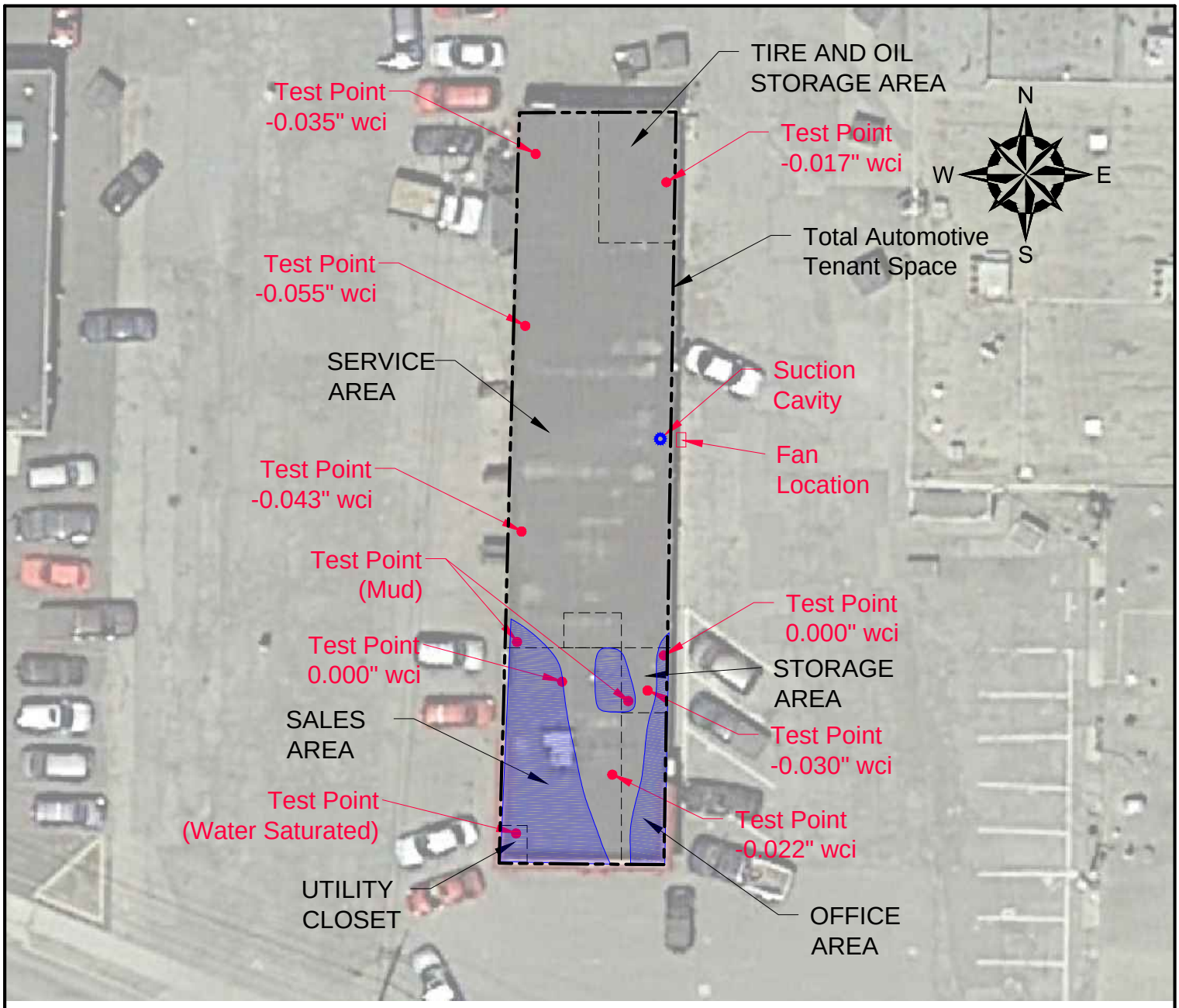
PREPARED FOR:
NORTHTOWN
PROPERTY OWNER LLC

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK

ALTERNATIVES ANALYSIS REPORT
SUB-SLAB COMMUNICATION TESTING (TENANT SPACE 14)

FIGURE 5

PROJ MGR:	JR	REVIEWED BY:	TB	CHECKED BY:		DATE	PROJECT NO.	REVISION NO.
DESIGNED BY:	DEW	DRAWN BY:	DEW	SCALE:	AS SHOWN	NOVEMBER 2016	31.0056687.30	



NOTES:

1. BASE MAP ADAPTED FROM AERIAL PHOTOGRAPH DOWNLOADED FROM GOOGLE EARTH.

2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.

