SOVEREIGN CONSULTING INC.

April 1, 2016

Mr. Henry Wilkie
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7015

Re: Revised Alternatives Analysis Report and Remedial Action Work Plan
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY
NYSDEC Site No. C152228

Dear Mr. Wilkie:

Sovereign Consulting Inc. (Sovereign), on behalf of First Hartford Realty Corporation (FHRC), has finalized the Revised Alternatives Analysis Report and Remedial Action Work Plan (AAR-RAWP). This Revised AAR-RAWP incorporates the comments to the original AAR-RAWP provided in the February 3, 2016 New York State Department of Environmental Conservation correspondence and subsequent March 30, 2016 approval correspondence. Attached are the revised text, revised Table 2-5, and revised Figure 2-5. A complete hard copy will be placed in the document repository.

If you have any questions or require additional information, you may contact me at (631)753-8380.

Sincerely,
Sovereign Consulting Inc.

Albert M. Tonn
Senior Project Manager

CC: Mark Sergott (NYSDOH)
Alali Tamuno (NYSDEC)
Mike Sweeny (First Hartford)
Thomas Lobasso (Sovereign)
Rachel Leary; PE (Sovereign)
Allan Sobel (Fifth & Candlewood LLC)
John-Patrick Curran (Sieve Paget & Riesel PC)

Attachment:
Revised Alternatives Analysis Report and Remedial Action Work Plan – April 1, 2016

SOVEREIGN CONSULTING INC.

REVISED ALTERNATIVE ANALYSIS REPORT AND REMEDIAL ACTION WORK PLAN

South Shore Outdoor
1760 Fifth Avenue
Bay Shore, New York
NYSDEC Site No. C152228

April 1, 2016

Prepared For:

First Hartford Realty Corporation
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Manchester, CT 06045

Prepared By:

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LIST OF ACRONYMS AND ABBREVIATIONS

CAMP	Community Air Monitoring Plan
EPA	United States Environmental Protection Agency
IC	Institutional Controls
ISCO	In Situ Chemical Oxidation
NYSDEC	New York State Department of Environmental Conservation
MIP	Membrane Interface Probe
MNA	Monitored Natural Attenuation
MW	monitoring well
NOD	Natural Oxidant Demand
ORP	oxidation-reduction potential
RAO	Remedial Action Objectives
SWDF	Solid Waste Disposal Facility
TCA	trichloroethane
µg/g	micrograms per gram
µg/L	micrograms per liter
UV	Ultraviolet
VOC	volatile organic compound

CERTIFICATION

I, Rachel B. Leary, certify that I am currently a NYS registered Professional Engineer as defined in 6 NYCRR Part 375 and that this Alternatives Analysis Report/Remedial Action Work Plan for the 295 New York Street Site (BCP Site No. C915242) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Rachel B. Leary 4/1/16

NYS Professional Engineer # 88375 Date

1.0 INTRODUCTION

Sovereign Consulting Inc. and its engineering affiliate Sovereign Environmental Engineering Services, LLC., collectively referred to as Sovereign, on behalf of First Hartford Realty Corporation (FHRC), presents this Alternatives Analysis Report (AAR) and Remedial Action Work Plan (RAWP) prepared under the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) for the property located at 1760 Fifth Avenue, Bay Shore, New York. The Site was accepted to the New York State Brownfield Cleanup Program (BCP) with Fifth & Candlewood, LLC (the Applicant) listed as a Volunteer. The Brownfield Cleanup Agreement (BCA) was signed on March 13, 2014 and Site Number C152228 was assigned. The BCA was amended on March 7, 2016 to include FHRC as an additional Volunteer.

1.1 BACKGROUND

The Site is located at 1760 Fifth Avenue at the intersection of Candlewood Road, in the Hamlet of Bay Shore, Town of Islip, Suffolk County, New York. A Site Location Map is presented as **Figure 1-1**. The property lot is listed as Section 182, Block 1, Lot 37.

The local area consists of a mixture of retail, commercial, industrial properties, and residential properties. The Site is bordered to the north by residences and Eden Road. Farther north (across Eden Road) are additional residences, and mixed use commercial properties. The Site is bordered to the east by Fifth Avenue. Farther east (across Fifth Avenue) are commercial/retail operations located within a small shopping plaza. The Site is bordered to the west by USA Industries, an auto parts remanufacturer. Farther west are residences and Carleton Avenue. The Site is bordered to south by a Candlewood Road. Farther south (across Candlewood Road) are commercial and industrial operations including a retail shopping plaza. Adjacent to this shopping plaza to the west and south, is a large facility that houses commercial and industrial operations for Entenmann's Bakery. Farther south and southwest are multiple commercial, industrial and retail operations. An aerial view of the local area is presented as **Figure 1-2**.

The property consists of a one story building, approximately 34,000 square feet (sf) with slab on grade construction, located on a 1.895 acre lot. Approximately 8,500 sf of the building is currently used for commercial

purposes, with the remainder of the Site property consisting of a landscaped area on the east side of the building, and parking lot areas to the south and northeast of the building. A site plan is presented as **Figure 1-3**.

The source(s) of impact are assumed to be the historical commercial and industrial use of the Site and surrounding properties. An extensive industrial leaching pool system interconnected with asbestos transite piping was historically located at the Site, as shown on **Figure 1-3**. The industrial leaching pool system was active until at least November 1985, when each industrial leaching pool was cleaned out, pressure washed, and backfilled pursuant to an Order on Consent with SCDHS, with the exception of LP-1 and LP-19, which during the Remedial Investigation (RI) were determined to not have been cleaned out. In addition, one UST, a multitude of ASTs, and industrial process tanks were operated at the Site from 1969 to 1986; and, a 5,000-gallon No. 2 fuel oil tank was located adjacent to and southeast of the building and removed in 2006.

1.2 PURPOSE & SCOPE

This AAR and RAWP has been prepared in general accordance with Section 5.3.b of NYSDEC's May 2010 DER-10 Technical Guidance for Site Investigation and Remediation. Accordingly, it addresses the following items:

Section 2.0 A Site Characterization, including a description of the data reports and the results of supplemental groundwater and soil/fill assessments in 2015.

Section 3.0 Remedial Action Objectives

Section 4.0 Alternatives analysis relative to the NYSDEC Site Screening Criteria.

Section 5.0 Remedial Action Work Plan for the implementation of the selected remedy along with schedule for implementation.

Section 6.0 References cited in the report.

1.3 PROJECT ORGANIZATION

Sovereign, a NY State professional engineering firm, will serve as BCP consultant to FHRC. An experienced and qualified contractor will be retained by First Hartford to implement the remediation, with Sovereign providing confirmatory sampling as well as Qualified Environmental Professional (QEP) observation and documentation of the remedial activities. The NYSDEC Division of Environmental Remediation (DER) will monitor the remedial actions to verify that the work is performed in accordance with the approved RAWP.

2.0 REMEDIAL INVESTIGATION SUMMARY

A RI was completed by Sovereign during May – October 2015. Prior to implementing the RI, a Membrane Interface Hydraulic Profiling Tool (MiPHPT) study was conducted to obtain a preliminary screening of potential volatile organic compound (VOC) in the subsurface and obtain hydraulic conductivity data. The RI scope of work conducted was based upon the NYSDEC-approved May 28, 2014 RIWP prepared by Roux and the Roux December 10, 2014 Response Letter to the NYSDEC. In addition, Sovereign submitted an Addendum for the modification of the groundwater investigation to the NYSDEC on July 27, 2015 and was approved by the NYSDEC on July 29, 2015. This modification included performing the groundwater profiling first, and then setting the monitoring well screen depths based upon those results. In addition, it allowed for the installation of the monitoring wells utilizing direct-push drilling method.

2.1 REMEDIAL INVESTIGATION SCOPE OF WORK

The scope of the RI was developed to provide sufficient Site characterization data so that, together with the historic data, including groundwater, soil and soil vapor sampling, the entire Site will be sufficiently characterized to support the development of the Site-wide RAWP. To accomplish this, the RI focused on the following:

- The completion of a geophysical survey to potentially identify former industrial leaching pools at the Site.
- The collection of soil, groundwater and soil vapor data sufficient to define the nature and extent of contamination for impacted areas;
- The collection of land survey data for developing a groundwater contour map; and
- The performance of a qualitative exposure assessment to identify exposure pathways, and evaluate contaminant fate and transport.

2.1.1 Geophysical Survey

A geophysical survey was performed to identify the locations of the former industrial leach pools, to determine if unknown USTs are present

at the Site, and to identify underground utilities prior to drilling activities. On May 8 and 11, 2015 EPhase 2, LLC (EP2) of Huntington Station, New York, under the supervision of Sovereign, conducted a geophysical survey. All of the previously identified former industrial leach pools were located and mapped during the geophysical survey on the site plan to more accurately depict their locations from previous maps. One overflow stormwater drywell (SW-10), that previously was not identified, was located on the western side of the building. The RIWP erroneously indicated DW-21A was a former stormwater drywell located within the building. DW-21A is an active overflow stormwater drywell located outside the building. DW-24 (sample designated SB-3) was a former stormwater drywell located within the building extension. During the geophysical survey, an anomaly with a possible signature of an UST was observed near the southeast corner of the building, adjacent to the location of the former heating oil tank.

Upon opening LP-1 on June 24, 2015, it was discovered that it was not backfilled. Two interconnection pipes were observed, one heading west in the direction of LP-7 and another heading towards the east. An additional geophysical survey was performed on June 25th to see if there was an additional leach pool present. Another abandoned leach pool was observed approximately 20 feet east of LP-1. This leach pool was designated as LP-1A. Upon opening LP-1A, it was observed to be backfilled, but connecting pipes to LP-1 and LP-2 and a pipe heading towards the building remained in place.

2.1.2 Soil Investigation

Soil borings were advanced at the locations shown in **Figure 2-1** to characterize the soil conditions for the various AOC at the Site. A total of 25 former industrial leach pools, 11 stormwater water drywells (including two overflow drywells) and one former stormwater drywell were identified based upon the findings of the geophysical surveys. Soil borings were advanced through each of these structures during the RI, with the exception of LP-14. Leaching pool LP-14 is located within a vestibule on the northwest corner of the building and has limited access to drilling equipment. Boring LP-14 was installed outside of the building immediately adjacent to the vestibule. All of the former industrial leach pools were backfilled with the exception of LP-1, LP-13, and LP-19. The locations of these samples are shown on **Figure 2-1**. Soil samples were collected and analyzed as follows:

Location	Depth Intervals (ft bgs)*	Analyses**
Former Industrial Leach Pools (LP1A, LP-1 though LP-22, LP-25, and LP-26	15′-17′, 20′-22, 28′-30′ (just above the water table), 38′-40′ (approximately 10′ into the water table)	TCL-VOCs+10, TAL/Hex Cr/Cyanide
25% of Former Leach Pools (LP-3, LP-8, LP-11, LP-17, LP-18, and LP-25)	5′-10′ (backfill material)	TCL+30, TAL/Hex Cr/Cyanide, TCLP – Metals/VOCs
Stormwater Drywell SW-5 (DW-11 from ERM Report)	19′-21′ (bottom of the structure), 21′-25′, 28′-30′ (just above water table), and 38′-40′ (approximately 10′ into the water table)	TCL+30, TAL/Hex Cr/Cyanide, TCLP – Metals/VOCs
Stormwater Drywell DW-21A***	12′-14′ (bottom of the structure), 20′-22′, 28′-30′ (just above water table), and 38′-40′ (approximately 10′ into the water table)	TCL+30, TAL, TCLP – Metals/VOCs
Former Stormwater Drywell DW-24 (SB-3)	10′-12′ and 28′-30′ (just above the water table)	TCL-VOCs+10, TCL-SVOCs+20, TAL/Hex Cr/ Cyanide
Remaining Stormwater Drywells and Overflow Drywells	2-foot interval at the bottom of the structure, 28′-30′ (just above water table)	TCL-VOCs+10, TCL-SVOCs+20, TAL/Hex Cr/Cyanide

*The actual depths may have varied slightly depending upon sample recovery and field screening. The 38′- 40′ sample was only analyzed based upon shallow sample results or if impacts suspected based upon field screening. Additional samples collected based upon field-screening.

** Target Compound List (TCL) plus 30/Target Analyte List (TAL) (TCL + TAL) includes:

-TCL VOC + 10 Tentatively Identified Compounds (TICs);

-TCL Base Neutral Acids (BNA)/Semivolatile Organic Compounds (SVOCs) + 20 TICs;

-TCL Pesticides/Herbicides/PCBs;

-TAL Metals (including hexavalent chromium); and Total Cyanide

***RIWP erroneously indicated DW-21A was a former stormwater drywell located within the building. DW-21A is an active overflow stormwater drywell located outside the

building. DW-24 (sample designated SB-3) was a former stormwater drywell located within the building extension.

Sixteen (16) soil borings were advanced to characterize soil in the following locations at the Site:

- Five monitoring well pilot boreholes;
- One boring adjacent to the existing active septic system;
- One boring in the area of the former heating oil tank;
- One boring in the area of the former wastewater holding tank; and
- Eight shallow borings in the suspected former industrial process area on the southern side of the building.

The sample locations are shown on **Figure 2-1**. The deeper soil borings were drilled utilizing a Geoprobe® 6712DT, while the shallow borings were drilled utilizing a Geoprobe® 420MT (limited access rig). Soil samples were collected and analyzed as follows:

Location	**Depth Intervals (ft bgs)***	**Analyses****
Monitoring Well pilot boreholes (MW-1 through MW-5)	0′-2′, most impacted (if encountered), and 28′-30′ (2-foot interval above the water table).	TCL+30, TAL/Hex Cr Cyanide
Active Septic System (SB-1)	0′-2′, 15′-20′ (most impacted), and 28′-30′ (2-foot interval above the water table).	TCL-VOCs+10, TAL/Hex Cr/Cyanide
Former Heating Oil UST (SB-2)	5′-10′, 13′-15′, 15′-17′ (most impacted), and 28′-30′ (2-foot interval above the water table).	TCL-VOCs+10, TAL/Hex Cr/Cyanide, and TCLP – VOCs and metals (5′-10′ interval only)
Former Wastewater Holding Tank (SB-4)	0′-2′, 5′-10′(most impacted), and 28′-30′ (2-foot interval above the water table)	TCL+30, TAL/Hex Cr/Cyanide

Location	Depth Intervals (ft bgs)*	Analyses**
Former Industrial Process Area (IP-1 though IP-8)	0'-2'(beneath floor slab), most impacted to 8'	TCL+30, TAL/Hex Cr/Cyanide

*The actual depths may have varied slightly depending upon sample recovery and field screening. Additional samples collected based upon field-screening.

** Target Compound List (TCL) plus 30/Target Analyte List (TAL) (TCL + TAL) includes:

-TCL VOC + 10 Tentatively Identified Compounds (TICs);
-TCL Base Neutral Acids (BNA)/SVOCs + 20 TICs;
-TCL Pesticides/Herbicides/PCBs; and
-TAL Metals (including hexavalent chromium); and
-Total Cyanide

2.1.3 Groundwater Investigation

Vertical groundwater profile sampling was completed and followed by the installation of seven monitoring wells to characterize groundwater quality at the Site. Drilling services were provided by EP2, under supervision of Sovereign. The RIWP originally specified the installation of five water table monitoring wells first, followed by groundwater profile sampling. Sovereign submitted an Addendum for the modification of the groundwater investigation to the NYSDEC on July 27, 2015 and was approved by the NYSDEC on July 29, 2015. This modification included performing the groundwater profiling first, and then setting the monitoring well depths based upon those results. In addition, it allowed for the installation of the monitoring wells utilizing direct-push drilling method with 3.25-inch casing instead of hollow-stem augers.

The groundwater profile locations (GWP-1 through GWP-6) were installed in AOCs, downgradient (southern property line), and upgradient (northern portion of the Site). The groundwater profile sample locations (GWP-1 through GWP-6) were installed in the same boreholes as the monitoring well soil boring locations (MW-1 through MW-5) and SB-1 (adjacent to the septic system). The groundwater profile locations are shown on **Figure 2-1**. The groundwater samples were then collected in laboratory-supplied sample containers with preservatives for analysis of TCL-VOCs+10 and placed in a cooler with ice. The well point was then retracted every five feet and samples collected as indicated above until a final depth of approximately 35 ft bgs, just below the water table. At GWP-5, the three shallowest points, and at GWP-6, the two shallowest

points, the groundwater samples were collected for analysis of TCL+30 and TAL/Hexavalent Chromium/ Cyanide.

A total of seven monitoring wells (MW-1S, MW-1D, MW-2, MW-3, MW-5S, MW-5D, and MW-6) were installed as opposed to five water table monitoring wells as originally proposed in the RIWP. As previously indicated, a RIWP Addendum was approved by the NYSDEC to allow for the installation of monitoring wells to be based the results of the groundwater profiling data. Based upon the groundwater profile analytical data, monitoring wells MW-1 and MW-5 were installed as couplet wells (two well screens – shallow and deep) and the rest of the wells were single screens. Three water table wells (MW-1S, MW-5S, and MW-6), screened from 28' to 38', and four deeper wells (MW-1D, MW-2, MW-3, and MW-5D), screened from 40' to 45', were installed. Though not originally proposed in the RI Work Plan, MW-6 was installed at the location of GWP-6 (adjacent to the septic system) based upon groundwater profiling data. MW-4 (upgradient) was not installed based on non-detectable concentrations of VOC determined at this location during groundwater profiling. The locations of the monitoring wells are shown on **Figure 2-1**.

All monitoring wells were sampled by Sovereign from August 18 through 20, 2015. The wells were gauged prior to sampling with a water level meter to obtain depth to water readings that were used to draft groundwater contour maps. The samples were submitted for laboratory analysis of TCL+30 and TAL/Hexavalent Chromium/ Cyanide with NYSDEC ASP Category B Deliverables.

2.1.4 Soil Vapor Investigation

A soil vapor investigation was conducted to assess potential soil vapor intrusion associated with the Site. The soil vapor investigation consisted of the installation and collection of vapor samples from eight (8) sub-slab vapor points and seven (7) shallow soil vapor points (5 ft bgs). In addition, four indoor air samples and one outdoor ambient air sample were collected for analysis of VOCs.

2.1.5 Surveying

All sampling point locations were surveyed by Hawkins-Webb-Jaeger, a New York State-Licensed Surveyor, on October 7, 2015. The top of casing elevations of the seven monitoring wells were surveyed. This information was utilized in preparing groundwater elevation contour maps. A

summary of the surveyed X-Y Coordinates and elevations are included in **Table 2-1**.

2.1.6 Qualitative Exposure Assessment

A qualitative exposure assessment was performed to assess the potential for exposure to COCs related to historical Site activities. This assessment included identifying potential sources of contamination, environmental media and transport mechanisms, point of exposure, routes of exposure, and potential receptors.

2.2 REMEDIAL INVESTIGATION RESULTS

Results of the RI and conclusions from the RI are summarized below.

Site Hydrogeology

The geology of the Site consist predominately of tan, fine to medium sand, some coarse sand and trace fine gravel to a depth of 40 ft bgs, based upon the soil boring data. Some fine sand-silt lenses were encountered and coarse sand-fine gravel lenses were observed below the water table in some borings. A gray to black, fine to coarse sand layer was observed in some borings between 38 to 40 ft bgs. At the bottom of drywells, the soil was generally brown, black to dark gray in color for several feet. The backfill in the former industrial leach pools consisted mostly of brown to dark brown, fine to medium sand, with some silt and gravel. The results of a MiPHPT study conducted during May 2015 indicated that the lithology did not change significantly to depths of 65 ft bgs.

The depth to groundwater on Site ranges from approximately 30 to 33 feet bgs based upon well gauging data collected on August 18, 2015. A summary table of well gauging data is presented as **Table 2-2**. Groundwater flows to the southeast under a hydraulic gradient of approximately 0.001 feet per foot based upon the groundwater elevation differences between MW-3 and MW-1D over a distance of 325 feet perpendicular to the groundwater flow. A groundwater elevation map for data collected on August 18, 2015 is presented as **Figure 2-2**. Hydraulic conductivity readings ranged from approximately 50 to 100 feet per day, but were mainly within the 60 to 80 feet per day range as determined by the MiPHT study. There is a minimal vertical hydraulic gradient, with a 0.001 feet per foot downward gradient indicated in MW-1S/1D and 0.02 feet per foot upward gradient in MW-5S/5D.

The source, nature and extent of impacts in the former industrial leach pools, stormwater drywells, and former stormwater drywells have been defined and delineated.

During past historical use of the facility as a circuit board manufacturer, a series of industrial leaching pool were utilized. The industrial leaching pools were subsequently cleaned out during the early 1980's, but there was limited endpoint sample data available. In addition, a series of stormwater drywells have been utilized from the onset of industrial activities at the Site and are still in use today. These stormwater drywells had the potential to receive chemical discharges.

A total of 24 former industrial leaching pools, plus one previously unknown industrial leaching pool, 10 existing stormwater drywells, plus one previously unidentified stormwater overflow drywell, and one former stormwater drywell were located during the geophysical survey. Three of the former industrial leaching pools (LP-1, LP-13, and LP-19) had not been backfilled with sand, as the remaining pools were. Soil samples were subsequently collected from within all of the structures and to a depth of 40 ft bgs and select samples submitted for laboratory analyses. Based upon analytical results from samples collected from the base of LP-1 and LP-19, it is apparent that these two structures may not have been cleaned out previously.

The analytical results were compared to NYSDEC Unrestricted SCOs and Commercial SCOs. The property is proposed to be redeveloped into a retail commercial use. Therefore, the Commercial-Use SCOs are the appropriate guidance values to utilize for comparison with the soil analytical results, VOC results in soil samples indicated concentrations below Commercial-Use SCOs. Two SVOC soil sample results (SW-4 and SW-6) were above Commercial-Use SCOs. Pesticide/herbicide/PCB analytical results were below Commercial-Use SCOs. Metal/cyanide analytical results were above Commercial-Use SCOs in 10 samples collected from eight leaching pools/drywells: LP-1, LP-1A, LP-8, LP-19, LP-20, SW-4, SW-5, and SW-6. In all cases, samples collected deeper reduced in concentrations to below or marginally above Unrestricted SCOs. These data indicate that the previous cleanouts of the former industrial leaching pools removed the vast majority of impacted material and that there are only residual amounts of impacted soil remaining. The impacted soil identified in the stormwater water drywells SW-4, and SW-6, appeared to be limited to the first several feet of material at the base of the existing drywells. VOCs in SW-5 extends approximately six feet below the base of the drywell (drywell base is 19 ft bgs), but reduce to concentrations below the Commercial-Use SCOs above the water table.

Backfill materials in the former industrial leaching pools were below Unrestricted SCOs in four of seven samples collected. VOCs and SVOCs results were below Unrestricted SCOs in all of the samples. Low level pesticides were detected in LP-6, slightly above Unrestricted SCOs, but well below Commercial SCOs. Metals were detected in LP-3 and LP-8 above Unrestricted SCOs, but only copper was detected in LP-8, slightly above Commercial SCO. TCLP-VOCs/metals were below regulatory standards.

A summary of soil analytical results above Unrestricted SCOs and Commercial-Use SCOs are included in **Table 2-3**. A summary of soil analytical results above Commercial-Use SCOs is presented on **Figure 2-3**.

The source, nature and extent of impacts in the former industrial process area have been defined and delineated.

During the operation of the circuit board manufacturer, an industrial process area was located inside the southern-central portion of the building. In addition, a waste water holding tank was located inside the building. During the RI, eight shallow soil borings were installed in the former industrial process area and one soil boring installed to 40 ft bgs at the location of the waste water holding tank.

Only one soil sample (IP-8(3'-4')) contained VOCs above Unrestricted SCOs. However, the results were well below Commercial-Use SCOs. SVOCs and pesticide/herbicide/PCB analyses were below Unrestricted SCOs. Six metal sample results were above Unrestricted SCOs, but only one sample (IP-5(0'-2')) was above Commercial-Use SCOs for copper and lead.

A summary of soil analytical results above Unrestricted SCOs and Commercial-Use SCOs are included in **Table 2-3**. A summary of soil analytical results above Commercial-Use SCOs is presented on **Figure 2-3**.

The source, nature and extent of impacts in other areas of concern have been defined and delineated.

Soil borings were installed in the areas of the septic system (SB-1), the former heating oil UST (SB-2) and the locations of monitoring wells. VOC, SVOC, herbicides, and PCB results were below Unrestricted SCOs. Low concentrations of a pesticide (P,P'-DDE) and were detected in MW-1(0'-2'), MW-3(0'-2'), MW(0'-2'), and MW-5(0'-2') above Unrestrictive SCO, but well below the Commercial-Use SCO. PCBs were detected in MW-5(0'-2') above the Unrestricted SCO, but below the Commercial-Use SCO.

Copper was detected above Unrestricted SCO in MW-3(0'-2'), but below Commercial-Use SCO. Analytical results of the backfill material at the location of the former heating oil UST were below Unrestrictive SCOs and below regulatory limits for TCLP-VOCs and metals.

A summary of soil analytical results above Unrestricted SCOs and Commercial-Use SCOs are included in **Table 2-3**. A summary of soil analytical results above Commercial-Use SCOs is presented on **Figure 2-3**.

Impacts to on-Site groundwater quality have been sufficiently defined.

Impacts to on-Site groundwater quality have been sufficiently defined both laterally and vertically. VOC impacts have been limited to the vicinity of MW-5S/5D, located adjacent to stormwater drywell SW-5. VOC impacts extend from approximately 30 ft bgs (water table) to 45 ft bgs. SVOCs, pesticide/herbicide/PCB results were below WQS. One or more of the following metals were detected above WQS in one or more of the seven monitoring wells: copper, iron, manganese, nickel, sodium, and thallium. Copper, iron, manganese are regulated by USEPA as Secondary Standards. The Secondary Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. There is no State or Federal standard for sodium in groundwater, but its presence in shallow groundwater is commonly associated with road salting during the winter months. Nickel and thallium concentrations were slightly above their WQS and were limited to MW-5D.

The results of the 2006 Preliminary Site Investigation/Site Characterization Report concluded that Site-wide impacts from VOCs and other COCs may have originated from the subject property and from at least 2-other potential sources nearby, USA Industries and Entenmann's. The result of this remedial investigation, conducted approximately 10-years later, indicate that the VOCs on-Site (subject property) are limited to residual concentrations in several former industrial leaching pools and stormwater drywells and are limited in area (both vertically and horizontally) and in concentration in on-Site groundwater (well MW-5S only). Given that the former industrial leaching pools are closed and impacted soil residuals removed in the majority of the locations, and there are no current industrial waste discharges at the subject property, there is no operational mechanism to facilitate continued leaching of VOCs into the groundwater. Natural attenuation along with the closure of the former industrial leaching pools and stormwater drywells on Site appears to have been effective in the reduction of VOCs on-Site since 2006. Once

the on-Site mitigating measures proposed in the RAWP, which include source removal (former industrial leaching pools and stormwater drywell impacted soil removal), engineering and institutional controls, are implemented, natural attenuation will continue to improve on-Site conditions and further reduce concentrations of VOCs/COCs migrating off Site.

A summary of groundwater analytical results above WQS is included in **Table 2-4**. A summary of groundwater analytical results above NYSDEC Class GA Standards and Guidance Values is presented in **Figure 2-4.**

Soil vapors and indoor air.

Soil vapor sample results indicated higher VOC results in the vicinity of stormwater drywell SW-5, the industrial process area, and LP-19. Indoor air sample results were below NYSDOH air guidelines for three compounds with guidelines (methylene chloride, tetrachloroethylene, and trichloroethylene(TCE)), with the exception of TCE in one sample. This sample was collected in an enclosed and confined office space (approximately 10' X 12') that had an operating window air conditioner at the time of sampling. The three remaining results were below NYSDOH air guidelines. Of these samples, one was collected in the showroom and two samples were collected from the factory area. Several VOCS (1,1,1-trichloroethane, 1,1-dichloroethane, 1,2,4-trimethylbenzene, acetone, and carbon disulfide) were above EPA Baseline for commercial buildings. Indoor air quality impacts may be attributed to historic discharges. However, acetone concentrations may be attributed to the current operations (a container of acetone was observed during the chemical inventory survey). Additionally, carbon disulfide was detected in higher concentrations in the ambient air sample than the indoor air samples. A summary of indoor air results above EPA Baseline for commercial buildings is included as **Table 2-5**. A summary of VOCs in soil vapors and indoor air are presented on **Figure 2-5**.

Results of Qualitative Exposure Assessment

A qualitative exposure assessment was conducted based upon the results of the RI and current Site conditions. Exposure to impacted soil and groundwater at the Site is unlikely based on the depth and location of impacts beneath pavement and/or the Site building. Additionally, the site and surrounding community is serviced by municipal water. As indicated above, the results of the 2006 Preliminary Site Investigation/Site Characterization Report concluded that Site-wide impacts from VOCs and other COCs may have originated from the subject property and from at

least 2-other potential sources nearby, USA Industries and Entenmann's. The result of this remedial investigation, conducted approximately 10-years later, indicate that the VOCs on-Site (subject property) are limited to residual concentrations in several former industrial leaching pools and stormwater drywells and are limited in area (both vertically and horizontally) and in concentration in on-Site groundwater (well MW-5S only). Given that the former industrial leaching pools are closed, impacted soil residuals removed in the majority of the locations, there are no current industrial waste discharges at the subject property, and there is no operational mechanism to facilitate continued leaching of VOCs into the groundwater. Natural attenuation along with the closure of the former industrial leaching pools and stormwater drywells on Site appears to have been effective in the reduction of VOCs on-Site since 2006. Once the on-Site mitigating measures proposed in the RAWP, which include source removal (former industrial leaching pools and stormwater drywell impacted soil removal), engineering and institutional controls, are implemented, natural attenuation will continue to improve on-Site conditions and further reduce concentrations of VOCs/COCs migrating off Site.

Future exposure to impacted soil and groundwater is anticipated to remain unlikely as future use of the Site will be restricted to commercial use and continue to be serviced by municipal water supply. However, impacts to indoor air from volatilization of COCs are likely based on soil vapor and indoor air analytical data.

The results of the RI were sufficient to prepare this RAWP.

3.0 REMEDIAL ACTION OBJECTIVES

3.1 OVERVIEW

The purpose of this section is to establish objectives for remedial action of affected media that will enable achievement of a permanent solution, if feasible. The remedial actions for the Site must satisfy Remedial Action Objectives (RAOs). RAOs are site-specific statements that convey the goals for minimizing substantial risks to public health and the environment and/or addressing specific environmental regulatory requirements. For the Site, appropriate RAOs have been defined as follows:

3.1.1 Groundwater

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

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

3.1.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation exposure to contaminants volatilizing from soil

RAOs for Environmental Protection

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

3.1.3 Soil Vapor

RAOs for Public Health Protection

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

4.0 ALTERNATIVES ANALYSIS

4.1 OVERVIEW

The site investigation and remediation plans conducted under the BCP, have been designed with the known future use of the site as commercial/retail use. The following Alternative Analysis has been completed only for a commercial/retail redevelopment scenario, and all other possible scenarios have not been considered.

The types of technologies that could be implemented at the Site are limited based on the exposure scenarios and the recalcitrant nature of the inorganic compounds and VOCs present in soil and groundwater. Accordingly, technologies that can be used under these conditions and to address the COCs identified in soil herein are generally limited to excavation and off-site disposal or capping. Technologies to address metals and VOCs in groundwater are limited to injectable technologies based on site constraints and redevelopment plans.

This section presents a review of remedial technologies that were evaluated based on their ability to achieve site RAOs. Selected technologies were screened using the specific criteria outlined in the following section. Technologies that passed the screening were incorporated into a series of media-specific remedial action alternatives. Proposed remedial management options consist of both engineered controls and risk management strategies (e.g., institutional controls and/or monitoring plans).

Reporting and the implementation of Community Air Monitoring Plan (CAMP) tasks have not been included in the cost comparison as they are required for any alternative considered.

4.2 ALTERNATIVES ANALYSIS CRITERIA

NYSDEC's Environmental Remediation Program calls for remedy evaluation in accordance with DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 4) and set forth in 6NYCRR 375-1.8(f). The guidance provides for remedy evaluation for the nine criteria described below:

1. **Overall protectiveness of public health and the environment.** This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.

2. **Standards, criteria, and guidance.** Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.

3. **Long-term effectiveness and permanence.** A program or project that achieves a complete and permanent cleanup of the site is preferred over a program or project that does not do so. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (i) the magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals), (ii) the adequacy of the engineering and institutional controls intended to limit the risk, (iii) the reliability of these controls, and (iv) the ability of the remedy to continue to meet RAOs in the future.

4. **Reduction in toxicity, mobility, or volume of contamination through treatment.** A program or project that permanently and significantly reduces the toxicity, mobility, or volume of contamination is to be preferred over a program or project that does not do so. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of site contamination. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the site.

5. **Short-term impacts and effectiveness**. Short-term effectiveness is an evaluation of the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. This includes a discussion of how the identified adverse impacts and health risks to the community or workers at the site will be controlled, and the effectiveness of the controls. This criterion also includes a discussion of engineering controls that will be used to mitigate short term impacts (i.e., dust control measures), and an estimate of the length of time needed to achieve the remedial objectives.

