Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report

1501 College Avenue Site
BCP Site No. C932134
Niagara Falls, New York

September 2012 0140-001-105

Prepared For:

Santarosa Holdings, Inc.

Prepared By:

TurnKey Environmental Restoration, LLC

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REMEDIAL INVESTIGATION/ INTERIM REMEDIAL MEASURES / ALTERNATIVES ANALYSIS REPORT

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RI/IRM/AA REPORT

1501 College Avenue Site

Table of Contents

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

TurnKey Environmental Restoration, LLC (TurnKey), in association with Benchmark Environmental Engineering and Science, PLLC (Benchmark), has prepared this Remedial Investigation (RI) / Interim Remedial Measure (IRM) /Alternatives Analysis (AA) Report on behalf of Santarosa Holdings, Inc. (Santarosa) for the 1501 College Avenue Site, located in the City of Niagara Falls, Niagara County, New York (Site; see Figures 1 and 2).

Santarosa elected to pursue cleanup and redevelopment of the Site under the New York State Brownfield Cleanup Program (BCP), and executed a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on December 13, 2007 and last amended on December 17, 2010 (BCP Site No. C932134). An RI/AAR Work Plan dated December 2007 was approved by the NYSDEC, with concurrence of the New York State Department of Health (NYSDOH), on January 4, 2008. An IRM Work Plan dated March 2008 was approved by the NYSDEC on June 11, 2008. TurnKey performed initial RI soil and groundwater sampling activities at the Site in September and October 2010. Based on the findings of the RI activities, TurnKey and Santarosa met with the NYSDEC and NYSDOH in November 2010 and prepared an IRM Work Plan letter dated November 12, 2010 further describing the planned IRM activities. The IRM Work Plan letter was approved by NYSDEC on November 18, 2010. IRM activities were conducted at the Site from March 2011 through October 2012.

1.1 Background

The BCP Site is an approximate 12.4-acre Site, comprised of two adjoining parcels, identified as:

- 1501 College Avenue - SBL 130-18-2-3.211 (12.25-acre portion of a larger 15.0 acre parcel); and,
- 1655 College Avenue - SBL 130.18-2-3.212 (0.16-acre parcel).

The BCP Site is bordered by a railroad, College Avenue and industrial property to the north, and commercial/industrial property to the south, east, and west (see Figures 1 and 2). The Site was used for heavy industrial manufacturing from at least 1910 to the mid-1980s, and at one time was part of a larger former Union Carbide Co. manufacturing complex encompassing the Site and the eastern and western adjoining parcels.

1.2 Previous Investigations

1.2.1 September 2007– Phase I Environmental Site Assessment

In August 2007, Benchmark conducted a Phase I Environmental Site Assessment (ESA) of the subject property. Benchmark identified several areas of concern: evidence of illegal dumping was obvious across the site; various debris piles, automobile parts, abandoned automobiles, abandoned tanker trucks, drums of unknown liquid and solid contents, sacks of unknown granular or solid materials, aboveground storage tanks (ASTs), and household debris was located throughout the interior and exterior the site.

1.2.2 August 2007– Limited Preliminary Environmental Investigation

Benchmark conducted a limited Preliminary Environmental Investigation at the 1501 College Avenue Site in August 2007. The Limited Preliminary Environmental Investigation involved collecting four surface soil samples, one galbestos roof-covering sample and two debris pile samples. The samples indicated that polycyclic aromatic hydrocarbons (PAHs), metals, and polychlorinated biphenyl (PCBs) were present on-site above NYSDEC Part 375 Industrial soil cleanup objectives (SCOs).

1.3 Constituents of Potential Concern (COCs)

The Constituents of Potential Concern (COPCs) at the Site are:

- ***Soil:*** PAHs, metals, and PCBs
- ***Groundwater:*** VOCs

1.4 Report Organization

This report contains the following nine sections:

- Section 1.0 is the introduction and provides Site background information.
- Section 2.0 presents the investigation approach.
- Section 3.0 describes the Site physical characteristics as they pertain to the investigation findings.

- Section 4.0 presents the investigation results by media.
- Section 5.0 describes the interim remedial measures implemented at the Site.
- Section 6.0 describes the fate and transport of the COPCs.
- Section 7.0 presents the qualitative risk assessment.
- Section 8.0 evaluates remedial alternatives for the Site.
- Section 9.0 presents the project summary and conclusions.
- Section 10.0 provides a list of references for this report.

2.0 INVESTIGATION APPROACH

The purpose of the RI field activities was to define the nature and extent of contamination on the BCP Site, and to collect data of sufficient quantity and quality to perform the remedial alternatives evaluation. The field investigation was completed across the BCP Site to supplement previous environmental data and to delineate areas requiring remediation. On-site field activities included: advancement of soil borings; excavation of test pits; surface and subsurface soil sampling; debris pile sampling; monitoring well installation; groundwater sampling; and, collection of hydrogeologic data.

Field team personnel collected environmental samples in accordance with the rationale and protocols described in the Field Sampling Plan (FSP) presented in the Quality Assurance Project Plan (QAPP). USEPA and NYSDEC-approved sample collection and handling techniques were used. Samples for chemical analysis were analyzed in accordance with USEPA SW-846 methodology with an equivalent Category B deliverable package to meet the data requirements. Analytical results were evaluated by a third-party data validation expert in accordance with provisions described in the QAPP.

Soil/fill samples were collected from the test pits and soil borings and field-screened for the presence of VOCs using a field photoionization detector (PID). Soil/fill samples exhibiting elevated PID readings were analyzed for TCL VOCs. RI soil/fill samples were analyzed for Target Compound List (TCL) SVOCs, Target Analyte List (TAL) metals, PCBs and five of the samples were analyzed for herbicides and pesticides. Soil/fill samples were collected using dedicated stainless steel sampling tools. Representative soil samples were placed in pre-cleaned laboratory provided sample bottles, cooled to 4ºC in the field, and transported under chain-of-custody command to Test America Laboratory, located in Amherst, New York, a NYSDOH ELAP-certified analytical laboratory.

The investigation activities are described below. Figures 3, 4, and 5 present the RI sample locations, including historic sample locations. Appendix A contains photographs of field activities.

2.1 Surface Soil/Fill

Fifteen (15) surface soil/fill samples, identified as SS-1, SS-2, SS-4 through SS-6, SS-7A, SS-10 through SS-15, SS-18, SS-19 and SS-23, were collected across the Site (see Figure 3). RI surface samples were analyzed for Target Compound List (TCL) SVOCs, Target

Analyte List (TAL) metals, and PCBs. SS-2, SS-14, and SS-15 were analyzed for TCL plus STARS VOCs; and, SS-2, SS-10, and SS-11 were also analyzed for pesticides and herbicides for site characterization purposes. Surface soil/fill results are discussed in Section 4.0 below.

Six historic surface soil/fill and debris pile samples were collected prior to the BCP RI activities, locations are presented on Figure 3. Historic sample were analyzed for TCL SVOCs, TAL Metals, and PCBs.

2.2 Sub-Surface Soil/Fill

The subsurface investigation included the excavation of 24 test-pits, identified as TP-1 through TP-25 (TP-8 designation was not used), and the advancement of five soil borings identified as BCP MW-1 through BCP MW-5 (see Figures 3 and 4). Test pits were excavated utilizing an excavator, and were completed to refusal or one foot into the native clay with no evidence of visual or olfactory impacts. Soil borings were completed utilizing a direct-push drill rig and were typically advanced to a depth between 16 fbgs and 20 fbgs. Field logs are included in Appendix B.

Subsurface soil/fill samples (TP-1 through TP-25; and BCP MW-1 through BCP MW-5) were analyzed for TCL SVOCs, PCBs and TAL Metals. TP-1, TP-2, TP-6, TP-10, TP-15, TP-16, TP-17, BCP MW-1, and BCP MW-5 were also analyzed for TCL plus STARS VOCs. TP-1, TP-2, and TP-10 were also analyzed for herbicides and pesticide. Laboratory analytical results are presented on Table 3, and discussed on Section 4 below.

2.3 Groundwater Investigation

2.3.1 Monitoring Well Installation

Five monitoring wells, identified as BCP-MW-1 through MW-5, were advanced through unconsolidated overburden soil/fill material to facilitate well installation. Monitoring wells were installed using a direct-push drill rig capable of advancing hollow-stem augers to install two-inch inside diameter monitoring wells in accordance with the approved RI/AAR/IRM Work Plan. Monitoring well construction details are presented on the Field Borehole Logs in Appendix B. Locations of the monitoring wells are presented on Figure 5. An isopotential map showing the groundwater elevations is presented on Figure 6.

2.3.2 Groundwater Sample Collection

Newly installed monitoring wells were developed prior to sampling to remove residual sediments and ensure good hydraulic connection with the water-bearing zone. A minimum of three well volumes were removed from each well. Prior to sample collection, static water levels were measured and recorded from all on-site monitoring wells. Following water level measurement, Benchmark personnel purged and sampled monitoring wells MW-1 through MW-5 using a peristaltic pump and dedicated pump tubing via low-flow/minimal drawdown purge and sample collection procedures. Prior to sample collection, groundwater was evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, specific conductance, temperature, dissolved oxygen (DO), turbidity, and water level as well as visual and olfactory field observations were periodically recorded and monitored for stabilization. Purging was considered complete when pH, specific conductivity, and temperature stabilized, and when turbidity measurements fell below 50 Nephelometric Turbidity Units (NTU) or became stable above 50 NTU. Upon stabilization of field parameters, groundwater samples were collected.

Prior to and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, turbidity, dissolved oxygen, and water level as well as visual and olfactory field observations were recorded.

All collected groundwater samples were placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to Test America for analysis.

At the request of the Department additional groundwater sampling was attempted in August 2012. Due to low water levels and insufficient volumes for sample collection, no samples were collected. Future groundwater monitoring is discussed in the Site Management Plan.