LEGEND:

- APPROXIMATE LOCATION OF COMMUNICATION TEST POINT SHOWN WITH COMMUNICATION VACUUM VALUE MEASURED IN WATER COLUMN INCHES (wci)
- APPROXIMATE LOCATION OF SUCTION CAVITY
- APPROXIMATE AREA OF WATER SATURATION

0 15 30 60

SCALE IN FEET

NO.	ISSUE/DESCRIPTION	BY	DATE

PREPARED BY:
GZA GeoEnvironmental of N.Y.
Engineers and Scientists
535 WASHINGTON STREET 11th FLOOR
BUFFALO, NEW YORK 14203
(716) 685-2300

PREPARED FOR:
NORTHTOWN PROPERTY OWNER LLC

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK

ALTERNATIVES ANALYSIS REPORT
SUB-SLAB COMMUNICATION TESTING (BUILDING 2)

FIGURE 6

PROJ MGR:	JR	REVIEWED BY:	TB	CHECKED BY:		DATE	PROJECT NO.	REVISION NO.
DESIGNED BY:	DEW	DRAWN BY:	DEW	SCALE:	AS SHOWN	NOVEMBER 2016	31.0056687.30	

Legend:

- Bottom of Excavation Sample Location
- Side Wall of Excavation Sample Location
- Building Layout
- Approximate BCP Site Boundary - Includes AOI 1, 2 & 3
- Approximate Soil Excavation

Sample Location - Depth
PCE (MG/KG): #

Tetrachloroethene Concentrations at Sample Location

Source: Erie County GIS Mapping Website
Notes: All features should be considered approximate

0 10 20
SCALE IN FEET

N W E S

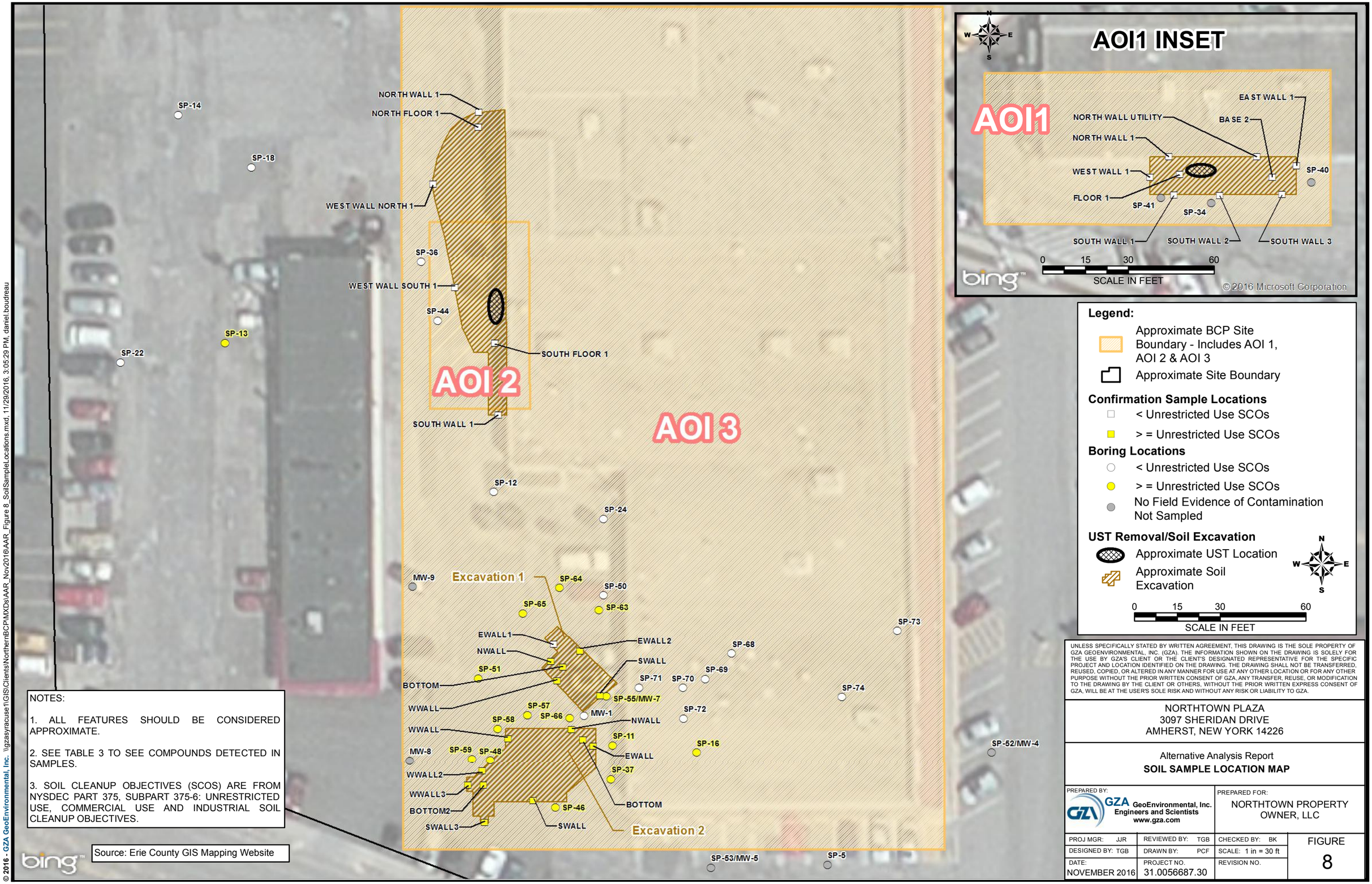
NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternative Analysis Report
AOI 3 EXCAVATIONS 1 & 2

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
NORTHTOWN PROPERTY OWNER, LLC

PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE
DESIGNED BY: TGB	DRAWN BY: DCF	SCALE: 1 in = 10 ft	7
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	



Legend:

- Approximate BCP Site Boundary - Includes AOI 1, AOI 2 & AOI 3
- Approximate Site Boundary

Confirmation Sample Locations

- < Unrestricted Use SCOs
- > = Unrestricted Use SCOs

Boring Locations

- < Unrestricted Use SCOs
- > = Unrestricted Use SCOs
- No Field Evidence of Contamination Not Sampled

UST Removal/Soil Excavation

- Approximate UST Location
- Approximate Soil Excavation

0 15 30 60
SCALE IN FEET

NOTES:

1. ALL FEATURES SHOULD BE CONSIDERED APPROXIMATE.

2. SEE TABLE 3 TO SEE COMPOUNDS DETECTED IN SAMPLES.

3. SOIL CLEANUP OBJECTIVES (SCOS) ARE FROM NYSDEC PART 375, SUBPART 375-6: UNRESTRICTED USE, COMMERCIAL USE AND INDUSTRIAL SOIL CLEANUP OBJECTIVES.

Source: Erie County GIS Mapping Website

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternative Analysis Report
SOIL SAMPLE LOCATION MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
NORTHTOWN PROPERTY OWNER, LLC

PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE
DESIGNED BY: TGB	DRAWN BY: PCF	SCALE: 1 in = 30 ft	8
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	

NOTES:

1. ALL FEATURES SHOULD BE CONSIDERED APPROXIMATE.

2. SEE TABLE 4 TO SEE COMPOUNDS DETECTED IN SAMPLES.

3. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION CLASS GA CRITERIA OBTAINED FROM DIVISION OF NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION CLASS GA CRITERIA OBTAINED FROM DIVISION OF JANUARY 1999 ERRATA SHEET AND APRIL 2000 ADDENDUM.

MW-2 (92.06)

MW-3 (91.96)

92.0

91.9

MW-9

MW-1 (91.8)

SP-55/MW-7

SP-54/MW-6

MW-8

SP-52/MW-4

SP-53/MW-5

Legend:

91.9 Groundwater Elevation Contour

Approximate Site Boundary

Groundwater Sample Locations

< NYSDEC Class GA groundwater criteria

> = NYSDEC Class GA groundwater criteria

N W E S

0 20 40 80

SCALE IN FEET

Source: Erie County GIS Mapping Website

bing

NORTHTOWN PLAZA
3097 SHERIDAN DRIVE
AMHERST, NEW YORK 14226

Alternative Analysis Report

GROUNDWATER SAMPLE LOCATION MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
NORTHTOWN PROPERTY OWNER, LLC

PROJ MGR: JJR	REVIEWED BY: TGB	CHECKED BY: BK	FIGURE
DESIGNED BY: TGB	DRAWN BY: PCF	SCALE: 1 in = 40 ft	9
DATE: NOVEMBER 2016	PROJECT NO. 31.0056687.30	REVISION NO.	

TABLES

TABLE 1

Subsurface Soils Remaining Above Unrestricted Levels - AOI 1
Alternatives Analysis Report Update
Northtown Inc. - BCP Site No. C915292
Amherst, New York

Area of Interest Sample ID Sample Depth (ft) Sample Date	NYSDEC Part 375 Soil Criteria (mg/kg) Unrestricted	 Commercial	AOI 1 North Wall 1 4.5' 12/8/2015	 North Wall Utility 4.0' 12/8/2015	 East Wall 1 3.5' 12/8/2015	 South Wall 1 4.5' 12/8/2015	 South Wall 2 2.0' 12/8/2015	 South Wall 3 3.5' 12/8/2015	 West Wall 1 4.5' 12/8/2015	 Floor 1 8.0' 12/8/2015	 Base 2 5.0' 12/8/2015
Volatile Organic Compounds - EPA Method 8260 (mg/Kg)											
2-Butanone (MEK)	0.12	500	<0.0218	<0.492	<0.0216	<0.0181	<0.0208	<0.0195	<0.0196	<0.0208	<0.0221
Acetone	0.05	500	<0.0218	<0.492	<0.0216	<0.0181	<0.0208	<0.0195	<0.0196	<0.0208	<0.0221
Carbon disulfide	NV	NV	<0.00436	<0.0984	<0.00431	<0.00362	<0.00417	<0.00390	<0.00392	<0.00416	<0.00443
Ethylbenzene	1	390	<0.00436	0.260	<0.00431	<0.00362	<0.00417	<0.00390	<0.00392	0.00675	<0.00443
Isopropylbenzene	NV	NV	<0.00436	0.658	<0.00431	<0.00362	<0.00417	<0.00390	<0.00392	0.00378 J	<0.00443
Methyl tert-butyl Ether	0.93	500	<0.00436	<0.0984	<0.00431	<0.00362	<0.00417	<0.00390	<0.00392	<0.00416	<0.00443
Toluene	0.7	500	<0.00436	<0.0984	<0.00431	<0.00362	<0.00417	<0.00390	<0.00392	0.00386 J	<0.00443
Semi-Volatile Organic Compounds - EPA Method 8270 (mg/Kg)											
Acenaphthene	20	500	<0.313	0.664	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Benzo(a)anthracene	1	5.6	<0.313	<0.342	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Benzo(b)fluoranthene	1	5.6	<0.313	<0.342	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Chrysene	1	56	<0.313	<0.342	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Fluoranthene	100	500	<0.313	0.396	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Fluorene	30	500	<0.313	0.919	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Phenanthrene	100	500	<0.313	1.810	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314
Pyrene	100	500	<0.313	0.309 J	<0.322	<0.318	<0.320	<0.324	<0.314	<0.318	<0.314