6. **Implementability.** The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.
7. **Cost-effectiveness**, including capital costs and annual site maintenance plan costs. Capital, operation, maintenance, and monitoring costs are estimated for the remedy and presented on a present worth basis.
8. **Land Use**. This is an evaluation of the current, intended, and reasonably intended future use of the site. In developing and screening remedial alternatives, NYSDEC's Part 375 regulations require that the reasonableness of the anticipated future land be factored into the evaluation. Under the BCP, this property's future use will remain commercial/retail and will be considered as the reasonably anticipated future use of the Site, which is consistent with historic use of the neighborhood. Accordingly, remedial alternatives to clean up the Site to commercial/retail end use are identified and evaluated herein.
9. **Community acceptance.** This criterion evaluates the public's comments, concerns, and overall perception of the remedy, and is generally gauged through public comment of the NYSDEC's Decision Document.

4.3 TECHNOLOGY EVALUATION – SOIL IMPACTS

All the Alternatives evaluated below as based on the redevelopment plans for the site. Each Alternative considers that facts that the building will be vacated in mid-summer 2016 and that the entire building and slab will be removed as part of the new site construction.

4.3.1 Alternative 1 - Source Removal and Excavation

The two former industrial leaching pools (LP-1 and LP-19) that had not previously been cleaned out were identified during the RI as containing analytes above Commercial-Use SCOs. Additionally, four out of ten stormwater drywells (SW-4, SW-5, SW-6, and SW-10) were above commercial SCOs for one or more analytes. One former leach pool sample, LP-8(5'-10'), collected from the fill material, contained copper

slightly above the Commercial-Use SCO. This area is contained, isolated, and will be covered with an impervious layer (i.e.: asphalt). There is no exposure risk and it would not be cost effective to excavate this material and therefore will be left in place. Alternative 1 consists of excavation of residual sediment left in the leaching pits and other soils encountered that exceed Commercial-use SCOs, including beneath the building slab that will be removed, and off-site disposal of all soil/fill that contains chemical constituents at concentrations greater than the 6NYCRR Part 375 Commercial-use SCOs and/or is considered grossly contaminated media.

Per 6NYCRR Part 375-3.8(e)(2), Track 2 soil cleanups use site-specific contaminant information to identify generic SCOs that are protective of public health and the environment under a restricted-use scenario. For Track 2 remedies, restrictions can be placed on the use of the property in the form of IC/ECs if they can be realistically implemented and maintained in a reliable and enforceable manner. For Commercial-use, the requirements to achieve contaminant soil specific cleanup objectives for all soil above bedrock shall not apply to soils below 15' deep provided that:

a. The soils below 15 feet do not represent source contamination;
b. The environmental easement for the site requires that any contaminated soils remaining at depth will be managed along with other site soils, pursuant to a site management plan; and
c. On-site groundwater use is restricted.

Considering the above restrictions, Alternative 1 would include:

- Removal and off-site disposal of soils/residual leaching pool sediments at LP-1, and LP-19, and storm water drywells SW-4, SW-5, SW-6, and SW-10 and any other areas of grossly impacted soil/fill that might be encountered during construction that would be considered source material. Prior to construction of any building on-site, and after the existing building and slab are removed, additional testing will be performed to determine the potential for vapor intrusion from shallow soils beneath the slab. If the potential exists, the impacted shallow soil will be removed and transported for off-site disposal during Site redevelopment. As an interim measure prior to the current building being vacated, the office that contained TCE concentrations above NYSDOH air guidelines has been vacated and the door locked to prevent access. The fill material in LP-8 will be left in place as discussed above.

- Removal and off-site disposal of soil/fill where other parameter concentrations exceed Commercial SCOs encountered during site redevelopment at below ground surface to 15 feet bgs.

- Placement of a soil cover system in areas requiring excavation, including a demarcation layer (e.g., orange plastic netting) and at least two feet of approved cover material in areas not covered by impervious/hardscape materials such as asphalt driveways and parking lots, and concrete slabs or walkways. Hardscape cover outside the building footprint would be a minimum of 4 inches thick.

    - Filing of an Environmental Easement limiting site use to commercial or more restrictive end uses, precluding the use of on-site groundwater without treatment, and requiring adherence to a Site Management Plan (SMP). The SMP would be prepared to ensure that the ICs are followed and that the ECs (cover system) are maintained, with annual certifications provided via a Periodic Review Report (PRR).

    - Placement of a vapor barrier (greater than 10-mil) and passive vent system beneath the reinforced concrete floor slab of any proposed building to prevent against potential vapor intrusion. This is considered a preventative measure based on elevated chlorinated VOC concentrations in several soil vapor points and sub-slab vapor points assuming the majority of 1, 1, 1-TCA and TCE impacts will be removed during excavation activities. Alternatively, the building may be constructed with a vented crawl space to allow for utility access only (i.e., not for storage or occupancy), in which case vapor barrier would not be necessary. The vent system will be designed such that upon post-construction vapor intrusion monitoring, the system can be retrofitted to make it an active mitigation system. As stated above, as an interim measure prior to the current building being vacated, the office that contained TCE concentrations above NYSDOH air guidelines has been vacated and the door locked to prevent access.

The volume of soil/fill to be excavated, loaded, transported, and landfilled under Alternative 1 is estimated at 250 CY (i.e., approximately 375 tons).

The excavated soil/fill is assumed be non-hazardous and would therefore be transported to an appropriate waste disposal facility. However, additional waste characterization analysis of excavated soil will be required before proper disposal. Excavated materials would require handling and preparation prior to off-site transportation and disposal. Excavated areas would be backfilled with material meeting the BCP criteria presented in DER-10 and 6NYCRR Part 375 to the design (i.e., redevelopment) subgrade elevations and grades, and all disturbed areas would be restored with topsoil and grass seeding or hardscape.

Overall Protectiveness of Public Health and the Environment – This alternative meets NYSDEC requirements for a Track 2 cleanup under the BCP regulations and is protective of public health and the environment. The RAOs for the Site would be satisfied through the completed and planned remedial activities, including the enforced use of Commercial-use SCOs.

Compliance with SCGs – The remedial activities will need to be performed in accordance with applicable, relevant, and appropriate SCGs. Imported cover material would need to meet backfill quality criteria per DER-10 and 6NYCRR Part 375. Subgrade preparation activities during remedial excavation will need to adhere to a CAMP in accordance with Appendices 1A and 1B of DER-10. The remedial actions are expected to be fully protective of public health and the environment once the cover is placed and the easement is filed.

Long-Term Effectiveness and Permanence – Removal of soil/residual sediments and impacted soil/fill exceeding the Commercial-use SCOs as well as construction of a cover system will mitigate direct contact with site soil exceeding applicable SCOs. Periodic inspection and maintenance of the soil cover as well as the hardscape cover (e.g., asphalt roads, concrete walkways, and parking areas, etc.) will be required to assure long-term cover integrity. The SMP will include: an O&M Plan to confirm that ECs, including the cover systems, are operating and being maintained in accordance with the SMP; an Excavation Work Plan to address any impacted soil/fill encountered during post-development maintenance activities; and a Site-wide inspection program to assure that the IC/ECs placed on the Site have not been altered and remain effective. Furthermore, an Environmental Easement for the Site will be filed with Suffolk County, which will limit the future use of the Site to Commercial-use, restrict groundwater use, and reference the NYSDEC-approved SMP. As such, this alternative will provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – Removal of soil/residual sediments and soil/fill exceeding Commercial SCOs followed by placement of cover systems will permanently and significantly reduce the toxicity, mobility, and volume of the soil/fill that could potentially be contacted or produce localized areas of environmental impact at the Site. Accordingly, this alternative satisfies this criterion.

Short-Term Effectiveness and Impacts – During intrusive remedial activities, air monitoring will be performed to assure conformance with the CAMP action levels. The potential for chemical exposures and physical injuries will be addressed through safe work practices; proper personal protection equipment (PPE); environmental monitoring; establishment of work zones and Site control; and appropriate decontamination procedures. Excavation of the soil/residual sediments is expected to be completed within a 1-week period, thereby limiting short-term adverse effects. This alternative will achieve the RAOs for the Site once the cover system is in place and the Environmental Easement is filed.

Implementability – No significant technical or administrative implementability issues are associated with this alternative.

Cost-Effectiveness – The estimated capital cost for Alternative 1 is $113,000 including: soil/residual sediments from the former leaching pits removal; construction of a 2-foot soil cover system in landscaped areas; development and filing of an Environmental Easement; and preparation of a SMP. Annual OM&M costs for cover maintenance and annual certifications are estimated to be $3,000. Therefore, the net present worth of the remedial cost to implement Alternative 1 over ten years is estimated at $137,000. **Table 4-1** provides a breakdown of these remedial costs.

Land Use – Based on the reuse of the Site in a Commercial capacity is consistent with past and current development and zoning on-site and within the vicinity of the Site, and does not pose additional environmental or public health risks.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public on the draft Decision Document.

4.4 TECHNOLOGY EVALUATION – GROUNDWATER IMPACTS

4.4.1 Alternative 2: Monitored Natural Attenuation with Groundwater Use Restriction

MNA includes periodic groundwater monitoring, as well as modeling and evaluation of contaminant degradation rates and pathways. Although it has been assumed modeling would be used to evaluate natural attenuation, other approaches, such as evaluation of historic Site data and lab studies, could be used in addition to, or in place of modeling, to document the effectiveness of natural attenuation.

Modeling would be performed to evaluate how contaminant concentrations in groundwater are expected to change over time. The model would be periodically recalibrated with new data as necessary to incorporate changes in the groundwater conditions due to source control or other Site factors (i.e. redevelopment). The approach used for the modeling of natural attenuation would be based on the nature and availability of Site data.

Based on the results of the groundwater sampling data and the modeling efforts, the progress towards achieving the remedial action objectives would be periodically reviewed. As necessary, the sampling program would be revised or additional monitoring wells would be installed to evaluate contaminant fate and transport.

For the purposes of this evaluation we will assume source area soils have been removed prior to implementation of any groundwater remedial technology. The vicinity of the site currently relies on municipal water service and therefore site groundwater is currently not used for any potable or non-potable sources.

Overall Protectiveness of Public Health and the Environment – MNA of residual groundwater impacts would be protective of public health under the intended reuse scenario (i.e., commercial/retail space) in conjunction with the restriction of groundwater use. Groundwater impacts are limited at the site and are expected to decrease upon removal of sources material. Additionally, based upon a depth to groundwater of approximately 30 feet, the limited extent of dissolved VOCs, and the dissolved VOCs being located downgradient of the present and future building, impacts to soil vapor are not expected.

Compliance with SCGs – This MNA alternative would need to be performed in accordance with applicable, relevant, and appropriate SCGs.

Long-Term Effectiveness and Permanence - Dilution, volatilization, adsorption, biodegradation, and other naturally occurring chemical reactions would likely reduce contaminant concentrations in groundwater. The downward trend in contaminant concentrations at the Site would be modeled to project the time frame necessary to achieve the remedial action objectives for the Site. When combined with source control or abatement measures, natural attenuation could achieve RAOs in the foreseeable future.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – MNA with groundwater restrictions, and the removal of source materials will permanently and significantly reduce the toxicity, mobility, and volume of groundwater that could potentially be contacted or produce localized areas of environmental impact at the Site. Accordingly, this alternative satisfies this criterion.

Short-term Effectiveness and Impacts - There is no short-term risk associated with MNA. Modeling would be used to monitor the progress of natural attenuation. The benefit of the natural attenuation alternative is that the remedial objectives could be achieved without the generation of remediation wastes, and the potential for exposure to contaminants ex-situ would be minimized. MNA has been demonstrated to be reliable at many sites.

Implementability - Monitoring and modeling would be feasible to implement, and would not require any construction, or operation and management activities. The United States Environmental Protection Agency (EPA) and other regulatory agencies have accepted natural attenuation as an acceptable form of remediation. NYSDEC considers MNA a permanent solution.

Cost Effectiveness -No capital is required for the natural attenuation component of this alternative. The present worth of the monitoring and modeling costs are estimated to be $265,000 (**Table 4-2).**

Land Use – Based on the reuse of the Site in a Commercial capacity is consistent with past and current development and zoning on-site and within the vicinity of the Site, and does not pose additional environmental or public health risks.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public on the draft Decision Document.

4.4.2 *Alternative #3 – Bioremediation*

Bioremediation involves stimulation of biodegradation processes by the injection of one or more of the following: electron donors (i.e. carbon substrate), nutrients, electron acceptors or exogenous microbes to promote degradation of the contaminants. Typically, an anaerobic environment is required for degradation of chlorinated VOCs (Weidemeier, 1999a). Bioremediation may include comprehensive groundwater sampling, microcosms studies and modeling to evaluate the effectiveness of the technology.

Bioremediation is an effective technology to reduce concentrations of VOCs in groundwater. Bioremediation has previously been implemented at sites to abate VOC impacted groundwater. Recent research indicates that injection of a substrate in source areas may stimulate microbiological degradation of VOCs and/or dissolution of residual product. This technology is compatible with Site conditions. A bench scale studies may be warranted to determine its effectiveness at this site.

Overall Protectiveness of Public Health and the Environment – Bioremediation of residual groundwater impacts would be protective of public health under the intended reuse scenario (i.e., commercial/retail space) in conjunction with the restriction of groundwater use. Groundwater impacts are limited at the site and are expected to decrease upon removal of sources material. Additionally, based upon a depth to groundwater of approximately 30 feet, the limited extent of dissolved VOCs, and the dissolved VOCs being located downgradient of the present and future building, impacts to soil vapor are not expected.

Compliance with SCGs – This Bioremediation alternative would need to be performed in accordance with applicable, relevant, and appropriate SCGs.

Long-Term Effectiveness and Permanence - Bioremediation is highly effective at treating dissolved phase plumes. This is particularly true if remediation of the source area has been conducted significantly reducing mass flux from the upgradient source. There are no long-term risks associated with bioremediation in groundwater. Long-term groundwater monitoring would need to be performed. The operation and maintenance of a bioremediation system is not expected to pose any long-term risks.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – Bioremediation with groundwater restrictions, and the removal of source materials will permanently and significantly reduce the toxicity, mobility, and volume of groundwater that could potentially be contacted

or produce localized areas of environmental impact at the Site. Accordingly, this alternative satisfies this criterion.

Short-term Effectiveness and Impacts - Bioremediation is a technology that has been successful at many sites in the last 20 years. The presence of 1,1-DCA in groundwater indicates that intrinsic biodegradation of TCA is occurring in areas of the Site. The benefit of bioremediation is that an enhanced natural process could be used to achieve the remedial action objectives with minimal disturbance and waste generation. Bioremediation would likely be beneficial in restoring groundwater quality to achieve RAOs. Bioremediation would require time for microbial populations to acclimate to site conditions and could take up to five to seven years to achieve a permanent solution and/or background conditions.

Implementability - This alternative would be feasible to implement. The plume is accessible based on proposed site redevelopment plans (**Figure 4-1**).

Cost Effectiveness - The costs associated with bioremediation of the plume are summarized in **Table 4-3**. The Year 1 costs associated with bioremediation in groundwater is $139,540. The present worth of ten years of injection and monitoring are estimated to be $583,000.

Land Use – Based on the reuse of the Site in a Commercial capacity is consistent with past and current development and zoning on-site and within the vicinity of the Site, and does not pose additional environmental or public health risks.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public on the draft Decision Document.

4.4.3 *Alternative #4 – Chemical Oxidation and Groundwater Use Restriction*

In situ chemical oxidation involves the injection of a chemical oxidant, to chemically degrade the contaminants into non-toxic by-products. However, there are often competing reactions with naturally occurring reduced or oxidizable species such as metals or natural organic material (ITRC, 2001). The total non-contaminant related oxidant demand is referred to as the natural oxidant demand (NOD). The type and quantity of oxidant is dependent on the combined NOD of the aquifer and the demand of the contaminants present in groundwater.

A variety of chemical oxidants exist, including hydrogen peroxide, permanganate, persulfate and ozone (US EPA, 1998a). All of these oxidants have been proven effective at destroying 1,1,1-TCA. Bench-scale NOD tests, would be required to determine the appropriate oxidant to be used.

Overall Protectiveness of Public Health and the Environment – ISCO of residual groundwater impacts would be protective of public health under the intended reuse scenario (i.e., commercial/retail space) in conjunction with the restriction of groundwater use. However, chemical oxidants are dangerous chemicals and require proper handling and storage by trained individuals.

Groundwater impacts are limited at the Site and are expected to decrease upon removal of sources material. As indicated above, the results of the 2006 Preliminary Site Investigation/Site Characterization Report concluded that Site-wide impacts from VOCs and other COCs may have originated from the subject property and from at least 2-other potential sources nearby, USA Industries and Entenmann's. The result of this remedial investigation, conducted approximately 10-years later, indicate that the VOCs on-Site (subject property) are limited to residual concentrations in several former industrial leaching pools and stormwater drywells and are limited in area (both vertically and horizontally) and in concentration in on-Site groundwater (well MW-5S only). Given that the former industrial leaching pools are closed and impacted soil residuals removed in the majority of the locations, and there are no current industrial waste discharges at the subject property, there is no operational mechanism to facilitate continued leaching of VOCs into the groundwater. Additionally, based upon a depth to groundwater of approximately 30 feet, the limited extent of dissolved VOCs, and the dissolved VOCs being located downgradient of the present and future building, impacts to soil vapor are not expected. *Compliance with SCGs* – This ISCO alternative would need to be performed in accordance with applicable, relevant, and appropriate SCGs.

Long-Term Effectiveness and Permanence - Successful implementation of in situ chemical oxidation would be dependent on the effectiveness of delivering oxidants to the impacted groundwater. Transport of the oxidants within the aquifer may be conducted under either natural or forced hydraulic gradients. The operation and maintenance of an ISCO system is not expected to pose any long-term risks, but because of the nature of the chemicals a trained professional must operate the system.

ISCO is highly effective at treating dissolved phase plumes, if the oxidant is properly delivered to the targeted subsurface area. The long-term risk associated with ISCO in groundwater in areas that are highly transmissive is that excessive chemical or unreacted chemical will travel from the injection area to off-site groundwater which is in use. Long-term groundwater monitoring would need to be performed.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – ISCO with groundwater restrictions, and the removal of source materials will permanently and significantly reduce the toxicity, mobility, and volume of groundwater that could potentially be contacted or produce localized areas of environmental impact at the Site, if the oxidant is properly delivered. Accordingly, this alternative satisfies this criterion.

Short-term Effectiveness and Impacts

ISCO is a technology that has been successful at many sites in the last 15 years. The benefit of ISCO over other injectable technologies is that it acts quickly if properly delivered to the impacted groundwater. ISCO would likely be beneficial in restoring groundwater quality to achieve RAOs. ISCO would require time for multiple injections to site conditions and could take up to two to three years to achieve RAOs.

Implementability - ISCO is an implementable technology that has historically been effective in reducing the concentrations of chlorinated ethanes in groundwater and source areas. Bench scale studies will determine if it could also be effective to treat groundwater impacts. The technology is readily implementable and could be effective at achieving a permanent solution. Therefore, this alternative is carried forward for detailed evaluation.

Cost Effectiveness - The costs associated with ISCO of the plume are summarized in **Table 4-4**. The Year 1 costs associated with bioremediation in groundwater is $118,434. The present worth of ten years of injection and monitoring are estimated to be $456,000.

Land Use – Based on the reuse of the Site in a Commercial capacity is consistent with past and current development and zoning on-site and within the vicinity of the Site, and does not pose additional environmental or public health risks.

Community Acceptance – Community acceptance will be evaluated based on comments received from the public on the draft Decision Document.

4.5 COMPARISON OF REMEDIAL ALTERNATIVES

4.5.1 Comparison of Remedial Alternatives

The remedial alternatives evaluated above are compared below using the same screening criteria. Because site groundwater and soils are impacted a combination of alternatives has been selected.

Overall Protectiveness of Public Health and the Environment – Each of the alternatives is protective of public health and the environment. Alternatives 2, 3, and 4 require ICs (environmental easements) to assure protection of site users; Alternative 1 also requires ECs (cover systems) to prevent exposures to soil/fill above the restricted Commercial-use SCOs.

Compliance with SCGs – Each of the alternatives will need to be performed in accordance with applicable, relevant, and appropriate SCGs. Imported subgrade backfill under each alternative as well as imported cover material under Alternatives 1 would need to meet import quality criteria per DER-10 and 6NYCRR Part 375. Remediation activities under all of the alternatives will need to adhere to a CAMP in accordance with Appendices 1A and 1B of DER-10.

Long-Term Effectiveness and Permanence – Each of the alternatives provides long-term remedy effectiveness and permanence. Alternatives 2, 3, and 4 require development and continued enforcement of ICs (environmental easements) to assure continuing effectiveness and permanence, and Alternatives 1 also require continued maintenance of the cover system and monitoring of vapor barrier.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – Removal of soil/residual sediments exceeding Commercial-use SCOs will permanently and significantly reduce the toxicity, mobility, and volume of the soil/fill that could potentially be contacted or produce localized areas of environmental impact at the Site; however, the alternative relies on off-site disposal resulting in no overall reduction of toxicity or volume.

Short-Term Effectiveness and Impacts – Short-term impacts attributable to dust and organic vapor migration will need to be addressed under each of the alternatives via air monitoring and mitigation in conformance with the CAMP. The potential for chemical exposures and physical injuries under each alternative will be addressed through safe work practices; proper PPE; environmental monitoring; establishment of work zones and Site control; and appropriate decontamination procedures. Potential

significant short-term disruption of the neighborhood due to noise and traffic issues is associated with Alternatives 1, but will be part of the redevelopment activities anyway.

Implementability –Technical implementability issues associated with Alternative 1 may include, but are not limited to: additional work to shore/stabilize excavation sidewalls to prevent sloughing during excavation; groundwater and/or storm water handling; and traffic coordination for trucks entering and exiting the Site. Alternative 3 and 4 will require bench scale studies if they are implementable under site specific conditions. Alternative 4 will require special handling and system delivery design to accommodate the oxidant selected.

Cost-Effectiveness – The estimated 10-year present worth cost for Alternatives 1, 2, 3, and 4 are $137,000; $265,000; $583,000, and $465,000.

Land Use – Each of the alternatives proposes Site use in a Commercial-use capacity consistent with past and current development and zoning on-site and within the vicinity of the Site.

Community Acceptance – Community acceptance of the selected alternative will be evaluated based on comments received from the public on the draft Decision Document.

4.5.2 Recommended Remedial Alternative

The recommended remedial approach for the Site is Alternative 1: Commercial-use (Track 2) Cleanup because it is: fully protective of public health and the environment; and Alternative 2 which is consistent with current and future land use; and a more cost-effective approach than Alternatives 3 or 4 while fully satisfying the RAOs for the Site. In summary, Alternatives 1 and 2 involves:

- Excavation source area leaching pools (LP-1 and LP-19) and stormwater drywells (SW-4, SW-5, SW-6, and SW-10), as well as impacted soil that may be encountered beneath the existing building and slab that will be removed, and off-site disposal of soil/residual sediment that exceed Commercial-use SCOs in the areas identified on **Figure 4-1**.

- Post-excavation confirmatory samples would be collected to assure absence of gross impact (elevated PID, visual and/or olfactory evidence of impact), and that residual concentrations of metal COCs

and VOCs fall below Commercial-use SCOs. Excavation would continue as reasonable and warranted to achieve these goals.

- Placement of a vapor barrier (greater than 10-mil) beneath the reinforced concrete floor slab of the any proposed buildings and installation of a passive sub-slab vent system to prevent against potential vapor intrusion. The sub-slab vent will be designed such that it can be retrofitted to become an active mitigation system in the event that post-construction monitoring indicates potential vapor intrusion. Alternatively, the building may be constructed with a vented crawl space to allow for utility access only (i.e., not for storage or occupancy), in which case vapor barrier would not be necessary. As an interim measure prior to the current building being vacated, the office that contained TCE concentrations above NYSDOH air guidelines has been vacated and the door locked to prevent access.

- Placement of a cover system across the entire BCP Site. This will be comprised of a demarcation layer and at least two feet of approved soil cover material in landscaped areas, or impervious materials such as asphalt driveways and parking lots, and concrete building foundations, slabs, or walkways in non-vegetated areas. Approved soil cover material will meet NYSDEC DER-10 standards for Commercial-use sites. Hardscape material outside of the building footprint will be at least 4 inches thick.

- Site Groundwater Monitoring Plan to actively monitor MNA in the groundwater. This will include monitoring site groundwater for attenuation parameters such as Dissolved Oxygen, ORP, nitrate/nitrite, sulfate/sulfite, methane and others.

- Implementation of an SMP that will include:

    - IC/EC Plan describing ECs that: include any physical barrier or method employed to actively or passively contain, stabilize or monitor contaminants; restrict the movement of contaminants; or eliminate potential exposure pathways to contaminants; and ICs that include restrictions on groundwater use and Site use for restricted-residential purposes.

    - Excavation Work Plan to assure that future intrusive activities and soil/fill handling at the Site are completed in a safe and environmentally responsible manner.

- Site Monitoring Plan that includes provisions for a Site-wide inspection program to assure that the IC/ECs have not been altered and remain effective.

- Environmental Easement filed with Suffolk County.

Section 5.0 is the Remedial Action Work Plan (RAWP) that summarizes the components and details of the proposed remedial action.

5.0 REMEDIAL ACTION WORK PLAN

5.1 PURPOSE AND SCOPE

This section of the Remedial Action Work Plan (RAWP) describes the excavation and off-site disposal of impacted soil/fill and cover system placement. The primary tasks of the planned remedial work are:

- Testing of the soil/residual sediments to develop a waste profile.
- Excavation of impacted soil/residual sediments from former leaching pools LP-1, and LP-19, and stormwater drywells SW-4, SW-5, SW-6, and SW-10 at the Site to achieve Commercial-use SCOs.
- Confirmation sampling on a grid basis to determine residual concentrations and assess the need for additional excavation and removal of any gross contamination in other areas of concern.
- Off-site transportation and disposal of impacted soil/residual sediments at a permitted solid waste disposal facility. Any additional soil/residual sediments requiring removal to enable a minimum two feet of cover in the "landscape" areas and allow for hardscape, utilities, or building areas will be subject to off-site transportation and disposal as well.

The RAWP also addresses the following tasks:

- Pre-mobilization
- Health, safety, and community air monitoring procedures
- Dust, storm water, and erosion control measures required for minimizing potential release of soils outside the work zone during construction
- Equipment decontamination requirements
- Remedial action documentation
- Groundwater monitoring plan to implement MNA

- Implementation scheduling
- Post-remedial Site Management Plan

5.2 PRE-MOBILIZATION TASKS

5.2.1 Public Information and Outreach

It is expected that the NYSDEC will issue a draft Decision Document for NYSDOH review and public comment. A fact sheet announcing the draft Decision Document will be transmitted to those individuals on the Brownfield Site Contact List, including property owners and residents adjacent to the Site; environmental groups; local political representatives; and interested regulatory agencies. Furthermore, a copy of the RAWP will be made available for public review at the Brentwood Public Library, the designated document repository.

5.2.2 Underground Utilities Location

The remediation contractor will contact underground facilities protection organization (Dig Safely New York) to locate utility lines within the work area.

5.2.3 Health and Safety Plan Development

A Health and Safety Plan (HASP) will be prepared and enforced by the remediation contractor in accordance with the requirements of 29 CFR 1910.120. The HASP will cover all on-site remedial activities. Sovereign will be responsible for Site control and for the health and safety of its authorized Site workers. The remediation contractor will be required to develop a HASP as or more stringent than Sovereign's HASP.

5.2.4 Waste Disposal Characterization

Sovereign and the remediation contractor will coordinate with the Solid Waste Disposal Facility (SWDF) for disposition of the soil/residual sediments to be removed from the Site. Although FHRC has no knowledge of any hazardous waste disposal on the Site, the soil/fill must be tested to verify that it does not exceed characteristic hazardous waste thresholds. A composite sample(s) will be prepared from representative areas of soil/fill planned for removal by compositing discrete samples of soil/fill at a frequency agreeable to the SWDF. The composite sample(s) will be tested by the Toxic Characteristic Leaching Procedure (TCLP) for

the full list of regulated toxicity indicator parameters, as well as ignitability, corrosivity, and total PCBs/pesticides/herbicide. For the purposes of the discussion below, the assumption has been made that the impacted soil/residual sediments is non- hazardous. If the soil/residual sediments are determined to be characteristically hazardous, the RAWP will be modified.

5.3 REMEDIAL ACTIVITIES

5.3.1 Mobilization and Site Preparation

The remediation contractor's field operations at the Site will commence with mobilizing equipment and materials to the Site, and erecting safety fencing and other temporary controls as described below.

5.3.2 Temporary Facilities and Controls

Temporary facilities for use during the remedial work may include a construction field trailer and portable toilets. Temporary controls will be employed for protection against off-site migration of soil and safety hazards during construction, including safety fencing, dust suppression, and erosion control as further described below.

5.3.2.1 Access Controls

Temporary safety construction fencing (i.e., 3-foot high orange plastic or 6-foot chain link) will be placed around the perimeter of the work area(s) to distinguish the work zone and discourage trespassing. The fencing will not be removed until the excavation/ backfilling work is complete.

As a requirement of the BCP, a sign will be placed along Fifth Avenue and Candlewood Road to identify the property as a BCP Site.

5.3.2.2 Dust and VOC Monitoring and Controls

A CAMP will be implemented during Site excavation work. The CAMP will include both VOC and particulate real time monitoring. If community air monitoring indicates the need for dust suppression or if dust is visually observed leaving the Site, the remediation contractor will apply a water spray across the excavation and surrounding areas, and on haul roads as necessary to mitigate airborne dust formation and migration. Potable water will be obtained from either a public hydrant or

the on-site water service, if available. Other dust suppression techniques that may be used to supplement the water spray include:

- Hauling materials in properly tarped containers or vehicles
- Restricting vehicle speeds on-site

If VOC monitoring downwind of the work zone indicates readings above 5 ppm above background for a 15-minute average, work activities will be temporarily halted and monitoring continued. Work can resume when readings drop below 5 ppm over background. Nuisance odors will be managed in a similar fashion. If VOC readings are above 5 ppm, but below 25 ppm above background the work will be halted and the source of the vapors identified and corrective actions taken. Corrective actions could include wetting of soils, switching of excavation, or the use of foam suppressions. If VOC readings are above 25 ppm, the activities must be shutdown.

5.3.2.3 Erosion and Sedimentation Control

Provisions will be made for erosion and sedimentation control at the work perimeter during remediation activities. Erosion and sedimentation controls to be followed during remedial activities include silt fencing, hay baling, mulching, and other measures, as warranted and deemed necessary to mitigate erosion and sedimentation.

5.3.3 Soil/Residual Sediments Excavation

Excavation of impacted subsurface soil/residual sediments will proceed methodically across the Site excavating progressively from one location of the Site to another. A vactor truck, small crane with a clam shell bucket and/or a track mounted excavator will be used to remove the impacted soil/ residual sediments from the bottoms of the leaching pools and stormwater drywells.

A track-mounted crawler excavator with a mechanically operated bucket will be used to unearth any addition soils required to achieve RAOs. Verification samples will be collected to confirm that Commercial-use standards have been attained. If active utilities (e.g., electric service) are encountered or anticipated, hand digging will be performed to expose the utility line within the planned excavation horizon (2 feet or deeper if needed) and limit the potential for damage to the utility(s).

Excavated materials will be direct-loaded into dump trucks or staged roll-off containers for off-site disposal at a SWDF. All excavation work will be observed by an experienced Sovereign environmental scientist. If disposal truck scheduling necessitates stockpiling of excavated soil/fill, the stockpiles will be placed on and covered with plastic sheeting during non-working hours.

5.3.4 Post-Excavation Confirmation Sampling

Post-excavation verification samples will be collected from the side walls and bottom of the excavations. Consistent with the requirements of DER-10 (Ref. 4), the following discrete samples are proposed:

- One sample at the bottom of each leaching pool, LP-1, and LP-19, and stormwater drywells SW-4, SW-5, SW-6, and SW-10. If the leach pool/drywell structures are to be left in place, no sidewall samples can be obtained. If the structures are removed, then sidewall samples will be collected

- If additional excavation is required to achieve Commercial-use standards, or other impacted areas are detected during site development, one sample from the sidewall of each excavation at a frequency of one per every 30 feet along the perimeter.

- One sample for each 900 square feet of excavation bottom.

All samples will be analyzed by a NYSDOH ELAP certified analytical laboratory for TCL-VOC by USEPA Method 8260 and inorganic compounds by Method 6010/7471 for barium, cadmium, copper, lead. Cyanide will be analyzed by USEPA Method 9010C. The samples collected from the stormwater drywells will additionally be analyzed for PAHs by USEPA Method 8270.

Samples will be reported with Category B deliverables package to facilitate data evaluation by a third-party validation expert.