2.3.3 Groundwater Sample Analyses

Groundwater samples collected from wells BCP MW-1 through BCP MW-5 were analyzed for TCL plus STARS list VOCs, TCL SVOCs, TAL metals, PCBs, herbicides, and pesticides in accordance with USEPA SW-846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment.

2.4 On-Site Catch Basins, Man-holes, and Vaults Investigation

Turnkey personnel inspected a total of 52 subsurface structures, including catch basins, sewer man-holes, sumps, and utility related vaults for potential preferential pathways for contaminant migration. All structures were visually inspected, and scanned with PID for volatile vapors. No visual, olfactory or elevated PID readings were noted in the majority of subgrade structures. One concrete sump, located in the northeast quadrant of the Site (see Figure 5), was excavated and removed approximately 10-cyd of accumulated soil/fill from the sump. Details of the IRM removal are described in Section 5.

Exploratory test-pits were advanced adjacent to structures which had subgrade piping oriented and proximate to the BCP boundary and could potentially terminate off-site. Exploratory test pits were advanced adjacent to CB-1, CB-2, CB-10, and CB-15/CB-16 (see Figure 5). No evidence of contamination, or potential pathway for off-site migration was detected during the exploratory test-pit investigation.

2.4.1 On-Site Sewer Investigation

In association with pre-redevelopment activities, a sewer evaluation was conducted to investigate sewer connectivity and viability; and potential environmental contamination within the former sewer system. Dye-testing was conducted to determine sewer connectivity by placing tracer dye and flushing the system with on-Site potable water (Valve House). No visual or olfactory evidence of contamination was detected during the sewer investigation.

2.5 Railroad Siding

A portion of the Site, located along the northern boundary adjacent to College Avenue (see Figure 7), included an interior subgrade rail line loading area within the former factory building approximately 6 to 8 feet below grade. Four (4) samples were collected, at the request of the Department for documentation purposes during backfilling and placement of the cover system. The rail siding samples were analyzed for TCL VOCs, TCL SVOCs, TAL metals, PCBs, pesticides, and herbicides. Analytical results showed elevated SVOCs, primarily PAHs, and elevated arsenic in Railroad Siding 4 above Industrial SCOs (see Table 3; and Figure 7).

2.6 Field Specific Quality Assurance/Quality Control Sampling

In addition to the surface soil/fill, subsurface soil/fill and groundwater samples described above, field-specific quality assurance/quality control (QA/QC) samples were collected and analyzed to ensure the reliability of the generated data as described in the QAPP and to support the required third-party data usability assessment effort. Site-specific QA/QC samples included matrix spikes, matrix spike duplicates, blind duplicates, and trip blanks (as required).

2.7 Site Mapping

A Site map was developed during the RI field investigation. All sample points and relevant Site features were located on the map. TurnKey employed a Trimble GeoXT handheld GPS unit to identify sample locations relative to State planar grid coordinates. Monitoring well elevations were measured by TurnKey's surveyor. An isopotential map showing the groundwater elevations was prepared based on water level measurements relative to site vertical datum (see Figure 6).

3.0 SITE PHYSICAL CHARACTERISTICS

The physical characteristics of the Site observed during the RI are described in the following sections.

3.1 Site Topography and Drainage

The Site is generally flat lying with limited distinguishable Site features. The surface across the Site is covered with a mix of pavement (i.e. asphalt and concrete), and/or soil/fill with minor vegetative cover. Any precipitation (i.e., rain or melting snow) which does not infiltrate through the impermeable surface would move to the storm drains on-Site and in the roadways via overland flow. Surface and shallow groundwater flow are likely impacted by various cycles of development and filling, as well as utility lines and foundations.

3.2 Geology and Hydrogeology

3.2.1 Overburden

Based on the U.S. Department of Agriculture Soil Conservation Service soil survey map of Niagara County, the surrounding area surficial soil type, which may extend beneath the Site, includes the Odessa silty clay loam (OdA), with slopes ranging from 0 to 2%. Surficial Geologic Map of New York, Niagara Sheet, presented by NYS Geologic Survey (1988), indicates that the surficial soil type in the vicinity of the Site is a Till, with variable texture (e.g., clay, silt-clay, boulder clay), and a loamy matrix.

The geology at the Site was investigated during the RI and is generally described as fill materials overlying native brown/reddish-brown clay. The fill materials consist of silt, sand, and gravel with varying amounts of slag, metal, and cinder-like materials at depths ranging from surface to 10 feet below ground surface (fbgs). The presence of overburden fill material is widespread and common throughout the City of Niagara Falls. Native materials consist of clay with varying amounts of sand and gravel to depths up to 24 fbgs.

3.2.2 Bedrock

The Niagara Falls region is underlain by Silurian and Devonian age stratified limestone, dolomite, and shale of marine origin. The bedrock is virtually flat lying, with a gentle dip to the south of only about 30 to 40 feet per mile and exhibits only very gentle folding. The bedrock surface was deeply eroded by weathering and stream action prior to glaciation and by glacial scour during glaciation. The carbonate rocks and the shale are nearly impermeable as homogeneous rock; however, due to regional tectonic stresses the bedrock is vertically and horizontally fractured, providing openings for the storage and transmission of groundwater.

The primary bedrock type that forms the bedrock surface in the northern part of the Lake Erie-Niagara River Basin is the fine- to coarse-grained Lockport Dolomite; a white or grey, magnesium-rich sedimentary rock resembling limestone, but harder and more resistant. The Lockport extends into New York for 200 miles from Niagara County to Herkimer County. The Lockport is the lowermost carbonate-rock unit in the region, which overlies the Rochester Shale, a black to gray carbonaceous shale with minor calcareous beds and limestone layers. Gypsum is also present as nodules along some bedding-plane surfaces in the Lockport. The maximum thickness of the Lockport is approximately 150 feet. Bedrock was not encountered on-Site during the RI.

3.2.3 Hydrogeology

Based on the groundwater gauging completed during the RI, localized groundwater flow was determined to be west/northwest based on the depth to water measurements. The groundwater gauging data collected during this RI was collected from properly installed permanent wells that were developed prior to sampling and gauging. Figure 5 depicts the groundwater isopotential map from the October 2010 data. Groundwater elevation data from the gauging events is shown on Table 5.

4.0 INVESTIGATION RESULTS BY MEDIA

The following sections discuss the analytical results of the Remedial Investigation and previous investigation. A summary of the RI sampling program, including historic samples, is presented in Table 1. Tables 2, 3 and 4 summarize the surface soil/fill, subsurface soil/fill, and groundwater analytical data, respectively. Appendix C includes the laboratory analytical data packages. Figures 3, 4, and 5 present the sample locations.

For discussion purposes, the data is compared with Standards, Criteria and Guidance values (SCGs) applicable to each medium as follows:

- Tables 2 and 3 present a comparison of the detected surface soil/fill, and subsurface soil/fill parameters to 6NYCRR Part 375 Industrial SCOs (December 2006).
- Table 4 presents a comparison of the detected groundwater parameters to the Class GA Groundwater Quality Standards (GWQS) per NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 1998).

Sample results compared to SCGs are described below according to media and contaminant class.

4.1 Surface Soil/Fill

4.1.1 Volatile Organic Compounds

The majority of samples analyzed for VOCs were reported as non-detectable or at trace (estimated) concentrations below the laboratory sample quantitation limit. No VOCs were detected above Part 375 Industrial SCOs.

4.1.2 Semi-Volatile Organic Compounds

The majority of samples analyzed for SVOCs were reported as non-detectable or at trace (estimated) concentrations below the laboratory sample quantitation limit (see Table 2). Sample locations across the site were slightly above Industrial SCOs. The constituents detected above SCOs are primarily polycyclic aromatic hydrocarbons (PAHs) which tend to be ubiquitous in soils at historic industrial properties. Based on the sample locations (different areas across the Site) and the lack of visual and/or olfactory evidence of contamination at those locations, the elevated constituents do not appear to be attributable to a point-source release (e.g, petroleum spill or chemical release).

4.1.3 Inorganic Compounds

The majority of samples analyzed for inorganic compounds (metals) were detected below Industrial SCOs. Only one inorganic compound, Arsenic, was detected above its Industrial SCO at historic sample locations SS-1 and SS-3; and RI sample locations SS-11 and SS-15 (see Table 2).

4.1.4 Pesticides, Herbicides and Polychlorinated Biphenyls

Pesticides, herbicides, and PCBs were reported as non-detectable, at trace (estimated) concentrations below the sample quantitation limit, and/or below Industrial SCOs. Only one PCB, Aroclor 1268, was detected above the Industrial SCO at RI sample location SS-6 as an estimated value (see Table 2).

4.1.5 Surface Soil/Fill Summary

As described above, concentrations of VOCs, pesticides, and herbicides were below Part 375 Industrial SCOs in surface soil/fill. Sample locations across the site were slightly above Industrial SCOs for select PAHs; however, these compounds tend to be ubiquitous in soils at historic industrial properties, and do not appear to be attributable to a specific release. Arsenic was detected above its Industrial SCO at historic sample locations SS-1 and SS-3; and RI sample locations SS-11 and SS-15. Aroclor 1268 was detected above its Industrial SCO at RI sample location SS-6 (see Table 2). The soil from the area of SS-6 was excavated during the IRM and a soil cover system was placed across the Site.

4.2 Subsurface Soil/Fill

4.2.1 Volatile Organic Compounds

The majority of samples analyzed for VOCs were reported as non-detectable or at trace (estimated) concentrations below the laboratory sample quantitation limit (see Table 3). No VOCs were detected above Part 375 Industrial SCOs.