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to the laboratory reports for list of all compounds included in analysis.
2. Soil analytical testing completed by Paradigm Environmental Services, Inc., in Rochester, NY.
3. mg/kg = milligrams per kilogram (parts per million).
4. J = Result estimated between the quantitation limit and half the quantitation limit.
5. M = Matrix spike recoveries outside QC limits. Matrix bias indicated.
6. NV = No Value.
7. Soil cleanup objectives (SCOs) are from NYSDEC Part 375, Subpart 375-6: Commercial Use Soil Cleanup Objectives.
8. < indicates compound not detected above method detection limits.
9. Yellow shading indicates value is above the Soil Cleanup Objective for Unrestricted Site Use.
10. Orange shading indicates value is above the Soil Cleanup Objective for Commercial Site Use.

TABLE 2
Subsurface Soils Remaining Above Unrestricted Levels - AOI 2
Alternatives Analysis Report
Northtown Inc. - BCP Site No. C915292
Amherst, New York

Area of Interest Sample ID Sample Depth (ft) Sample Date	NYSDEC Part 375 Soil Criteria (mg/kg) Unrestricted	 Commercial	AOI 2 North Wall 1 6.0' 12/10/2015	 South Wall 1 6.0' 12/11/2015	 West Wall North 1 6.0' 12/11/2015	 West Wall South 1 6.0' 12/11/2015	 North Floor 1 10.0' 12/10/2015	 South Floor 1 10.0' 12/11/2015
Volatile Organic Compounds - EPA Method 8260 (mg/Kg)								
2-Butanone (MEK)	0.12	500	0.0212 J	0.0130 J	0.105	0.0157 J	<0.0203	<0.0222
Acetone*	0.05	500	0.0729	0.0688	0.431	0.0525	<0.0203	<0.0222
Carbon disulfide	NV	NV	0.00855	0.00439 J	0.00675	<0.00469	<0.00407	<0.00445
Ethylbenzene	1	390	<0.00579	<0.00480	<0.00513	<0.00469	<0.00407	<0.00445
Isopropylbenzene	NV	NV	<0.00579	<0.00480	<0.00513	0.00311 J	<0.00407	<0.00445
Methyl tert-butyl Ether	0.93	500	<0.00579	<0.00480	0.00298 J	<0.00469	<0.00407	<0.00445
Toluene	0.7	500	<0.00579	<0.00480	<0.00513	<0.00469	<0.00407	<0.00445
Semi-Volatile Organic Compounds - EPA Method 8270 (mg/Kg)								
Acenaphthene	20	500	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Benzo(a)anthracene	1	5.6	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Benzo(b)fluoranthene	1	5.6	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Chrysene	1	56	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Fluoranthene	100	500	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Fluorene	30	500	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Phenanthrene	100	500	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314
Pyrene	100	500	<0.425	<0.362	<0.392	<0.350	<0.314	<0.314

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to Appendix D for list of all compounds included in analysis.
2. Soil analytical testing completed by Paradigm Environmental Services, Inc., in Rochester, NY.
3. mg/kg = milligrams per kilogram (parts per million).
4. J = Result estimated between the quantitation limit and half the quantitation limit.
5. M = Matrix spike recoveries outside QC limits. Matrix bias indicated.
6. NV = No Value.
7. Soil cleanup objectives (SCOs) are from NYSDEC Part 375, Subpart 375-6: Commercial Use Soil Cleanup Objectives.
8. < indicates compound not detected above method detection limits.
9. Yellow shading indicates value is above the Soil Cleanup Objective for Unrestricted Site Use.
10. Orange shading indicates value is above the Soil Cleanup Objective for Commercial Site Use.
* low acetone detections attributed to laboratory contamination

Table 3
Summary of Analytical Results - Soil Vapor Intrusion Samples
Alternatives Analysis Report
Northtown Plaza BCP Site No. C915292
Amherst, New York

			Tenant Space 10 Basement Samples		Tenant Space 14			Vacant -Tenant Space 13		
Sample ID Sample Date	NYSDOH "Monitor" Sub-Slab Soil Vapor Concentration	NYSDOH "Mitigate" Sub-Slab Soil Vapor Concentration	Sub-Slab 3/19/2014 µg/m^3	Indoor Air 3/19/2014 µg/m^3	Sub-Slab 3/19/2014 µg/m^3	Indoor Air 3/19/2014 µg/m^3	Outdoor Air 3/19/2014 µg/m^3	Sub-Slab 5/8/2014 µg/m^3	Indoor Air 5/8/2014 µg/m^3	Outdoor Air 5/8/2014 µg/m^3
Volatile Organic Compounds - EPA Method TO-15 (µg/m^3)										
1,1,1-Trichloroethane	*100*	*1000*	<0.83	<0.83	<0.83	<0.83	<0.83	<0.83	<0.83	27
1,1,2-Trichloroethane	*NV*	*NV*	<0.83	<0.83	<0.83	<0.83	<0.83	<0.83	<0.83	27
1,2-Dichloroethane	*NV*	*NV*	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	<0.60	3
Carbon tetrachloride	*5*	*250*	<0.96	0.58	<0.96	<0.26	0.51	0.45	0.45	0.51
cis-1,2-Dichloroethene	*100*	*1000*	<0.60	<0.60	0.44 J	<0.60	<0.60	<0.60	<0.60	<0.60
Tetrachloroethene	*100*	*1000*	43	<1.0	230	60	1.3	6,400	70	0.9
Trichloroethene	*5*	*250*	1.6	<0.22	2.5	2.4	<0.22	32	0.22	<0.22
Vinyl Chloride	*5*	*250*	<0.39	<0.10	<0.39	<0.10	<0.10	<0.39	<0.10	<0.10