Quality assurance (QA) samples will be collected to support the verification sample data evaluation. The QA samples will include a minimum of one matrix spike (MS), one matrix spike duplicate (MSD), and one blind duplicate per 20 verification samples. Dedicated equipment will be used to avoid the need for equipment blanks.

5.3.5 Off-Site Disposal

All sample shipments will be accompanied by a solid waste disposal manifest. Scale receipts will be required to confirm offload at the SWDF and quantify the amount of material removed from the Site.

5.4 CONSTRUCTION OF COVER SYSTEM

5.4.1 Subgrade Preparation

Site grading to design subgrade elevations during site redevelopment in areas with soil impacts, and as necessary for underground utility construction, will occur after confirmatory soil samples are received and Commercial-use standards are verified. Any excess materials will be disposed off-site at a permitted SWDF. Following sub-grade preparation work, all equipment will be cleaned free of any soil clods, mud, or clinging debris prior to removal from the Site or use in cover placement activities.

5.4.2 Demarcation Layer

A demarcation layer will be placed in designated landscape areas following grading of areas where remediation is required and prior to import of the soil cover system material. Demarcation will be constructed and placed so as to easily identify the existing Site sub-grade from the cover system material, and prevent the potential for inadvertent removal of sub-grade material during potential future Site work. The demarcation material will be comprised of an orange ¾-inch plastic industrial netting material that will be rolled across the sub-grade in a 6 foot grid in areas where remediation is required.

5.4.3 Cover System Placement

Construction of the cover system will follow remediation activities and placement of the demarcation layer. The retail building and other hardscape construction (parking, sidewalk, driveway, etc., minimum 4" thickness) in addition to the 2-foot soil layer across the remainder of areas will encompass the Track 2 cover system. As indicated in Section 3.0, the retail building structure will be furnished with passive vapor intrusion controls in the form of either a poly vapor barrier or a vented crawl space and passive sub-slab venting system. The vent system will be designed such that upon post-construction vapor intrusion monitoring, the system can be retrofitted to make it an active mitigation system.

Areas that require remediation and will not be covered with buildings or hardscape, the cover system will consist of a minimum 2-foot layer of imported clean cover soil followed by seeding or mulching around plantings. Cover material shall be compacted to mitigate potential for settlement. Cover material depth will be verified by Sovereign through survey or grade stake level measurements. Depth verification measurements will be included in the Final Engineering Report.

5.5 IMPLEMENATION OF MNA

A baseline round of groundwater sampling will be conducted prior to initiating MNA, including all monitoring points. Each monitoring and injection point will be analyzed for the parameters listed below:

MNA Monitoring Parameters

Analysis	***Method of Analysis***
VOCs	Method 8260C (chlorinated compounds only)
Metals(Copper, Nickel, and Thallium)	Methods 6010C and 6020A (Thallium)
Dissolved gases (methane, ethene, and ethane	EPA Method GC Screen
Chloride	EPA Method 325.2 Ion Chromatography (IC)
Nitrate	EPA Method 300.0 IC
Dissolved Iron	EPA 6010
Dissolved Manganese	EPA 6010
Sulfate	EPA Method 375.4 IC
Alkalinity	EPA Method 2320B
Total Organic Carbon (TOC)	EPA Method 415.1
Total Phosphorus	EPA Method 365.2 and SM 4500P-E
Total Kjeldahl Nitrogen (TKN)	EPA Method 351.3/.1 and SM 4500N-C

Additional monitoring wells may be installed to implement and evaluate the MNA remedial activity or to replace monitoring wells destroyed during the Source Area soil excavation or site redevelopment. The reinstalled wells will meet the same design specifications as the monitoring well it is intended to replace.

Performance monitoring to evaluate remedy effectiveness and ensure the protection of human health and the environment is an important part of MNA. The MNA plan includes the following field data collection and evaluation on a routine basis:

- Gauge select wells for depth to static ground water measurements; and

- Conduct in-situ geochemical analysis of groundwater at select monitoring wells for:
  - Dissolved oxygen
  - pH
  - Oxidation/Reduction Potential
  - Temperature
  - Ferrous iron.

Quarterly monitoring of all existing wells will be conducted for the first year and then will be modified based upon those results. Groundwater samples will be collected using low-flow sampling technique. Laboratory reports will include Category A deliverables. Interpretation of the MNA data is discussed in Section 5.10.

5.6 IMPORT CRITERIA

5.6.1 General

All materials proposed for import onto the Site must be approved by the NYSDEC. The criteria under which off-site material may be used as cover or backfill are presented below.

- Off-Site Soil: Off-Site soil may be used as backfill provided that it originates from: 1) a NYSDEC-approved borrow site; or 2) a known source having no evidence of disposal or releases of hazardous substances, hazardous, toxic, radioactive wastes, or petroleum. In both instances the imported soil must be tested and demonstrated to meet the criteria identified in Appendix 5 of DER-10, unrestricted-use. In addition, no off-site materials meeting the definition of a solid waste as defined in 6NYCRR, Part 360-1.2 (a) shall be used as backfill.

- Other Off-Site Material: Certain material may be imported as backfill or cover, without chemical testing, provided it contains less than 10% (by weight) material that would pass through a size 80

sieve: 1) Rock or stone, consisting of virgin material from a permitted mine or quarry; 2) steel slag under BUD#555-9-152; 3) Recycled concrete, brick, or asphalt from a NYSDEC- registered or permitted construction and demolition (C&D) debris processing facility (as specified in Section 360-16.1 of 6NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002).

As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), "uncontaminated" means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

5.6.2 Quality Assurance Requirements

All imported soil sources, including general backfill soil and topsoil, will be subject to third-party testing to verify that they meet the QA requirements specified below. The contractor will be required to collect the specified number of samples and submit the samples to an independent, NYSDOH ELAP-certified laboratory for analysis. The NYSDEC will be notified of the sampling and provided an opportunity to observe the sample collection work.

All analyses will be in accordance with USEPA SW-846 methodology. The laboratory data package will be a Category A deliverable; however, the NYSDEC may request, at any time, to upgrade the deliverable to Category B. Each import soil source shall be analyzed for the following parameters as more specifically listed in 6NYCRR Part 375-6:

- VOCs – Method 8260
- SVOCs – Method 8270
- Organochlorine Pesticides and PCBs – Method 8081/8082
- Metals, excluding mercury – Method 6010
- Mercury – Method 7471
- Cyanide – Method 9013

Each import soil source shall be subject to testing in accordance with the following schedule per NYSDEC DER-10 Table 5.4(e)10:

Contaminant:	VOCs	SVOCs, Inorganics & PCBs/Pesticides	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1,000	7	2	
1,000	Add an additional 2 VOC and 1 composite for each additional 1,000 cubic yards or consult with DER		

Grab samples collected via En-Core® or Terra-Core® sampling technique will be required for VOC analysis. For all other required analyses, a minimum of four grab samples will be collected to form a single composite sample. Approximately equal aliquots of the grab samples will be composited in the field using a stainless steel trowel and bowl. The trowel and bowl shall be decontaminated with a non-phosphate detergent (e.g., Alconox®) and potable water wash solution followed by a distilled water rinse between sampling locations).

Import criteria are restricted-residential SCOs and protection of groundwater quality SCOs or lesser as published in 6NYCRR Part 375-6.8(b).

5.7 REMEDIAL ACTIVITIES SUPPORT DOCUMENTS

5.7.1 Community Air Monitoring

Real-time community air monitoring will be performed during remedial activities at the Site in accordance with the CAMP. VOC and particulate monitoring will be performed along the downwind perimeter of the work area during subgrade excavation, backfilling, grading, and soil/fill handling activities in accordance with the CAMP. The CAMP is consistent

with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under NYSDOH's Generic CAMP (Appendix 1A of DER-10) and Fugitive Dust and Particulate Monitoring (Appendix 1B of DER-10). A CAMP is included in **Appendix A**.

5.8 HEALTH AND SAFETY PROTOCOLS

Sovereign will prepare a HASP for use by its employees in accordance with 40 CFR 300.150 of the NCP and 29 CFR 1910.120. The HASP, provided as Appendix B includes the following site-specific information:

- Hazard assessment
- Training requirements
- Definition of exclusion, contaminant reduction, and other work zones
- Monitoring procedures for Site operations
- Safety procedures
- Personal protective clothing and equipment requirements for various field operations
- Disposal and decontamination procedures

The HASP also includes a contingency plan that addresses potential site-specific emergencies.

Health and safety activities will be monitored throughout the remedial field activities. A member of the field team will be designated to serve as the Site Safety and Health Officer (SSHO) throughout the field program. This person will report directly to the Project Manager and the Corporate Health and Safety Coordinator. The HASP will be subject to revision as necessary, based on new information that is discovered during the remedial activities.

5.9 CITIZEN PARTICIPATION ACTIVITIES

NYSDEC will coordinate and lead community relations throughout the course of the project with support from Sovereign as requested. A Citizen Participation (CP) Plan will be prepared by Sovereign and approved by NYSDEC. A copy of the CP Plan will be placed in the Brentwood Public Library, the designated project document repository. The NYSDEC, with input from Sovereign, will issue project fact sheets to keep the public informed of remedial activities.

5.10 REPORTING

5.10.1 Remedial Activities Reporting

Sovereign will provide full-time on-site inspection to document all remedial action activities. Monitoring and documentation of the remedial action activities will include: daily reports of activities; community air monitoring results; pre- and post- excavation sampling and analysis; and progress photographs and sketches.

5.10.2 Construction Monitoring

Standard daily reporting procedures will include preparation of an Inspector's Daily Report and, when appropriate, problem identification and corrective measures reports. Information that may be included on the daily report form includes:

- Processes and locations of construction under way;
- Equipment and personnel working in the area, including subcontractors;
- Number and type of truckloads of soil/fill removed from the Site;
- Approximate sampling locations (sketches) or GPS (Trimble) coordinates and sample designations for pre-excavation characterization and post-excavation verification; and
- Grid locations and depths being excavated, if necessary.

The completed reports will be available on-site and submitted to the NYSDEC as part of the Final Engineering Report. The NYSDEC will be

promptly notified of problems requiring modifications to this RAWP prior to proceeding or completion of the construction item.

Photo documentation of the remedial activities will be prepared by a field representative throughout the duration of the project as necessary to convey typical work activities, changed conditions, and/or special circumstances.

5.10.3 Groundwater Monitoring and MNA Data Interpretation

Groundwater monitoring data will be compiled and compared to NYSDEC Class GA Standards and Guidance Values following each sampling event. Data trends will be evaluated to determine the effectiveness of the MNA process.

The presence and distribution of geochemical and biochemical indicators are documented through a correlation of changes in concentrations and distribution of specific MNA parameters. When indigenous microorganisms are active in reducing site contamination, changes in groundwater chemistry occur both temporally and spatially. Measurement of these changes can be used to demonstrate intrinsic bioremediation. General indicators such as the geochemical parameters analyzed for pH, temperature, ORP, and DO concentrations can be used as biodegradation indicators. These indicators will be described relative to current site conditions in each monitoring report.

5.11 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be prepared at the conclusion of remedial activities. The FER will include the following information and documentation, consistent with the NYSDEC's DER-10 Technical Guidance for Site Remediation (Ref. 4):

- Introduction and background
- A Site or area planimetric map showing the parcel remediated, including significant site features
- A Site map showing the lateral limits of any excavations
- Tabular summaries of unit quantities including: volume of soil excavated and disposition of excavated soil

- Planimetric map showing location of all verification and other sampling locations with sample identification labels/codes

- Tabular comparison of verification and other sample analytical results to SCOs.

- An explanation shall be provided for any results exceeding acceptance criteria

- Documentation on the disposition of impacted soil removed from the Site

- Copies of daily inspection reports and, if applicable, problem identification and corrective measure reports

- Photo-documentation of remedial activities

- Text describing the remedial activities performed; a description of any deviations from the RAWP and associated corrective measures taken; and other pertinent information necessary to document that the Site activities were carried out in accordance with this RAWP

In addition, Sovereign will subcontract for third-party data review of post- excavation verification data by a qualified, independent data validation expert. Specifically, a DUSR will be prepared, with appropriate data qualifiers added to the results. The DUSR format will follow the NYSDEC's September 1997 DUSR guidelines and DER-10 guidance (Ref. 4). The DUSR and any necessary qualifications to the data will be appended to the FER.

5.12 SITE MANAGEMENT PLAN

For any BCP site not cleaned up to NYSDEC Part 375 unrestricted SCOs, preparation of a Site Management Plan (SMP) that describes site-specific IC/ECs is a required component of the final remedy. Therefore, an SMP will be prepared as part of the final remedy for the Site. Consistent with NYSDEC BCP requirements, components of the SMP will include:

- Engineering and Institutional Controls Plan. Engineering controls include any physical barrier or method employed to actively or passively contain, stabilize, or monitor contaminants; restrict the movement of contaminants; or eliminate potential exposure

pathways to contaminants. Institutional controls at the Site will include groundwater use restrictions and restrictions for use of the Site (i.e., commercial purposes).

- Operation and Maintenance Plan will not be a requirement of the SMP as there are no systems containing mechanical components that will be operated, monitored, and maintained.

- Excavation Work Plan to assure that future intrusive activities and soil/residual sediments handling at the Site are completed in a safe and environmentally responsible manner unless the Site has been remediated to unrestricted SCOs.

- Site Monitoring Plan that includes: provisions for a groundwater monitoring plan and a Site-wide inspection program to assure that the IC/ECs have not been altered and remain effective.

- Environmental Easement filed with Suffolk County.

5.13 PROJECT SCHEDULE

The anticipated project schedule is dependant of the building construction schedule which is not known at this time. The timeline for the major tasks to be performed during implementation of the RAWP are anticipated as follows:

- 30 Days before building demolition– Conduct pre-excavation waste profile sampling and collect baseline MNA samples

- 15 days after building demolition - initiate remedial excavation fieldwork

- 30 to 180 Days after building demolition is completed – Construct building and place cover systems

- 15 Days after building is completed – Submit SMP

- 30 Days after building is completed – Submit FER

- 30 Days building is completed – Initiate quarterly MNA monitoring.

6.0 REFERENCES

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TABLES

Table 2-1
Summary of Survey Data
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, New York

SAMPLE ID	Northing	Easting	Elevation	Comments
IP-1	220119.82	1188814.92	76.65	Former industrial process area.
IP-2	220131.25	1188776.61	76.66	Former industrial process area.
IP-3	220142.41	1188780.06	76.60	Former industrial process area.
IP-4	220130.56	1188830.00	76.63	Former industrial process area.
IP-5	220131.01	1188800.40	76.64	Former industrial process area. Same location as SS-1.
SS-1	220131.01	1188800.40	76.64	Sub-slab vapor point. Same location as IP-5.
IP-6	220145.10	1188752.97	84.45	Former industrial process area. Same location as SS-2.
SS-2	220145.10	1188752.97	84.45	Sub-slab vapor point. Same location as IP-6.
IP-7	220153.95	1188773.66	76.68	Former industrial process area.
IP-8	220154.83	1188824.14	76.62	Former industrial process area.
LP-1	220107.07	1188770.24	76.07	Former industrial leaching pool.
LP-1A	220104.07	1188789.61	76.14	Former industrial leaching pool.
LP-2	220063.28	1188804.49	75.78	Former industrial leaching pool.
LP-3	220078.04	1188783.53	76.21	Former industrial leaching pool.
LP-4	220087.07	1188763.84	76.22	Former industrial leaching pool.
LP-5	220082.75	1188731.18	76.38	Former industrial leaching pool.
LP-6	220118.70	1188733.19	75.93	Former industrial leaching pool.
LP-7	220113.23	1188749.61	75.90	Former industrial leaching pool.
LP-8	220129.40	1188655.12	76.99	Former industrial leaching pool.
LP-9	220117.03	1188659.89	77.21	Former industrial leaching pool.
LP-10	220168.27	1188664.07	82.06	Former industrial leaching pool.
LP-11	220204.25	1188650.55	75.32	Former industrial leaching pool.
LP-12	220202.56	1188715.80	76.60	Former industrial leaching pool.
LP-13	220287.25	1188677.07	74.93	Former industrial leaching pool.
LP-14	220298.41	1188709.77	76.61	Former industrial leaching pool.
LP-14-BORING	220305.81	1188704.98	75.36	Soil boring located outside structure.
LP-15	220125.03	1188638.67	77.68	Former industrial leaching pool.
LP-16	220139.26	1188639.45	77.22	Former industrial leaching pool.
LP-17	220161.71	1188699.69	76.60	Former industrial leaching pool.
LP-18	220177.58	1188706.10	76.61	Former industrial leaching pool.
LP-19	220192.42	1188676.64	82.09	Former industrial leaching pool.
LP-20	220278.28	1188724.34	76.63	Former industrial leaching pool.
LP-21	220233.28	1188652.15	76.01	Former industrial leaching pool.
LP-22	220175.68	1188636.67	76.20	Former industrial leaching pool.
LP-25	220302.23	1188771.13	75.14	Former industrial leaching pool.
LP-26	220316.04	1188682.35	75.35	Former industrial leaching pool.
MW-1D	220045.46	1188851.69	75.22	
GWP-1	220046.47	1188852.26	75.15	Same location as MW-1S.
MW-1S	220046.47	1188852.26	75.15	Same location as GWP-1.
GWP-2	220119.98	1188617.82	78.57	Same location as MW-2.
MW-2	220119.98	1188617.82	78.57	Same location as GWP-2.

Table 2-1
Summary of Survey Data
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, New York

SAMPLE ID	Northing	Easting	Elevation	Comments
GWP-3	220327.88	1188678.43	75.68	Same location as MW-3.
MW-3	220327.88	1188678.43	75.68	Same location as GWP-3.
GWP-4	220292.37	1188917.08	76.07	Same location as soil boring MW-4.
MW-4	220292.37	1188917.08	76.07	Same location as GWP-4. Soil boring only, well not installed.
MW-5D	220099.76	1188742.75	75.76	
GWP-5	220098.65	1188743.47	75.76	Same location as MW-5S.
MW-5S	220098.65	1188743.47	75.76	Same location as GWP-5.
GWP-6	220129.99	1188910.60	74.97	Same location as SB-1/MW-6.
MW-6	220129.99	1188910.60	74.97	Same location as SB-1/GWP-6.
SB-1	220129.99	1188910.60	74.97	Same location as GWP-6/MW-6.
SB-2	220088.70	1188811.11	75.71	Former heating oil UST location.
SB-3	220214.73	1188701.87	76.64	Former stormwater drywell DW-24 location.
SB-4	220227.09	1188756.35	76.58	Former waste water holding tank location.
SS-3	220198.91	1188690.83	76.64	Sub-slab vapor point.
SS-4	220243.93	1188714.01	76.64	Sub-slab vapor point.
SS-5	220265.42	1188756.49	76.63	Sub-slab vapor point.
SS-6	220246.81	1188863.96	76.64	Sub-slab vapor point.
SS-7	220226.83	1188797.63	76.64	Sub-slab vapor point.
SS-8	220154.07	1188826.90	76.63	Sub-slab vapor point.
SV-1	220040.18	1188850.77	75.54	Soil vapor point.
SV-2	220120.67	1188614.15	78.89	Soil vapor point.
SV-3	220327.40	1188684.06	75.79	Soil vapor point.
SV-4	220293.15	1188919.31	76.11	Soil vapor point.
SV-5	220117.82	1188742.57	76.05	Soil vapor point.
SV-6	220299.63	1188788.72	75.35	Soil vapor point.
SV-7	220130.19	1188908.03	75.27	Soil vapor point.
DW-21A	220154.63	1188642.34	76.49	Stormwater overflow drywell.
SW-1	220074.60	1188840.01	74.29	Stormwater drywell.
SW-2	220127.06	1188678.91	75.29	Stormwater drywell.
SW-3	220194.44	1188642.36	74.83	Stormwater drywell.
SW-4	220281.16	1188668.29	74.30	Stormwater drywell.
SW-5	220106.15	1188736.32	75.61	Stormwater drywell.
SW-6	220311.09	1188688.31	74.97	Stormwater drywell.
SW-7	220305.82	1188740.35	74.13	Stormwater drywell.
SW-8	220253.66	1188898.09	75.65	Stormwater drywell.
SW-9	220309.13	1188921.77	75.73	Stormwater drywell.
SW-10	220261.39	1188667.61	75.14	Stormwater overflow drywell.

Notes:
Source: Hawkins Webb Jaeger
Horizontal datun is NAD 83 NYS, LI Zone in US Feet
Vertical datum is NAVD 88 in US Feet

Table 2-2
Summary of Well Gauging Data
August 18, 2015
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, New York

Well ID	TOC Elevation (Ft.)	DTW (Ft.)	WTE (Ft.)
MW-1S	75.15	30.58	44.57
MW-1D	75.22	30.66	44.56
MW-2	78.57	33.82	44.75
MW-3	75.68	30.81	44.87
MW-5S	75.76	31.11	44.65
MW-5D	75.76	31.09	44.67
MW-6	74.97	30.30	44.67

Note: MW-4 was not installed.

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

Location Name / Sample Name / Sample Date / Parent Sample					DW-21A DW-21A (12-14) 7/9/2015	IP-01 IP-1 (0-2) 7/15/2015	IP-01 IP-1 (2-4) 7/15/2015	IP-02 IP-2 (0-2) 7/15/2015	IP-04 IP-4 (0-2) 7/15/2015	IP-05 IP-5 (0-2) 7/15/2015	IP-05 IP-5 (4-8) 7/15/2015	IP-06 2015-07-15-DUP 7/15/2015 IP-6 (0-2)-5071603	IP-06 IP-6 (0-2) 7/15/2015	IP-08 IP-8 (0-2) 7/7/2015	IP-08 IP-8 (3-4) 7/7/2015	LP-01 LP-1 (17'-18') 6/25/2015	LP-01 LP-1 (20'-22') 6/24/2015	LP-01 LP-1 (30'-32') 6/24/2015
Analyte	**Units**	**CAS No.**	**Unrestricted SCO**	**Commercial SCO**														
SW6010C	mg/kg																	
Barium		7440-39-3	350	400	**19**	**18**	**13**	**33**	**14**	**44**	**12**	11 U	**13**	**23**	**38**	**70**	12 U	12 U
Copper		7440-50-8	50	270	**240**	**130**	5.4 U	**93**	**8.5**	**1300**	**83**	5.3 U	5.3 U	**8.1**	**8.8**	**19000**	**110**	**300**
Lead		7439-92-1	63	1000	**53**	**22**	**27**	**55**	**14**	**3700**	**210**	**11**	**16**	**5.7**	**32**	**4200**	**92**	**180**
Manganese		7439-96-5	1600	10000	**78**	**75**	**56**	**130**	**85**	**24**	**17**	**53**	**60**	**110**	**110**	**73**	12 U	**18**
Nickel		7440-02-0	30	310	6.4 U	**28**	**8.4**	**15**	5.4 U	**16**	5.2 U	5.3 U	5.3 U	**59 J**	6.2 U	**72**	6 U	**9.8**
Zinc		7440-66-6	109	10000	**190**	**34**	**17**	**47**	**27**	**35**	**11**	**15**	**19**	**13**	**240**	**55**	12 U	12 U
SW6020A	mg/kg																	
Cadmium		7440-43-9	2.5	9.3	**1.1**	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.41 U	0.42 U	0.43 U	0.44 U	0.49 U	**0.91**	0.48 U	0.47 U
Silver		7440-22-4	2	1500	0.26 U	0.22 U	0.22 U	**0.41**	0.22 U	**3.7**	**0.38**	0.21 U	0.21 U	0.22 U	0.25 U	**28**	**1.7**	**5.1**
SW7196	mg/kg																	
Chromium, Hexavalent		18540-29-9	1	400	1.3 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.2 U	**9**	1.2 U	**2**
SW7471B	mg/kg																	
Mercury		7439-97-6	0.18	2.8	0.11 U	0.09 U	0.09 U	**0.12**	0.09 U	**0.45**	**0.12**	0.088 U	0.089 U	0.093 U	0.1 U	**0.66**	0.1 U	0.098 U
SW8081B	ug/kg																	
P,P'-DDD		72-54-8	3.3	92000	3.2 U	2.7 U	**14 J**	2.7 U	**5**	2.7 U	2.6 U	**6**	**4.3 NJ**	2.8 U	3.1 U			
P,P'-DDE		72-55-9	3.3	62000	3.2 U	**3.8**	5.4 U	2.7 U	2.7 U	2.7 U	2.6 U	2.6 U	2.7 U	2.8 U	**5.8 J**			
P,P'-DDT		50-29-3	3.3	47000	3.2 U	**6.9**	**10 J**	2.7 U	**5.8**	2.7 U	**9.4**	2.6 U	2.7 U	2.8 U	**15 NJ**			
SW8082	ug/kg																	
Polychlorinated Biphenyl (PCBs)		1336-36-3	100	1000	32 U	27 U	27 U	27 U	27 U	27 U	**90**	26 U	27 U	28 U	31 U			
SW8260C	ug/kg																	
1,1,1-Trichloroethane		71-55-6	680	500000	1.7 U	1.8 U	**2.6**	**8**	**2.5**	**22**	**22**	**32**	**44**	2.1 U	**930**	**450**	**5.4**	**52**
Acetone		67-64-1	50	500000	8.6 U	9 U	18 U	44 U	73 U	66 U	130 U	42 U	54 U	10 U	750 U	88 U	12 U	**730**
Benzene		71-43-2	60	44000	0.86 U	0.9 U	0.82 U	0.88 U	0.87 U	0.88 U	0.95 U	0.81 U	0.86 U	1 U	**77**	2 U	1.2 U	**1.2**
Ethylbenzene		100-41-4	1000	390000	0.86 U	0.9 U	0.82 U	0.88 U	0.87 U	0.88 U	0.95 U	0.81 U	0.86 U	1 U	150 U	2 U	1.2 U	**2.8**
O-Xylene (1,2-Dimethylbenzene)		95-47-6	260	500000	0.86 U	0.9 U	0.82 U	0.88 U	0.87 U	0.88 U	0.95 U	0.81 U	0.86 U	1 U	150 U	2 U	1.2 U	**5.8**
Toluene		108-88-3	700	500000	0.86 U	0.9 U	0.82 U	0.88 U	0.87 U	0.88 U	0.95 U	0.81 U	0.86 U	1 U	150 U	2 U	1.2 U	**2**
Trichloroethylene (TCE)		79-01-6	470	200000	1.7 U	**2**	**7.2**	**14**	**13**	**35**	**15**	**4.2**	**6.4**	**8.2**	**39000**	**15**	2.4 U	**3.1**
Xylenes		1330-20-7	260	500000	0.86 U	0.9 U	0.82 U	0.88 U	0.87 U	0.88 U	0.95 U	0.81 U	0.86 U	1 U	150 U	2 U	1.2 U	**18.8**
SW8270D	ug/kg																	
4-Methylphenol (P-Cresol)		106-44-5	330	500000	11 U	9 U	27 U	9.1 U	9 U	27 U	8.6 U	8.8 U	8.9 U	9.3 U	10 U			
Benzo(A)Anthracene		56-55-3	1000	5600	**130**	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
Benzo(A)Pyrene		50-32-8	1000	1000	**130**	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
Benzo(B)Fluoranthene		205-99-2	1000	5600	**260**	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
Benzo(K)Fluoranthene		207-08-9	800	56000	**65**	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
Chrysene		218-01-9	1000	56000	**170**	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
Dibenz(A,H)Anthracene		53-70-3	330	560	43 U	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
Indeno(1,2,3-C,D)Pyrene		193-39-5	500	5600	**120**	36 U	110 U	36 U	36 U	110 U	34 U	35 U	35 U	37 U	41 U			
SW9012B	mg/kg																	
Cyanide		57-12-5	27	27	0.31 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.25 U	0.25 U	0.26 U	0.27 U	**0.37**	**47**	0.29 U	**4.3**

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	**LP-01A**	**LP-01A**	**LP-01A**	**LP-01A**	**LP-02**	**LP-03**	**LP-03**	**LP-03**	**LP-05**	**LP-06**	**LP-06**
					Sample Name	**LP-1A (15'-17')**	**LP-1A (20'-22')**	**LP-1A (28'-30')**	**LP-1A (38'-40')**	**LP-2 (38'-40')**	**LP-3 (15'-17')**	**LP-3 (38'-40')**	**LP-3 (5'-7')**	**LP-5 (20'-22')**	**2015_06_23_DUP**	**LP-6 (15'-17')**
					Sample Date	**6/26/2015**	**6/26/2015**	**6/26/2015**	**6/26/2015**	**6/26/2015**	**6/24/2015**	**6/24/2015**	**6/24/2015**	**6/24/2015**	**6/23/2015**	**6/23/2015**
					Parent Sample										**LP-6 (20'-22')**	
Analyte	**Units**	**CAS No.**	**Unrestricted SCO**	**Commercial SCO**												
SW6010C	mg/kg															
Barium		7440-39-3	350	400		**13**	11 U	10 U	12 U	12 U	11 U	12 U	12 U	12 U	11 U	10 U
Copper		7440-50-8	50	270		**410**	**51**	**22**	**88**	**160**	**37**	**100**	6 U	**17**	**12 J**	**9.9**
Lead		7439-92-1	63	1000		**2000**	**270**	**26**	**58**	**59**	**41**	**12**	6 U	**22**	**170**	**47**
Manganese		7439-96-5	1600	10000		11 U	11 U	10 U	12 U	**15**	11 U	12 U	**61**	12 U	11 U	**96**
Nickel		7440-02-0	30	310		**6**	5.3 U	5.2 U	5.9 U	**45**	5.4 U	**29**	6 U	6.2 U	5.3 U	5.2 U
Zinc		7440-66-6	109	10000		11 U	11 U	10 U	12 U	**13**	11 U	12 U	12 U	12 U	11 U	10 U
SW6020A	mg/kg															
Cadmium		7440-43-9	2.5	9.3		0.46 U	0.42 U	0.41 U	0.47 U	0.47 U	0.43 U	0.48 U	0.48 U	0.5 U	0.42 U	0.42 U
Silver		7440-22-4	2	1500		**37**	**9.6**	**9.9**	**8.1**	0.24 U	**3.8**	0.24 U	0.24 U	**0.37**	**3.4**	**4.8**
SW7196	mg/kg															
Chromium, Hexavalent		18540-29-9	1	400		1.1 U	1.1 U	1 U	1.2 U	1.2 U	1.1 U	1.2 U	**1.4**	**1.4**	1.1 U	1 U
SW7471B	mg/kg															
Mercury		7439-97-6	0.18	2.8		**0.4**	0.088 U	0.086 U	0.098 U	0.098 U	0.091 U	0.099 U	0.1 U	0.1 U	0.088 U	0.087 U
SW8081B	ug/kg															
P,P'-DDD		72-54-8	3.3	92000									3 U			
P,P'-DDE		72-55-9	3.3	62000									3 U			
P,P'-DDT		50-29-3	3.3	47000									3 U			
SW8082	ug/kg															
Polychlorinated Biphenyl (PCBs)		1336-36-3	100	1000									30 U			
SW8260C	ug/kg															
1,1,1-Trichloroethane		71-55-6	680	500000		**5900**	**3.4**	**16**	1.7 U	2 U	1.8 U	2.1 U	2.1 U	2.6 U	**5.4**	**5.8**
Acetone		67-64-1	50	500000		540 U	48 U	66 U	8.7 U	110 U	47 U	34 U	40 U	13 U	9.7 U	9.5 U
Benzene		71-43-2	60	44000		54 U	0.85 U	0.89 U	0.87 U	1 U	0.92 U	1 U	1 U	1.3 U	0.97 U	0.95 U
Ethylbenzene		100-41-4	1000	390000		110 U	0.85 U	0.89 U	0.87 U	1 U	0.92 U	1 U	1 U	1.3 U	0.97 U	0.95 U
O-Xylene (1,2-Dimethylbenzene)		95-47-6	260	500000		110 U	0.85 U	0.89 U	0.87 U	1 U	0.92 U	1 U	1 U	1.3 U	0.97 U	0.95 U
Toluene		108-88-3	700	500000		**260**	**1**	0.89 U	0.87 U	1 U	0.92 U	1 U	1 U	1.3 U	0.97 U	0.95 U
Trichloroethylene (TCE)		79-01-6	470	200000		110 U	1.7 U	1.8 U	1.7 U	2 U	1.8 U	2.1 U	2.1 U	2.6 U	1.9 U	1.9 U
Xylenes		1330-20-7	260	500000		110 U	0.85 U	0.89 U	0.87 U	1 U	0.92 U	1 U	1 U	1.3 U	0.97 U	0.95 U
SW8270D	ug/kg															
4-Methylphenol (P-Cresol)		106-44-5	330	500000									10 U			
Benzo(A)Anthracene		56-55-3	1000	5600									40 U			
Benzo(A)Pyrene		50-32-8	1000	1000									40 U			
Benzo(B)Fluoranthene		205-99-2	1000	5600									40 U			
Benzo(K)Fluoranthene		207-08-9	800	56000									40 U			
Chrysene		218-01-9	1000	56000									40 U			
Dibenz(A,H)Anthracene		53-70-3	330	560									40 U			
Indeno(1,2,3-C,D)Pyrene		193-39-5	500	5600									40 U			
SW9012B	mg/kg															
Cyanide		57-12-5	27	27		**7.7**	0.25 U	0.25 U	0.28 U	0.28 U	0.26 U	0.29 U	0.29 U	0.3 U	0.25 U	0.25 U