4.2.2 Semi-Volatile Organic Compounds

The majority of samples analyzed for SVOCs were reported as non-detectable or at trace (estimated) concentrations below the sample quantitation limit (see Table 3). Several SVOC constituents, primarily PAHs were detected slightly above Part 375 Industrial SCOs at sample locations across the Site.. Elevated SVOCs in the area of sample locations TP-15, TP-16 and TP-17 are attributable to apparent petroleum contamination in that area [that area was excavated during IRM activities, as described in Section 5 below]. Based on the lack of visual and/or olfactory evidence of contamination at other sample locations across the Site, the elevated constituents do not appear to be attributable to a point-source release (e.g., petroleum spill or chemical release).

4.2.3 Inorganic Compounds

The majority of samples analyzed for inorganic compounds (metals) results were detected at levels below Industrial SCOs. Only one inorganic compound, Arsenic, was detected slightly above the Industrial SCOs at TP-15 during the RI (see Table 3); that area was excavated during the IRM.

4.2.4 Pesticides, Herbicides and Polychlorinated Biphenyls

Pesticides, herbicides, and PCBs were reported as non-detectable, at trace (estimated) concentrations below the sample quantitation limit or below Industrial SCOs (see Tables 3).

4.2.5 Subsurface Soil/Fill Summary

As described above, concentrations of VOCs, pesticides, herbicides, and PCBs were below Industrial SCOs. Sample locations across the site were slightly above Industrial SCOs for SVOCs, primarily PAHs, which tend to be ubiquitous in soils at historic industrial properties, and do not appear to be attributable to a specific release. Elevated SVOCs in the area of sample locations TP-15, TP-16 and TP-17 are attributable to apparent petroleum contamination in that area. Arsenic was detected above the Industrial SCOs at TP-15 and Railroad Siding 4. The soil in the area of TP-15 was excavated and disposed off-Site at a commercial landfill during the IRM. A soil cover system was installed across the Site during the IRM.

4.3 Groundwater

The sampling results for groundwater monitoring completed in October 2010 are discussed in the following sections. At the request of the Department additional groundwater sampling was attempted in August 2012. Due to low water levels and insufficient volumes for sample collection, no samples were collected at that time.

4.3.1 Volatile Organic Compounds

The majority of samples analyzed for VOCs were reported as non-detectable or at trace (estimated) concentrations below the laboratory sample quantitation limit. No VOCs were detected above GWQS.

4.3.2 Semi-Volatile Organic Compounds

The majority of samples analyzed for SVOCs were reported as non-detectable or at trace (estimated) concentrations below the laboratory sample quantitation limit. Several PAHs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, and chrysene were detected slightly above GWQS in monitoring well MW-4. It should be noted that all the constituents detected above GWQS were flagged as estimated values by the laboratory.

4.3.3 Inorganic Compounds

The majority of samples analyzed for inorganic compounds were reported as non-detectable or at trace (estimated) concentrations below the laboratory sample quantitation limit. Total metals detected at concentrations above GWQS were limited to iron, magnesium, manganese and sodium, which are naturally occurring minerals commonly encountered in uncontaminated natural environments.

4.3.4 Pesticides, Herbicides and Polychlorinated Biphenyls

The majority of analytes were reported as non-detectable or trace (estimated) concentrations below the laboratory quantitation limit for herbicides and PCBs. Select pesticides were detected at concentrations slightly above GWQS including 4,4'-DDT, endrin, and heptachlor epoxide in monitoring wells MW-1, MW-3, and MW-4 (see Table 5). It should be noted that these constituents were flagged as estimated values by the laboratory.

4.3.5 Groundwater Summary

As described above and shown on Table 4, no VOCs were detected above GWQS. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, and chrysene were detected slightly above GWQS in monitoring well MW-4; and select pesticides were detected at concentrations slightly above GWQS including 4,4'-DDT, endrin, and heptachlor epoxide in monitoring wells MW-1, MW-3, and MW-4. It should be noted that the constituents detected above GWQS were flagged as estimated values by the laboratory. Metals detected above GWQS are all naturally occurring minerals commonly encountered in uncontaminated natural environments.

4.4 Data Usability Summary

In accordance with the Work Plan, the laboratory analytical data from the 1501 College Avenue Site investigation was assessed and, as required, submitted for independent review. Data Validation Services located in North Creek, New York performed the data usability summary assessment, which involved a review of the summary form information and sample raw data, and a limited review of associated QC raw data. Specifically, the following items were reviewed:

- Laboratory Narrative Discussion
- Custody Documentation
- Holding Times
- Surrogate and Internal Standard Recoveries
- Matrix Spike Recoveries/Duplicate Recoveries
- Field Duplicate Correlation
- Preparation/Calibration Blanks
- Control Spike/Laboratory Control Samples
- Instrumental IDLs

- Calibration/CRI/CRA Standards
- ICP Interference Check Standards
- ICP Serial Dilution Correlations
- Sample Results Verification

The Data Usability Summary Report (DUSR) was conducted using guidance from the USEPA Region 2 validation Standard Operating Procedures, the USEPA National Functional Guidelines for Data Review, as well as professional judgment.

4.4.1 DUSR Summary

In summary, sample analyses were primarily conducted in compliance with the required analytical protocols, and no data were rejected, but some data were further qualified during the data validation. The DUSR notes non-homogeneity for multiple PCB analyses, which required additional result qualification. Any additional qualifications of the data have been incorporated to the summary data tables. Appendix D includes the DUSR.

5.0 INTERIM REMEDIAL MEASURES (IRM)

In accordance with the NYSDEC-approved IRM Work Plan, immediately following the RI fieldwork, the RI surface soil/fill, subsurface soil/fill and groundwater data was reviewed with the NYSDEC and NYSDOH to evaluate which areas of the Site required remediation. Based on the nature and extent of the impacts identified during the RI, as well as previously known conditions (e.g., demolition of the existing buildings and smoke stacks, galbestos building materials, former manufacturing materials, debris piles, and abandoned oil tankers) requiring removal, IRMs summarized below were discussed with and approved by NYSDEC and NYSDOH.

As stated in the approved Work Plan, Santarosa's intent was for the IRM to substantially or completely constitute the final NYSDEC-approved BCP remedy for the Site. Figure 6 presents the location of IRM excavation areas.

Specific elements of the IRM, as implemented, included:

- Collection and off-site disposal of historic galbestos building materials;
- Collection and off-site disposal of abandoned drums and containers of off-spec former manufacturing raw materials;
- Off-site transportation and disposal of miscellaneous debris piles;
- Off-site recycling as scrap metal of historic aboveground storage tanks, empty drums and two (2) abandoned tanker trucks;
- Removal and off-site transportation of petroleum contents from the two (2) abandoned tanker trailers for off-site stabilization and disposal;
- Off-site transportation and disposal of non-friable ACMs C&D debris;
- Off-site transportation and disposal of C&D debris intermingled with soil/fill that was illegally dumped in the former Bldg. 49 prior to Santarosa's ownership of the Site;
- Excavation and off-Site disposal of grossly contaminated petroleum-impacted non-hazardous soil/fill from the TP-15 excavation area;
- Excavation and off-Site disposal of petroleum-impacted non-hazardous soil/fill from the TP-5 excavation area;
- Excavation and off-site disposal of PCB-impacted non-hazardous soil/fill from the SS-6 area;

- Extraction and temporary storage of approximately 20,000-gallons of excavation related water. The collected excavation water was subsequently analyzed and transported off-site for stabilization and disposal;
- Placement of approved reuse of on-Site block and brick building materials for sub-grade backfill. Backfill materials were analyzed to confirm they met NYSDEC on-Site re-use criteria and/or were pre-approved by NYSDEC; and,
- Placement of NYSDEC approved soil cover material across the Site.

Photos of IRM activities are included in Appendix A. The Final Engineering Report, to be submitted as a separate document, includes additional details of the IRMs.

6.0 FATE AND TRANSPORT OF COPCS

The surface soil/fill, subsurface soil/fill and groundwater sample analytical results were incorporated with the physical characterization of the Site to evaluate the fate and transport of COPCs in Site media. The mechanisms by which the COPCs can migrate to other areas or media are briefly outlined below. In all instances, the potential pathways are evaluated in the context of post-remedial activities conditions.

6.1 Fugitive Dust Generation

Volatile and non-volatile chemicals present in soil can be released to ambient air as a result of fugitive dust generation. Impacted soil/fill was excavated/removed and disposed of off-Site as part of the IRM. Furthermore, the Site is covered by a one-foot thick composite cover system, including asphalt and concrete pavement, and compacted gravel, recycled brick and concrete, and approved soil/fill.

Based on the IRMs completed, the current and future industrial land use, and the majority of the Site being covered by asphalt, concrete, or one-foot of a composite cover system, this migration pathway is not relevant under the current and reasonably anticipated future land use, as long as the surface cover across the Site is maintained in accordance with the Site Management Plan (SMP) for the Site.

6.2 Volatilization

Volatile chemicals present in soil/fill and groundwater may be released to ambient or indoor air through volatilization either from or through the soil/fill underlying current or future building structures. Volatile chemicals typically have a low organic-carbon partition coefficient (K_{oc}), low molecular weight, and a high Henry's Law constant.

Volatile organic compounds were not detected in surface or subsurface soil /fill above Industrial SCOs. In fact, no VOCs were detected above Part 375 Residential SCOs. Therefore, the release of VOCs from soils is not considered a relevant pathway in current and future use scenarios for the Site.

No VOCs were detected in Site groundwater above Class GA GWQS. Therefore, the release of VOCs from groundwater is not considered a relevant pathway in current and future use scenarios.

Based on the low concentrations or non-detection of VOC contaminants in soil/fill and groundwater that could potentially contribute to vapor intrusion, it was determined, with concurrence from NYSDEC and NYSDOH, that a Soil Vapor Intrusion (SVI) assessment was not necessary for the Site.