Notes:
1. Compounds detected in one or more samples are presented in this table. Refer to Appendix D for list of all compounds included in analysis.
2. Air sample analytical testing completed by Centek Laboratory in Syracuse, New York.
3. µg/m^3 = microgram per cubic meter.
4. Samples collected were for an approximate 8-hour sample duration.
5. J = estimated concentration detected less than the reporting limit.
6. < = compound was not detected above reporting limit provided.
7. IA = Inddor Air.
8. SS = Sub-Slab Sample.
9. OA = Outdoor Air Sample.
10. MS/MSD = Matrix Spike/Matrix Spike Duplicate collected with IA-6.
11. DUPE-IA = Field Duplicate associated with IA-5.

Table 3
Summary of Analytical Results - Soil Vapor Intrusion Samples
Alternatives Analysis Report
Northtown Plaza BCP Site No. C915292
Amherst, New York

			Tenant Space 11		Tenant Space 12		Tenant Space 10		Tenant Space 9		Tenant Space 8		Tenant Space 7				Outdoor Soil Gas Samples		Building #2			Post-Remedial Indoor Air Samples		
Sample ID Sample Date	NYSDOH "Monitor" Sub-Slab Soil Vapor Concentration	NYSDOH "Mitigate" Sub-Slab Soil Vapor Concentration	IA-1 3/10/2015 µg/m^3	SS-1 3/10/2015 µg/m^3	IA-2 3/10/2015 µg/m^3	SS-2 3/10/2015 µg/m^3	IA-3 3/10/2015 µg/m^3	SS-3 3/10/2015 µg/m^3	IA-4 3/10/2015 µg/m^3	SS-4 3/10/2015 µg/m^3	IA-5 3/10/2015 µg/m^3	SS-5 3/10/2015 µg/m^3	IA-6 3/10/2015 µg/m^3	SS-6A 3/10/2015 µg/m^3	SS-6B 3/10/2015 µg/m^3	OA 3/10/2015 µg/m^3	Soil Gas East 3/13/2015 µg/m^3	Soil Gas West 3/13/2015 µg/m^3	TA-SS-04202015 4/20/2015 µg/m^3	TA-IA-04202015 4/20/2015 µg/m^3	TA-OA-04202015 4/20/2015 µg/m^3	Outdoor Air 2/26/2016 µg/m^3	Total Auto 2/26/2016 µg/m^3	Giro Cleaners 2/26/2016 µg/m^3
Volatile Organic Compounds - EPA Method TO-15 (µg/m^3)																								
1,1,1-Trichloroethane	*100*	*1000*	<	<	<	0.71 J	<	3.2	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<
1,1,2-Trichloroethane	*NV*	*NV*	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	8.7	<	<	<	<	<
1,2-Dichloroethane	*NV*	*NV*	<	<	<	<	<	<	0.57 J	< 0.61	2.3	< 0.61	5.5	3.1	< 0.61	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	*5*	*250*	<	<	0.63	< 0.94	0.69	< 0.94	0.57	< 0.94	0.63	< 0.94	0.63	< 0.94	< 0.94	0.69	<	<	0.75	0.69	0.94	0.88	0.75	0.82
cis-1,2-Dichloroethene	*100*	*1000*	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	430	<	<	<	2.7	150
Tetrachloroethene	*100*	*1000*	1.8	2	11	2.6	1.2	<	2.2	<	1.1	<	1.1	<	0.88 J	<	5.4	8.5	2500	<	<	<	<	<
Trichloroethene	*5*	*250*	0.43	0.97	<0.21	4.3	<0.21	1.2	0.54	1.5	<	0.86	0.32	0.59 J	0.64 J	<	<	<	2000	<	<	<	<	<
Vinyl Chloride	*5*	*250*	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	0.66	<	<	<	<	<

Notes:
1. Compounds detected in one or more samples are presented in this table. Refer to Appendix D for list of all compounds included in analysis.
2. Air sample analytical testing completed by Centek Laboratory in Syracuse, New York.
3. µg/m^3 = microgram per cubic meter.
4. Samples collected were for an approximate 8-hour sample duration.
5. J = estimated concentration detected less than the reporting limit.
6. < = compound was not detected above reporting limit provided.
7. IA = Inddor Air.
8. SS = Sub-Slab Sample.
9. OA = Outdoor Air Sample.
10. MS/MSD = Matrix Spike/Matrix Spike Duplicate collected with IA-6.
11. DUPE-IA = Field Duplicate associated with IA-5.