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	**LP-06**	**LP-06**	**LP-06**	**LP-07**	**LP-07**	**LP-07**	**LP-08**	**LP-08**	**LP-08**	**LP-13**	**LP-19**	**LP-19**
					Sample Name	**LP-6 (20'-22')**	**LP-6 (38'-40')**	**LP-6 (5'-10')**	**LP-7 (15'-17')**	**LP-7 (20'-22')**	**LP-7 (28'-30')**	**LP-8 (15'-17')**	**LP-8 (20'-22')**	**LP-8 (5'-10')**	**LP-13 (28-30)**	**LP-19 (10'-11')**	**LP-19 (10-15)**
					Sample Date	**6/23/2015**	**6/23/2015**	**6/23/2015**	**6/23/2015**	**6/23/2015**	**6/23/2015**	**6/22/2015**	**6/22/2015**	**6/22/2015**	**6/29/2015**	**6/25/2015**	**7/9/2015**
					Parent Sample												
Analyte	**Units**	**CAS No.**	**Unrestricted SCO**	**Commercial SCO**													
SW6010C	mg/kg																
Barium		7440-39-3	350	400		13 U	11 U	**23**	10 U	12 U	11 U	10 U	10 U	11 U	11 U	**520**	**24**
Copper		7440-50-8	50	270		**54 J**	**150**	**28**	**18**	**9.7**	**11**	**220**	**120**	**410**	**60**	**730**	**73**
Lead		7439-92-1	63	1000		**400**	**32**	**20**	**120**	**71 J**	**65**	**290**	**200**	**640**	**28**	**1300**	**47**
Manganese		7439-96-5	1600	10000		13 U	11 U	**160**	10 U	12 U	11 U	10 U	**12**	**23**	**11**	**1700**	**210**
Nickel		7440-02-0	30	310		6.3 U	**11**	**6.4**	5.2 U	6.1 U	5.3 U	5.2 U	5.2 U	5.3 U	5.4 U	**60**	5.4 U
Zinc		7440-66-6	109	10000		13 U	**14**	**27**	10 U	12 U	11 U	10 U	10 U	11 U	11 U	**2600**	**240**
SW6020A	mg/kg																
Cadmium		7440-43-9	2.5	9.3		0.51 U	0.45 U	0.43 U	0.42 U	0.49 U	0.42 U	0.42 U	0.42 U	0.42 U	0.43 U	**21**	**1.5**
Silver		7440-22-4	2	1500		**5.4**	**0.38**	0.22 U	**2.3**	**4.2**	**2.6**	**10**	**6.3**	**12**	0.22 U	**0.45**	**0.33**
SW7196	mg/kg																
Chromium, Hexavalent		18540-29-9	1	400		1.3 U	1.1 U	1.1 U	1 U	1.2 U	1.1 U	1 U	1 U	1.1 U	1.1 U	1.6 U	1.1 U
SW7471B	mg/kg																
Mercury		7439-97-6	0.18	2.8		0.11 U	0.095 U	**0.13**	0.087 U	0.1 UJ	0.088 U	0.087 U	0.087 U	**0.1**	0.09 U	**0.72**	**0.2**
SW8081B	ug/kg																
P,P'-DDD		72-54-8	3.3	92000				3.8 U						2.6 U			
P,P'-DDE		72-55-9	3.3	62000				**26**						2.6 U			
P,P'-DDT		50-29-3	3.3	47000				**54**						2.6 U			
SW8082	ug/kg																
Polychlorinated Biphenyl (PCBs)		1336-36-3	100	1000				**55**						26 U			
SW8260C	ug/kg																
1,1,1-Trichloroethane		71-55-6	680	500000		**6.1**	2 U	**18**	2.6 U	2.5 U	2.2 U	1.8 U	**1.9**	1.9 U	1.8 U	**3300**	**22**
Acetone		67-64-1	50	500000		12 U	9.8 U	8.4 U	13 U	13 U	11 U	44 U	79 U	23 U	28 U	820 U	9.8 U
Benzene		71-43-2	60	44000		1.2 U	0.98 U	0.84 U	1.3 U	1.3 U	1.1 U	0.89 U	0.86 U	0.94 U	0.92 U	82 U	0.98 U
Ethylbenzene		100-41-4	1000	390000		1.2 U	0.98 U	0.84 U	1.3 U	1.3 U	1.1 U	0.89 U	0.86 U	0.94 U	0.92 U	160 U	0.98 U
O-Xylene (1,2-Dimethylbenzene)		95-47-6	260	500000		1.2 U	0.98 U	0.84 U	1.3 U	1.3 U	1.1 U	0.89 U	0.86 U	0.94 U	0.92 U	160 U	0.98 U
Toluene		108-88-3	700	500000		1.2 U	0.98 U	0.84 U	1.3 U	1.3 U	1.1 U	0.89 U	0.86 U	0.94 U	0.92 U	160 U	0.98 U
Trichloroethylene (TCE)		79-01-6	470	200000		2.4 U	2 U	1.7 U	2.6 U	2.5 U	2.2 U	**2.8**	1.7 U	**3.6**	1.8 U	**760**	**27**
Xylenes		1330-20-7	260	500000		1.2 U	0.98 U	0.84 U	1.3 U	1.3 U	1.1 U	0.89 U	0.86 U	0.94 U	0.92 U	160 U	0.98 U
SW8270D	ug/kg																
4-Methylphenol (P-Cresol)		106-44-5	330	500000				9.1 U						8.8 U			
Benzo(A)Anthracene		56-55-3	1000	5600				**38**						35 U			
Benzo(A)Pyrene		50-32-8	1000	1000				**41**						35 U			
Benzo(B)Fluoranthene		205-99-2	1000	5600				**63**						35 U			
Benzo(K)Fluoranthene		207-08-9	800	56000				36 U						35 U			
Chrysene		218-01-9	1000	56000				**40 J**						35 U			
Dibenz(A,H)Anthracene		53-70-3	330	560				36 U						35 U			
Indeno(1,2,3-C,D)Pyrene		193-39-5	500	5600				36 U						35 U			
SW9012B	mg/kg																
Cyanide		57-12-5	27	27		0.3 U	0.27 U	0.26 U	0.25 U	0.29 U	0.25 U	**0.3**	0.25 U	0.25 U	0.26 U	**0.6**	0.26 U

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	LP-19	LP-19	LP-20	LP-20	LP-22	LP-22	LP-25	LP-26	LP-26	MW-01S	MW-03	MW-04
					Sample Name	LP-19 (20-22)	LP-19 (28-30)	LP-20 (15-17)	LP-20 (30-32)	LP-22 (15-17)	LP-22 (20-22)	LP-25 (20-22)	LP-26 (15-17)	LP-26 (20-22)	MW-1 (0-2)	MW-3 (0-2)	MW-4 (0-2)
					Sample Date	7/9/2015	7/9/2015	7/7/2015	7/7/2015	6/29/2015	6/29/2015	6/30/2015	6/30/2015	6/30/2015	7/13/2015	7/13/2015	7/13/2015
					Parent Sample												
Analyte	**Units**	**CAS No.**	**Unrestricted SCO**	**Commercial SCO**													
SW6010C	mg/kg																
Barium		7440-39-3	350	400	10 U	10 U	10 U	11 U	11 U	11 U	12 U	**31**	**11 J**	**19**	**32**	**30**
Copper		7440-50-8	50	270	**62**	**52**	**450**	**61**	**55 J**	**53**	**70**	**240**	**55**	**6.7**	**110**	**8.4**
Lead		7439-92-1	63	1000	**33**	**18**	**140**	**21**	5.3 U	5.3 U	**56**	**140**	5.6 U	**18**	**49**	**31**
Manganese		7439-96-5	1600	10000	10 U	10 U	**39**	**39**	11 U	**11**	**73**	**330**	**20 J**	**78**	**150**	**150**
Nickel		7440-02-0	30	310	5.2 U	5.2 U	**12**	5.6 U	5.3 U	5.3 U	6.2 U	**19**	5.6 U	5.4 U	11 U	**8.6**
Zinc		7440-66-6	109	10000	10 U	10 U	**18**	11 U	11 U	11 U	12 U	**380**	**12**	**22**	**48**	**38**
SW6020A	mg/kg																
Cadmium		7440-43-9	2.5	9.3	0.42 U	0.42 U	0.42 U	0.45 U	0.43 U	0.42 U	0.5 U	0.49 U	0.44 U	0.43 U	**0.81**	0.44 U
Silver		7440-22-4	2	1500	**0.64**	**0.61**	**0.8**	0.22 U	0.21 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.22 U	0.22 U
SW7196	mg/kg																
Chromium, Hexavalent		18540-29-9	1	400	1 U	1 U	1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U
SW7471B	mg/kg																
Mercury		7439-97-6	0.18	2.8	0.087 U	0.087 U	**0.1**	0.094 U	0.089 U	0.088 U	0.1 U	0.1 U	0.093 U	0.09 U	0.09 U	0.093 U
SW8081B	ug/kg																
P,P'-DDD		72-54-8	3.3	92000										2.7 U	2.7 U	2.8 U
P,P'-DDE		72-55-9	3.3	62000										**4.8**	**5**	**3.5**
P,P'-DDT		50-29-3	3.3	47000										2.7 U	5.6 U	2.8 U
SW8082	ug/kg																
Polychlorinated Biphenyl (PCBs)		1336-36-3	100	1000										27 U	**97**	28 U
SW8260C	ug/kg																
1,1,1-Trichloroethane		71-55-6	680	500000	1.9 U	1.9 U	1.8 U	1.7 U	1.9 U	2.1 U	2.3 U	1.9 U	1.9 U	1.9 U	1.7 U	1.8 U
Acetone		67-64-1	50	500000	26 U	40 U	9.1 U	8.7 U	36 U	41 U	11 U	9.6 U	9.5 U	99 U	8.4 U	9 U
Benzene		71-43-2	60	44000	0.94 U	0.95 U	0.91 U	0.87 U	0.97 U	1 U	1.1 U	0.96 U	0.95 U	0.97 U	0.84 U	0.9 U
Ethylbenzene		100-41-4	1000	390000	0.94 U	0.95 U	0.91 U	0.87 U	0.97 U	1 U	1.1 U	0.96 U	0.95 U	0.97 U	0.84 U	0.9 U
O-Xylene (1,2-Dimethylbenzene)		95-47-6	260	500000	0.94 U	0.95 U	0.91 U	0.87 U	0.97 U	1 U	1.1 U	0.96 U	0.95 U	0.97 U	0.84 U	0.9 U
Toluene		108-88-3	700	500000	0.94 U	0.95 U	0.91 U	0.87 U	0.97 U	1 U	1.1 U	0.96 U	0.95 U	0.97 U	0.84 U	0.9 U
Trichloroethylene (TCE)		79-01-6	470	200000	1.9 U	1.9 U	**2.6**	1.7 U	1.9 U	2.1 U	2.3 U	1.9 U	1.9 U	1.9 U	1.7 U	1.8 U
Xylenes		1330-20-7	260	500000	0.94 U	0.95 U	0.91 U	0.87 U	0.97 U	1 U	1.1 U	0.96 U	0.95 U	0.97 U	0.84 U	0.9 U
SW8270D	ug/kg																
4-Methylphenol (P-Cresol)		106-44-5	330	500000										9 U	18 U	9.3 U
Benzo(A)Anthracene		56-55-3	1000	5600										36 U	**280**	37 U
Benzo(A)Pyrene		50-32-8	1000	1000										36 U	**300**	37 U
Benzo(B)Fluoranthene		205-99-2	1000	5600										36 U	**410**	37 U
Benzo(K)Fluoranthene		207-08-9	800	56000										36 U	**120**	37 U
Chrysene		218-01-9	1000	56000										36 U	**240**	37 U
Dibenz(A,H)Anthracene		53-70-3	330	560										36 U	72 U	37 U
Indeno(1,2,3-C,D)Pyrene		193-39-5	500	5600										36 U	**200**	37 U
SW9012B	mg/kg																
Cyanide		57-12-5	27	27	0.25 U	0.25 U	**0.39**	0.27 U	0.26 U	0.25 U	0.3 U	0.29 U	0.27 U	0.26 U	0.26 U	0.27 U

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	MW-05	MW-05S	SB-04	SW-01	SW-02	SW-03	SW-04	SW-05	SW-05	SW-05	SW-06	SW-07
					Sample Name	2015_07-14 DUP	MW-5 (0-2)	SB-4 (0-2)	SW-1 (18-20)	SW-2 (15-16)	SW-3 (8-9)	SW-4 (9-10)	SW-5 (19-21)	SW-5 (21-25)	SW-5 (38-40)	SW-6 (10-11)	SW-7 (10-11)
					Sample Date	7/14/2015	7/14/2015	7/7/2015	7/13/2015	7/1/2015	7/1/2015	6/30/2015	7/9/2015	7/9/2015	7/9/2015	6/30/2015	6/30/2015
					Parent Sample	MW-5 (0-2)-5071505											
Analyte	**Units**	**CAS No.**	**Unrestricted SCO**	**Commercial SCO**													
SW6010C	mg/kg																
Barium		7440-39-3	350	400	**17**	**18**	10 U	**14**	**27**	**15**	**44**	**52**	11 U	11 U	**42**	13 U
Copper		7440-50-8	50	270	**9.6**	**7.5**	5.2 U	**63**	**110**	**120**	**340**	**300**	**6.9**	**120**	**360**	**28**
Lead		7439-92-1	63	1000	**20**	**19**	**21**	**12**	**21**	**28**	**110**	**100**	**16**	**39**	**110**	**8.4**
Manganese		7439-96-5	1600	10000	**95**	**110**	**53 J**	**48**	**110**	**40**	**56**	**140**	**29**	11 U	**70**	**15**
Nickel		7440-02-0	30	310	**7**	5.4 U	**6.7**	6.3 U	**13**	**7.6**	**23**	**22**	5.6 U	**6.1**	**21**	6.4 U
Zinc		7440-66-6	109	10000	**32**	**29**	**22 J**	**110**	**200**	**190**	**710**	**420**	11 U	11 U	**420**	**34**
SW6020A	mg/kg																
Cadmium		7440-43-9	2.5	9.3	0.43 U	0.43 U	0.42 U	0.51 U	0.51 U	0.6 U	**1.3**	0.6 U	0.44 U	0.45 U	**1.4**	0.51 U
Silver		7440-22-4	2	1500	**0.65**	0.22 U	0.21 U	0.25 U	0.26 U	**0.35**	**0.44**	0.3 U	0.22 U	**1.5**	**0.35**	0.26 U
SW7196	mg/kg																
Chromium, Hexavalent		18540-29-9	1	400	1.1 U	1.1 U	1 U	1.3 U	1.3 U	1.5 U	1.7 U	1.5 U	1.1 U	1.1 U	1.5 U	1.3 U
SW7471B	mg/kg																
Mercury		7439-97-6	0.18	2.8	0.09 U	0.09 U	0.087 U	0.11 U	0.11 U	0.12 U	**0.23**	0.12 U	0.093 U	0.094 U	**0.36**	0.11 U
SW8081B	ug/kg																
P,P'-DDD		72-54-8	3.3	92000	2.7 U	2.7 U	2.6 U					7.5 U	2.8 U	2.8 U		
P,P'-DDE		72-55-9	3.3	62000	**25**	**30**	2.6 U					7.5 U	2.8 U	2.8 U		
P,P'-DDT		50-29-3	3.3	47000	14 U	15 U	**4.5**					7.5 U	2.8 U	2.8 U		
SW8082	ug/kg																
Polychlorinated Biphenyl (PCBs)		1336-36-3	100	1000	**230**	**290**	26 U					37 U	28 U	28 U		
SW8260C	ug/kg																
1,1,1-Trichloroethane		71-55-6	680	500000	**5.3**	**5.2**	**6.2**	2.5 U	1.8 U	2.2 U	3.1 U	**350000**	**1000**	1.9 U	2.2 U	100 U
Acetone		67-64-1	50	500000	90 U	52 U	8.8 U	100 U	100 U	11 U	220 U	11000 U	460 U	38 U	130 U	500 U
Benzene		71-43-2	60	44000	0.98 U	0.85 U	0.88 U	1.3 U	0.92 U	1.1 U	1.5 U	1100 U	46 U	0.95 U	1.1 U	50 U
Ethylbenzene		100-41-4	1000	390000	0.98 U	0.85 U	0.88 U	1.3 U	0.92 U	1.1 U	1.5 U	2200 U	93 U	0.95 U	1.1 U	**3800**
O-Xylene (1,2-Dimethylbenzene)		95-47-6	260	500000	0.98 U	0.85 U	0.88 U	1.3 U	0.92 U	1.1 U	1.5 U	2200 U	93 U	0.95 U	1.1 U	**9600**
Toluene		108-88-3	700	500000	0.98 U	0.85 U	0.88 U	**7.3**	0.92 U	1.1 U	**120**	2200 U	93 U	0.95 U	1.1 U	**1600**
Trichloroethylene (TCE)		79-01-6	470	200000	2 U	1.7 U	**2.6 J**	2.5 U	1.8 U	2.2 U	3.1 U	2200 U	93 U	1.9 U	2.2 U	100 U
Xylenes		1330-20-7	260	500000	0.98 U	0.85 U	0.88 U	1.3 U	0.92 U	1.1 U	1.5 U	2200 U	93 U	0.95 U	**1.5**	**26600**
SW8270D	ug/kg																
4-Methylphenol (P-Cresol)		106-44-5	330	500000	9 U	9 U	8.7 R	21 U	110 U	75 U	86 U	62 U	9.3 U	9.4 U	76 U	64 U
Benzo(A)Anthracene		56-55-3	1000	5600	36 U	36 U	35 UJ	**110**	430 U	**350**	**1800**	**400**	37 U	37 U	**1400**	260 U
Benzo(A)Pyrene		50-32-8	1000	1000	36 U	36 U	35 UJ	**130**	430 U	**420**	**2000**	**510**	37 U	37 U	**1400**	260 U
Benzo(B)Fluoranthene		205-99-2	1000	5600	36 U	36 U	35 UJ	**310**	430 U	**710**	**3500**	**1200**	37 U	37 U	**2400**	260 U
Benzo(K)Fluoranthene		207-08-9	800	56000	36 U	36 U	35 UJ	84 U	430 U	300 U	**890**	**410**	37 U	37 U	**740**	260 U
Chrysene		218-01-9	1000	56000	36 U	36 U	35 UJ	**260**	430 U	**570**	**2800**	**1000**	37 U	37 U	**1900**	260 U
Dibenz(A,H)Anthracene		53-70-3	330	560	36 U	36 U	35 UJ	84 U	430 U	300 U	**400**	250 U	37 U	37 U	**310**	260 U
Indeno(1,2,3-C,D)Pyrene		193-39-5	500	5600	36 U	36 U	35 UJ	**120**	430 U	**340**	**1400**	**500**	37 U	37 U	**1100**	260 U
SW9012B	mg/kg																
Cyanide		57-12-5	27	27	0.26 U	0.26 U	0.25 U	0.3 U	0.31 U	0.36 U	**0.63**	0.36 U	**0.44**	0.27 U	0.36 U	0.31 U

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	**SW-08**	**SW-10**
					Sample Name	**SW-8 (10-11)**	**SW-10 (12-14)**
					Sample Date	**7/1/2015**	**7/9/2015**
					Parent Sample		
Analyte	**Units**	**CAS No.**	**Unrestricted SCO**	**Commercial SCO**			
SW6010C	mg/kg						
Barium		7440-39-3	350	400		**33**	**15**
Copper		7440-50-8	50	270		**72**	**350**
Lead		7439-92-1	63	1000		**40**	**120**
Manganese		7439-96-5	1600	10000		**82**	**86**
Nickel		7440-02-0	30	310		**10**	**18**
Zinc		7440-66-6	109	10000		**200**	**130**
SW6020A	mg/kg						
Cadmium		7440-43-9	2.5	9.3		**1.6**	0.49 U
Silver		7440-22-4	2	1500		0.33 U	**1.1**
SW7196	mg/kg						
Chromium, Hexavalent		18540-29-9	1	400		1.7 U	1.2 U
SW7471B	mg/kg						
Mercury		7439-97-6	0.18	2.8		**0.15**	**0.2**
SW8081B	ug/kg						
P,P'-DDD		72-54-8	3.3	92000			
P,P'-DDE		72-55-9	3.3	62000			
P,P'-DDT		50-29-3	3.3	47000			
SW8082	ug/kg						
Polychlorinated Biphenyl (PCBs)		1336-36-3	100	1000			
SW8260C	ug/kg						
1,1,1-Trichloroethane		71-55-6	680	500000		2.4 U	1.8 U
Acetone		67-64-1	50	500000		120 U	120 U
Benzene		71-43-2	60	44000		1.2 U	0.88 U
Ethylbenzene		100-41-4	1000	390000		1.2 UJ	0.88 U
O-Xylene (1,2-Dimethylbenzene)		95-47-6	260	500000		1.2 UJ	0.88 U
Toluene		108-88-3	700	500000		**16**	**1.4**
Trichloroethylene (TCE)		79-01-6	470	200000		2.4 U	1.8 U
Xylenes		1330-20-7	260	500000		1.2 UJ	0.88 U
SW8270D	ug/kg						
4-Methylphenol (P-Cresol)		106-44-5	330	500000		**370**	31 U
Benzo(A)Anthracene		56-55-3	1000	5600		**580**	**650**
Benzo(A)Pyrene		50-32-8	1000	1000		**610**	**630**
Benzo(B)Fluoranthene		205-99-2	1000	5600		**1300**	**940**
Benzo(K)Fluoranthene		207-08-9	800	56000		560 U	**370**
Chrysene		218-01-9	1000	56000		**1300**	**820**
Dibenz(A,H)Anthracene		53-70-3	330	560		560 U	**120**
Indeno(1,2,3-C,D)Pyrene		193-39-5	500	5600		**560**	**450**
SW9012B	mg/kg						
Cyanide		57-12-5	27	27		**0.58 J**	0.3 U

Table 2-3
Summary of Soil Analytical Results Above Unrestricted and Commercial-Use Soil Clean-Up Objectives
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

Notes:

Analytes in blue are not detected in any sample
mg/kg = milligrams/kilogram or parts per million (ppm)
ug/kg - micrograms/kilogram or parts per billion (ppb)
su = standard units

PCB = Polychlorinated Biphenyl

Total VOCs and Total SVOCs are calculated using detects only.
6 NYCRR = New York State Register and Official Compilation of Codes, Rules and Regulations of the State of New York
Comparison of detected results are performed against one or more of the following NYCRR, Chapter IV, Part 375-6 Soil Cleanup Objectives (SCO)s: Unrestricted Use, Residential, Restricted-Residential, Commercial, Industrial, Protection of Ecological Resources, or Protection of Groundwater

CAS No. = Chemical Abstracts Service Number
NE = Not Established

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the NYSDEC guidance it was compared to
Gray shading and bolding indicates that the detected result value exceeds the Unrestricted SCO
Yellow shading and bolding indicates that the detected result value exceeds both Unrestricted SCO and the Commercial SCO

Data Qualifiers:
J- = The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as potential false positive and/or elevated quantitative value.
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ = The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.

Table 2-4
Summary of Groundwater Analytical Results Above NYSDEC Class GA Standards/Guidance Values
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

			Location Name	MW-05S	MW-05S	MW-05S	MW-05S	MW-06	MW-06	MW-01S	MW-01D	MW-02	MW-03	MW-05S	MW-05D	MW-05D
			Sample Name	2015-07-21 DUP	GWP-5 (35)	GWP-5 (40)	GWP-5 (45)	GWP-6 (35)	GWP-6 (40)	MW-1S	MW-1D	MW-2	MW-3	MW-5S	MW-5D	2015_08_19-DUP
			Start Depth	33	33	38	43	33	38	28	40	40	40	28	40	40
			End Depth	37	37	42	47	37	42	38	45	45	45	38	45	45
			Depth Unit	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft
			Sample Date	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	8/18/2015	8/18/2015	8/20/2015	8/20/2015	8/19/2015	8/19/2015	8/19/2015
			Parent Sample	GWP-5 (35)-5072118												MW-5D_5081822
Analyte	**Units**	**CAS No.**	**NYS AWQS**													
SW6010C	ug/l															
Copper		7440-50-8	200	**150**	**170**	50 U	**730**	**110**	**110**	**470**	**960**	50 U	50 U	**220**	**120**	**130**
Iron		7439-89-6	300	**2600**	**2100**	**14000**	**2600**	**5600**	**4200**	**460**	**340**	300 U	300 U	300 U	**12000**	**11000**
Manganese		7439-96-5	300	40 U	40 U	**130**	**270**	**83**	**340**	**67**	**96**	**72**	**1200**	40 U	**150**	**150**
Nickel		7440-02-0	100	**160**	**150**	50 U	**570**	50 U	50 U	50 U	50 U	50 U	50 U	**78**	**450**	**440**
Sodium		7440-23-5	20000	**16000**	**15000**	**15000**	**16000**	**23000**	**22000**	**24000**	**31000**	**62000**	**29000**	**13000**	**26000**	**25000**
SW6020A	ug/l															
Cadmium		7440-43-9	5	2 U	2 U	2 U	**6.7**	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**2.3**	2 U
Lead		7439-92-1	25	3 U	3 U	3 U	**170**	3 U	3 U	3 U	**11**	3 U	3 U	**7.5**	**23**	**24**
Thallium		7440-28-0	0.5*	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	**2.4**	2 U
SW8260C	ug/l															
1,1,1-Trichloroethane		71-55-6	5	**990**	**900**	**4.9**	**7.4**	1 U	1 U	**2.2**	1 U	1 U	1 U	**1600**	1 U	1 U
1,1-Dichloroethane		75-34-3	5	**38**	**44**	**1.2**	1 U	1 U	1 U		1 U	1 U	1 U	**250**	1 U	1 U

Table 2-4
Summary of Groundwater Analytical Results Above NYSDEC Class GA Standards/Guidance Values
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

Notes:

Analytes in blue are not detected in any sample
ug/L = micrograms per liter or parts per billion (ppb)

NYS AWQS = New York State Ambient Water Quality Standards and Guidance Values for GA groundwater
* indicates the value is a guidance value and not a standard

CAS No. = Chemical Abstracts Service Number
NE = Not Established

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the NYSDEC guidance it was compared to
Gray shading and bolding indicates that the detected result value exceeds the NYS AWQS

Data Qualifiers:
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.

Table 2-5
Summary of Air Analytical Results
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	**AMB-01**	**IA-01**	**IA-02**	**IA-03**	**IA-04**	**SS-01**	**SS-02**	**SS-03**	**SS-04**	**SS-05**	**SS-06**	**SS-07**	**SS-08**
					Sample Name	**AMB-1**	**IA-1**	**IA-2**	**IA-3**	**IA-4**	**SS-1**	**SS-2**	**SS-3**	**SS-4**	**SS-5**	**SS-6**	**SS-7**	**SS-8**
					Sample Date	**8/12/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**
Analyte	**Units**	**CAS No.**	**EPA BASE Indoor Air Concentrations 95th Percentile[2]**	**NYDOH Table3.1**														
SSO Air	ug/m^3																	
1,1,1-Trichloroethane		71-55-6	33	NE		1.1 U	**2.8 J**	**110**	**6.4**	**5.5 J**	**29000**	**280000**	**36000**	**1100**	**2200**	**160**	**7900**	**5000**
1,1,2,2-Tetrachloroethane		79-34-5	NE	NE		1.4 U	5.5 U	11 U	6.9 U	11 U	410 U	5000 U	470 U	16 U	21 U	1.4 U	110 U	66 U
1,1,2-Trichloro-1,2,2-Trifluoroethane		76-13-1	NE	NE		1.5 U	6.1 U	12 U	7.7 U	12 U	450 U	5600 U	520 U	18 U	23 U	**0.62 J**	120 U	73 U
1,1,2-Trichloroethane		79-00-5	1.6	NE		1.1 U	4.4 U	8.7 U	5.5 U	8.7 U	**99 J**	4000 U	**150 J**	13 U	17 U	1.1 U	86 U	52 U
1,1-Dichloroethane		75-34-3	0.8	NE		0.81 U	3.2 U	**1.9 J**	4.1 U	6.5 U	**960**	**5100**	**5400**	**180**	**32**	**1.9**	**300**	**490**
1,1-Dichloroethene		75-35-4	1.6	NE		0.79 U	3.2 U	6.3 U	4 U	6.3 U	**930**	**1500 J**	**900**	**13**	**6.8 J**	**0.81**	**53 J**	**44**
1,2,4-Trichlorobenzene		120-82-1	7.2	NE		3.7 U	15 U	30 U	19 U	30 U	1100 U	14000 U	1300 U	45 U	56 U	3.7 U	290 U	180 U
1,2,4-Trimethylbenzene		95-63-6	13.7	NE		0.98 U	**8.2**	**15**	**6**	**5.9 J**	**40 J**	3600 U	340 U	**23**	**2.8 J**	**3.1**	78 U	**130**
1,2-Dibromoethane (Ethylene Dibromide)		106-93-4	1.6	NE		1.5 U	6.1 U	12 U	7.7 U	12 U	450 U	5600 U	520 U	18 U	23 U	1.5 U	120 U	73 U
1,2-Dichlorobenzene		95-50-1	1.3	NE		1.2 U	4.8 U	9.6 U	6.1 U	9.6 U	350 U	4400 U	410 U	14 U	18 U	1.2 U	95 U	57 U
1,2-Dichloroethane		107-06-2	1	NE		0.81 U	3.2 U	6.5 U	4.1 U	6.5 U	240 U	2900 U	280 U	9.7 U	12 U	0.81 U	64 U	39 U
1,2-Dichloropropane		78-87-5	1.7	NE		0.92 U	3.7 U	7.4 U	4.7 U	7.4 U	270 U	3400 U	320 U	11 U	14 U	0.92 U	73 U	44 U
1,2-Dichlorotetrafluoroethane		76-14-2	NE	NE		1.4 U	5.6 U	11 U	7 U	11 U	410 U	5100 U	480 U	17 U	21 U	1.4 U	110 U	67 U
1,3,5-Trimethylbenzene (Mesitylene)		108-67-8	4.6	NE		0.98 U	**2.1 J**	**4.1 J**	**1.6 J**	**1.9 J**	290 U	3600 U	340 U	**5 J**	15 U	**0.8 J**	78 U	**35 J**
1,3-Butadiene		106-99-0	7.5	NE		0.44 U	1.8 U	3.5 U	2.2 U	3.5 U	130 U	1600 U	150 U	5.3 U	6.7 U	0.44 U	35 U	21 U
1,3-Dichlorobenzene		541-73-1	2.5	NE		1.2 U	4.8 U	9.6 U	6.1 U	9.6 U	350 U	4400 U	410 U	14 U	18 U	1.2 U	95 U	57 U
1,4-Dichlorobenzene		106-46-7	12.5	NE		1.2 U	**0.82 J**	9.6 U	6.1 U	9.6 U	350 U	4400 U	410 U	14 U	18 U	1.2 U	95 U	57 U
1,4-Dioxane (P-Dioxane)		123-91-1	NE	NE		18 U	**9 J**	140 U	91 U	140 U	**480 J**	66000 U	6100 U	220 U	270 U	**0.72 J**	1400 U	860 U
2,2,4-Trimethylpentane		540-84-1	NE	NE		0.93 U	3.7 U	7.5 U	4.7 U	7.5 U	280 U	3400 U	320 U	11 U	14 U	**0.42 J**	74 U	45 U
2-Chlorotoluene		95-49-8	NE	NE		1 U	4.1 U	8.3 U	5.2 U	8.3 U	310 U	3800 U	350 U	12 U	16 U	1 U	82 U	49 U
2-Hexanone		591-78-6	NE	NE		2 U	8.2 U	16 U	10 U	16 U	600 U	7500 U	700 U	25 U	31 U	2 U	160 U	98 U
4-Ethyltoluene		622-96-8	5.9	NE		0.98 U	**1.4 J**	**3.1 J**	**1.1 J**	**1.4 J**	290 U	3600 U	340 U	**3.5 J**	15 U	**0.55 J**	78 U	**29 J**
Acetone		67-64-1	120.2	NE		**20**	**210**	**500**	**270**	**410**	3500 U	43000 U	4100 U	140 U	**40 J**	**63**	940 U	570 U
Allyl Chloride (3-Chloropropene)		107-05-1	NE	NE		1.6 U	6.3 U	13 U	7.9 U	13 U	460 U	5700 U	530 U	19 U	24 U	1.6 U	120 U	75 U
Benzene		71-43-2	12.5	NE		0.64 U	**0.62 J**	5.1 U	**0.96 J**	**0.82 J**	190 U	2300 U	220 U	**2.3 J**	9.7 U	**0.54 J**	51 U	31 U
Benzyl Chloride		100-44-7	7.2	NE		1 U	4.1 U	8.3 U	5.2 U	8.3 U	310 U	3800 U	350 U	12 U	16 U	1 U	82 U	49 U
Bromodichloromethane		75-27-4	NE	NE		1.3 U	5.4 U	11 U	6.8 U	11 U	400 U	4900 U	460 U	16 U	20 U	1.3 U	110 U	64 U
Bromoform		75-25-2	NE	NE		2.1 UT	8.3 UT	17 UT	10 UT	17 UT	610 U	7500 U	710 U	25 U	31 U	2.1 U	160 U	99 U
Bromomethane		74-83-9	2.1	NE		0.78 U	3.1 U	6.2 U	3.9 U	6.2 U	230 U	2800 U	260 U	9.3 U	12 U	0.78 U	62 U	37 U
Carbon Disulfide		75-15-0	6.4	NE		**9.2**	**5.1 J**	12 U	**6.8 J**	**3.6 J**	**80 J**	5700 U	530 U	**9.7 J**	**1.9 J**	**6.9**	120 U	74 U
Carbon Tetrachloride		56-23-5	0.7	NE		**0.097 J**	1 U	2 U	1.3 U	**0.6 NJ**	74 U	920 U	86 U	3 U	3.8 U	**0.31 NJ**	20 U	12 U
Chlorobenzene		108-90-7	1	NE		0.92 U	3.7 U	7.4 U	4.6 U	7.4 U	270 U	3400 U	310 U	11 U	14 U	0.92 U	73 U	44 U
Chloroethane		75-00-3	1.3	NE		1.3 U	5.3 U	11 U	6.6 U	11 U	**82 J**	4800 U	450 U	**3.8 J**	20 U	1.3 U	100 U	63 U
Chloroform		67-66-3	1.4	NE		0.98 U	3.9 U	7.8 U	4.9 U	7.8 U	**570**	3600 U	**77 J**	**16**	**31**	**3.1**	**94**	**150**
Chloromethane		74-87-3	4.4	NE		**1.1**	**1.9 J**	**2.2 J**	**0.99 J**	**1.3 J**	**59 J**	3800 U	**41 J**	12 U	**2.4 J**	**1.3**	82 U	49 U
Cis-1,2-Dichloroethylene		156-59-2	2	NE		0.79 U	3.2 U	6.3 U	4 U	6.3 U	**210 J**	2900 U	**8500**	**280**	12 U	0.79 U	63 U	38 U
Cis-1,3-Dichloropropene		10061-01-5	2.5	NE		0.91 U	3.6 U	7.3 U	4.6 U	7.3 U	270 U	3300 U	310 U	11 U	14 U	0.91 U	72 U	43 U
Cyclohexane		110-82-7	NE	NE		**0.28 J**	**1.1 J**	**10**	**4.1**	**11**	200 U	2500 U	230 U	**83**	10 U	0.69 U	55 U	33 U