6.3 Surface Water Runoff

The potential for soil particle transport with surface water runoff is low, as the majority of the Site is covered by composite cover system, including asphalt and concrete pavement, and compacted gravel, recycled brick and concrete, and approved soil/fill; and is storm water from the vicinity of the Site is serviced by the Niagara Falls wastewater treatment plant (WWTP) sewer collection system. The WWTP sewer system provides a mechanism for controlled surface water transport but will ultimately result in sediment capture in the WWTP's grit chambers followed by disposal at a permitted sanitary landfill. As such, surface water runoff is not considered a relevant migration pathway.

6.4 Leaching

Leaching refers to chemicals present in soil/fill migrating downward to groundwater as a result of infiltration of precipitation. Excavation/removal and off-Site disposal of impacted soil/fill from the Site mitigates potential leaching of chemicals to groundwater. Those COPCs remaining on-Site below the composite cover system are not considered highly mobile, with the exception of naturally occurring metals. PAHs tend to sorb to soil particles are not considered highly leachable. As such, leaching is not considered a relevant migration pathway for this Site.

6.5 Groundwater Transport

Groundwater underlying the Site migrates to the west/northwest. Chemicals present in groundwater may be transported across the Site via this pathway. Groundwater flows through a relatively low permeability clayey-silt geologic unit, with an estimated hydraulic conductivity of $1x10^{-5}$ to $1x10^{-8}$ centimeters per second (cm/s), porosity of 0.3 - 0.4 and a measured hydraulic gradient of approximately 0.008 ft/ft. Darcy's Law velocity calculation indicates that shallow overburden groundwater migrates to the west/northwest at a rate of approximately 5.53×10^{-4} to 7.38×10^{-5} ft/day.

The Site and surrounding area are serviced by a municipal (supplied) water service, with no evidence of potable wells in the area of the subject property. VOCs were not detected above GWQS in on-Site groundwater. Furthermore, analytes that were detected in on-Site groundwater were slightly above GWQS at estimated concentrations and are relatively immobile. As such, transport off-site via groundwater migration is not a relevant migration pathway.

6.6 Exposure Pathways

Based on the analysis of chemical fate and transport provided above, the pathway through which Site COPCs could reach receptors at significant exposure point concentrations is limited to incidental contact with residual contaminants in soil/fill and groundwater during future intrusive activities beneath the cover system. A Site Management Plan, which isa component of the final remedy,that describes procedures to be followed in the event of future intrusive activities, mitigates this concern.

7.0 QUALITATIVE RISK ASSESSMENT

7.1 Potential Human Health Risks

The 1501 College Avenue Site is currently vacant. This industrial use is consistent with the surrounding property use and Site zoning. Accordingly, the potential exposed receptors for the Site are comprised of the on-Site commercial/industrial worker; and construction worker potentially exposed to contaminated soil/fill and groundwater during intrusive activities on-Site. In both instances, exposure frequency is expected to be minimal. On-Site commercial/industrial and construction workers would be limited to adults; children and adolescents will not be included as potential receptors. The entire site is secured by fencing and an earthen-berm which reduces the likelihood of trespassers. Additionally, a trespasser would need to compromise the cover system, and/or impermeable surfaces (i.e., concrete, asphalt and building foundations) to be potentially exposed to remaining COPCs. Therefore, trespassers will not be included as potential relevant receptors. Based on the media (i.e., soil/fill beneath the cover system) for which contact with site COPCs is relevant, it is highly unlikely that off-site receptors would be exposed, and therefore are not considered relevant receptors.

For soil/fill, extensive remedial activities were conducted as IRMs related to COPCs in the surface and subsurface soil/fill. Certain COPCs were detected above their respective Industrial SCOs in subsurface soil/fill sample locations, indicating a potential unacceptable human health risk for incidental ingestion, dermal contact and/or inhalation of re-suspended particulates. However, those areas exceeding Industrial SCOs are located under the Site cover system, as described above, eliminating the potential exposure pathway and associated health risk. Institutional controls in association with the Site Management Plan (SMP) will be utilized to reduce the potential for exposure during non-routine intrusive activities.

For groundwater, the urban nature of the area and availability of a municipal water source at the Site mitigates the potential for routine direct human contact or ingestion (i.e., as might occur with use of on-Site groundwater water for potable or process purposes). Non-routine contact with Site groundwater is expected to be limited to short durations under specific construction conditions (e.g., a construction worker managing groundwater during deep excavation work). Given the limited frequency and duration of these non-routine activities, direct groundwater exposure pathways for on-Site receptors are not considered relevant.

The IRMs were completed to reduce/eliminate exposure to COPCs; however, residual contaminants remain in Site subsurface soil/fill and groundwater. Under the future (industrial) use conditions, potential exposure routes are: incidental ingestion and dermal contact of soil/fill, inhalation of re-suspended particulates and/or COPCs in air; and, dermal contact with compounds in groundwater. Based on the presence of these constituents and as discussed with the NYSDEC and the NYSDOH, there will be engineering controls (soil cover system) and institutional controls implemented in the Environmental Easement in accordance with a Site Management Plan for the Site as part of the final remedy. The AAR (section 8.0) includes a discussion of the engineering and institutional controls that may be used at the Site. These controls will serve to eliminate potential human health risks at the Site.

7.2 Potential Ecological Risks

The 1501 College Avenue BCP Site is an industrial facility located within a highly developed, urban area in the City of Niagara Falls. The Site is currently vacant, and covered by composite cover system, including asphalt and concrete pavement, and compacted gravel, recycled brick and concrete, and approved soil/fill primarily with asphalt, which provides little or no wildlife habitat or food value. No natural waterways are present on or adjacent to the Site. The reasonably anticipated future use is industrial with the majority of the Site covered by buildings, concrete, asphalt and gravel. As such, no unacceptable ecological risks are anticipated under the current or reasonably anticipated future use scenario.

8.0 REMEDIAL ALTERNATIVES EVALUATION

8.1 Remedial Action Objectives

The final remedial measures for the 1501 College Avenue Site must satisfy Remedial Action Objectives (RAOs). Remedial Action Objectives are site-specific statements that convey the goals for minimizing or eliminating substantial risks to public health and the environment. Appropriate RAOs for the 1501 College Avenue Site are:

- Removal of historic drums and containers of former carbon electrode manufacturing raw materials, removal of galbestos building materials, removal of abandoned tanker trailers and contents, and removal of suspect debris piles;
- Removal of impacted soil/fill to levels protective of human health (Part 375 Industrial SCOs);
- Prevention of ingestion or direct contact with soil/fill that contains COPCs above Part 375 Industrial SCOs; and,
- Prevention of ingestion or direct contact with groundwater containing concentrations of COPCs above GWQS;

In addition to achieving RAOs, NYSDEC's Brownfield Cleanup Program calls for remedy evaluation in accordance with DER-10 Technical Guidance for Site Investigation and Remediation. Specifically, the guidance states "When proposing an appropriate remedy, the person responsible for conducting the investigation and/or remediation should identify and develop a remedial action that is based on the following criteria..:"

- **Overall Protection 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.
- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance.
- **Long-Term Effectiveness and Permanence**. 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.

- **Reduction of Toxicity, Mobility or Volume with Treatment**. 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.
- **Short-Term 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.
- **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.
- **Cost**. Capital, operation, maintenance, and monitoring costs are estimated for the remedy and presented on a present worth basis.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy.

8.2 Future Land Use Evaluation

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. The regulations identify 16 criteria that must be considered. These criteria and the resultant outcome for the 1501 College Avenue Site are presented in Appendix E. As indicated, this evaluation supports industrial use as the reasonably anticipated future use of the Site, which is consistent with past use. Accordingly, remedial alternatives to clean up the Site to industrial end use are identified and evaluated herein.

Although the Site is intended to be used for industrial purposes, evaluating a more restricted-use scenario is a requirement of the BCP. Therefore, Tables 8a through Table 8d present a comparison of the soil/fill analytical data to Part 375 Unrestricted SCOs. Per NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, evaluation of a "no-action" alternative is also required to provide a baseline for comparison against other alternatives. Since an IRM has already been completed for the Site, the alternatives discussed in greater detail in Section 8.3 include:

- No Further Action beyond which was completed as IRMs;
- Implementation of a Site Management Plan; and,
- Unrestricted Use Cleanup

8.3 Alternatives Evaluation

8.3.1 IRM/No Further Action

Under this alternative, the Site would remain in its current state, with no additional controls in-place.

Overall Protection of Public Health and the Environment **–** The Site is not protective of human health and the environment, due to the absence of institutional controls to prevent more restrictive forms of future site use (e.g., unrestricted, residential, and commercial) or export of Site soils to uncontrolled off-Site locations. Accordingly, no further action is not protective of public health and does not satisfy the RAOs.

Compliance with SCGs – Under the current and reasonably anticipated future use scenario (industrial), the concentrations of constituents detected in the soil/fill and groundwater generally comply with applicable SCOs and GWQS, with minor exceptions.

Long-Term Effectiveness and Permanence **–** The no further action alternative involves no additional equipment, institutional controls or facilities subject to maintenance, and provides no long-term effectiveness toward achieving the RAOs. Without the application of Institution Controls for the Site, this objective does not satisfy the permanence ROA.

Reduction of Toxicity, Mobility, or Volume with Treatment – The IRMs completed at the Site have reduced the toxicity, mobility and volume of COPCs. However, certain COPCs above Industrial SCOs do remain on-Site, and therefore, no further action is not protective of public health and does not satisfy the RAOs.

Short-Term Effectiveness – There would be no short-term adverse impacts and risks to the community, workers, or the environment attributable to implementation of the no further action alternative.

Implementability – No technical or administrative implementability issues are associated with the no further action alternative.

Cost – The capital cost of the IRMs was approximately $1,800,000. There would be no capital or long-term operation, maintenance, or monitoring costs associated with the no further action alternative.