TABLE 4
Summary of Analytical Results - Subsurface Soils
AOI 3 Excavation 1
Alternative Analysis Report Update
Northtown Plaza BCP Site No. C915292
Amherst, New York

Sample ID	NYSDEC Part 375 Soil Criteria (mg/kg)		NWALL	BOTTOM	EWALL1	EWALL2	WWALL	SWALL
Sample Date			6/29/2016	6/29/2016	6/29/2016	6/29/2016	7/5/2016	7/5/2016
Sample Depth	Unrestricted	Commercial	10'	17'	12'	12'	12'	12'
Volatile Organic Compounds - EPA Method 8260 (mg/Kg)								
Chloromethane	NV	NV	0.046	0.15	0.001	0.15	<	<
cis-1,2-Dichloroethene	0.25	500	0.085	<	0.035	0.077	1.1	0.024
Tetrachloroethene	1.30	150	21	65	0.310	48	38	30
Trichloroethene	0.47	200	0.056	0.400	0.028	0.110	0.810	0.021

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to laboratory report for list of all compounds included in analysis.
2. Soil analytical testing completed by Alpha Analytical Inc., in Westborough, MA.
3. mg/kg = milligrams per killigram (parts per million)
4. NV = no value. NT = not tested.
5. Yellow shading indicates value exceeds Unrestricted Use Soil Cleanup Objectives.
6. Orange shading indicates value exceeds Commercial Use Soil Cleanup Objectives.
7. Soil cleanup objectives (SCOs) are from NYSDEC Part 375, Subpart 375-6: Unrestricted Use, Commercial Use and Industrial Soil Cleanup Objectives.
8. < indicates compound not detected above method detection limits.

TABLE 5
Summary of Analytical Results - Subsurface Soils
AOI 3 Excavation 2
Alternative Analysis Report Update
Northtown Plaza BCP Site No. C915292
Amherst, New York

Sample ID Sample Date Sample Depth	NYSDEC Part 375 Soil Criteria (mg/kg) Unrestricted	 Commercial	NWALL 7/5/2016 10'	WWALL1 7/5/2016 14'	BOTTOM1 7/5/2016 15'	EWALL 7/7/2016 14	SWALL1 7/8/2016 16	WWALL2 7/9/2016 16	TRIP BLANK 7/9/2016 NA	BOTTOM2 7/12/216 20	WWALL3 7/13/2016 17	SWALL3 7/14/2016 16
Volatile Organic Compounds - EPA Method 8260 (mg/Kg)												
Chloromethane	NV	NV	<	<	<	<	0.041	<	<	<	<	<
cis-1,2-Dichloroethene	0.25	500	0.140	0.460	0.310	0.02	<	0.071	<	23	0.02	1.6
Tetrachloroethene	1.3	150	66	42	60	3.5	19	62	<	100	10	58
Trichloroethene	0.47	200	0.270	0.460	0.400	<	0.072	0.1	<	12	<	0.71

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to laboratory report for list of all compounds included in analysis.
2. Soil analytical testing completed by Alpha Analytical Inc., in Westborough, MA.
3. mg/kg = milligrams per killigram (parts per million)
4. NV = no value. NT = not tested.
5. Yellow shading indicates value exceeds Unrestricted Use Soil Cleanup Objectives.
6. Orange shading indicates value exceeds Commercial Use Soil Cleanup Objectives.
7. Soil cleanup objectives (SCOs) are from NYSDEC Part 375, Subpart 375-6: Unrestricted Use, Commercial Use and Industrial Soil Cleanup Objectives.
8. < indicates compound not detected above method detection limits.

TABLE 6
Analytical Summary of Remaining Soils
Alternatives Analysis Plan
Northtown Plaza BCP Site No. C915292
Amherst, New York