Table 2-5
Summary of Air Analytical Results
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	**AMB-01**	**IA-01**	**IA-02**	**IA-03**	**IA-04**	**SS-01**	**SS-02**	**SS-03**	**SS-04**	**SS-05**	**SS-06**	**SS-07**	**SS-08**
					Sample Name	**AMB-1**	**IA-1**	**IA-2**	**IA-3**	**IA-4**	**SS-1**	**SS-2**	**SS-3**	**SS-4**	**SS-5**	**SS-6**	**SS-7**	**SS-8**
					Sample Date	**8/12/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**	**8/11/2015**
Analyte	**Units**	**CAS No.**	**EPA BASE Indoor Air Concentrations 95th Percentile[2]**	**NYDOH Table3.1**														
SSO Air	ug/m^3																	
Dibromochloromethane		124-48-1	NE	NE		1.7 U	6.8 U	14 U	8.6 U	14 U	500 U	6200 U	580 U	20 U	26 U	1.7 U	130 U	81 U
Dichlorodifluoromethane		75-71-8	32.9	NE		**2.2 J**	**2.3 J**	**2.5 J**	**3.3 J**	**2.8 J**	730 U	9000 U	840 U	**4.8 J**	38 U	**2.4 J**	200 U	120 U
Ethanol		64-17-5	290	NE		**5 J**	**19 J**	**56 J**	**18 J**	**43 J**	2800 U	34000 U	3200 U	**34 J**	**100 J**	**34**	750 U	**140 J**
Ethyl Acetate		141-78-6	9.5	NE		18 U	72 U	140 U	91 U	140 U	5300 U	66000 U	6100 U	220 U	270 U	18 U	1400 U	860 U
Ethylbenzene		100-41-4	7.6	NE		0.87 U	**1.3 J**	**4.1 J**	**0.81 J**	**0.93 J**	260 U	3200 U	300 U	**2.2 J**	13 U	**0.51 J**	69 U	**16 J**
Hexachlorobutadiene		87-68-3	7.2	NE		2.1 U	8.5 U	17 U	11 U	17 U	630 U	7800 U	730 U	26 U	32 U	2.1 U	170 U	100 U
Isopropanol		67-63-0	475	NE		**0.53 J**	**19 J**	**19 J**	**19 J**	**21 J**	3600 U	45000 U	4200 U	150 U	190 U	**3.5 J**	970 U	590 U
m,p-Xylene		179601-23-1	NE	NE		2.2 U	**3.5 J**	**18**	**2.6 J**	**2.5 J**	640 U	7900 U	740 U	**9.1 J**	33 U	**2.1 J**	170 U	**57 J**
Methyl Ethyl Ketone (2-Butanone)		78-93-3	13.5	NE		**0.89 J**	**6.4**	**8.5 J**	**4.6 J**	**5 J**	440 U	5400 U	500 U	18 U	**5.6 J**	**6.6**	120 U	70 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)		108-10-1	8.1	NE		2 U	8.2 U	16 U	10 U	16 U	600 U	7500 U	700 U	25 U	31 U	**1.1 J**	160 U	98 U
Methylene Chloride		75-09-2	16	60		1.7 U	6.9 U	27 U	8.8 U	15 U	710 U	6300 U	590 U	37 U	7 U	3.2 U	140 U	83 U
N-Heptane		142-82-5	NE	NE		0.82 U	3.3 U	**4.7 J**	4.1 U	6.6 U	240 U	3000 U	280 U	9.8 U	12 U	0.82 U	65 U	39 U
N-Hexane		110-54-3	15.2	NE		0.7 U	**1.4 J**	5.6 U	**2 J**	**1 J**	210 U	2600 U	240 U	**3.7 J**	11 U	0.7 U	56 U	34 U
O-Xylene (1,2-Dimethylbenzene)		95-47-6	11.2	NE		0.87 U	**1.4 J**	**6.9**	**1.2 J**	**1.2 J**	260 U	3200 U	300 U	**5.4 J**	13 U	**0.96**	69 U	**26 J**
Propylene		115-07-1	NE	NE		8.6 U	34 U	69 U	43 U	69 U	2500 U	31000 U	2900 U	**49 J**	**13 NJ**	8.6 U	680 U	410 U
Styrene		100-42-5	4.3	NE		0.85 U	**0.35 J**	**4 J**	4.3 U	6.8 U	250 U	3100 U	290 U	10 U	13 U	**0.11 J**	67 U	41 U
Tert-Butyl Alcohol		75-65-0	NE	NE		15 U	61 U	120 U	76 U	120 U	4500 U	55000 U	5200 U	180 U	230 U	**1.2 J**	1200 U	720 U
Tert-Butyl Methyl Ether		1634-04-4	16.1	NE		0.72 U	2.9 U	5.8 U	3.6 U	5.8 U	210 U	2600 U	250 U	8.7 U	11 U	0.72 U	57 U	34 U
Tetrachloroethylene (PCE)		127-18-4	25.4	30		0.27 U	1.1 U	**2.1 J**	1.4 U	2.2 U	**170**	990 U	**340**	**36**	**30**	**7.7**	**27**	**68**
Tetrahydrofuran		109-99-9	NE	NE		15 U	**5.8 J**	**17 J**	**3.7 J**	**4.7 J**	4400 U	54000 U	5000 U	**8.7 J**	**9.4 J**	**7 J**	1200 U	700 U
Toluene		108-88-3	70.8	NE		0.75 U	**3.8**	**6**	**3 J**	**3 J**	**34 J**	2700 U	260 U	**14**	**1.6 J**	**1.6**	**21 J**	**160**
Trans-1,2-Dichloroethene		156-60-5	NE	NE		0.79 U	3.2 U	6.3 U	4 U	6.3 U	**130 J**	2900 U	**1000**	**100**	12 U	0.79 U	63 U	38 U
Trans-1,3-Dichloropropene		10061-02-6	1.3	NE		0.91 U	3.6 U	7.3 U	4.6 U	7.3 U	270 U	3300 U	310 U	11 U	14 U	0.91 U	72 U	43 U
Trichloroethylene (TCE)		79-01-6	6.5	2		0.21 U	**1.3**	**3.2**	**1.1**	1.7 U	**13000**	**6600**	**22000**	**1900**	**100**	**5.7**	**210**	**1900**
Trichlorofluoromethane		75-69-4	54	NE		**1.1 J**	**1.3 J**	9 U	**3.1 J**	**2.7 J**	330 U	4100 U	380 U	**7.1 J**	17 U	**1.6**	89 U	54 U
Vinyl Acetate		108-05-4	NE	NE		18 U	70 U	140 U	89 U	140 U	5200 U	64000 U	6000 U	210 U	270 U	18 U	1400 U	840 U
Vinyl Bromide		593-60-2	NE	NE		0.87 U	3.5 U	7 U	4.4 U	7 U	260 U	3200 U	300 U	10 U	13 U	0.87 U	69 U	42 U
Vinyl Chloride		75-01-4	2.2	NE		0.1 U	0.41 U	0.82 U	0.52 U	0.82 U	30 U	370 U	35 U	**2.5**	1.6 U	0.1 U	8.1 U	4.9 U
Xylenes, Total		XYLENES	NE	NE		3 U	**5 J**	**25**	**3.8 J**	**3.7 J**	900 U	11000 U	1000 U	**14 J**	46 U	**3.1**	240 U	**82 J**
Total VOCs		TVOCs	NE	NE		**40.397**	**309.89**	**798.3**	**360.36**	**529.95**	**45844**	**293200**	**74408**	**3895.8**	**2576.5**	**320.15**	**8605**	**8245**

Table 2-5
Summary of Air Analytical Results
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	SV-01	SV-02	SV-03	SV-04	SV-05	SV-06	SV-07
					Sample Name	SV-1	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7
					Sample Date	8/12/2015	8/12/2015	8/12/2015	8/12/2015	8/12/2015	8/12/2015	8/12/2015
Analyte	**Units**	**CAS No.**	**EPA BASE Indoor Air Concentrations 95th Percentile[2]**	**NYDOH Table3.1**								
SSO Air	ug/m^3											
1,1,1-Trichloroethane		71-55-6	33	NE	11 U	**270**	**68**	5.5 U	**50000**	**64**	**8**
1,1,2,2-Tetrachloroethane		79-34-5	NE	NE	14 U	6.9 U	4.1 U	6.9 U	450 U	11 U	5.5 U
1,1,2-Trichloro-1,2,2-Trifluoroethane		76-13-1	NE	NE	15 U	7.7 U	4.6 U	7.7 U	500 U	12 U	6.1 U
1,1,2-Trichloroethane		79-00-5	1.6	NE	11 U	5.5 U	3.3 U	5.5 U	360 U	8.7 U	4.4 U
1,1-Dichloroethane		75-34-3	0.8	NE	**22**	**2.5 J**	2.4 U	4 U	**520**	6.5 U	3.2 U
1,1-Dichloroethene		75-35-4	1.6	NE	7.9 U	4 U	2.4 U	4 U	**140 J**	6.3 U	3.2 U
1,2,4-Trichlorobenzene		120-82-1	7.2	NE	37 U	19 U	11 U	19 U	1200 U	30 U	15 U
1,2,4-Trimethylbenzene		95-63-6	13.7	NE	**21**	**14**	**15**	**13**	320 U	**12**	**11**
1,2-Dibromoethane (Ethylene Dibromide)		106-93-4	1.6	NE	15 U	7.7 U	4.6 U	7.7 U	500 U	12 U	6.1 U
1,2-Dichlorobenzene		95-50-1	1.3	NE	12 U	6 U	3.6 U	6 U	390 U	9.6 U	4.8 U
1,2-Dichloroethane		107-06-2	1	NE	8.1 U	4 U	2.4 U	4 U	260 U	6.5 U	3.2 U
1,2-Dichloropropane		78-87-5	1.7	NE	9.2 U	4.6 U	2.8 U	4.6 U	300 U	7.4 U	3.7 U
1,2-Dichlorotetrafluoroethane		76-14-2	NE	NE	14 U	7 U	4.2 U	7 U	460 U	11 U	5.6 U
1,3,5-Trimethylbenzene (Mesitylene)		108-67-8	4.6	NE	**6.7 J**	**4.1 J**	**5.1**	**3.6 J**	320 U	**4.1 J**	**2.8 J**
1,3-Butadiene		106-99-0	7.5	NE	4.4 U	2.2 U	1.3 U	2.2 U	140 U	3.5 U	1.8 U
1,3-Dichlorobenzene		541-73-1	2.5	NE	**5.6 J**	**3.9 J**	**2.3 J**	**4 J**	390 U	**1.8 J**	**4.6 J**
1,4-Dichlorobenzene		106-46-7	12.5	NE	12 U	6 U	3.6 U	6 U	390 U	9.6 U	4.8 U
1,4-Dioxane (P-Dioxane)		123-91-1	NE	NE	180 U	90 U	54 U	90 U	5900 U	140 U	72 U
2,2,4-Trimethylpentane		540-84-1	NE	NE	9.3 U	4.7 U	**4**	**2.9 J**	310 U	**4.5 J**	3.7 U
2-Chlorotoluene		95-49-8	NE	NE	10 U	5.2 U	3.1 U	5.2 U	340 U	8.3 U	4.1 U
2-Hexanone		591-78-6	NE	NE	20 U	10 U	6.1 U	10 U	670 U	16 U	8.2 U
4-Ethyltoluene		622-96-8	5.9	NE	**3.6 J**	**3 J**	**3**	**2.1 J**	320 U	**2.3 J**	**2.1 J**
Acetone		67-64-1	120.2	NE	**300**	**220**	**120**	**210**	3900 U	**180**	**210**
Allyl Chloride (3-Chloropropene)		107-05-1	NE	NE	16 U	7.8 U	4.7 U	7.8 U	510 U	13 U	6.3 U
Benzene		71-43-2	12.5	NE	**110**	**16**	**7.5**	**16**	210 U	**18**	**11**
Benzyl Chloride		100-44-7	7.2	NE	10 U	5.2 U	3.1 U	5.2 U	340 U	8.3 U	4.1 U
Bromodichloromethane		75-27-4	NE	NE	13 U	6.7 U	4 U	6.7 U	440 U	11 U	5.4 U
Bromoform		75-25-2	NE	NE	21 U	10 U	6.2 U	10 U	680 UT	17 U	8.3 U
Bromomethane		74-83-9	2.1	NE	7.8 U	3.9 U	2.3 U	3.9 U	250 U	6.2 U	3.1 U
Carbon Disulfide		75-15-0	6.4	NE	**54**	**14**	**40**	**47**	510 U	**38**	**10**
Carbon Tetrachloride		56-23-5	0.7	NE	2.5 U	1.3 U	0.75 U	1.3 U	82 U	2 U	1 U
Chlorobenzene		108-90-7	1	NE	9.2 U	4.6 U	2.8 U	4.6 U	300 U	7.4 U	3.7 U
Chloroethane		75-00-3	1.3	NE	**15**	6.6 U	3.9 U	6.6 U	430 U	11 U	5.3 U
Chloroform		67-66-3	1.4	NE	9.8 U	4.9 U	**1.7 J**	4.9 U	320 U	**9**	3.9 U
Chloromethane		74-87-3	4.4	NE	10 U	5.2 U	3.1 U	5.2 U	340 U	8.3 U	4.1 U
Cis-1,2-Dichloroethylene		156-59-2	2	NE	7.9 U	4 U	2.4 U	4 U	260 U	6.3 U	3.2 U
Cis-1,3-Dichloropropene		10061-01-5	2.5	NE	9.1 U	4.5 U	2.7 U	4.5 U	300 U	7.3 U	3.6 U
Cyclohexane		110-82-7	NE	NE	**76**	3.4 U	**3.4**	3.4 U	230 U	5.5 U	2.8 U

Table 2-5
Summary of Air Analytical Results
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

					Location Name	**SV-01**	**SV-02**	**SV-03**	**SV-04**	**SV-05**	**SV-06**	**SV-07**
					Sample Name	**SV-1**	**SV-2**	**SV-3**	**SV-4**	**SV-5**	**SV-6**	**SV-7**
					Sample Date	**8/12/2015**	**8/12/2015**	**8/12/2015**	**8/12/2015**	**8/12/2015**	**8/12/2015**	**8/12/2015**
Analyte	**Units**	**CAS No.**	**EPA BASE Indoor Air Concentrations 95th Percentile[2]**	**NYDOH Table3.1**								
SSO Air	ug/m^3											
Dibromochloromethane		124-48-1	NE	NE		17 U	8.5 U	5.1 U	8.5 U	560 U	14 U	6.8 U
Dichlorodifluoromethane		75-71-8	32.9	NE		25 U	**3.3 J**	**2.1 J**	**2.3 J**	810 U	20 U	**2.1 J**
Ethanol		64-17-5	290	NE		**1200**	**700**	**400**	**740**	**790 J**	**1300**	**650**
Ethyl Acetate		141-78-6	9.5	NE		180 U	90 U	54 U	90 U	5900 U	140 U	72 U
Ethylbenzene		100-41-4	7.6	NE		**11**	**4.1 J**	**8.7**	**8.7**	280 U	**7.5**	**3.2 J**
Hexachlorobutadiene		87-68-3	7.2	NE		21 U	11 U	6.4 U	11 U	700 U	17 U	8.5 U
Isopropanol		67-63-0	475	NE		**49 J**	61 U	37 U	**16 J**	4000 U	**53 J**	49 U
m,p-Xylene		179601-23-1	NE	NE		**46**	**19**	**36**	**35**	710 U	**30**	**16**
Methyl Ethyl Ketone (2-Butanone)		78-93-3	13.5	NE		**20**	**12**	**7.1**	**12**	480 U	12 U	**14**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)		108-10-1	8.1	NE		**54**	**18**	**7**	**35**	670 U	**39**	**7.1 J**
Methylene Chloride		75-09-2	16	60		17 U	8.7 U	5.2 U	8.7 U	570 U	14 U	6.9 U
N-Heptane		142-82-5	NE	NE		**47**	**1.7 J**	**4.1**	**3.7 J**	270 U	**5.4 J**	**1.6 J**
N-Hexane		110-54-3	15.2	NE		**300**	3.5 U	**2.3**	3.5 U	230 U	**3.1 J**	2.8 U
O-Xylene (1,2-Dimethylbenzene)		95-47-6	11.2	NE		**18**	**7.9**	**14**	**14**	280 U	**12**	**6.4**
Propylene		115-07-1	NE	NE		86 U	43 U	26 U	43 U	2800 U	69 U	34 U
Styrene		100-42-5	4.3	NE		**1.6 J**	4.3 U	**1.2 J**	4.3 U	280 U	6.8 U	3.4 U
Tert-Butyl Alcohol		75-65-0	NE	NE		**470**	**190**	**88**	**140**	**210 J**	**200**	**150**
Tert-Butyl Methyl Ether		1634-04-4	16.1	NE		7.2 U	3.6 U	2.2 U	3.6 U	240 U	5.8 U	2.9 U
Tetrachloroethylene (PCE)		127-18-4	25.4	30		**120**	**54**	**72**	**85**	89 U	**91**	**50**
Tetrahydrofuran		109-99-9	NE	NE		**45 NJ**	74 U	**31 J**	**24 J**	4800 U	**44 J**	59 U
Toluene		108-88-3	70.8	NE		**64**	**12**	**140**	**37**	250 U	**170**	**6.5**
Trans-1,2-Dichloroethene		156-60-5	NE	NE		7.9 U	4 U	2.4 U	4 U	260 U	6.3 U	3.2 U
Trans-1,3-Dichloropropene		10061-02-6	1.3	NE		9.1 U	4.5 U	2.7 U	4.5 U	300 U	7.3 U	3.6 U
Trichloroethylene (TCE)		79-01-6	6.5	2		**9**	**110**	**15**	**4.7**	**320**	**8.6**	**1.8**
Trichlorofluoromethane		75-69-4	54	NE		11 U	**4 J**	**2 J**	5.6 U	370 U	9 U	4.5 U
Vinyl Acetate		108-05-4	NE	NE		180 U	88 U	53 U	88 U	5800 U	140 U	70 U
Vinyl Bromide		593-60-2	NE	NE		8.7 U	4.4 U	2.6 U	4.4 U	290 U	7 U	3.5 U
Vinyl Chloride		75-01-4	2.2	NE		**0.7 J**	0.51 U	0.31 U	0.51 U	33 U	0.82 U	0.41 U
Xylenes, Total		XYLENES	NE	NE		**66**	**26**	**50**	**48**	990 U	**42**	**22**
Total VOCs		TVOCs	NE	NE		**3066.2**	**1683.5**	**1100.5**	**1456**	**51980**	**2297.3**	**1168.2**

Table 2-5
Summary of Air Analytical Results
South Shore Outdoor
1760 Fifth Avenue
Bay Shore, NY

Notes:

Analytes in blue are not detected in any sample
ug/m^3 = micrograms per cubic meter

NYSDOH = New York State Department of Health
BASE Reference [2] Source: NYSDOH, October 2006. Summary of Indoor and Outdoor Levels of Volatile Organic Compounds from selected public and commercial office buildings reported in various locations within office settings in NYS, 1994-1996.
* Indicates values from Table 3.1 of NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

EPA = Environmental Protection Agency

CAS No. = Chemical Abstracts Service Number
NE = Not Established

Bolding indicates a detected result concentration
Shading and bolding indicates that the detected concentration is above the guidance it was compared to

Data Qualifiers:
J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
NJ = The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
U = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UT = The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit; LCS or LCSD is outside acceptance limits. (The "T" qualifier is presented as an "*" in the hard copy data report.

Table 4-1
Detailed Cost Estimate for Excavation of Source Soil and IC/EC
South Shore Outdoor
Bay Shore, NY

Remedial Cost Item	No. of Units	Units	Unit Cost ($)	Notes	Cost ($)
A. Construction Activities					
Excavation					
Mob/Demob	1	Lump Sum	$5,000		$5,000
Cleaning out Leaching Pits and Excavation (~250 yd3)	1	Lump Sum	$20,000	(a)	$20,000
Dewatering	8,000	gal	$0.38		$3,040
Transportation and Disposal (non-haz)	375	Ton	$65		$24,375
Backfill	200	Lump Sum	$25		$5,000
			subtotal		**$57,415**
Oversight					
Labor	1	week	$3,600		$3,600
Sampling Analytical for End-point Samples	12	Each	$165		$1,980
Sampling Analytical for Backfill Samples	4	Each	$165		$660
Sampling Analytical for Disposal/Backfill	3	Each	$1,650		$4,950
			subtotal		**$11,190**
Design, Permitting and Implement IC/ECs					
Labor	1	Lump Sum	$20,000		$20,000
		subtotal			**$30,000**
		Estimated Construction Cost			**$98,605**
B. OM&M Costs					
Cap Inspection, IC/EC Maintenance	1	Lump Summ	$3,000		$3,000
		Total			**$3,000**
Contingency - %15					$15,241
		Total			**$113,846**
C. Present Worth					
Present Worth of Construction Costs					$113,846
Present Worth of O&M	10	Years			$23,358
		Estimated Present Worth (rounded)		(b)	**$137,000**

Notes:
(a) T&D costs assume the waste will be disposed of as a non-hazardous waste. Excludes excavation and backfill associated with site redevelopment.
No monitoring activities were included in this option. It is assumed the Site will be monitored as part of groundwater plume activities.
(b) The above cost estimate is intended for comparison of the alternatives, not for budgeting or contracting purposes. Actual costs will vary.
Supplemental investigation activities and detailed-design phases would provide the specific information needed to increase the accuracy of the cost estimates.

Table 4-2
Detailed Cost Estimate for MNA Alternative
South Shore Outdoor
Bay Shore, NY

Remedial Cost Item	No. of Units	Units	Unit Cost ($)	Notes	Cost ($)
A. Construction Activities					
Baseline Model					
Model Preparation	1	Each	$5,000		$5,000
Design, Permitting and ICs					
Labor	1	Each	$20,000		$20,000
		Estimated Construction Cost			**$25,000**
B. Annual Monitoring Costs					
Sample wells -6, quarterly	24	well	$530		$12,720
Field Parameter Monitoring - 6, Quarterly	24	well	$200		$4,800
Analytical Cost	24	well	$450		$10,800
Data compilation and review	1	Lump Sum	$2,500		$2,500
Model calibration and review	1	Lump Sum	$5,000		$5,000
	Estimated Annual Monitoring Cost Year 1 and 2				**$35,820**
	Estimated Annual Monitoring Cost Year 3 thru 10				**$17,910**
Contingency - 15%					**$9,123**
C. Present Worth					
Present Worth of Construction Costs					**$25,000**
Present Worth of Annual Monitoring	15	Years			**$231,197**
	Estimated Present Worth + Contingency (rounded)			(a)	**$265,000**

Notes:

(a) The above cost estimate is intended for comparison of the alternatives, not for budgeting or contracting purposes. Actual costs will vary. Supplemental investigation activities and detailed-design phases would provide the specific information needed to increase the accuracy of the cost estimates.

Table 4-3
Detailed Cost Estimate for Bioremediation Alternative
South Shore Outdoor
Bay Shore, NY

Remedial Cost Item	No. of Units	Units	Unit Cost ($)	Notes	Cost ($)
A. Construction Activities					
Well Network					
Injection Well Installation - 2"	4	Each	$1,395	(a)	$5,580
Monitoring Well Installation -2"	2	Each	$1,395		$2,790
Equipment					
Pump	1	Each	$500		$500
Hose, Fittings	1	Lump Sum	$1,500		$1,500
Labor					
Field Geologist	1	Each	$3,600		$3,600
Project Engineer	1	Each	$4,200		$4,200
Design, Permitting and ICs					
Labor	1	Each	$30,000		$30,000
		Estimated Construction Cost			**$48,170**
B. Annual Injection Cost					
Labor					
Technician	4	Injection	$3,600		$14,400
Project Engineer	4	Injection	$4,200		$16,800
Oversight	4	Injection	$2,900		$11,600
Substrate					
Mixing Tank	1	Injection	$450		$450
Misc Equipment	1	Lump Sum	$1,500		$1,500
Substrate	1880	lb	$3	(b)	$4,700
Nutrients	4	50lb bag	$60		$240
Water	4	Lump Sum	$1,500		$6,000
		Estimated Annual Injection Cost Year 1 and 2			**$55,690**
		Estimated Annual Injection Cost Year 3 thru 5			**$27,845**
C. Annual Monitoring Costs					
Sample wells -6, quarterly	26	well	$530		$13,780
Field Parameter Monitoring - 6, Quarterly	26	well	$200		$5,200
Analytical Cost	26	well	$450		$11,700
Data compilation and review	1	Lump Sum	$5,000		$5,000
		Estimated Annual Monitoring Cost Year 1 and 2			**$35,680**
		Estimated Annual Monitoring Cost Year 3 thru 10			**$17,840**
			Estimated Annual Cost Year 1		**$139,540**
			Estimated Annual Cost Year 2		**$91,370**
			Estimated Annual Cost Year 3 thru 5		**$45,685**
			Estimated Annual Cost Year 6 thru 10 (monitoring only)		**$17,840**
			SUBTOTAL		**$365,795**
Contingency - 15%					**$54,869**
C. Present Worth					
Present Worth of Construction Costs and Year 1 Injection					**$187,710**
Present Worth of Injections Years 2-5	5	Years			**$130,537**
Present Worth of Annual Monitoring	10	Years			**$210,293**
		Estimated Present Worth + Contingency (rounded)		(c)	**$583,000**

Notes:
(a) assumes wells installed to a depth of 45 feet.
(b) assumes 4 injections per year during years 1 and 2; and two per year during years 3-5
(c) The above cost estimate is intended for comparison of the alternatives, not for budgeting or contracting purposes. Actual costs will vary. Supplemental investigation activities and detailed-design phases would provide the specific information needed to increase the accuracy of the cost estimates.

Table 4-4
Detailed Cost Estimate for ISCO Alternative
South Shore Outdoor
Bay Shore, NY

Remedial Cost Item	No. of Units	Units	Unit Cost ($)	Notes	Cost ($)
A. Construction Activities					
Well Network Injection Well Installation - 2"	12	Each	$1,850	(a)	$22,200
Monitoring Well Installation -2"	4	Each	$1,395		$5,580
Labor					
Field Geologist	1	Each	$7,200		$7,200
Project Engineer	1	Each	$8,400		$8,400
Design, Permitting and ICs					
Labor	1	Each	$35,000		$35,000
		Estimated Construction Cost			**$78,380**
B. Annual Injection Cost					
PreparationLabor					
Labor	2	days	$900		$1,800
Injection					
Labor	6	days	$900		$5,400
DecommissioningLabor					
Labor	2	days	$900		$1,800
Materials					
Potassium Permanganate	1500	pounds	$3.50	(b)	$5,250
Delivery (GOD, tote loads - diluted)	2	Lump Sum	$1,750		$3,500
Equipment					
Pumping Skid	6	days	$550		$3,300
Trailer	6	days	$150		$900
Generator	6	days	$150		$900
Health and Safety	6	each	$250		$1,500
Hose, Fittings, Disposables	1	Lump Sum	$3,500		$3,500
Misc Equipment	6	Lump Sum	$2,300		$13,800
Secondary Containment	3	days	$75		$225
Trash Disposal	2	Lump Sum	$350		$700
Water	2	Lump Sum	$1,500		$3,000
	Estimated Annual Injection Cost Year 1 and 2				**$45,575**
	Estimated Annual Injection Cost Year 3 and 4				**$22,788**
C. Annual Monitoring Costs					
Sample wells -8, quarterly	34	well	$531		$18,054
Field Parameter Monitoring - 8, Quarterly	34	well	$250		$8,500
Analytical Cost	34	well	$250		$8,500
Data compilation and review	1	Lump Sum	$5,000		$5,000
	Estimated Annual Monitoring Cost Year 1 and 2				**$40,054**
	Estimated Annual Monitoring Cost Year 3 thru 10				**$20,027**
		Estimated Annual Cost Year 1			**$118,434**
		Estimated Annual Cost Year 2			**$85,629**
		Estimated Annual Cost Year 3 thru 10			**$42,815**
			SUBTOTAL		**$332,507**
Contingency - 15%					**$49,876**
C. Present Worth					
Present Worth of Construction Costs and Year 1 Injections and Monitoring					**$164,009**
Present Worth of Year 2-4 Injections	4	Years			**$86,581**
Present Worth of Annual Monitoring	10	Years			**$155,932**
	Estimated Present Worth + Contingency (rounded)			(c)	**$456,000**

Notes:

(a) assumes wells installed to a depth of 45 feet.

(b) assumes 4 injections per year during years 1 and 2; and two injections per year during years 3-4

(c) The above cost estimate is intended for comparison of the alternatives, not for budgeting or contracting purposes. Actual costs will vary. Supplemental investigation activities and detailed-design phases would provide the specific information needed to increase the accuracy of the cost estimates.