8.3.2 IRM and Implementation of a Site Management Plan

The IRM achieved removal of the contaminated soil/fill on-Site to below Industrial SCOs, with minor exceptions. The "Implementation of a Site Management Plan" alternative is defined as performing no additional cleanup activities at the Site beyond that which was already performed as an IRM (refer to Section 5.0) with implementation of a Site Management Plan (SMP). 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 a land use restriction allowing industrial use of the Site, but preventing more restrictive land use (i.e., unrestricted, residential or commercial use).
- **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 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 Niagara County.

Overall Protection of Public Health and the Environment **–** Since the IRM achieved removal of contaminated materials, including drums, containers, debris, galbestos, contaminated soil/fill and a soil cover system was installed this alternative is fully protective of human health and the environment and successfully achieves all RAOs for the Site. The Site Management Plan will include 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 Engineering and Institutional Controls placed on the Site have not been altered and remain effective.

Compliance with SCGs – The IRM was performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria. The IRM achieved removal of contaminated materials, including drums, containers, debris, galbestos, contaminated soil/fill to Industrial SCOs, with minor exceptions, and a soil cover system was installed; this alternative is fully protective of human health and the environment and successfully achieves all RAOs for the Site. The Site Management Plan will include 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 Engineering and Institutional Controls placed on the Site have not been altered and remain effective.

Long-Term Effectiveness and Permanence **–** The IRM achieved removal of contaminated materials, including drums, containers, debris, galbestos, grossly contaminated soil/fill to Industrial SCOs, with minor exceptions and a soil cover system was installed. The Site Management Plan will include 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 Engineering and Institutional Controls placed on the Site have not been altered and remain effective. Furthermore, an Environmental Easement for the Site will be filed with Niagara County, which will limit future site use to industrial uses, restrict groundwater use and reference the Department-approved Site Management Plan. As such, this alternative provides long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume with Treatment – Through removal of contaminated materials, including drums, containers, debris, galbestos, and contaminated soil/fill, the IRM permanently and significantly reduced the toxicity, mobility, and volume of Site contamination. The Site Management Plan will include 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 Engineering and Institutional Controls placed on the Site have not been altered and remain effective. Accordingly, this alternative satisfies this criterion.

Short-Term Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment during implementation of the IRM were effectively controlled in accordance with the approved work plans. The potential for chemical exposures and physical injuries were reduced through safe work practices; proper personal protection equipment; environmental monitoring; Site control; and appropriate decontamination procedures. The IRM achieved the RAOs for the Site.

Implementability – No technical or action-specific administrative implementability issues are associated with implementation of the IRM or the SMP. An Environmental Easement will be filed with Niagara County documenting the controls placed on the Site.

Cost – The capital cost of the IRM was approximately $1,800,000. Annual certification is estimated at approximately $4,000 per year. Based on an assumed 30 years of annual certifications, the net present value of this alternative is approximately $1,883,000, as shown on Table 7a. Table 7c presents a summary of costs of each of the alternatives.

Community Acceptance – The remedial work plans and activities were available for public comment and review throughout the project. No comments were received by the NYSDEC related to the planned and completed remedial efforts.

8.3.3 Unrestricted Use Alternative

An Unrestricted Use alternative would necessitate remediation of all soil/fill where concentrations exceed the Unrestricted SCOs per 6NYCRR Part 375 (see Table 8a through Table 8d). For Unrestricted Use scenarios, excavation and off-site disposal of impacted soil/fill is generally regarded as the most applicable remedial measure, because institutional controls cannot be used to supplement the remedy. As such, the Unrestricted Use alternative assumes that those areas which exceed Unrestricted SCOs would be excavated and disposed at an off-Site commercial solid waste landfill. Based on the historic use and planned future reuse of the site as an industrial facility, and the results of the RI/IRM, all surface areas (that which are not covered by buildings) of the Site would need to be excavated to an average depth of six fbgs. Approximately 10.5-acres of surface area exist within the BCP site boundary that has not been previously excavated during IRMs, and would need to be excavated to 6 fbgs. The estimated total volume of impacted soil/fill that would be removed from these areas is approximately 101,750 cubic yards.

Based on the minor exceedance of groundwater concentrations, as described above, and the removal of an average of 6-ft of soil/fill across the Site; thereby removing any potential source area, this alternative assumes that no groundwater remediation or long-term monitoring would be required.

***Overall Protection of Public Health and the Environment* –** The Unrestricted Use alternative would achieve the corresponding Part 375 SCOs, which are designed to be protective of human health under any reuse scenario.

Compliance with SCGs – Similar to the IRM soil/fill removal activities, the Unrestricted Use alternative would need to be performed in accordance with applicable, relevant, and appropriate standards, guidance, and criteria.

***Long-Term Effectiveness and Permanence* –** The Unrestricted Use alternative would achieve removal of all residual impacted soil/fill; therefore, no soil/fill exceeding the Unrestricted SCOs would remain on the Site. As such, the Unrestricted Use alternative would provide long-term effectiveness and permanence. Post-remedial monitoring and certifications would not be required.

Reduction of Toxicity, Mobility, or Volume with Treatment – Through removal of all impacted soil/fill, the Unrestricted Use alternative would permanently and significantly reduce the toxicity, mobility, and volume of Site contamination.

Short-Term Effectiveness – The short-term adverse impacts and risks to the community, workers, and environment during implementation of the Unrestricted Use alternative are considered significant, though controllable and would significantly increase the duration of time community, workers, and the environment is exposed to fugitive dust and potential off-site exposures during remediation.

Implementability – Technical implementability would be a major barrier to construction of the Unrestricted Use alternative. Based on the quantity of soil/fill which would need to be removed; presence of former manufacturing subsurface structures and foundations, coordination of excavation, trucking and disposal would present significant challenges. The large volume of soil/fill would require a significant increase in the amount of truck traffic ingress and egress for the Site, totaling approximately 12,000 dump truck trips for off-site disposal. Excavating the entire Site is not considered a reasonable alternative given the current and reasonably anticipated future use of the Site.

Cost – The capital cost of implementing an Unrestricted Use alternative is estimated at approximately $14,386,000 (see Table 7b), which is the cost of the unrestricted use cleanup plus the capital costs of the IRM that was completed. Post-remedial groundwater monitoring and annual certification costs would not be incurred. Table 7c is a summary of costs of each of the alternatives.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

8.4 Recommended Remedial Measure

Based on the Alternatives Analysis evaluation, the completed IRM and implementation of a Site Management Plan fully satisfies the remedial action objectives and is fully protective of human health and the environment. Accordingly, the completed IRM and implementation of a Site Management Plan is the recommended final remedial approach for the 1501 College Avenue Site.

9.0 RI/IRM/AAR SUMMARY AND CONCLUSIONS

Based on the data and analyses presented in the preceding sections, we offer the following summary and conclusions:

- Based on surface soil data, concentrations of VOCs, pesticides, and herbicides were below Part 375 Industrial SCOs. Sample locations across the site were slightly above Industrial SCOs for select PAHs; however, these compounds tend to be ubiquitous in soils at historic industrial properties and do not appear to be attributable to a specific release. Arsenic was detected above its Industrial SCO at two historic and two RI sample locations. Aroclor 1268 was detected above its Industrial SCO at RI sample location SS-6, which was subsequently excavated during IRMs. A cover system has been placed across the Site.

- Based on the subsurface soil/fill data, concentrations of VOCs, pesticides, herbicides, and PCBs were below Industrial SCOs. Several SVOCs, primarily PAHs were detected across the Site, however, these constituents tend to be ubiquitous in soils at historic industrial properties, and do not appear to be attributable to a specific release. Arsenic was detected above the Industrial SCOs at two sample locations. However, soil from area of TP-15 was removed during IRMs and a soil cover system has been placed across the Site.

- Based on the groundwater data collected during the RI, no VOCs were detected above GWQS. Benzo(a)anthracene, benzo(a)pyrene, benzo(b)flouranthene, and chrysene were detected slightly above GWQS (estimated values) in monitoring well MW-4; and select pesticides were detected at concentrations slightly above GWQS (estimated values) including 4,4'-DDT, endrin, and heptachlor epoxide in monitoring wells MW-1, MW-3, and MW-4. Metals detected above GWQS are all naturally occurring minerals commonly encountered in uncontaminated natural environments. Groundwater will be monitored in accordance with the Site Management Plan.

- Following the RI fieldwork, the surface and subsurface soil/fill, and groundwater data was reviewed with the NYSDEC and NYSDOH to evaluate which areas of the Site required remediation. Based on the nature and extent of the impacts identified during the RI, as well as previously known conditions (e.g., drums requiring removal), planned IRMs were discussed with and approved by NYSDEC and NYSDOH.

- Specific elements of the IRM, as implemented, included:
  - Collection and off-site disposal of historic galbestos building materials;

- Collection and off-site disposal of abandoned drums and containers of off-spec former manufacturing raw materials;
- Off-site transportation and disposal of miscellaneous debris piles;
- Off-site recycling as scrap metal of historic aboveground storage tanks, empty drums and two (2) abandoned tanker trucks;
- Removal and off-site transportation xxx(disposal or recycling)xxx of petroleum contents from the two (2) abandoned tanker trailers for off-site stabilization and disposal;
- Off-site transportation and disposal of non-friable ACMs C&D debris;
- Off-site transportation and disposal of C&D debris intermingled with soil/fill that was illegally dumped in the former Bldg. 49 prior to Santarosa's ownership of the Site;
- Excavation and off-Site disposal of grossly contaminated petroleum-impacted non-hazardous soil/fill from the TP-15 excavation area;
- Excavation and off-Site disposal of petroleum-impacted non-hazardous soil/fill from the TP-5 excavation area;
- Excavation and off-site disposal of PCB-impacted non-hazardous soil/fill from the SS-6 area;
- Extraction and temporary storage of approximately 20,000-gallons of excavation related water. The collected excavation water was subsequently analyzed and transported off-site for stabilization and disposal;
- Placement of approved reuse of on-Site block and brick building materials for sub-grade backfill. Backfill materials were analyzed to confirm they met NYSDEC on-Site re-use criteria and/or were pre-approved by NYSDEC; and,
- Placement of NYSDEC approved soil cover material across the Site.