Parameter	Part 375 - Unrestricted Use SCOs	Part 375 - Commercial Use SCOs	SP-11 01/31/2014 7 ft bgs	SP-11 01/31/2014 10-12 ft	SP-16 01/30/2014 10-12 ft	SP-16 01/30/2014 12-14 ft	SP-36 05/09/2014 4 ft bgs	SP-37 05/09/2014 1 ft bgs	SP-37 05/09/2014 11.9 ft bgs	SP-44 05/09/2014 5 ft bgs	SP-46 05/12/2014 0-2 ft bgs	SP-46 05/12/2014 2-4 ft bgs	SP-48 05/12/2014 10-12 ft bgs	SP-51 05/12/2014 10/12/2016	SP-55 3/11/2015 10-11 ft	SP-57 3/11/2015 12-13 ft	SP-58 3/11/2015 11-12 ft	SP-59 3/11/2015 13-14 ft	SP-59 3/11/2015 20-21 ft
Volatile Organic Compounds - EPA Method 8260 TCL (ug/Kg)																			
2-Butanone	120	500,000	<	<	<	<	<	<	<	160	<	<	<	<	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	1,100	500,000	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Acetone	50	500,000	<	<	<	<	96.4	<	<	564	<	<	<	<	NT	NT	NT	NT	NT
Benzene	60	44,000	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Toluene	700	500,000	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Ethylbenzene	1,000	390,000	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
m&p-Xylene	260	500,000	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
o-Xylene	260	500,000	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Isopropylbenzene	NV	NV	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Methylcyclohexane	NV	NV	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Tetrachloroethene	1,300	150,000	<	33,000	4,400	1,510	<	5,280	137,000	<	13,000	34 J	15,000	4,200	1,830	9,570	24,400	105,000	82,600
Trichloroethene	470	200,000	<	<	<	<	<	870	<	<	480	<	44 J	<	<	<	<	<	<
cis-1,2-Dichloroethene	250	500,000	<	<	<	<	<	343	<	<	110 J	<	160 J	<	<	<	<	<	<
Carbon disulfide	NV	NV	<	<	<	<	<	<	<	19.9	<	<	<	<	NT	NT	NT	NT	NT
Cyclohexane	NV	NV	<	<	<	<	<	<	<	<	<	<	<	<	NT	NT	NT	NT	NT
Total VOCs			<	33,000	4,400	1,510	96	6,493	137,000	744	<	<	<	<					
Semi-Volatile Organic Compounds - EPA Method 8270 STARS (ug/Kg)																			
Naphthalene	12,000	500,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	30,000	500,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	100,000	500,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	100,000	500,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	100,000	500,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo [a] anthracene	1,000	5,600	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	1,000	56,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo [b] fluoranthene	1,000	5,600	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo [a] pyrene	1,000	1,000	<	<	NT	NT	<	NT	NT	<	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total SVOCs			<	<	NT	NT		NT	NT										
Polychlorinated Biphenyls - EPA Method 8082 (ug/Kg)																			
Total PCBs			<	<	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to the laboratory reports for list of all compounds included in analysis.
2. Soil analytical testing completed by Paradigm Environmental Services, Inc., in Rochester, NY.
3. ug/kg = part per billion.
4. NV = no value. NT = not tested.
5. Yellow shading indicates value exceeds Unrestricted Use Soil Cleanup Objectives.
6. Orange shading indicates value exceeds Commerical Use Soil Cleanup Objectives.
7. Soil cleanup objectives (SCOs) are from NYSDEC Part 375, Subpart 375-6: Unrestricted Use, Commercial Use and Industrial Soil Cleanup Objectives.
8. < indicates compound not detected above method detection limits.
9. TCL = Target Compound List. STARS = NYSDEC Spill Technology and Remediation Series (STARS) Memo #1, Petroleum-Contaminated Soil Guidance Policy, New York State Department of Environmental Conservation, August 1992.
10. Detections of 2-butanone and Acetone attributed to laboratory contamination and not considered site contaminants.

TABLE 6
Analytical Summary of Remaining Soils
Alternatives Analysis Plan
Northtown Plaza BCP Site No. C915292
Amherst, New York

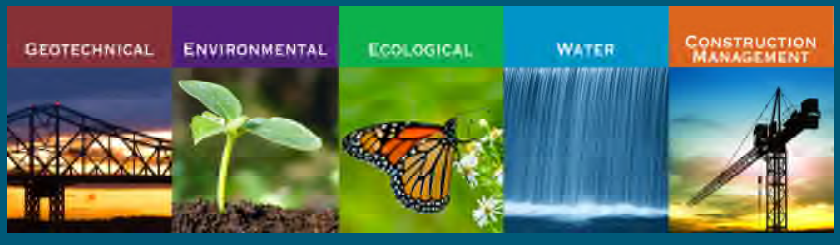
Parameter	Part 375 - Unrestricted Use SCOs	Part 375 - Commercial Use SCOs	SP-63 3/12/2015 8-9 ft	SP-64 3/12/2015 8-9 ft	SP-64 3/12/2015 21-22 ft	SP-65 3/12/2015 16-17 ft	SP-66 3/12/2015 12-13 ft	SP-67 3/12/2015 15-16 ft	SP-68 3/13/2015 7-8 ft	SP-68 3/13/2015 16-17 ft	SP-69 3/13/2015 12-13 ft	SP-70 3/13/2015 6-7 ft	SP-71 3/13/2015 3-4 ft	SP-72 3/13/2015 9-10 ft	FD-02 3/13/2015 9-10 ft	SP-73 3/13/2015 6-7 ft	SP-74 3/13/2015 5-6 ft	MW-8 4/22/2015 14 ft	MW-9 4/22/2015 8 ft
Volatile Organic Compounds - EPA Method 8260 TCL (ug/Kg)																			
2-Butanone	**120**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
1,2-Dichlorobenzene	**1,100**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Acetone	**50**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzene	**60**	**44,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Toluene	**700**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ethylbenzene	**1,000**	**390,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
m&p-Xylene	**260**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
o-Xylene	**260**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Isopropylbenzene	**NV**	**NV**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Methylcyclohexane	**NV**	**NV**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Tetrachloroethene	**1,300**	**150,000**	861	**21,400**	**109,000**	**36,600**	**58,500**	**70,800**	12	30	3 J	55	21	122	378	13	10	<	<
Trichloroethene	**470**	**200,000**	**113,000**	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	**250**	**500,000**	**32,400 J**	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<	<
Carbon disulfide	**NV**	**NV**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Cyclohexane	**NV**	**NV**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total VOCs																			
Semi-Volatile Organic Compounds - EPA Method 8270 STAR																			
Naphthalene	**12,000**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluorene	**30,000**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Phenanthrene	**100,000**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Fluoranthene	**100,000**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Pyrene	**100,000**	**500,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo [a] anthracene	**1,000**	**5,600**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Chrysene	**1,000**	**56,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo [b] fluoranthene	**1,000**	**5,600**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Benzo [a] pyrene	**1,000**	**1,000**	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Total SVOCs																			
Polychlorinated Biphenyls - EPA Method 8082 (ug/Kg)																			
Total PCBs			NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Notes:
1. Compounds detected in one or more samples are presented on this table. Refer to the laboratory reports for list of all compounds included in analysis.
2. Soil analytical testing completed by Paradigm Environmental Services, Inc., in Rochester, NY.
3. ug/kg = part per billion.
4. NV = no value. NT = not tested.
5. Yellow shading indicates value exceeds Unrestricted Use Soil Cleanup Objectives.
6. Orange shading indicates value exceeds Commerical Use Soil Cleanup Objectives.
7. Soil cleanup objectives (SCOs) are from NYSDEC Part 375, Subpart 375-6: Unrestricted Use, Commercial Use and Industrial Soil Cleanup Objectives.
8. < indicates compound not detected above method detection limits.
9. TCL = Target Compound List. STARS = NYSDEC Spill Technology and Remediation Series (STARS) Memo #1, Petroleum-Contaminated Soil Guidance Policy, New York State Department of Environmental Conservation, August 1992.
10. Detections of 2-butanone and Acetone attributed to laboratory contamination and not considered site contaminants.