FIGURES

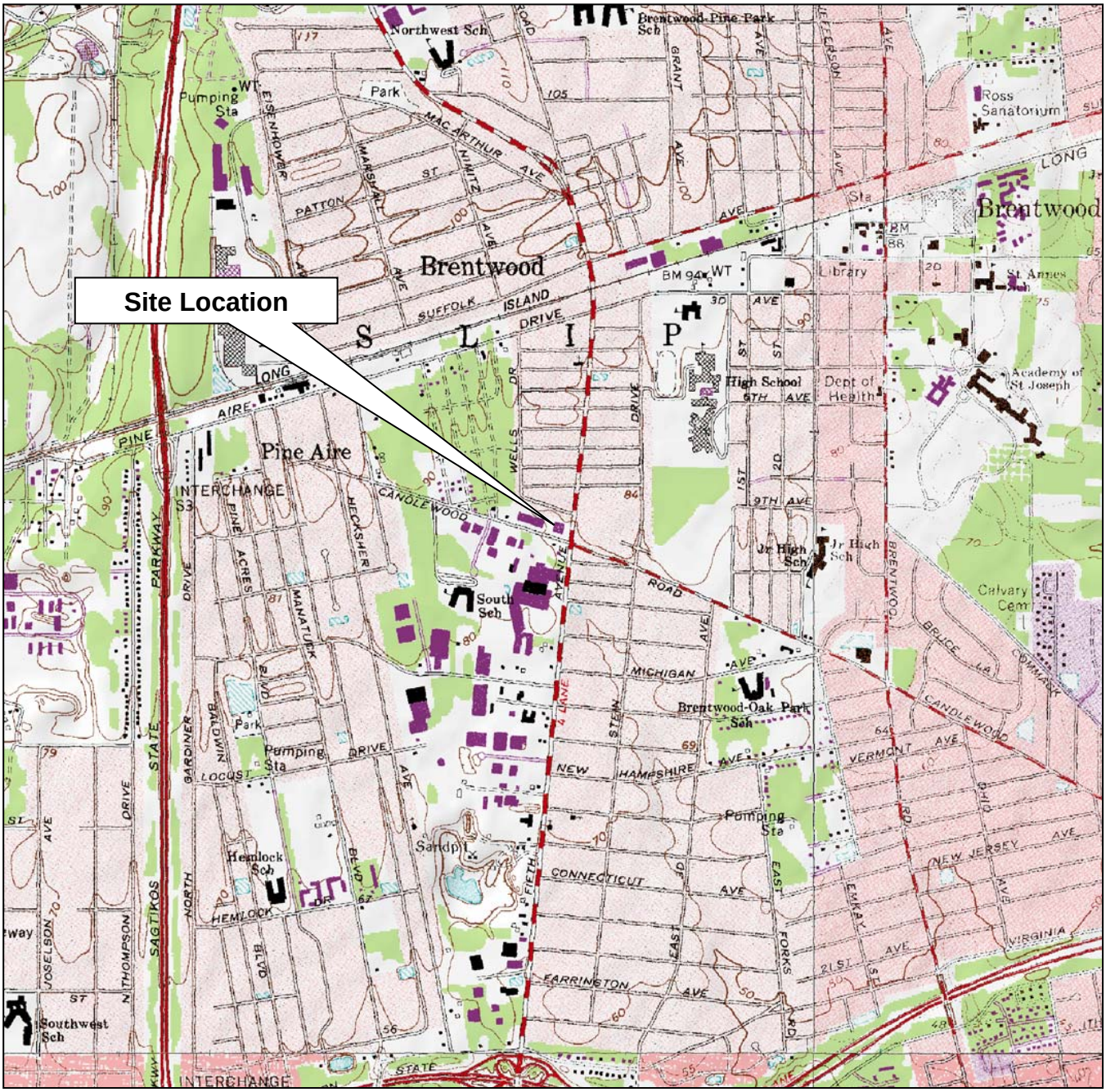


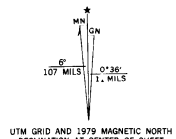
FIGURE 1-1

SITE LOCATION MAP

(GREENLAWN USGS 7.5 MIN. TOPOGRAPHICAL QUADRANGLE)

Site Coordinates
Latitude 40°46'7.19"N
Longitude 73°15'41.90"W
Elevation = 79' (WGS84)

South Shore Outdoor
1760 5th Ave
Bay Shore, NY 11706



UTM GRID AND 1979 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Legend

- Site Location
- 1/4 Mile Radius
- 1/2 Mile Radius

N

0 175 350 700 1,050 1,400

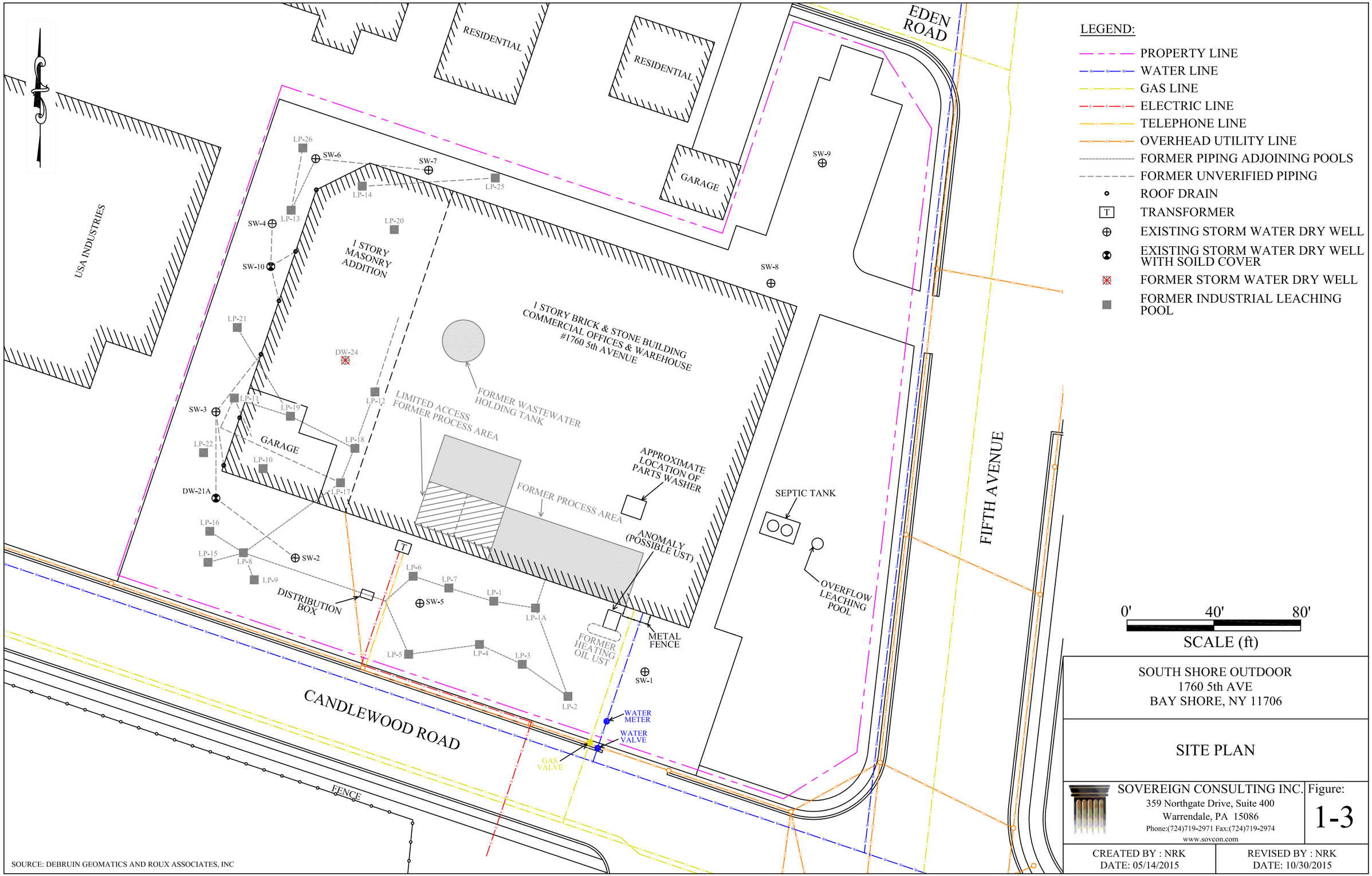
Scale (ft)

South Shore Outdoor
1760 5th Ave.
Bay Shore, NY 11706

Local Area Aerial Map

SOVEREIGN CONSULTING INC.
290 Executive Drive, Suite 300
Cranberry Twp., PA 16066
Phone: (724) 553-5084 Fax: (724) 553-5089
www.sovcon.com

Figure: 1-2



SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC

SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

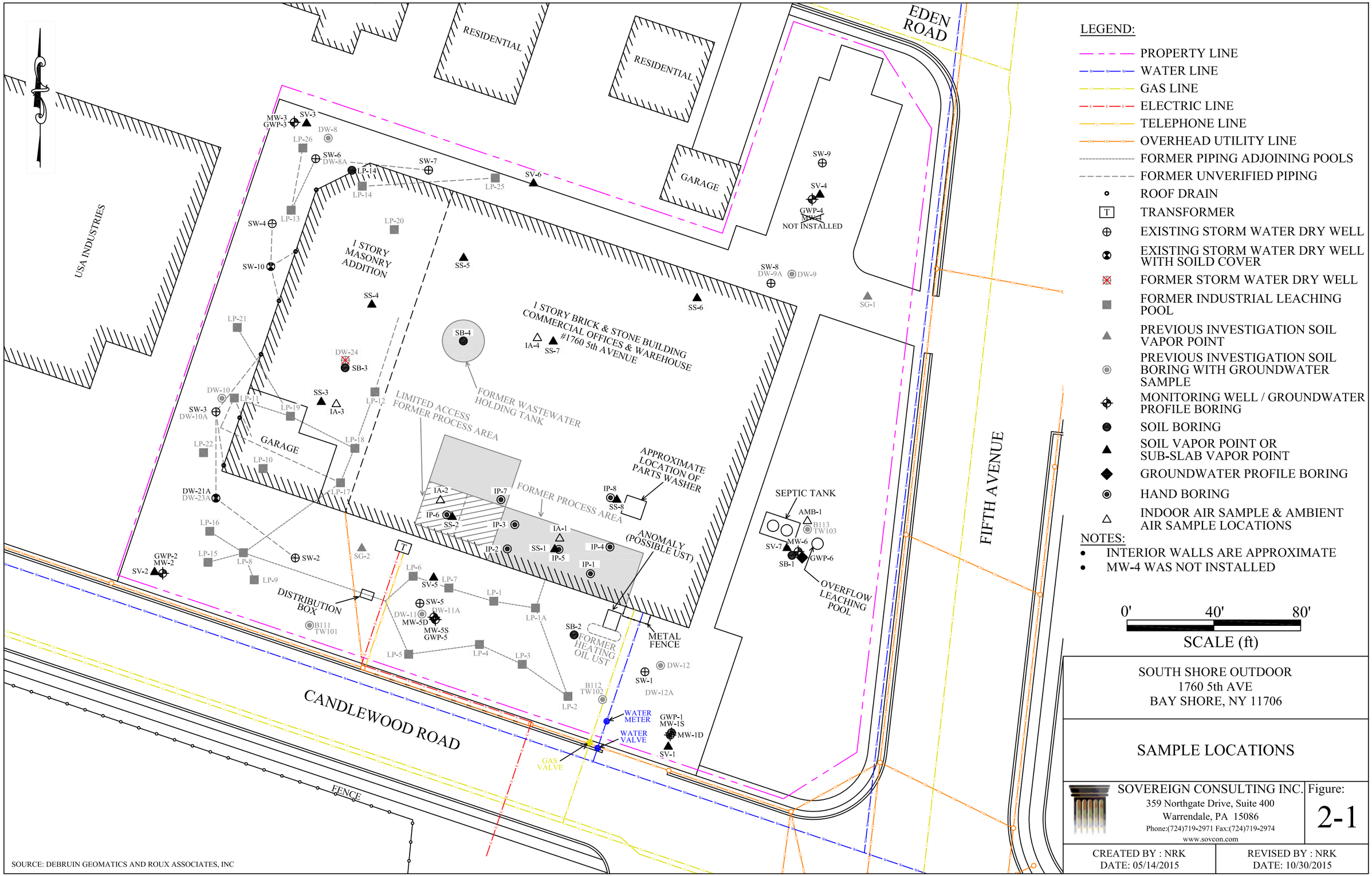
SITE PLAN

SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 1-3

CREATED BY : NRK
DATE: 05/14/2015

REVISED BY : NRK
DATE: 10/30/2015



SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

SAMPLE LOCATIONS

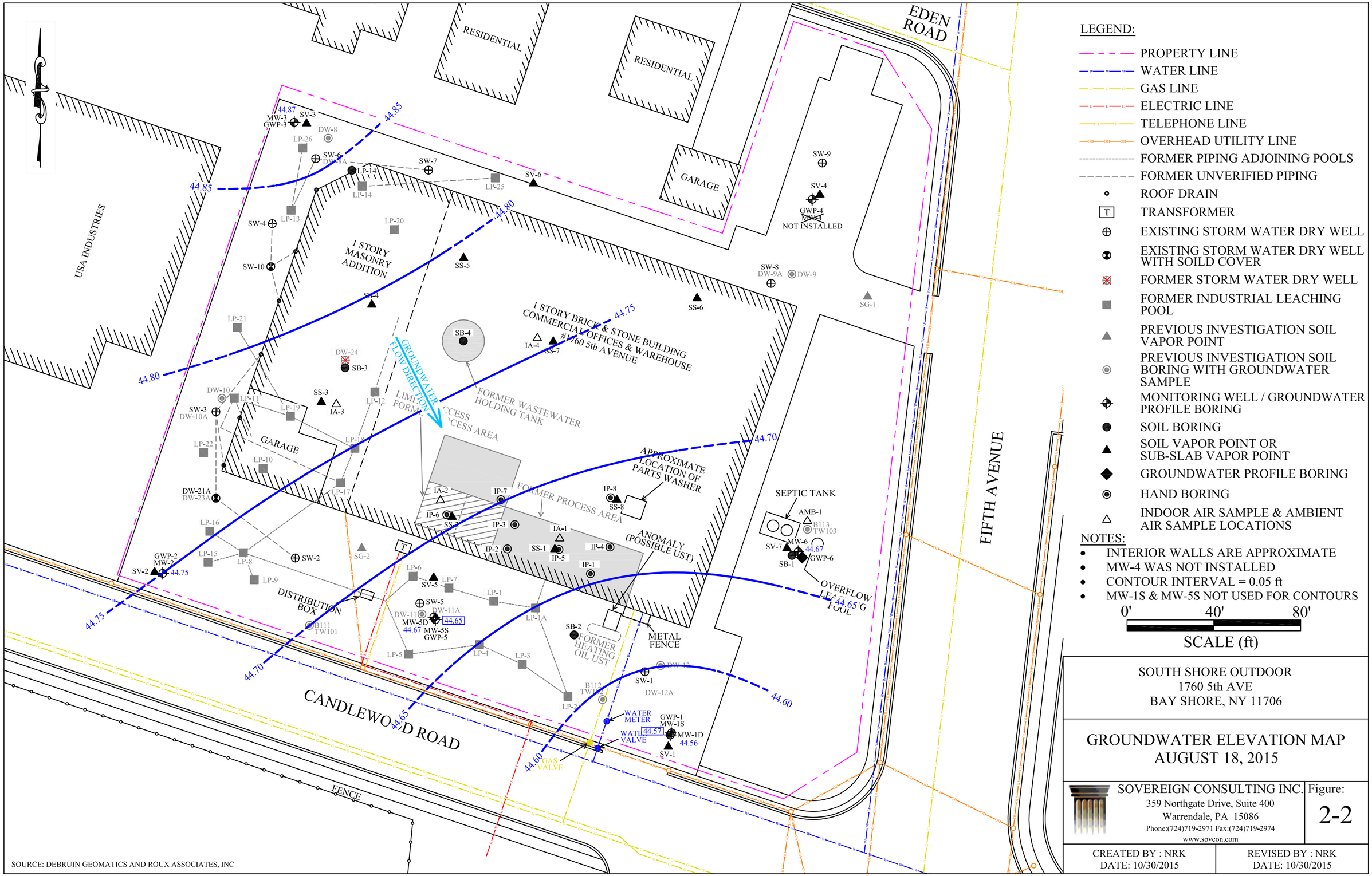
SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 2-1

CREATED BY : NRK
DATE: 05/14/2015

REVISED BY : NRK
DATE: 10/30/2015

SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC



SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC

SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

GROUNDWATER ELEVATION MAP
AUGUST 18, 2015

SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 2-2

CREATED BY : NRK
DATE: 10/30/2015

REVISED BY : NRK
DATE: 10/30/2015

SW-6 (10'-11')	
BENZO(A)PYRENE	1,400 µg/kg
COPPER	360 mg/kg

SW-4 (9'-10')	
BENZO(A)PYRENE	2,000 µg/kg
COPPER	340 mg/kg

LP-19 (10'-11')	
BARIUM	520 mg/kg
CADMIUM	21 mg/kg
COPPER	730 mg/kg
LEAD	1,300 mg/kg

LP-20 (15'-17')	
COPPER	450 mg/kg

IP-5 (0'-2')	
COPPER	1,300 mg/kg
LEAD	3,700 mg/kg

LP-1A (15'-17')	
COPPER	410 mg/kg
LEAD	2,000 mg/kg

LP-8 (5'-10')	
COPPER	410 mg/kg

SW-5 (19'-21')	
COPPER	300 mg/kg

LP-1 (17'-18')	
COPPER	19,000 mg/kg
LEAD	4,200 mg/kg
CYANIDE	47 mg/kg

RESIDENTIAL
RESIDENTIAL
EDEN ROAD
GARAGE
USA INDUSTRIES
1 STORY MASONRY ADDITION
1 STORY BRICK & STONE BUILDING
COMMERCIAL OFFICES & WAREHOUSE
#1760 5th AVENUE
LIMITED ACCESS FORMER PROCESS AREA
FORMER WASTEWATER HOLDING TANK
FORMER PROCESS AREA
APPROXIMATE LOCATION OF PARTS WASHER
ANOMALY (POSSIBLE UST)
GARAGE
DISTRIBUTION BOX
FORMER HEATING OIL UST
METAL FENCE
OVERFLOW LEACHING POOL
SEPTIC TANK
FIFTH AVENUE
CANDLEWOOD ROAD
WATER METER
WATER VALVE
GAS VALVE
NOT INSTALLED
MW-3 GWP-3
SV-3
DW-8
LP-26
SW-6
DW-8A
LP-14
SW-7
LP-25
SV-6
LP-13
SW-4
LP-20
SW-10
SS-5
SS-4
SS-6
SW-8
DW-9A
DW-9
SG-1
SW-9
SV-4
GWP-4
MW-4
LP-21
SB-4
DW-24
SB-3
IA-4
SS-7
DW-10
LP-11
SW-3
DW-10A
LP-19
SS-3
IA-3
LP-12
LP-18
LP-22
LP-10
LP-17
DW-21A
DW-23A
LP-16
LP-15
LP-8
SW-2
SG-2
GWP-2
MW-2
SV-2
LP-9
IA-2
IP-7
IP-6
SS-2
IP-3
IA-1
IP-2
SS-1
IP-5
IP-4
IP-1
IP-8
SS-8
LP-6
SV-5
LP-7
LP-1
LP-1A
SW-5
DW-11
DW-11A
MW-5D
MW-5S
GWP-5
B111
TW101
LP-5
LP-4
LP-3
SB-2
DW-12
SW-1
DW-12A
B112
TW102
LP-2
GWP-1
MW-1S
MW-1D
SV-1
AMB-1
B113
TW103
MW-6
SV-7
SB-1
GWP-6
SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC

LEGEND:

- PROPERTY LINE
- WATER LINE
- GAS LINE
- ELECTRIC LINE
- TELEPHONE LINE
- OVERHEAD UTILITY LINE
- FORMER PIPING ADJOINING POOLS
- FORMER UNVERIFIED PIPING
- ROOF DRAIN
- T — TRANSFORMER
- EXISTING STORM WATER DRY WELL
- EXISTING STORM WATER DRY WELL WITH SOILD COVER
- FORMER STORM WATER DRY WELL
- FORMER INDUSTRIAL LEACHING POOL
- PREVIOUS INVESTIGATION SOIL VAPOR POINT
- PREVIOUS INVESTIGATION SOIL BORING WITH GROUNDWATER SAMPLE
- MONITORING WELL / GROUNDWATER PROFILE BORING
- SOIL BORING
- SOIL VAPOR POINT OR SUB-SLAB VAPOR POINT
- GROUNDWATER PROFILE BORING
- HAND BORING
- INDOOR AIR SAMPLE & AMBIENT AIR SAMPLE LOCATIONS

NOTES:

- INTERIOR WALLS ARE APPROXIMATE
- MW-4 WAS NOT INSTALLED
- ORGANIC RESULTS REPORTED IN µg/kg
  INORGANIC RESULTS REPORTED IN mg/kg

0' 40' 80'

SCALE (ft)

SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

SOIL ANALYTICAL RESULTS
ABOVE COMMERCIAL-USE
SOIL CLEAN-UP OBJECTIVES
JUNE 22 - JULY 14, 2015

SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 2-3

CREATED BY : NRK
DATE: 10/28/2015

REVISED BY : NRK
DATE: 10/30/2015

MW-3	
MANGANESE	1,200 µg/L
SODIUM	29,000 µg/L

MW-2	
SODIUM	62,000 µg/L

MW-5D	
IRON	1,200 µg/L
NICKLE	450 µg/L
SODIUM	26,000 µg/L
THALLIUM	2.4 µg/L

MW-5S	
1,1,1-Trichloroethane	1,600 µg/L
1,1-Dichloroethene	250 µg/L
COPPER	220 µg/L

MW-1D	
COPPER	960 µg/L
IRON	340 µg/L
SODIUM	31,000 µg/L

MW-1S	
COPPER	470 µg/L
IRON	460 µg/L
SODIUM	24,000 µg/L

RESIDENTIAL
RESIDENTIAL
EDEN ROAD
USA INDUSTRIES
GARAGE
1 STORY MASONRY ADDITION
1 STORY BRICK & STONE BUILDING
COMMERCIAL OFFICES & WAREHOUSE
#1760 5th AVENUE
LIMITED ACCESS FORMER PROCESS AREA
FORMER WASTEWATER HOLDING TANK
FORMER PROCESS AREA
APPROXIMATE LOCATION OF PARTS WASHER
ANOMALY (POSSIBLE UST)
FORMER HEATING OIL UST
METAL FENCE
DISTRIBUTION BOX
SEPTIC TANK
OVERFLOW LEACHING POOL
WATER METER
WATER VALVE
GAS VALVE
CANDLEWOOD ROAD
FIFTH AVENUE
FENCE
GARAGE
NOT INSTALLED

MW-3 GWP-3 SV-3 DW-8 LP-26 SW-6 DW-8A LP-14 SW-7 LP-25 SV-6 LP-13 SW-4 LP-20 SW-10 SS-5 SS-4 SW-8 DW-9A DW-9 SS-6 SG-1 SW-9 SV-4 GWP-4 MW-4 LP-21 SB-4 IA-4 SS-7 DW-24 SB-3 DW-10 LP-11 SS-3 IA-3 LP-12 SW-3 DW-10A LP-19 LP-22 LP-10 LP-18 DW-21A DW-23A LP-17 LP-16 LP-15 LP-8 SW-2 SG-2 LP-9 GWP-2 MW-2 SV-2 IA-2 IP-7 IP-6 SS-2 IP-3 IA-1 IP-2 SS-1 IP-5 IP-4 IP-1 IP-8 SS-8 T LP-6 SV-5 LP-7 LP-1 SW-5 DW-11 DW-11A MW-5D MW-5S GWP-5 B111 TW101 LP-5 LP-4 LP-3 LP-1A SB-2 LP-2 B112 TW102 SW-1 DW-12 DW-12A GWP-1 MW-1S MW-1D SV-1 AMB-1 B113 TW103 SV-7 MW-6 SB-1 GWP-6

LEGEND:

- PROPERTY LINE
- WATER LINE
- GAS LINE
- ELECTRIC LINE
- TELEPHONE LINE
- OVERHEAD UTILITY LINE
- FORMER PIPING ADJOINING POOLS
- FORMER UNVERIFIED PIPING
- ROOF DRAIN
- T TRANSFORMER
- EXISTING STORM WATER DRY WELL
- EXISTING STORM WATER DRY WELL WITH SOILD COVER
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- FORMER INDUSTRIAL LEACHING POOL
- PREVIOUS INVESTIGATION SOIL VAPOR POINT
- PREVIOUS INVESTIGATION SOIL BORING WITH GROUNDWATER SAMPLE
- MONITORING WELL / GROUNDWATER PROFILE BORING
- SOIL BORING
- SOIL VAPOR POINT OR SUB-SLAB VAPOR POINT
- GROUNDWATER PROFILE BORING
- HAND BORING
- INDOOR AIR SAMPLE & AMBIENT AIR SAMPLE LOCATIONS

NOTES:

- INTERIOR WALLS ARE APPROXIMATE
- MW-4 WAS NOT INSTALLED
- RESULTS REPORTED IN µg/L

0' 40' 80'

SCALE (ft)

SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC

SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

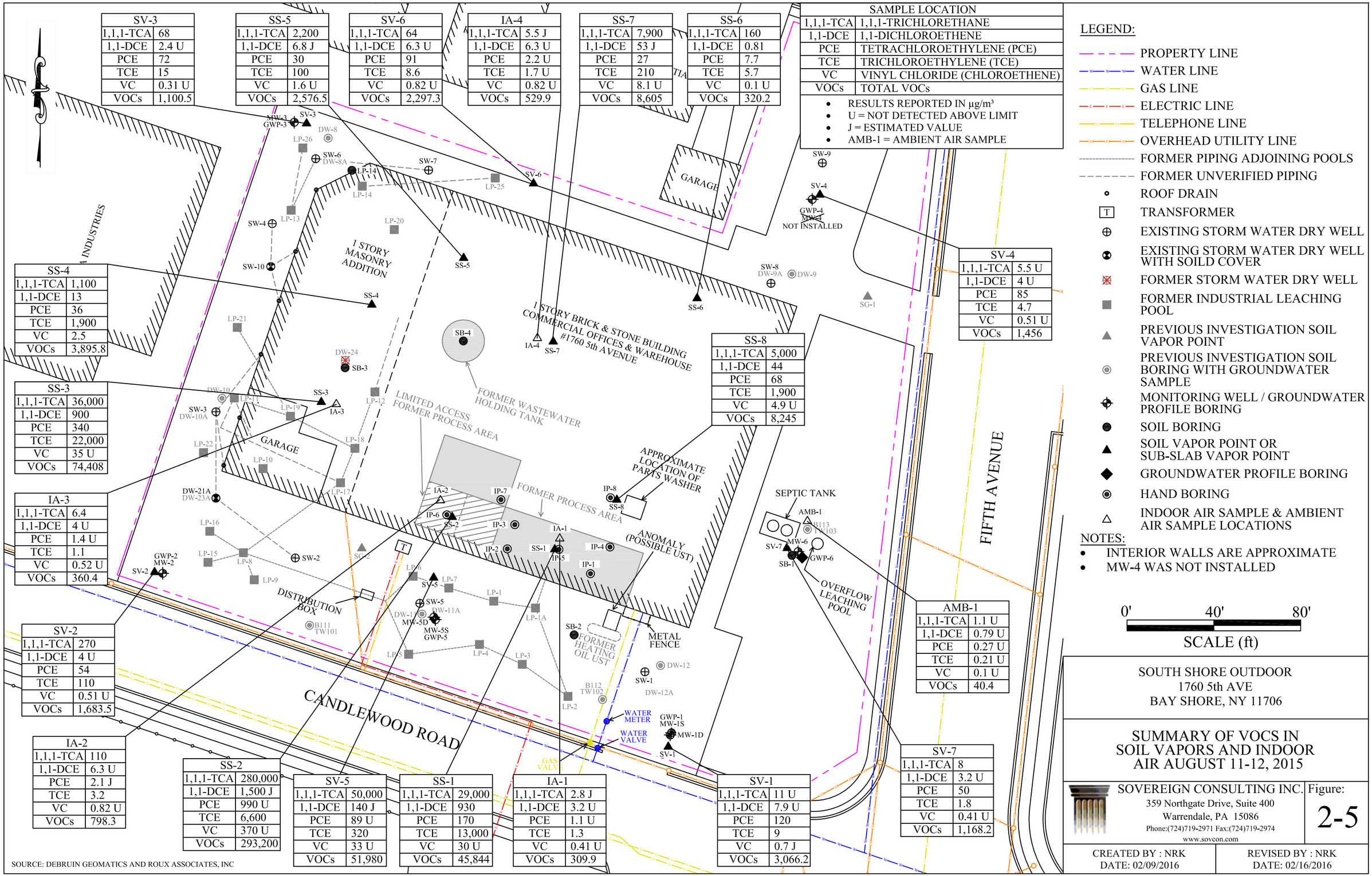
GROUNDWATER ANALYTICAL RESULTS
ABOVE NYSDEC CLASS GA
STANDARDS/GUIDANCE VALUES
AUGUST 18-20, 2015

SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 2-4

CREATED BY : NRK
DATE: 10/28/2015

REVISED BY : NRK
DATE: 10/30/2015



SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

SUMMARY OF VOCS IN SOIL VAPORS AND INDOOR AIR AUGUST 11-12, 2015

SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
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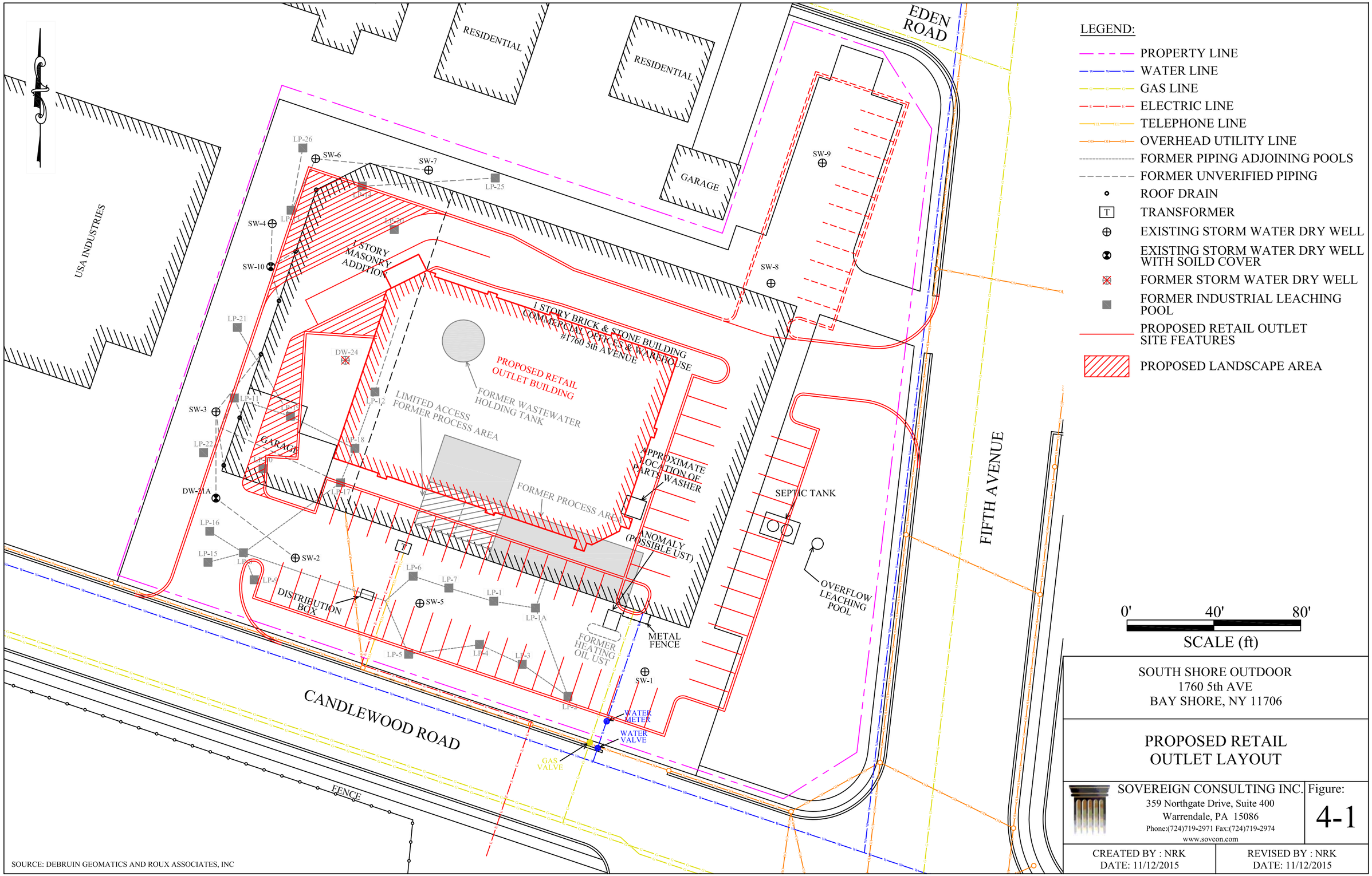
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 2-5

CREATED BY : NRK
DATE: 02/09/2016

REVISED BY : NRK
DATE: 02/16/2016



SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC

SOUTH SHORE OUTDOOR
1760 5th AVE
BAY SHORE, NY 11706

PROPOSED RETAIL OUTLET LAYOUT

SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com

Figure: 4-1

CREATED BY : NRK
DATE: 11/12/2015

REVISED BY : NRK
DATE: 11/12/2015

Appendix A

Community Air Monitoring Plan

APPENDIX A

New York State Department of Health Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic”

monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1 If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2 If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3 If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4 All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1 If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2 If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a reevaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3 All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

Appendix B

Health and Safety Plan

SOVEREIGN CONSULTING INC.