- As stated in the approved IRM Work Plan, Santarosa's intent was for the IRMs to substantially or completely constitute the final NYSDEC-approved BCP remedy for the Site. Based on the Alternatives Analysis evaluation, the IRM, together with implementation of a Site Management Plan fully satisfies the remedial action objectives and is protective of human health and the environment. Accordingly, the IRM and Implementation of a Site Management Plan is the recommended final remedy for the 1501 College Avenue Site.

10.0 REFERENCES

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TABLES

TABLE 1

Sampling/Analysis Summary

1501 College Avenue Site

Niagara Falls, New York

Sample Location	Data Source	Depth Sampled/ Screened (fbgs)	Analysis									Date Sampled	Comments
			TCL VOCs	TCL + STARS VOCs	TCL SVOCs	TCL SVOCs (Base Neutrals Only)	PCBs	TAL Metals	RCRA Metals	Pesticides	Herbicides		
Surface Soil/Fill													
SS-1	Historical Investigation	0-0.5	--	--	--	X	X	--	X	--	--	8/10/2007	
SS-2	Historical Investigation	0-0.5	--	--	--	X	X	--	X	--	--	8/10/2007	
SS-3	Historical Investigation	0-0.5	--	--	--	X	X	--	X	--	--	8/10/2007	
SS-4	Historical Investigation	0-0.5	--	--	--	X	X	--	X	--	--	8/10/2007	
Debris Pile 1	Historical Investigation	0-0.5	--	--	--	X	X	--	X	--	--	8/10/2007	
Debris Pile 2	Historical Investigation	0-0.5	--	--	--	X	X	--	X	--	--	8/10/2007	
SS-1	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/7/2010	
SS-2	Remedial Investigation	0-0.5	X	--	X	--	X	X	--	X	X	9/7/2010	MS/MSD
SS-4	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/13/2010	
SS-5	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/13/2010	
SS-6	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/13/2010	
SS-7A	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/7/2010	
SS-10	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	X	X	9/14/2010	
SS-11	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/7/2010	
SS-12	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/7/2010	
SS-13	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/8/2010	
SS-14	Remedial Investigation	0-0.5	X	--	X	--	X	X	--	--	--	9/8/2010	
SS-15	Remedial Investigation	0-0.5	X	--	X	--	X	X	--	--	--	9/8/2010	
SS-18	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/13/2010	
SS-19	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/14/2010	
SS-23	Remedial Investigation	0-0.5	--	--	X	--	X	X	--	--	--	9/16/2010	Blind 3
Subsurface Soil/Fill (Test Pits)													
TP-1	Remedial Investigation	5-7	X	--	X	--	X	X	--	X	X	9/7/2010	
TP-2	Remedial Investigation	3-5	X	--	X	--	X	X	--	X	X	9/7/2010	Blind 1
TP-3	Remedial Investigation	1-4	--	--	X	--	X	X	--	--	--	9/13/2010	MS/MSD
TP-4	Remedial Investigation	1-2	--	--	X	--	X	X	--	--	--	9/13/2010	
TP-5	Remedial Investigation	1-2.5	--	--	X	--	X	X	--	--	--	9/13/2010	
TP-6	Remedial Investigation	1-2	X	--	X	--	X	X	--	--	--	9/13/2010	MS/MSD
TP-7A	Remedial Investigation	1-2.5	--	--	X	--	X	X	--	--	--	9/7/2010	
TP-9	Remedial Investigation	0.5-1.5	--	--	X	--	X	X	--	--	--	9/14/2010	Blind 2
TP-10	Remedial Investigation	5-7	X	--	X	--	X	X	--	X	X	9/14/2010	
TP-11	Remedial Investigation	1-2	--	--	X	--	X	X	--	--	--	9/7/2010	
TP-12	Remedial Investigation	1-2.5	--	--	X	--	X	X	--	--	--	9/7/2010	
TP-13	Remedial Investigation	1-3	--	--	X	--	X	X	--	--	--	9/8/2010	
TP-14	Remedial Investigation	1.5-2	--	--	X	--	X	X	--	--	--	9/8/2010	
TP-15	Remedial Investigation	0-2	X	--	X	--	X	X	--	--	--	9/8/2010	
TP-16	Remedial Investigation	0.5-1.5	X	--	X	--	X	X	--	--	--	9/15/2010	
TP-17	Remedial Investigation	2-4	X	--	X	--	X	X	--	--	--	9/15/2010	
TP-18	Remedial Investigation	0.5-1.5	--	--	X	--	X	X	--	--	--	9/13/2010	
TP-19	Remedial Investigation	4-6	--	--	X	--	X	X	--	--	--	9/14/2010	
TP-20	Remedial Investigation	2-4	--	--	X	--	X	X	--	--	--	9/14/2010	
TP-21	Remedial Investigation	0.5-2	--	--	X	--	X	X	--	--	--	9/15/2010	
TP-22	Remedial Investigation	0.5-6	--	--	X	--	X	X	--	--	--	9/15/2010	
TP-23	Remedial Investigation	1-5	--	--	X	--	X	X	--	--	--	9/16/2010	
TP-24	Remedial Investigation	1-7	--	--	X	--	X	X	--	--	--	9/16/2010	
TP-25	Remedial Investigation	1-7	--	--	X	--	X	X	--	--	--	9/16/2010	
Subsurface Soil/Fill (Borings)													
BCP-MW-1	Remedial Investigation	0-4	--	--	X	--	X	X	--	--	--	9/9/2010	
BCP-MW-2	Remedial Investigation	0-4	--	--	X	--	X	X	--	--	--	9/9/2010	
BCP-MW-3	Remedial Investigation	0-4	--	--	X	--	X	X	--	--	--	9/9/2010	
BCP-MW-4	Remedial Investigation	8-11.5	X	--	X	--	X	X	--	--	--	9/9/2010	
BCP-MW-5	Remedial Investigation	4-8	X	--	X	--	X	X	--	--	--	9/10/2010	
Rail Siding 1	Remedial Investigation	--	X	--	X	--	X	X	--	X	X	7/8/2011	
Rail Siding 2	Remedial Investigation	--	X	--	X	--	X	X	--	X	X	7/8/2011	
Rail Siding 3	Remedial Investigation	--	X	--	X	--	X	X	--	X	X	7/8/2011	
Rail Siding 4	Remedial Investigation	--	X	--	X	--	X	X	--	X	X	7/10/2011	
Groundwater													
MW-1	Remedial Investigation	12-22	--	X	X	--	X	X	--	X	X	10/1/2010	
MW-2	Remedial Investigation	12-22	--	X	X	--	X	X	--	X	X	10/1/2010	
MW-3	Remedial Investigation	12-22	--	X	X	--	X	X	--	X	X	10/1/2010	Blind
MW-4	Remedial Investigation	6-16	--	X	X	--	X	X	--	X	X	10/1/2010	
MW-5	Remedial Investigation	12-22	--	X	X	--	X	X	--	X	X	10/1/2010	
Post Excavation													
F-1	Interim Remedial Measures	3.5			X							3/21/2011	
F-2	Interim Remedial Measures	3.5	--	--	X	--	--	--	--	--	--	3/23/2011	
F-3	Interim Remedial Measures	3	--	--	X	--	--	--	--	--	--	3/23/2011	
F-4	Interim Remedial Measures	3.5	--	--	X	--	--	--	--	--	--	3/30/2011	
F-5	Interim Remedial Measures	3.5	--	--	X	--	--	--	--	--	--	3/30/2011	
F-6	Interim Remedial Measures	3.5	X	--	X	--	--	--	--	--	--	3/31/2011	
F-7	Interim Remedial Measures	5-7	--	--	X	--	--	--	--	--	--	4/12/2011	
F-8	Interim Remedial Measures	5-7	--	--	X	--	--	--	--	--	--	4/12/2011	
F-9	Interim Remedial Measures	10	X	--	X	--	--	--	--	--	--	4/15/2011	
SW-1	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/21/2011	
SW-2	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/23/2011	
SW-3	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/23/2011	
SW-4	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/23/2011	
SW-5	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/23/2011	
SW-6	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/24/2011	
SW-7	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/24/2011	
SW-8	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/30/2011	
SW-9	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	3/30/2011	
SW-10	Interim Remedial Measures	--	X	--	X	--	--	--	--	--	--	3/31/2011	
SW-11	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	4/13/2011	
SW-12	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	4/13/2011	
SW-13	Interim Remedial Measures	--	X	--	X	--	--	--	--	--	--	4/15/2011	
SW-14	Interim Remedial Measures	--	X	--	X	--	--	--	--	--	--	4/15/2011	
SW-15	Interim Remedial Measures	--	X	--	X	--	--	--	--	--	--	4/22/2011	
SW-16	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	4/22/2011	
Bottom 1R	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	6/10/2011	
Bottom 2	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/17/2011	
Bottom 3	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/17/2011	
Bottom 4	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/17/2011	
Bottom 5	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	6/10/2011	
Bottom 6	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	6/10/2011	
Bottom 7	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	6/10/2011	
Bottom 8	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	6/10/2011	
Bottom 9	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	6/10/2011	
Notrthwall	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/13/2011	
Southwall	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/13/2011	
Northwall 1 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/27/2011	
Southwall 1 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/6/2011	
Southwall 2 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/9/2011	
Eastwall 1 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/6/2011	
Westwall 1 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/9/2011	
Bottom 1 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/6/2011	
Bottom 2 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/6/2011	
Bottom 3 (TP-5)	Interim Remedial Measures	--	--	--	X	--	--	--	--	--	--	5/9/2011	
PCB Wipe 1	Interim Remedial Measures	--	--	--	--	--	X	--	--	--	--	5/19/2011	
PCB Wipe 2	Interim Remedial Measures	--	--	--	--	--	X	--	--	--	--	5/19/2011	
PCB Wipe 3	Interim Remedial Measures	--	--	--	--	--	X	--	--	--	--	7/7/2011	
PCB Wipe 4	Interim Remedial Measures	--	--	--	--	--	X	--	--	--	--	7/7/2011	
PCB Wipe 5	Interim Remedial Measures	--	--	--	--	--	X	--	--	--	--	7/7/2011	
PCB Wipe 6	Interim Remedial Measures	--	--	--	--	--	X	--	--	--	--	7/25/2011	
PCB Conf. 6 (2)	Interim Remedial Measures	--	--	--	--	--	--	--	--	--	--	2/13/2012	
PCB Conf. 7	Interim Remedial Measures	--	--	--	--	--	--	--	--	--	--	2/13/2012	