Table 7
Groundwater/Porewater Sample Data
Alternatives Analysis Report
Northtown Plaza BCP Site No. C915292
Amherst, New York

Sample ID Sample Date	NYSDEC Class GA Criteria(µg/L))	MW-1 5/21/2014 µg/L	MW-1 5/17/2016 µg/L	MW-2 5/21/2014 µg/L	MW-2 5/17/2016 µg/L	MW-3 5/21/2014 µg/L	MW-3 5/17/2016 µg/L	MW-4 3/17/2015 µg/L	MW-6 3/17/2015 µg/L	MW-7 3/17/2015 µg/L	MW-8 4/27/2015 µg/L	MW-9 4/27/2015 µg/L
Volatile Organic Compounds - EPA Method 8260 TCL (µg/L)												
cis-1,2-Dichloroethene	5	<	NT	<	NT	<	NT	<	2080	389	<	<
Tetrachloroethene	5	0.46J	NT	<	NT	<	NT	<	21700	31900	<	<
Trichloroethene	5	<	NT	<	NT	<	NT	<	2690	<	<	<
TAL Metals - EPA Methods 7471B/6010C/3050B (mg/L) - Dissolved												
Arsenic	0.025	NT	0.0139	NT	0.0104	NT	<0.0100	NT	NT	NT	NT	NT
Barium	1	NT	0.216	NT	<0.100	NT	<0.100	NT	NT	NT	NT	NT
Beryllium		NT		NT		NT		NT	NT	NT	NT	NT
Calcium	NV	NT	320	NT	483	NT	490	NT	NT	NT	NT	NT
Chromium		NT		NT		NT		NT	NT	NT	NT	NT
Cobalt		NT		NT		NT		NT	NT	NT	NT	NT
Copper	0.2	NT	0.0649	NT	<0.0250	NT	<0.0250	NT	NT	NT	NT	NT
Iron		NT		NT		NT		NT	NT	NT	NT	NT
Lead	0.025	NT	<0.0100	NT	<0.0100	NT	<0.0100	NT	NT	NT	NT	NT
Magnesium	35	NT	19.6	NT	81.4	NT	84.2	NT	NT	NT	NT	NT
Manganese	0.3	NT	<0.0150	NT	0.192	NT	0.0939	NT	NT	NT	NT	NT
Nickel		NT		NT		NT		NT	NT	NT	NT	NT
Potassium	NV	NT	20.2	NT	11.4	NT	5.61	NT	NT	NT	NT	NT
Sodium	20	NT	4,850	NT	99.0 M	NT	94.1	NT	NT	NT	NT	NT
Vanadium		NT		NT		NT		NT	NT	NT	NT	NT
Zinc	2	NT	0.249	NT	<0.0600	NT	<0.0600	NT	NT	NT	NT	NT
Pesticides - EPA Methods 8081B/3550C (mg/L)												
only the three May 17, 2016 samples were analyzed for pesticides. No analytes were detected at concentrations above the laboratory's method detection limits.												

Notes:
NT = Not Tested
1. Compounds detected in one or more samples are presented on this table. Refer to Appendix D for list of all compounds included in analysis.
2. Analytical testing completed by Paradigm Environmental, Inc., in Rochester, New York
3. New York State Department of Environmental Conservation Class GA criteria obtained from Division of Water Technical and Operational Guidance Series (TOGS 1.1.1) dated October 1993, revised June 1998, January 1999 errata sheet and April 2000 addendum.
4. J = Analyte detected below quanititation limits.
5. µg/L = part per billion (ppb).
6. Yellow shading indicates values exceeding NYSDEC Class GA groundwater criteria.
7. < = compound was not detected above method detection limit.
8. Duplicate sample is associated with MW-6.



GZA GeoEnvironmental, Inc.