SAFETY, HEALTH AND EMERGENCY RESPONSE PLAN
REMEDIAL INVESTIGATION (BROWNFIELD CLEANUP PROGRAM)
AMENDMENT NO. 1 – REMEDIAL ACTION WORK PLAN
SOUTH SHORE OUTDOOR, 1760 FIFTH AVENUE, BAYSHORE, NEW YORK 11706

PREPARED FOR:

First Hartford Corporation & Subsidiaries
PO Box 1270, 149 Colonial Road, Manchester, Connecticut, 06045

PREPARED BY:

Sovereign Consulting Inc.
100 Dobbs Lane, Suite 212, Cherry Hill, New Jersey 08034

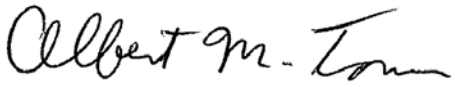
Revision**:** #1
Revision Date: November 17, 2015
Sovereign Project #: FD023.001

PREPARED BY:

11/17/15
Date

Owen B. Douglass, Jr., PhD, CIH
Corporate Health & Safety Program Manager
Sovereign Consulting Inc.
100 Dobbs Lane, Suite 212
Cherry Hill, New Jersey 08034

REVIEWED BY:



11/17/15
Date

Albert M. Tonn
Senior Project Manager
Sovereign Consulting Inc.
1855 New Highway, Suite C
Farmingdale, NY 11735

Table of Contents

QUICK REFERENCE EMERGENCY INFORMATION

Sovereign and/or contractor personnel shall immediately **STOP WORK** upon change in workers' fitness for work, releases/spills, unanticipated safety and health hazards and/or unsafe conditions. Sovereign and/or contractor personnel shall **EVACUATE** and **ISOLATE** the area, **ALERT** site personnel, **ASSESS** the situation, and **NOTIFY** the Sovereign Site Supervisor and/or Sovereign Site Safety Coordinator.

The Sovereign Site Supervisor and/or Sovereign Site Safety Coordinator, upon notification, shall **NOTIFY** the Sovereign Project Manager. The Sovereign Project Manager shall notify appropriate Sovereign senior management i.e. Area Manager, Program Manager, Office Manager, and Safety and Health Manager.

In the event the Sovereign Project Manager is unavailable to speak with directly, the Sovereign Site Supervisor and/or Sovereign Site Safety Coordinator shall continue such notifications until speaking directly with Sovereign senior management.

Title	Name	Organization	Telephone #
Sovereign Project Manager/Site Supervisor	Albert Tonn	Sovereign	O: 631-753-8380 C: 973-869-9842
Sovereign Site Safety Coordinator	Albert Tonn	Sovereign	O: 631-753-8380 C: 973-869-9842
Sovereign Corp. Health & Safety Program Mgr.	Owen Douglass	Sovereign	O: 856-325-2099 C: 856-240-0885
Sovereign Office Manager	Carol Karp	Sovereign	O: 631-753-8380 C: 631-327-1216
Contractor Project Manager	TBD	TBD	O: TBD
Contractor Site Supervisor	TBD	TBD	O: TBD
Bay Shore		Emergency Management	**911**
Bay Shore		Fire Department	**911**
Suffolk County		Police Department	**911**
Suffolk		Emergency Management	**911**
Southside Hospital	N/A	Southside Hospital	631-968-3000
Poison Control Center	AAPCC	Poison Control	800-222-1222
USOSHA Hotline		USOSHA	800-321-6742
National Response Center		USEPA	800-424-8802
New York State Department of Environmental Conservation Spill Hotline			800-457-7362
New York State Police Troop L Farmingdale NY			631-736-3300
New York 811(Underground Utilities)		State One Call	811
CHEMTREC®		CHEMTREC®	800-424-9300

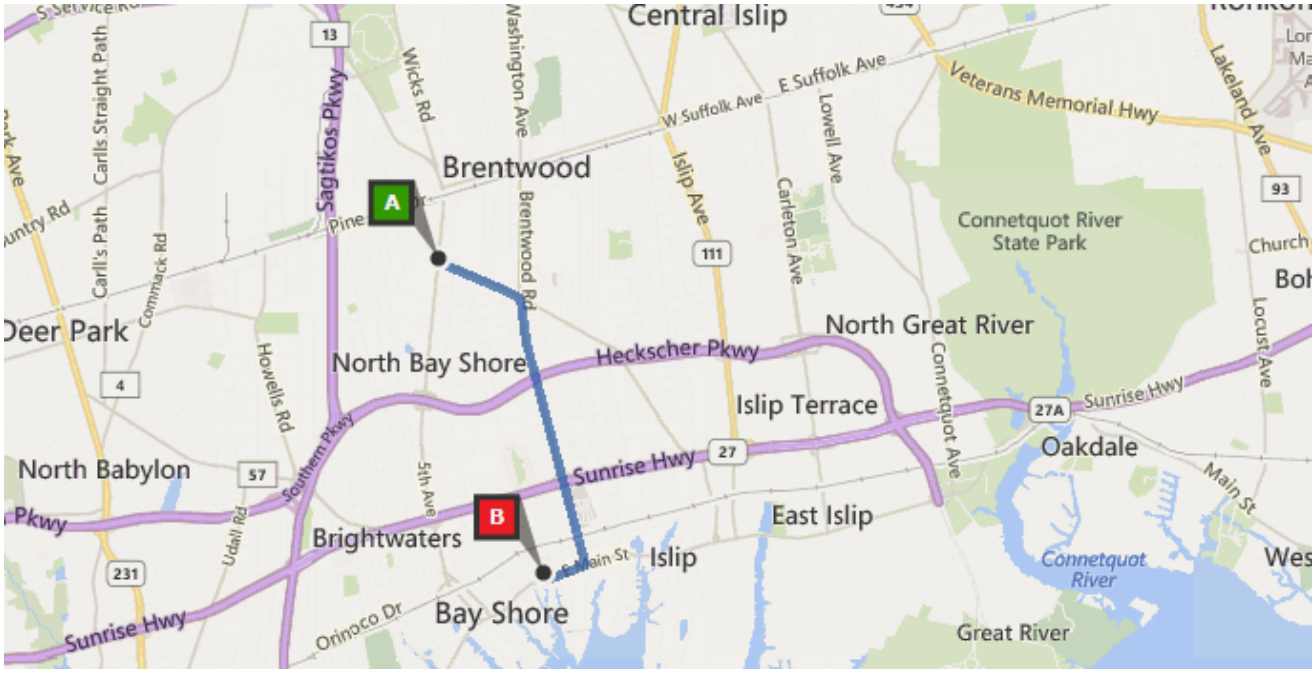
QUICK REFERENCE EMERGENCY INFORMATION

Southside Hospital (Emergency and Non-Emergency)
301 East Main Street
Bay Shore, New York 11706
631-968-3000 (Main)
631-968-3314 (Emergency Department

Start: 1760 Fifth Avenue, Bay Shore, New York 11706 (A)

1.	Depart **Fifth Avenue/CR-13** toward **Candlewood Road**	**≈200 feet**
2.	Turn **left** onto **Candlewood Road**	**0.9 mi.**
3.	Turn **right** onto **Brentwood Road**	**2.6 mi.**
4.	Turn **right** onto **RT-27A/E. Main Street/E. Montauk Hwy./Montauk Hwy.**	**0.4 mi.**
5.	Turn **right** into hospital entrance	**≈350 feet**

Finish: Southside Hospital, 301 East Main Street, Bay Shore, New York 11706 (B)



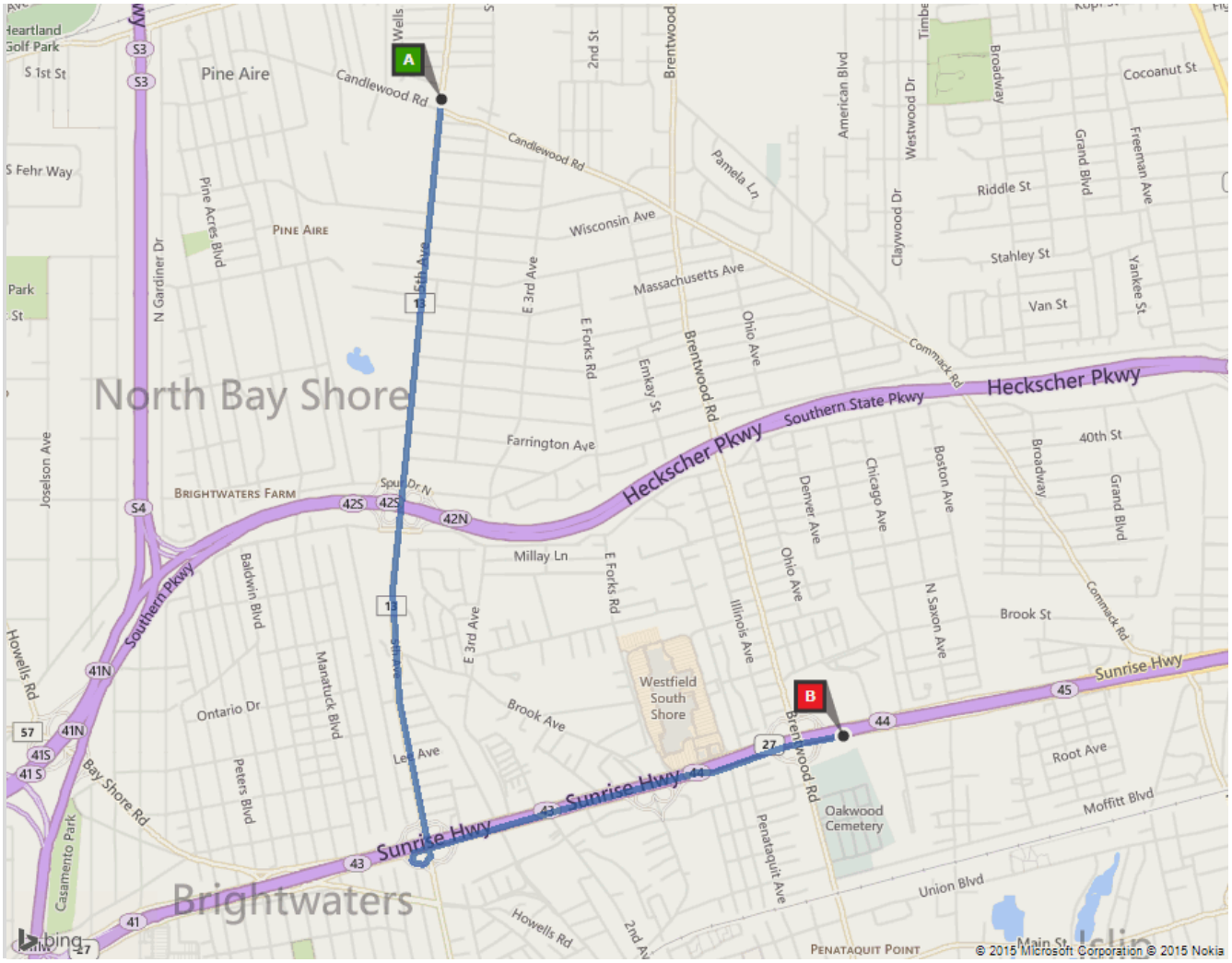
QUICK REFERENCE EMERGENCY INFORMATION

STAT HEALTH (Non-Emergency) (Mon - Fri 8am - 7:30pm • Sat - Sun 9am - 4:30pm)
1850 Sunrise Highway
Bay Shore, New York 11706
631-581-5900

Start: Start: 1760 Fifth Avenue, Bay Shore, New York 11706 (A)

1.	Depart **Fifth Avenue/CR-13** toward **Candlewood Road**	**2.5mi.**
2.	Take ramp **right** for **Sunrise Hwy.**	**0.5 mi.**
3.	Take ramp **left** for **RT-27 East** toward **Montauk**	**0.6 mi.**
4.	**At Exit 44**, take ramp **right** for **Sunrise Hwy.** toward **Saxon Avenue**	**0.5 mi.**

End: STAT HEALTH, 1850 Sunrise Highway, Bay Shore, N



1.0 Safety, Health and Emergency Response Plan Overview

Project Name: First Hartford – Bay Shore

Site Address: 1760 Fifth Avenue, Bay Shore, Suffolk County, New York 11706

Client: First Hartford Corporation & Subsidiaries (First Hartford)

Client Contact: Michael Sweeney, Director of Purchasing

Client Contact Phone: 860-646-6555 **email:** msweeney@firsthartford.com

Client Address: PO Box 1270, 149 Colonial Road, Manchester, Connecticut 06045

Sovereign Consulting Inc. (Sovereign) shall provide a workplace free of known and recognized safety and health hazards to the extent reasonably achievable. As such, Sovereign Consulting Inc. has prepared this site specific Safety, Health and Emergency Response Plan (Safety Plan) for the First Hartford – Bay Shore jobsite.

The Safety Plan utilizes *USOSHA 29 CFR 1910.120/1926.65 Hazardous Waste Operations and Emergency Response Paragraph (b) (4) Site Specific Safety and Health Plan* as a guideline. **The Safety Plan i.e. engineering controls, safe work procedures and personal protective equipment etc. is performance oriented and limited to the safety and health hazards associated with remedial investigation activities to include but not limited to *Groundwater Well Sampling, Groundwater Well Installation, Site Characterization, Soil Sampling, Soil Excavation, Bio-remediation, and In-Situ Chemical Oxidation.***

Contactors, as per any agreements and/or contractual obligations associated with First Hartford, shall work in accordance with the Safety Plan's relevant requirements and are solely responsible for the safety of their employees.

In addition, such contractors shall comply with applicable safety and health requirements i.e. USOSHA 29 CFR 1910 General Industry and/or USOSHA 29 CFR 1926 Construction standards, contractor safety and health plans, policies and procedures specific to contracted services.

Contractors and any other party present at the First Hartford – Bay Shore jobsite and their employees agree to hold harmless Sovereign Consulting Inc. in the event of any work-related illness and/or injury due to non-compliance with the Safety Plan, USOSHA 29 CFR 1910 General Industry Safety Standards, USOSHA 29 CFR 1926 Construction Safety Standards, contractors safety and health plans, policies and procedures.

2.0 Site Background and Information

The First Hartford – Bay Shore jobsite is located at the intersection of Fifth Avenue and Candlewood Road. The jobsite is approximately 1.9 acres with a one story 34,000 square foot building, asphalt parking lots and landscaping on the eastern and northern boundaries. The jobsite currently operates as South Shore Outdoor producing screen-printed and embroidered apparel with offices, showroom and warehouse.

Records indicate the jobsite was forested until 1966 when the area was cleared for development. Circa 1966 - 1969 the current one story building was constructed and used for the manufacturing of printed circuit boards i.e. Q.C. Circuit Corporation. This manufacturing continued throughout the 1970s and 1980s. Around the mid-1980s, the jobsite was occupied by a window manufacturer and installer i.e. Alpha Window Systems. Records show the manufacturing ongoing until the early 2000s.

The jobsite has been the subject of several environmental assessments and investigations primarily associated with the handling, storage and disposal of chlorinated solvents used during the manufacturing of printed circuit boards. These assessments and investigation have determined the presence of contaminated groundwater and soil throughout the jobsite.

In 2015, Sovereign Consulting Inc. was contracted by First Hartford Corporation and Subsidiaries to provide professional environmental services. These services include a Remedial Investigation in accordance with State of New York Department of Environmental Conservation Brownfield Cleanup Program requirements. The tasks associated with the Remedial Investigation included:

- Geophysical survey
- Groundwater monitoring well installations and sampling
- Soil borings and sampling
- Soil and sub-slab vapor point installations and sampling

A Remedial Action Work Plan has been prepared for submittal to the NYSDEC. Possible remedial tasks include: soil excavation, MNA monitoring, bio-remediation injections, and/or chemical injections. These tasks have the potential to exposure Sovereign and contractor employees to safety and health hazards that include but are not limited to:

- Caught between or struck by i.e. construction and heavy equipment
- Heat illnesses i.e. heat exhaustion, heat stroke, etc.
- Indirect exposure to hazardous substances
- Material handling
- Noise
- Slip, trips and falls
- Traffic
- Inhalation of chemicals

- Direct contact with chemicals

3.0 Safety Organizational Structure

3.1 Sovereign Consulting Inc. Project Manager

a. Authority to enforce and verify implementation of the Safety Plan with authorization to stop work due to unsafe acts, unsafe conditions, non-compliance and/or non-implementation of the Safety Plan and/or applicable safety and health requirements
b. Order immediate corrective action(s) upon notification of any non-compliance and/or implementation of the Safety Plan and/or applicable safety and health requirements
c. Coordinate with designated representatives i.e. Client, county, federal, municipal, state, Sovereign Corporate Safety Manager, Sovereign Site Safety Coordinator, Sovereign employees and contractor(s) on issues related to the Safety Plan, compliance and implementation, applicable safety and health requirements, Sovereign safety oversight, and corrective actions

3.2 Sovereign Consulting Inc. Safety and Health Manager

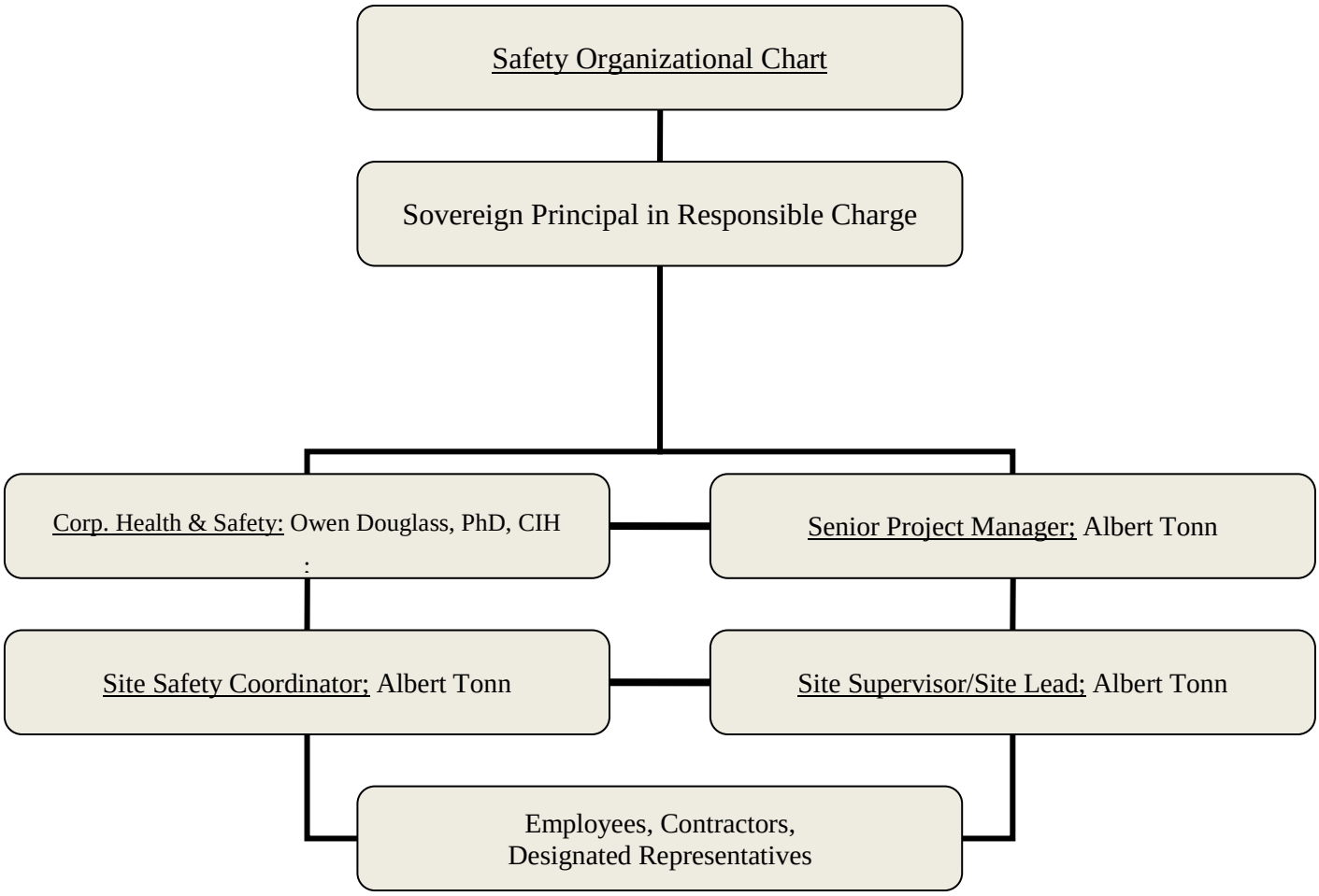
a. Prepare site specific Safety, Health and Emergency Response Plan and revise as needed
b. Authority to enforce and verify implementation of the Safety Plan with authorization to stop work due to unsafe acts, unsafe conditions, non-compliance and/or non-implementation of the Safety Plan and/or applicable safety and health requirements
c. Order immediate corrective action(s) upon notification of any non-compliance and/or implementation of the Safety Plan and/or applicable safety and health requirements
d. Notify Sovereign Project Manager of non-compliance and non-implementation of the Safety Plan and/or applicable safety and health requirements
e. Review air monitoring/air screening results
f. Provide site specific orientation and training
g. Coordinate with designated representatives i.e. Client, county, federal, municipal, state, Sovereign Project Manager, Sovereign Site Safety Coordinator, Sovereign employees and contractor(s)on issues related to Safety Plan compliance and implementation, applicable safety and health requirements, Sovereign safety oversight, and corrective actions

3.3 Sovereign Consulting Inc. Site Safety Coordinator

a. Verify compliance and implementation of Safety Plan and/or applicable safety and health requirements
b. Authority to stop work for non-compliance and non-implementation of the Safety Plan and/or applicable safety and health requirements
c. Order immediate corrective action(s) upon notification of any non-compliance and/or implementation of the Safety Plan and/or applicable safety and health requirements
d. Notify Sovereign Project Manager, Sovereign Corporate Safety Manager of any non-compliance and non-implementation of the Safety Plan and/or applicable safety and health requirements
d. Conduct air monitoring/air screening as per SHERP Section 7 Site Air Monitoring/Air Screening
e. Notify Sovereign Project Manager and Sovereign Corporate Safety Manager of air monitoring/air screening results in excess of action levels and/or project/site specific limits
f. Prepare daily log
g. Coordinate with designated representatives i.e. Client, county, federal, municipal, state, Sovereign Project Manager, Sovereign Corporate Safety Manager, Sovereign employees and contractor(s)on issues related to Safety Plan compliance and implementation, applicable safety and health requirements, Sovereign safety oversight, and corrective actions

3.4 Sovereign Consulting Inc. Site Supervisor/Site Lead

a. Verify compliance and implementation of the Safety Plan and/or applicable safety and health requirements
b. Authority to stop work for non-compliance and non-implementation of the Safety Plan and/or applicable safety and health requirements
c. Implement work plan i.e. budget and schedule as detailed by Sovereign Project Manager
d. Coordinate with designated representatives i.e. Client, county, federal, municipal, state, Sovereign Project Manager, Sovereign Corporate Safety Manager, Sovereign Site Safety Coordinator, Sovereign employees



and contractor(s)on issues related to Safety Plan compliance and implementation, applicable safety and health requirements, Sovereign safety oversight, and corrective actions

3.5 Sovereign Consulting Inc. Employees, Contractor(s) and Designated Representatives

a. Work in accordance with the Safety Plan and/or applicable safety and health requirements
b. Notify Sovereign Project Manager, Sovereign Corporate Safety Manager, and/or Sovereign Site Safety Coordinator of any issues related to the Safety Plan and/or applicable safety and health requirements
c. Notify Sovereign Project Manager, Sovereign Corporate Safety Manager, and Sovereign Site Safety Coordinator of any unknown safety and health hazards
d. Coordinate with Sovereign Project Manager, Sovereign Corporate Safety Manager, Sovereign Site Safety Coordinator on issues related to Safety Plan compliance and implementation, applicable safety and health requirements, Sovereign safety oversight, and corrective actions

4.0 Safety and Health Hazards & Task Based Risk Assessment

4.1 Groundwater and Soil Health Hazards

Hazardous Substance(s)[1]	PEL[2]	Exposure	Health Hazards
1,1,1-Trichloroethane	350 PPM TWA 450 PPM STEL	Indirect[3]	Contact can irritate eyes and skin. Inhalation can irritate nose and throat with dizziness, headache and lightheadedness. Damage to kidneys, liver and nervous system.
1,1,2-Trichloroethylene	10 PPM TWA 25 PPM STEL	Indirect	Contact can irritate eyes and skin. Inhalation can irritate nose and throat with dizziness, headache and lightheadedness. Damage to kidneys and liver. Suspected carcinogen: Kidneys, liver & lungs.
1,1-Dichloroethane	100 PPM TWA	Indirect	Contact can irritate eyes & skin. Inhalation can irritate nose and & throat with coughing & wheezing. Dizziness, headache & nausea. Damage to kidneys & liver. Suspected carcinogen: Kidneys, liver & lungs.
Chloroethane	100 PPM TWA	Indirect	Contact can irritate eyes and skin. Inhalation can irritate nose and throat with dizziness, headache and lightheadedness. Damage to kidneys and liver.
Lead	0.05 mg/m^3	Indirect	Contact can irritate eyes. Headache, irritability, reduced memory, and mood & personality changes. Inhalation can cause poor appetite, weakness and fatigue. Lower fertility in men and women. Damage to blood cells, brain and kidneys. Suspected carcinogen: Brain, kidneys, lungs, and stomach.

PEL: Permissible Exposure Limit TWA: Time Weighted Average (8 Hour) STEL: Short Term Exposure Limit

Hazardous Substance(s) [1]: The listed substance(s) are representative of groundwater and soil health hazards
PEL[2]: Lowest of USOSHA 29 CFR 1910 General Industry, USOSHA 29 CFR 1926 Construction, USNIOSH REL or ACGIH TLV
Indirect[3]: Contact, inhalation and ingestion of groundwater and soil

4.2 Safety Hazards

Struck by	**Unsafe condition/use of hand & power tools**	**Slips, trips and falls**
Caught between	**Heavy equipment movement & operation**	**Fire & explosions i.e. flammable liquids**
Aboveground & underground utilities	**Motor vehicles and traffic**	**Sharp debris, materials and objects**
Unprotected excavations & trenches	**Uneven/unstable terrain or working surfaces**	Electrocution (temporary electrical power)
Water accumulation (excavations & trenches)	**Material handling, storage and suspended loads**	**Rain, lighting, thunder, snow, ice and/or wind**
Flying debris	**Noise**	**Insect bites, small mammals, rats and/or rodents**
Frostbite, frostnip & hypothermia (Seasonal)	**Heat exhaustion & heat stroke (Seasonal)**	**Poison ivy, poison oak & poison sumac (Seasonal)**

4.3 Task Based Risk Assessment

a. Risk = Consequence of [Harm & Damage] Safety and Health Hazards X Probability [Likelihood of Harm and Damage].

b. Risk Classifications: **Low, Medium or High;** risk classifications are based upon implementation of engineering controls, safe work procedures & PPE

4.3.1 Groundwater Monitoring Wells Installation and Oversight

a. Groundwater and Soil Health Hazards: Low (Sovereign) Medium (Contractors)

b. Safety Hazards: Medium (Sovereign and Contractors)

4.3.2 Groundwater Monitoring Well Sampling

a. Groundwater and Soil Health Hazards: Low (Sovereign)

b. Safety Hazards: Low (Sovereign)

4.3.3 Soil Borings and Oversight

a. Groundwater and Soil Health Hazards: Low (Sovereign) Medium (Contractors)

b. Safety Hazards: Medium (Sovereign and Contractors)

4.3.4 Soil Boring Sampling

a. Groundwater and Soil Health Hazards: Low (Sovereign)

b. Safety Hazards: Low (Sovereign)

4.3.5 Soil and Sub-Slab Vapor Point Installation and Sampling

a. Groundwater and Soil Health Hazards: Low (Sovereign) Medium (Contractors)

b. Safety Hazards: Medium (Sovereign and Contractors)

4.3.5 Excavations

a. Groundwater and Soil Health Hazards: Low (Sovereign) Medium (Contractors)

b. Safety Hazards: Medium (Sovereign and Contractors)

4.3.6 Bioremediation and ISCO Chemical Injections

a. Groundwater and Soil Health Hazards: Low (Sovereign) Medium (Contractors)

b. Safety Hazards: Medium (Sovereign and Contractors)

5.0 Engineering Controls, Safe Work Procedures and Personal Protective Equipment (PPE)

Engineering controls, safe work procedures and personal protective equipment are limited to the safety and health hazards associated with tasks as per Safety Plan Sections 4.3.1, 4.3.2, 4.3.3, 4.3.4, and 4.3.5

5.1 Engineering Controls

a. Backhoes, bulldozers, compactors, direct push equipment, excavators, graders, loaders, and/or dump trucks with closed cabs, as applicable, operated by qualified personnel as per the manufacturer's guidelines and instructions.
b. Contractors shall provide verification of equipment inspections to Sovereign personnel prior to operating construction/heavy equipment
c. Drilling and construction/heavy equipment operations shall be in accordance with Sovereign SWP-15 Drilling and SWP-32 Heavy Equipment Operations

5.2. Safe Work Procedures

5.3.1 General Safe Work Procedures to Include But Not Limited To:

a. SWP-05 Biological Hazards
b. SWP-17 Electrical Safety-Low Energy
c. SWP-20 Employee Fitness for Duty
d. SWP-21 Excavation-Trenching
e. SWP-35 Housekeeping
f. SWP-37 Incident Reporting and Analysis
g. SWP-38 Inclement Weather
h. SWP-45 Motor Vehicle Safety
i. SWP-67 General Waste Management
j. Project Manager task and jobsite kickoff meeting(s)
k. Tailgate Safety Talks

5.2.2 Groundwater Monitoring Wells Installation and Oversight

a. Maintain upwind positioning as feasible during groundwater monitoring wells installation
b. Sovereign personnel shall complete Borehole Clearance Review (SWP-15 Drilling) prior to tasks
c. Sovereign personnel shall verify the location and operation of equipment emergency shutdowns and/or stops
d. Sovereign personnel shall verify the installation of cotter pins and whip checks airlines & hoses
e. Sovereign personnel shall maintain visual contact with equipment operators and shall remain at least ten (10) feet from operating equipment
f. Sovereign personnel shall only approach drilling equipment upon contractor's authorization, augurs and equipment has stopped and contractor is at least an arm's length from equipment controls

g. Contractors shall setup construction/heavy equipment at least ten (10) feet from overhead utilities; Sovereign personnel shall verify equipment setup in accordance with applicable requirements of SWP-046 Overhead Utilities
h. No groundwater and/or visible dust beyond immediate work area
i. Dispose and/or handle drill cuttings, groundwater, etc. as per applicable standards and/or project specifications
j. Sovereign personnel shall conduct breathing zone air screening for Volatile Organic Compound concentrations; Refer to Section 7 Air Screening
k. Applicable requirement of SWP-29 Hand and Power Tools

5.2.3 Groundwater Monitoring Well Sampling

a. Maintain upwind positioning as feasible during groundwater monitoring well sampling
b. Sovereign personnel shall open wells and vent to ambient air for at least five (5) minutes prior to sampling
c. As applicable to sampling procedures, batteries and generators shall be setup upwind
d. Sovereign personnel shall inspect bailers, batteries, control boxes, generators, pumps, and sample bottles and containers prior to tasks
e. Sovereign personnel shall conduct breathing zone air screening for Volatile Organic Compound concentrations; Refer to Section 7 Air Screening
f. No groundwater beyond immediate work area
g. Groundwater samples shall be handled in accordance with SWP-52 Safe Storage of Samples

5.2.4 Soil Borings and Oversight

a. Maintain upwind positioning as feasible during groundwater monitoring wells installation
b. Sovereign personnel shall complete Borehole Clearance Review (SWP-15 Drilling) prior to tasks
c. Sovereign personnel shall verify the location and operation of equipment emergency shutdowns and/or stops
d. Sovereign personnel shall verify the installation of cotter pins and whip checks airlines & hoses
e. Sovereign personnel shall maintain visual contact with equipment operators and shall remain at least ten (10) feet from operating equipment
f. Sovereign personnel shall only approach drilling equipment upon contractor's authorization, augurs and equipment has stopped and contractor is at least an arm's length from equipment controls
g. Contractors shall setup construction/heavy equipment at least ten (10) feet from overhead utilities; Sovereign personnel shall verify equipment setup in accordance with applicable requirements of SWP-046 Overhead Utilities
h. No groundwater and/or visible dust beyond immediate work area
i. Dispose and/or handle drill cuttings, groundwater, etc. as per applicable standards and/or project specifications
j. Sovereign personnel shall conduct breathing zone air screening for Volatile Organic Compound concentrations; Refer to Section 7 Air Screening
k. Applicable requirement of SWP-29 Hand and Power Tools

5.2.5 Soil Boring Sampling

a. Maintain upwind positioning as feasible during soil boring sampling
b. Sovereign personnel shall inspect sample bottles, containers and equipment prior to tasks
c. Sovereign personnel shall conduct breathing zone air screening for Volatile Organic Compound concentrations; Refer to Section 7 Air Screening
d. No soil beyond immediate work area
e. Soil samples shall be handled in accordance with SWP-52 Safe Storage of Samples

5.2.6 Soil and Sub-Slab Vapor Point Installation with Oversight and Sampling

a. Soil vapor point installation shall be in accordance with 5.2.4
b. Core drills, hammer drills, etc. for sub-slab vapor point installations shall be inspected, operated & maintained as per manufacturer's instructions.
c. Prior to sub-slab vapor installations, Sovereign personnel and/or contractors shall determine the absence or presence of Asbestos Containing Building Materials (ACFM), Lead Based Paint (LBP) and utilities i.e. electric, gas, water, etc.
d. Inspect extension cords, plugs, etc. Setup ground fault circuit interrupter at outlet, verify power i.e. amps at outlet suitable for core drill
e. Alert plant personnel to core drilling activities, no unauthorized personnel shall be within ten (10) feet of drilling operations
f. Misting and/or wetting for dust control as applicable to sub-slab vapor point installation
g. Sovereign personnel shall conduct breathing zone air screening for Volatile Organic Compound concentrations; Refer to Section 7 Air Screening

5.2.7 Excavations

a. Excavations will be performed by Subcontractor following Subcontractor Safe Work Practices equivalent to Sovereign SWP-21 Excavation-Trenching.
b. Misting and/or wetting for dust control as applicable to capture fugitive emissions
c. Sovereign personnel shall conduct breathing zone air screening for Volatile Organic Compound concentrations; Refer to Section 7 Air Screening
d. Sovereign personnel shall avoid slip, trip and fall hazards associated with open hole and loose soil
e. Sovereign personnel shall ensure that overhead and subsurface utilities are addressed as necessary
f. Sovereign personnel shall not place themselves in line of fire or near pinch points near moving machinery/equipment
g. Sovereign and Subcontractor personnel shall use hearing protection when noise levels exceed 85 dBA
h. Subcontractor personnel will decontaminate any visible contamination from equipment prior to demobilization
i. Soil Excavation Activity Hazard Analysis shall be used when task-specific excavation plans are finalized

5.2.8 Bioremediation and ISCO Chemical Injections

Hydrogen peroxide and potassium permanganate are relatively safe chemicals with respect to toxicity. However, the typical dangers associated with the handling of any oxidizing chemical are present with these chemicals. Skin contact with oxidizing chemicals should be avoided, and special care should be taken to avoid breathing the chemicals in the form of a dust or mist. Workers should therefore handle the chemicals in a manner that minimizes the creation of mist or dust. Proper respiratory protection should always be worn when working directly with the chemical. Once the chemicals are placed into the subsurface, exposure to the chemicals through inhalation pathways is very unlikely.