TABLE 2

Summary of Surface Soil/Fill Analytical Data

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Industrial SCOs[2]	Sample Location																				
		SS-1	SS-2	SS-3	SS-4	Debris Pile 1	Debris Pile 2	SS-1	SS-2	SS-4	SS-5	SS-6	SS-7A	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-18	SS-19	SS-23
		August 2007						September 2010														
Volatile Organic Compounds (VOCs) - mg/kg																						
1,2,4-Trimethylbenzene	**--**	--	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	0.055	ND	--	--	--
1,3,5-Trimethylbenzene	**--**	--	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	0.014 J	ND	--	--	--
p-Cymene (p-isopropyltoluene)	**--**	--	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	0.012 J	ND	--	--	--
Acetone	**1000**	--	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	ND	ND	--	--	--
Methylene chloride	**1000**	--	--	--	--	--	--	--	0.0024 J	--	--	--	--	--	--	--	--	0.019 J	0.0032 J	--	--	--
Semi-Volatile Organic Compounds (SVOCs) - mg/kg																						
2-Methylnaphthalene	**--**	ND	0.13 J	43	1.8	2.4	ND	ND	ND	0.28 D,J	2.6 D,J	ND	0.25 D,J	0.59 D,J	2.7 D,J	ND	0.59 D,J	8.7 D,J,T	ND	ND	1.2 D,J	0.038 D,J
Acenaphthene	**1000**	ND	2.5	36	6.9	ND	ND	0.47 D,J	0.087	1.6 D,J	8.7 D,J	1.2 D,J	1.2 D,J	2.8 D	5.5 D	3.5 D,J	3.1 D,J	6.1 D,J,T	19 D,J,T	4 D	3.1 D,J	0.28 D,J
Acenaphthylene	**1000**	ND	0.33 J	39	0.6	ND	ND	0.39 D,J	ND	0.86 D,J	3.7 D,J	ND	ND	0.6 D,J	3.4 D,J	0.57 D,J	1.3 D,J	2.6 D,J,T	10 D,J,T	ND	0.37 D,J	ND
Anthracene	**1000**	ND	3.1	140	12	0.2 J	ND	1.1 D,J	130	4.4 D	16 D	2.3 D,J	1.2 D,J	3.9 D	6 D	5 D	4.6 D	7.3 D,J,T	20 D,J,T	3.5 D	5.3 D	0.4 D,J
Benzo(a)anthracene	**11**	1.5 J	**28**	**340**	**28**	0.71 J	0.18 J	4.6 D	0.72	**13 D**	**56 D**	**13 D**	5.6 D	**24 D**	**21 D**	**28 D**	**21 D**	**22 D,T**	**100 D,T**	**22 D**	**28 D**	3 D
Benzo(a)pyrene	**1.1**	**2.2 J**	**38**	**210**	**28**	0.38 J	0.17 J	**7 D**	**1.4 D**	**17 D**	**73 D**	**16 D**	**9.8 D**	**20 D**	**41 D**	**48 D**	**29 D**	**30 D,T**	**150 D,T**	**38 D**	**39 D**	**4.3 D**
Benzo(b)fluoranthene	**11**	3.2 J	**48**	**360**	**41**	0.77 J	0.29 J	7.4 D	1.5 D	**16 D**	**74 D**	**16 D**	9.9 D	**39 D**	**43 D**	**51 D**	**29 D**	**29 D,T**	**150 D,T**	**38 D**	**41 D**	5.4 B,D
Benzo(ghi)perylene	**1000**	1.6 J	24	96	15	0.26 J	0.097 J	5.1 D	1.5 D	12 D	46 D	11 D	8.8 D	9.1 D	32 D	40 D	22 D	20 D,T	120 D,T	40 D	26 D	2.7 B,D
Benzo(k)fluoranthene	**110**	0.92 J	17	**120**	13	0.21 J	0.066 J	3 D,J	0.52	8.1 D	33 D	7.2 D	3.5 D	9.5 D	18 D	14 D	13 D	12 D,T	53 D,T	11 D	13 D	1.4 B,D
Biphenyl	**--**	--	--	--	--	--	--	ND	ND	0.11 D,J	ND	ND	ND	ND	0.28 D,J	ND	ND	1.6 D,J,T	ND	ND	ND	ND
Bis(2-ethylhexyl) phthalate	**--**	ND	ND	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND UJ
Butyl benzyl phthalate	**--**	ND	ND	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	**--**	--	--	--	--	--	--	0.7 D,J	0.065 D,J	1.9 D	9.1 D,J	1.5 D,J	0.77 D,J	2 D	3.7 D	3.1 D,J	2.8 D,J	ND	11 D,J,T	2.3 D,J	3.9 D	0.36 D,J
Chrysene	**110**	1.8 J	27	**340**	29	1 J	0.23 J	4.7 D	0.76 D,J	13 D	55 D	1.2 D	5.5 D	38 D	22 D	28 D	21 D	20 D,T	95 D,T	21 D	27 D	3.6 D
Dibenzo(a,h)anthracene	**1.1**	ND	**6.1**	**35**	**4.2**	0.13 J	ND	ND	ND	ND	ND	ND	ND	**2.4 D**	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	**1000**	ND	0.4 J	36	4.8	0.74 J	ND	ND	ND	0.7 D,J	5 D,J	ND	0.47 D,J	1.1 D,J	1.7 D,J	0.8 D,J	1.3 D,J	2.8 D,J,T	4.6 D,J,T	0.6 D,J	1.5 D,J	0.064 D,J
Fluoranthene	**1000**	1.7 J	34	780 D	57	1.4 J	0.42 J	7.7 D	1 D	22 D	100 D	17 D	9.7 D	31 D	33 D	43 D	37 D	37 D,T	150 D,T	30 D	42 D	5 D
Fluorene	**1000**	ND	0.97 J	65	5.4	0.13 J	ND	0.35 D,J	ND	1.3 D,J	6.7 D,J	0.51 D,J	0.71 D,J	1.4 D,J	2.2 D,J	1.6 D,J	2 D,J	5.3 D,J,T	9.5 D,J,T	1.2 D,J	2.1 D,J	0.11 D,J
Indeno(1,2,3-cd)pyrene	**11**	2.4 J	**22**	**96**	**14**	0.17 J	0.085 J	4.3 D	1.1 D	9.7 D	**38 D**	9.4 D	6.9 D	8.2 D	**27 D**	**34 D**	**18 D**	**17 D,T**	**100 D,T**	**30 D**	**22 D**	2.5 B,D
Naphthalene	**1000**	ND	0.24 J	26	3.6	1.1 J	ND	ND	ND	0.53 D,J	6.5 D,J	ND	0.94 D,J	1.3 D,J	3.2 D,J	0.75 D,J	0.97 D,J	2.1 D,J,T	ND	0.63 D,J	2.7 D,J	ND
Phenanthrene	**1000**	1 J	12	920 D	52	3.7	0.2 J	4.8 D	0.52 D,J	14 D	76 D	8.9 D	5.8 D	17 D	21 D	21 D	22 D	28 D,T	80 D,T	14 D	25 D	1.9 D
Phenol	**1000**	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	**1000**	1.9 J	27	480	37	1 J	0.24 J	7.1 D	0.94 D	19 D	97 D	18 D	8.9 D	25 D	29 D	42 D	33 D	31 D,T	160 D,T	31 D	41 D	4 D
Total PCBs - mg/kg																						
Aroclor 1242	**25**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.12	0.24 D,J	ND	1.1 D	0.33 D	0.22 D,J	ND	ND	ND	ND
Aroclor 1248	**25**	ND	0.11	7.1	ND	ND	ND	ND	ND	0.025 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.3 D	ND
Aroclor 1254	**25**	ND	0.089	ND	ND	ND	ND	0.081 D,J	0.01 J	0.086 J	6 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05 D,N,J
Aroclor 1260	**25**	ND	ND	ND	ND	ND	ND	0.52 D	0.056	ND	ND	ND	0.28	ND	0.34	1.1 D	4.9 D	ND	ND	ND	ND	0.11 D,N,J
Aroclor 1262	**25**	ND	ND	ND	ND	ND	ND	ND	ND	0.091 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	**25**	8.4 B	0.12 B	1.4 B	0.34 B	1.7 B	0.83 B	0.39 D	0.035	0.074 J	1.7 D,N,J	**43 J**	0.16	7.6 D	0.1	0.64 D	2.4 D	2.9 D	0.085 D,J	0.19 D,J	13 D	0.1 D,N,J
Total Metals - mg/kg																						
Aluminum	**--**	--	--	--	--	--	--	5290 B	5850 B	5460 B,J	5610 B,J	10100 B,J	10500 B	6600 B	5110 B	8310 B	6490 B	5020 B	2750 B	9900 B,J	2010 B	5500 B
Antimony	**--**	--	--	--	--	--	--	3.4 J	1.1 B,J	ND UJ	1 J	0.8 J	ND	1.8 J	2.5 J	0.6 J	1.9 J	2.1 J	0.7 J	ND UJ	1.6 J	ND UJ
Arsenic	**16**	**89**	2.8	**23.9**	8.1	15	ND	11.7	1.7 B,J	3.1 B	6.1 B	3.7 B	4.5	7.1	**21.8**	9.9	6.9	11.2	**20.5**	3.1 B	10.6	2.8
Barium	**10000**	127	75.8	2520	81.2	88.8	19.1	334 B	51.8 B	57.4 B,J	698 B,J	97.1 B,J	75.1 B	110 B,J	87.2 B	86.6 B	167 B	260 B	57.9 B	76.8 B,J	63.1 B,J	75.7 B,J
Beryllium	**2700**	--	--	--	--	--	--	0.353	0.728 B	0.253	0.296	0.2 J	0.493	0.671	0.459	0.518	0.418	0.318	0.245	0.342	0.368	0.377
Cadmium	**60**	30.8	1.8	12.6	0.96	ND	0.26	4.14	1.13	0.642	4.3	1.19	0.714	1.77	1.22	3.13	1.9 J	8.56 J	0.787 J	0.906	3.05	1.01
Calcium	**--**	--	--	--	--	--	--	57400 B	18300 B	124000 B,D,J	52700 B,D,J	34200 B,J	21500 B	85100 B,D	27200 B	26100 B	46200 B	63900 B	74700 B,D	40400 B,J	19300 B	6910 B
Chromium	**6800**	73.2	38	297	66.1	3.6	23.2	173	22.4	10.4 J	58.7 J	34.4 J	25.5	27.7	41.7	44.8	35.3	118	21.2	41.4 J	80.3	25.2
Cobalt	**--**	--	--	--	--	--	--	6.54	2.87 B	2.74	5.92	4.72	6.13	7.46	5.97	12.2	6.31	9.85	3.78	4.52	6.22	6.38
Copper	**10000**	--	--	--	--	--	--	497 B	25.9	16.6 J	55.3 J	67.4 J	19.5 B	82.1	122 B	2770 B	150 B	163 B	50.5 B	28.6 J	83.4	26.4
Iron	**--**	--	--	--	--	--	--	26200	3650 B	10200 J	28900 J	16500 J	16500	26600 B	10700	64500 D	18200	4910	15400	21400 J	12300 B	10.3 B
Lead	**3900**	171	208	3310	232	59.1	43.9	465 B	60.2	117 J	313 J	276 J	49.6 B	325	211 B	2060 B	549 B,J	591 B,J	112 B,J	156 J	156	43.4
Magnesium	**--**	--	--	--	--	--	--	25800 B	7560	23000 J	7820 J	11400 J	9580 B	17300	15000 B	6970 B	16500 B	25000 B	36100 B	9510 J	9890	11400
Manganese	**10000**	--	--	--	--	--	--	633	403 B	353 J	426 J	993 J	371	1210 B	404	653	695	1240	562	2010 J	794 B	211 B
Nickel	**10000**	--	--	--	--	--	--	73.5	19.7	8.07 J	24.1 J	25.3 J	14.7	30.1 J	30.4	58.1	54.7	55.2	21.1	14.1 J	120 J	18.9 J
Potassium	**--**	--	--	--	--	--	--	913 B	141	665	532	314	1310 B	821 B	461 B	627 B	1120 B	656 B	525 B	530	308 B	3400 B
Selenium	**6800**	ND	ND	ND	ND	6.6	ND	1.7 J	0.6 J	0.9 J	1.9 J	1.1 J	1.5 J	1.2 J	1.1 J	5.7	1.5 J	3.4 J	1 J	1.4 J	1.6 J	4.4 J
Silver	**6800**	ND	ND	1.1	ND	ND	ND	0.467 J	ND	ND	0.389 J	0.164 J	0.071 J	0.154 J	0.212 J	0.338 J	0.144 J	0.168 J	ND	0.17 J	0.221 J	0.29 J
Sodium	**--**	--	--	--	--	--	--	286	110 J	191 J	132 J	137 J	109 J	283	113 J	169	314	21	79.6 J	92.2 J	143 J	16400
Vanadium	**--**	--	--	--	--	--	--	141	221	130 J	48.2 J	90.5 J	21.9	31.6	21.6	66.7	130	62.5	23.9	512 J	25.3	80.5
Zinc	**10000**	--	--	--	--	--	--	955 B	54.6	136 B,J	610 B,J	408 B,J	93.9 B	804 B	182 B	365 B	462 B,J	797 B,J	115 B,J	164 B,J	322 B	250 B
Mercury	**5.7**	0.086	0.035	3.1	0.046	0.82	ND	5.25 D	0.0078 J	0.0417	0.28	0.0699	0.164	0.226	0.945	0.481	0.177	0.115	0.0816	0.168	0.366	ND
Pesticides and Herbicides - mg/Kg																						
4,4'-DDT	**94**	--	--	--	--	--	--	--	0.0084 D,J	--	--	--	--	0.058 D,J	0.0084 D,J	--	--	--	--	--	--	--
Dieldrin	**2.8**	--	--	--	--	--	--	--	0.016 D,J	--	--	--	--	ND	0.016 D,J	--	--	--	--	--	--	--
Endrin	**410**	--	--	--	--	--	--	--	ND	--	--	--	--	0.029 D,J	ND	--	--	--	--	--	--	--
Endrine ketone	**--**	--	--	--	--	--	--	--	ND	--	--	--	--	ND	ND	--	--	--	--	--	--	--