When the final approach is agreed upon, review of the selected MSDS will determine the selection of PPE, including any respiratory protection that may be required, as well a safe work practices that will be used to develop an Activity Hazard Analysis or Job Safety Analysis.

5.3 Site Personal Protective Equipment (PPE)

The jobsite site personal protective equipment utilizes *USOSHA 29 CFR 1910.120/1926.65 Hazardous Waste Operations and Emergency Response Appendix B General Description and Discussion of the Levels of Protection and Protective Gear* as a guideline. All applicable safety and health requirements of the Sovereign Personal Protective Equipment Program and Respiratory Protection are included by reference.

5.3.1 Level D Protection

Sturdy work shirts & pants	High visibility vest
Canvas and/or leather work gloves	Hearing protection i.e. ear plugs, canal caps and/or ear muffs[2]
Hazardous substance resistant gloves[1]	Safety glasses with side shields
Safety boots and/shoes (Impact, compression and puncture)	Face shield[5]
PVC, rubber or equivalent over boots and/or latex boot covers[1]	PVC apron or 48” PVC raincoat[4]
Hard hat[3]	Other:

[1] Groundwater and/or soil health hazards [2] as-needed per task and associated noise [3] as-needed per task and associated potential injury to head
[4] Groundwater and soil sampling [5] as-needed per task and associated potential injury to face

5.3.2 Modified Level D Protection

Sturdy work shirts & pants	Hard hat[3]
Kleenguard® heavy duty coveralls or equivalent with hood, elastic ankles & elastic wrists	High visibility vest
Canvas and/or leather work gloves	Hearing protection i.e. ear plugs, canal caps and/or ear muffs[2]
Hazardous substance resistant gloves[1]	Safety glasses with side shields
Safety boots and/shoes (Impact, compression and puncture)	Face shield
PVC, rubber or equivalent over boots and/or latex boot covers[1]	Other:

[1] Groundwater and/or soil health hazards [2] as-needed per task and associated noise [3] as-needed per task and associated potential injury to head
[4] as-needed per task and associated potential injury to face

5.3.3 PPE Task Assignment

PPE task assignment is based upon Task Based Risk Assessment, Sovereign Job Hazard Analysis Worksheets, & Sovereign Safe Work Procedures

Task	PPE
Groundwater monitoring wells installation and oversight	Level D Protection
Groundwater monitoring well sampling	Level D Protection
Soil borings and oversight	Level D Protection
Soil boring sampling	Level D Protection
Soil and sub-slab vapor point installation with oversight and sampling	Level D Protection
Excavation & Trenching	Level D Protection
Bioremediation Injections	Level D Protection w/face shield
ISCO Chemical Injections (Permanganate, Peroxides, etc.) ->> (need for Respiratory Protection TBD)	Level D Protection w/face shield

5.3.4 PPE Task Assignment Upgrade and/or Downgrade

The Sovereign Site Safety Coordinator based upon site conditions, air monitoring/air screening data, site inspections, etc. may upgrade and/or downgrade PPE task assignments. Prior to any PPE task assignment upgrades and/or downgrades, the Sovereign Site Safety Coordinator shall notify the Sovereign Project Manager and Sovereign Corporate Safety Manager for approval and authorization.

6.0 Work Zones

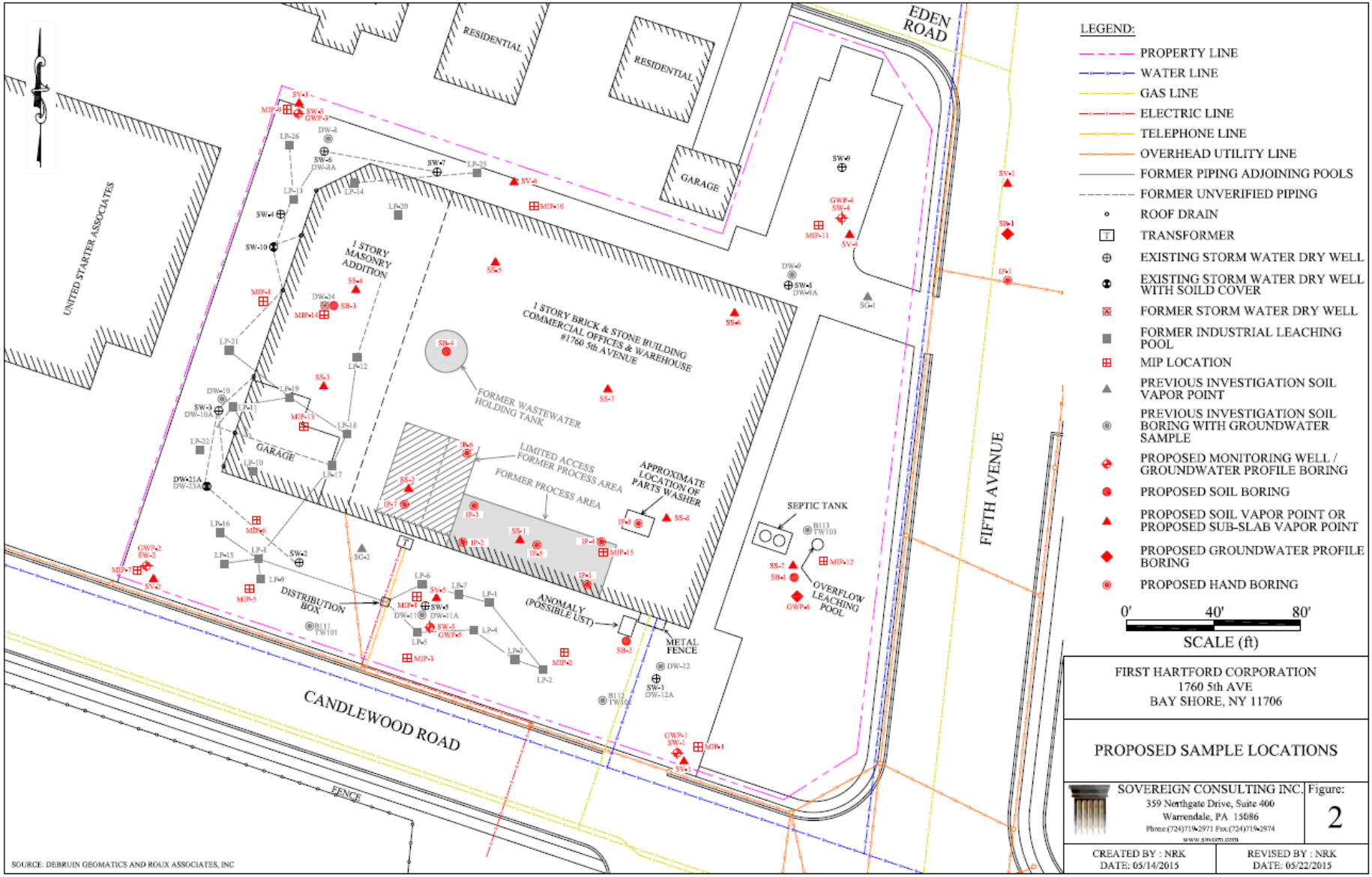
Task and jobsite work zones shall consist of restricted work zone(s) and general work zone(s).

6.1 Restricted Work Zone(s)

Restricted work zones(s) are locations with safety and health hazards as the Safety Plan Sections 4.1 and 4.2; restricted work zone(s) boundaries shall be designated by danger tape or equivalent. Entry into restricted work zone(s) shall be limited to authorized personnel.

6.2 General Work Zone(s)

General work zone(s) are locations with no safety and health hazards as per the Safety Plan Sections 4.1 and 4.2 as applicable; general work zone boundaries shall be designated by danger tape or equivalent. Entry into general work zone(s) shall be limited to authorized personnel.


EDEN ROAD
RESIDENTIAL
RESIDENTIAL
GARAGE
UNITED STARTER ASSOCIATES
1 STORY MASONRY ADDITION
1 STORY BRICK & STONE BUILDING
COMMERCIAL OFFICES & WAREHOUSE
#1760 5th AVENUE
FORMER WASTEWATER HOLDING TANK
LIMITED ACCESS
FORMER PROCESS AREA
FORMER PROCESS AREA
APPROXIMATE LOCATION OF PARTS WASHER
GARAGE
SEPTIC TANK
OVERFLOW LEACHING POOL
FIFTH AVENUE
DISTRIBUTION BOX
ANOMALY (POSSIBLE UST)
METAL FENCE
CANDLEWOOD ROAD
FENCE
SOURCE: DEBRUIN GEOMATICS AND ROUX ASSOCIATES, INC
LEGEND:
PROPERTY LINE
WATER LINE
GAS LINE
ELECTRIC LINE
TELEPHONE LINE
OVERHEAD UTILITY LINE
FORMER PIPING ADJOINING POOLS
FORMER UNVERIFIED PIPING
ROOF DRAIN
TRANSFORMER
EXISTING STORM WATER DRY WELL
EXISTING STORM WATER DRY WELL WITH SOILD COVER
FORMER STORM WATER DRY WELL
FORMER INDUSTRIAL LEACHING POOL
MIP LOCATION
PREVIOUS INVESTIGATION SOIL VAPOR POINT
PREVIOUS INVESTIGATION SOIL BORING WITH GROUNDWATER SAMPLE
PROPOSED MONITORING WELL / GROUNDWATER PROFILE BORING
PROPOSED SOIL BORING
PROPOSED SOIL VAPOR POINT OR PROPOSED SUB-SLAB VAPOR POINT
PROPOSED GROUNDWATER PROFILE BORING
PROPOSED HAND BORING
0' 40' 80'
SCALE (ft)
FIRST HARTFORD CORPORATION
1760 5th AVE
BAY SHORE, NY 11706
PROPOSED SAMPLE LOCATIONS
SOVEREIGN CONSULTING INC.
359 Northgate Drive, Suite 400
Warrendale, PA 15086
Phone:(724)719-2971 Fax:(724)719-2974
www.sovcon.com
Figure: 2
CREATED BY : NRK
DATE: 05/14/2015
REVISED BY : NRK
DATE: 05/22/2015

7.0 Air Monitoring/Air Screening

Air monitoring/air screening shall be conducted during groundwater monitoring wells installation and oversight, groundwater monitoring well sampling, soil boring and oversight, soil boring sampling, and soil and sub-slab vapor point installation with oversight and sampling. Air screening shall include:

a. Volatile Organic Compounds/VOC i.e. real time total concentrations PPM equivalents

7.1 Air Monitoring/Air Screening Equipment

a. Photo-ionization detector (PID) with 11.7eV lamp
b. Air monitoring/air screening equipment shall be calibrated, maintained and operated in accordance with the manufacturers' instructions.

7.2 Air Monitoring/Air Screening Procedures

a. Upwind prior to tasks
b. Breathing zone and downwind during tasks

7.3 Air Monitoring/Air Screening Action Levels and/or Limits

Volatile Organic Compounds/VOC	≥5 PPM above background sustained for five (5) minutes; Stop work, evacuate area(s), notify Sov. Project Manager[1]

[1]Conduct air rescreening after five (5) minutes to determine absence or presence of safety and health hazards; resume work based upon air screening result i.e. < action levels and/or limits or continue stop work ≥ action levels and/or limits and notify Sovereign Safety and Health Manager

7.4 Air Monitoring/Air Screening Daily Log

Air monitoring/air screening daily log shall include but is not limited to:

a. Date and time
b. Air monitoring/air screening location i.e. restricted work zone(s) and/or general work zone(s)
c. Make and model of air monitoring/air screening equipment
d. Real time air monitoring/air screening data
e. Corrective actions

8.0 Personnel & Equipment Decontamination Area(s) and Procedures (SWP-14 Decontamination as guideline)

Personnel and equipment decontamination area(s) and procedures should be utilized for tasks to include:

a. Groundwater monitoring well installation and oversight
b. Groundwater monitoring well sampling

c. Soil boring and oversight
d. Soil boring sampling
e. Soil and sub-slab vapor point installation with oversight and sampling

8.1 Personnel Decontamination Area(s)

Personnel decontamination area(s) should be setup next to restricted work zones; personnel decontamination areas should be ten (10) feet in length and ten (10) feet wide with equipment to include:

a. Reinforced six (6) mil plastic
b. Two (2) five (5) gallon plastic compressed air sprayers or equivalent
c. Nylon brushes
d. Galvanized steel tubs or equivalent
e. Fifty-five (55) gallon drums **and** six (6) mil plastic disposal bags

8.2 Personnel Decontamination Procedures

a. Remove gross and/or visible groundwater and soil contamination from PPE and hand tools/equipment by brushing and wiping. .

Modified Level D Protection Decontamination

Stage 1: PPE Wash & Rinse (Optional)
Wash and rinse coveralls, gloves, over boots or latex boot covers, hardhat and safety glasses
⇓
Stage 2: PPE Removal
Coveralls, outer gloves, over boots or latex boot covers, hardhat and safety glasses
Disposable PPE i.e. coveralls, gloves, latex boot covers placed into designated bag or container
⇓
Stage 3: Inner Glove Removal & Disposal[1]
⇓
Stage 4: Hand & Face Wash

[1] Optional

Level D Protection Decontamination

Stage 1: PPE Wash & Rinse (Optional)
Wash and rinse gloves, over boots or latex boot covers, hardhat and safety glasses w/aprons and/or raincoat worn for sampling.
⇓
Stage 2: PPE Removal
Outer gloves, over boots or latex boot covers, hardhat and safety glasses
Disposable PPE i.e. Gloves, latex boot covers placed into designated bag or container
⇓

Stage 3: Inner Glove Removal & Disposal[1]

⇓

Stage 4: Hand & Face Wash

Hand Tools & Equipment Decontamination

Stage 1: Hand Tool & Equipment Wash & Rinse

⇓

Stage 2: Visual inspection for no visible contamination

[1] Optional

8.3 Equipment Decontamination Area(s)

a. Not applicable

8.5 Equipment Decontamination Procedures

a. Remove gross and/or visible groundwater and soil contamination from augurs, rods, etc. as needed by brushing and wiping i.e. drilling equipment shall be decontaminated in accordance with applicable NYSDEC requirements.

Equipment Decontamination Procedures

Stage 1: Equipment Wash & Rinse

⇓

Stage 2: Visual inspection for no visible contamination

8.5 PPE & Wash/Rinse Decontamination Water & Waste Disposal Revise with Site Specific Procedures

Decontaminated PPE shall be disposed of as construction and demolition debris. Decontamination water and wastes will be contained and characterized as hazardous waste or non-hazardous waste in accordance with *USEPA 40 CFR 261.64 Toxicity Characteristics.* Hazardous waste shall be treated and/or disposed at an approved hazardous waste treatment, storage and disposal facility. Non-hazardous soil and water may be returned to excavation/trenches as per applicable standards and/or project specifications. Non-hazardous wastes shall be treated and/or disposed at an approved solid waste disposal facility.

9.0 Safety Training

Sovereign and contractor personnel with probable exposure to groundwater and soil health hazards shall have safety training as per *USOSHA 29 CFR 1910.120/1926.65 Hazardous Waste Operations and Emergency Response Paragraph (e) Training.*

Safety Training	Personnel
Hazardous Waste Operations 40 Hours & 3 Days Field Work for Site Personnel	Sovereign and contractor personnel with probable exposure to safety and health hazards
Hazardous Waste Operation 8 Hour Management and Supervisor Training	Sovereign and contractor supervisors responsible for or who supervise employees w/probable exposure to safety & health hazards
Hazardous Waste Operation 8 Hour Annual Refresher Training	Sovereign and contractor personnel with probable exposure to safety and health hazards

Sovereign and contractor shall, upon request, provide safety training documentation to Sovereign Project Manager, Sovereign Safety and Health Manager and/or designated representatives.

9.1 Site-Specific Training

Sovereign and contractor personnel shall complete Site-Specific Training to include:

a. Safety, Health and Emergency Response Plan
b. Safety and health hazards
c. Engineering controls, safe work procedures and personal protective equipment
d. Personnel and equipment decontamination procedures
e. Emergency response

The Sovereign Safety and Health Manager is responsible for the site-specific training. Site-specific training records shall include sign-in sheets with date, printed name of contractor(s) personnel, and name of employer, signature and acknowledgement.

9.2 Tailgate Safety Training

Once per day, Sovereign and contractor personnel will complete tailgate safety training to include:

a. Status of engineering controls, safe work procedures, and personal protective equipment
b. Review of air monitoring/air screening results
c. Status of decontamination procedures
d. Review of safety discrepancies, non-compliance and/or non-implementation of Safety Plan and/or applicable safety and health requirements

The Sovereign Site Safety Coordinator will be responsible to conduct the toolbox safety training. Toolbox safety training records shall include sign-in sheets with date, printed name of contractor(s) personnel, and name of employer, signature and acknowledgement

10.0 Medical Surveillance

All applicable safety and health requirements of the Sovereign Consulting Inc. Medical Surveillance are incorporated by reference.

11.0 Emergency Response

All emergencies and/or incidents such as environmental, equipment or property damage, close calls, work related illness or injury involving Sovereign and contractor personnel as well as any others at the Site shall be immediately reported to the Sovereign Site Safety Coordinator and Site Supervisor.

11.2 Emergency Response Control & Recognition

Sovereign and contractor personnel shall immediately stop work upon unanticipated safety and health hazards, unsafe conditions, etc. Sovereign and contractor personnel shall evacuate the immediate area, isolate the area to prevent entry and notify the Sovereign Site Safety Coordinator and/or Sovereign Site Supervisor. The Sovereign Site Safety Coordinator shall notify the Sovereign Project Manager and Sovereign Safety and Health Manager. The Sovereign Project Manager shall, as appropriate, notify designated municipal, county, state or federal representatives of unsafe conditions posing a risk to the community.

11.3 Emergency Response Equipment & Supplies

Emergency eyewash	Six (6) mil plastic disposal bags
Emergency shower[1]	Spill booms, pads, etc.
Fire extinguishers	Spill tools i.e. brooms, shovels, etc.
First aid kit	
Granular absorbents	
Hard hat[3]	

[1] Optional

12.0 Traffic Control

Traffic control/work zone delineation shall be Level 1 or as applicable to tasks and jobsite specific conditions. All requirements of Sovereign's Work Zone Delineation Standard are incorporated by reference.

13.0 Safety, Health and Emergency Response Plan Linkage Document

Programs/Topics	Incorporated by Reference	Included in Safety Plan	Linkage
Sovereign Safety and Health Program	Yes	No	Sovereign Safety and Health Program
Sovereign Job Safety Analysis Worksheets	Yes	No	JSA Worksheets Binder
Sovereign Injury, Illness & Incident Report Forms	Yes	No	Sovereign Safety and Health Program
Sovereign Tailgate Safety Meeting Form	Yes	No	Sovereign Safety and Health Program and Project Folder
Sovereign Air Monitoring Equipment Calibration/Check Log	Yes	No	Sovereign Safety and Health Program and Project Folder
Sovereign Air Monitoring Log	Yes	No	Sovereign Safety and Health Program and Project Folder
Sovereign Utility Clearance	Yes	No	Sovereign Safety and Health Program and Project Folder
Sovereign Bore Clearance Review	Yes	No	Sovereign Safety and Health Program and Project Folder
Sovereign Work Zone Delineation Standard	Yes	No	Sovereign Safety and Health Program and Project Folder

Attachment I

OSHA Occupational Chemical Database

Methyl chloroform

Synonyms & Trade Names

Chlorothene; 1,1,1-Trichloroethane; 1,1,1-Trichloroethane (stabilized)

CAS No.	RTECS No.	DOT ID & Guide
71-55-6	KJ2975000	2831 160

Formula	Conversion	IDLH
CH_3CCl_3	1 ppm = 5.46 mg/m^3	700 ppm See: 71556

Exposure Limits

NIOSH REL

: C 350 ppm (1900 mg/m^3) [15-minute] See Appendix C (Chloroethanes)

OSHA PEL

†: TWA 350 ppm (1900 mg/m^3)

Measurement Methods

NIOSH 1003
See: NMAM or OSHA Methods

Physical Description

Colorless liquid with a mild, chloroform-like odor.

MW:	BP:	FRZ:	Sol:	VP:	IP:
133.4	165°F	-23°F	0.4%	100 mmHg	11.00 eV

Sp.Gr:	Fl.P:	UEL:	LEL:		
1.34	?	12.5%	7.5%		

Combustible Liquid, but burns with difficulty.

Incompatibilities & Reactivities

Strong caustics; strong oxidizers; chemically-active metals such as zinc, aluminum, magnesium powders, sodium & potassium; water [Note: Reacts slowly with water to form hydrochloric acid.]

Exposure Routes

inhalation, ingestion, skin and/or eye contact

Symptoms

irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage

Target Organs

Eyes, skin, central nervous system, cardiovascular system, liver

Personal Protection/Sanitation

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet or contaminated
Change: No recommendation

First Aid

(See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

NIOSH/OSHA

Up to 700 ppm:
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0079 See MEDICAL TESTS: 0141

1,1-Dichloroethane

Synonyms & Trade Names

Asymmetrical dichloroethane; Ethylidene chloride; 1,1-Ethylidene dichloride

CAS No.	RTECS No.	DOT ID & Guide
75-34-3	KI0175000	2362 130

Formula	Conversion	IDLH
$CHCl_2CH_3$	1 ppm = 4.05 mg/m^3	3000 ppm See: 75343

Exposure Limits

NIOSH REL

: TWA 100 ppm (400 mg/m^3) See Appendix C (Chloroethanes)

OSHA PEL

: TWA 100 ppm (400 mg/m^3)

Measurement Methods

NIOSH 1003;
OSHA 7
See: NMAM or OSHA Methods

Physical Description

Colorless, oily liquid with a chloroform-like odor.

MW:	BP:	FRZ:	Sol:	VP:	IP:
99.0	135°F	-143°F	0.6%	182 mmHg	11.06 eV

Sp.Gr:	Fl.P:	UEL:	LEL:		
1.18	2°F	11.4%	5.4%		

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities

Strong oxidizers, strong caustics

Exposure Routes

inhalation, ingestion, skin and/or eye contact

Symptoms

irritation skin; central nervous system depression; liver, kidney, lung damage

Target Organs

Skin, liver, kidneys, lungs, central nervous system

Personal Protection/Sanitation

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid

(See procedures)
Eye: Irrigate immediately
Skin: Soap flush promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

NIOSH/OSHA

Up to 1000 ppm:
(APF = 10) Any supplied-air respirator

Up to 2500 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

Up to 3000 ppm:
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0249

Ethyl chloride

Synonyms & Trade Names

Chloroethane, Hydrochloric ether, Monochloroethane, Muriatic ether

CAS No.	RTECS No.	DOT ID & Guide
75-00-3	KH7525000	1037 115

Formula	Conversion	IDLH
CH_3CH_2Cl	1 ppm = 2.64 mg/m^3	3800 ppm [10%LEL] See: 75003

Exposure Limits

NIOSH REL

: Handle with caution in the workplace. See Appendix C (Chloroethanes)

OSHA PEL

: TWA 1000 ppm (2600 mg/m^3)

Measurement Methods

NIOSH 2519

See: NMAM or OSHA Methods

Physical Description

Colorless gas or liquid (below 54°F) with a pungent, ether-like odor. [Note: Shipped as a liquefied compressed gas.]

MW:	BP:	FRZ:	Sol:	VP:	IP:
64.5	54°F	-218°F	0.6%	1000 mmHg	10.97 eV

Sp.Gr:	Fl.P:	UEL:	LEL:	RGasD:	
0.92 (Liquid at 32°F)	NA (Gas) -58°F (Liquid)	15.4%	3.8%	2.23	

Flammable Gas

Incompatibilities & Reactivities

Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; oxidizers; water or steam [Note: Reacts with water to form hydrochloric acid.]

Exposure Routes

inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact

Symptoms

incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage

Target Organs

Liver, kidneys, respiratory system, cardiovascular system, central nervous system

Personal Protection/Sanitation

(See protection codes)
Skin: Prevent skin contact (liquid)
Eyes: Prevent eye contact (liquid)
Wash skin: No recommendation
Remove: When wet (flammable)
Change: No recommendation

First Aid

(See procedures)
Eye: Irrigate immediately (liquid)
Skin: Water flush promptly (liquid)
Breathing: Respiratory support
Swallow: Medical attention immediately (liquid)

Respirator Recommendations

OSHA

Up to 3800 ppm:
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0132

Lead

Synonyms & Trade Names

Lead metal, Plumbum

CAS No.	RTECS No.	DOT ID & Guide
7439-92-1	OF7525000	

Formula	Conversion	IDLH
Pb		100 mg/m^3 (as Pb) See: 7439921

Exposure Limits

NIOSH REL

*: TWA (8-hour) 0.050 mg/m^3 See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) -- see Appendix C.]

OSHA PEL

*: [1910.1025] TWA 0.050 mg/m^3 See Appendix C [*Note: The PEL also applies to other lead compounds (as Pb) -- see Appendix C.]

Measurement Methods

NIOSH 7082, 7105, 7300, 7301, 7303, 7700, 7701, 7702, 9100, 9102, 9105;
OSHA ID121, ID125G, ID206
See: NMAM or OSHA Methods

Physical Description

A heavy, ductile, soft, gray solid.

MW:	BP:	MLT: 621°F	Sol:	VP:	IP:
207.2	3164°F		Insoluble	0 mmHg (approx)	NA

Sp.Gr:	Fl.P:	UEL:	LEL:		
11.34	NA	NA	NA		

Noncombustible Solid in bulk form.

Incompatibilities & Reactivities

Strong oxidizers, hydrogen peroxide, acids

Exposure Routes

inhalation, ingestion, skin and/or eye contact

Symptoms

lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension

Target Organs

Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

Personal Protection/Sanitation

(See protection codes)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: Daily
Remove: When wet or contaminated
Change: Daily

First Aid

(See procedures)
Eye: Irrigate immediately
Skin: Soap flush promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations

(See Appendix E)
NIOSH/OSHA

Up to 0.5 mg/m^3:
(APF = 10) Any air-purifying respirator with an N100, R100, or P100 filter (including N100, R100, and P100 filtering facepieces) except quarter-mask respirators.
Click here for information on selection of N, R, or P filters.
(APF = 10) Any supplied-air respirator

Up to 1.25 mg/m^3:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode
(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter.

Up to 2.5 mg/m^3:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.
Click here for information on selection of N, R, or P filters.
(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode
(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Up to 50 mg/m^3:
(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Up to 100 mg/m^3:
(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.
Click here for information on selection of N, R, or P filters.
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

See also: INTRODUCTION See ICSC CARD: 0052 See MEDICAL TESTS: 0127

Attachment II

Safety, Health and Emergency Response Plan Acknowledgement

HEALTH & SAFETY PLAN AND EMERGENCY RESPONSE PLAN

ALL SITE PERSONNEL (EMPLOYEES AND THEIR SUBCONTRACTORS) HAVE REVIEWED THE ATTACHED HASP AND EMERGENCY RESPONSE PLAN.

SIGNATURE PAGE

Print Name	Signature	Date	Company Affiliation

Attachment III

Activity Hazard Analyses

ACTIVITY HAZARD ANALYSIS FOR SOIL EXCAVATION

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Excavation of Soil	Underground/ Overhead Utilities	• Identify all utilities around the site before work commences • Cease work immediately if unknown utility markers are uncovered • Use manual excavation within 3 feet of known utilities • Utility clearance shall conform with 29 CFR 1926.955 (high voltage >700 kv) 15 feet phase to ground clearance; 31 feet phase to phase clearance		
	Excavation Wall Collapse	• Construct diversion ditches or dikes to prevent surface water from entering excavation • Provide good drainage of area adjacent to excavation • Collect ground water/rain water from excavation and dispose of properly • Store excavated material at least 2 feet from the edge of the excavation; prevent excessive loading of the excavation face • Provide sufficient stairs, ladders, or ramps when workers enter excavations over 4 feet in depth • Place ladders no more than 25 feet apart laterally • Treat excavations over 4 feet deep as confined spaces • Complete confined space permit entry procedure • Monitor atmosphere for flammable/toxic vapors, and oxygen deficiency • Slope, bench, shore, or sheet excavations over 5 feet deep if worker entry is required • Assign a competent person to inspect, decide soil classification, proper sloping, the correct shoring, or sheeting • Inspect excavations (when personnel entry is required) daily, any time conditions change • Provide at least two means of exit for personnel working in excavations	Hard hat, safety glasses, steel toe work boots	

ACTIVITY HAZARD ANALYSIS FOR SOIL EXCAVATION

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Excavation of Soil (Continued)	Struck By/ Against Heavy Equipment	• Wear reflective Hi-Vis vests when exposed to vehicular traffic • Isolate equipment swing areas • Make eye contact with operators before approaching equipment • Understand and review hand signals	Hi-Vis vests, hard hat, safety glasses, steel toe work boots	
	Handling Heavy Objects	• Observe proper lifting techniques • Obey sensible lifting limits (60 lb. maximum per person manual lifting) • Use mechanical lifting equipment (hand carts, trucks) to move large, awkward loads		
	Sharp Objects	• Wear cut resistant work gloves when the possibility of lacerations or other injury may be caused by sharp edges or objects • Maintain all hand and power tools in a safe condition • Keep guards in place during use	Leather gloves	
	Slips, Trips, Falls	• Clear walkways, work areas of equipment, vegetation, excavated material, tools, and debris • Mark, identify, or barricade other obstructions • Evaluate fall hazards above 4 ft.; use fall protection equipment (harness/lanyard), standard guardrails or other fall protection systems when working on elevated platforms above 6 ft. • Use heavy duty industrial (type IA) ladders • Install and inspect scaffolds according to manufacturer's requirements • Only trained operators are permitted to use aerial lifts • Tie-off all straight/extension ladders or manually hold by co-worker at base • Anchor points for fall arrest systems must support at least 5,400 pounds for each worker		

ACTIVITY HAZARD ANALYSIS FOR SOIL EXCAVATION

Task Breakdown	Potential Hazards	Critical Safety Practices	Personal Protective Clothing and Equipment	Monitoring Devices
Excavation of Soil (Continued)	High Noise Levels	• Use hearing protection when exposed to excessive noise levels (greater than 85 dBA over an 8-hour work period) • Assess noise level with sound level meter if possibility exists that level may exceed 85 dBA TWA	Ear plugs	
	Inhalation and Contact with Hazardous Substances	• Provide workers proper skin, eye and respiratory protection based on the exposure hazards present • Review hazardous properties of site contaminants with workers before operations begin • Dampen soil using light water spray to prevent fugitive dust emissions		
	High/Low Ambient Temperature	• Monitor for Heat/Cold stress • Provide fluids to prevent worker dehydration • Follow work/rest schedule	Insulated Clothing (subject to ambient temperature)	Meteorological Equipment

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
• Backhoe, loader, excavator • Seatbelt, back-up alarm • Personal protective equipment • Hand tools • First-aid kit, fire extinguisher • Operations manual for the equipment • Personal protective equipment	• Inspect equipment and tools daily per manufacturers requirements • Inspect all emergency equipment (i.e.: first aid kits, fire extinguishers)	• Proper use of equipment and tools • Review JSA with all site personnel • Hand signal