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

D = Compounds were identified in an analyisis at the secondary dilution factor.

T = Sample had an adjusted final volume during extraction due to extract matrix and/or viscosity.

NJ = Estimated value; potential false positive and/or elevated quantitative value.

Bold = Result exceeds Industrial SCOs.

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Industrial Soil Cleanup Objectives (December 2006)

TABLE 3

Summary of RI Subsurface Soil/Fill Analytical Data

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Industrial SCOs[2]	BCP MW-1 (0-4)	BCP MW-2 (0-4)	BCP MW-3 (0-4)	BCP MW-4 (8-11.5)	BCP MW-5 (4-8)	TP-1 (5-7)	TP-2 (3-5)	TP-3 (1-4)	TP-4 (1-2)	TP-5 (1-2.5)	TP-6 (1-2)	TP-7A (1-2.5)	TP-9 (0.5-1.5)	TP-10 (5-7)	TP-11 (1-2)	TP-12 (1-2.5)	TP-13 (1-3)	TP-14 (1.5-2)	TP-15 (0-2)	TP-16 (0.5-1.5)	TP-17 (2-4)	TP-18 (0.5-1.5)	TP-19 (4-6)	TP-20 (2-4)	TP-21 (0.5-2)	TP-22 (0.5-6)	TP-23 (1-5)	TP-24 (1-7)	TP-25 (1-7)	Railroad Siding 1	Railroad Siding 2	Railroad Siding 3	Railroad Siding 4
		Sample Location: September 2010					September 2010																								July 2011			
Volatile Organic Compounds (VOCs) - mg/Kg																																		
1,1-Dichloroethane	**480**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	0.26 W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
1,2,4-Trimethylbenzene	**380**	--	--	--	ND	0.66	23 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.22	0.15 W	0.072 J,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
1,3,5-Trimethylbenzene	**380**	--	--	--	ND	0.22	6.1 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.092	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
2-Butanone (MEK)	**1000**	--	--	--	ND	ND	ND	0.026 J	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
p-Cymene (p-isopropyltoluene)	**--**	--	--	--	ND	0.048 J	1.3 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Acetone	**1000**	--	--	--	ND	ND	ND	0.15	--	--	--	ND	--	--	ND	--	--	--	--	0.082 J	ND	ND	--	--	--	--	--	--	--	--	0.013 J	ND	ND	ND
Benzene	**89**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.041 J	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Chloroethane	**--**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	0.21 W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Cyclohexane	**--**	--	--	--	ND	ND	0.55 D,J,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Ethylbenzene	**780**	--	--	--	ND	0.33	4 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.055	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Isopropylbenzene (Cumene)	**--**	--	--	--	ND	0.054	0.88 D,J,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	0.077 NJ,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Methylcyclohexane	**--**	--	--	--	ND	ND	2.6 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	0.17 W	0.068 J,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Methylene chloride	**1000**	--	--	--	ND	ND	ND	0.0033 J	--	--	--	0.0037 J	--	--	ND	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	8.9	0.0031 J	0.0026 J	0.0075
n-Butylbenzene	**1000**	--	--	--	ND	1	5 D,W	ND	--	--	--	ND	--	--	0.014 J	--	--	--	--	ND	U	0.14 NJ,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
n-Propylbenzene	**1000**	--	--	--	ND	ND	2.9 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	0.14 NJ,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
sec-Butylbenzene	**1000**	--	--	--	ND	ND	1.2 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	ND	ND	0.097 J,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Styrene	**--**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.028 J	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Toluene	**1000**	--	--	--	ND	0.18	ND	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.087 J	0.062 J,W	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Total Xylene	**1000**	--	--	--	ND	0.76	19 D,W	ND	--	--	--	ND	--	--	ND	--	--	--	--	0.31 J	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																																		
2-Methylnaphthalene	**--**	0.43 D,J	ND	0.57 D,J	0.65 D,J	260 D	110 T,D	ND	ND	0.58 D	0.54 D,J	1.4 D,J	ND	0.21 D,J	0.36 D,J	ND	ND	0.35 D,J	ND	320 T,D	2 D,J	8.3 T,D,J	ND	0.33 D,J	0.27 D,J	ND	ND	ND	0.093 D,J	ND	ND	2.4	27	7.5 J
Acenaphthene	**1000**	0.18 D,J	3.1 D,J	1.3 D,J	0.48 D,J	210 D	6.7 T,D,J	0.51 D,J	0.018 J	2.3 D	17 D	6.1 D	6.2 D,J	0.81 D,J	0.63 D,J	ND	ND	0.9 D,J	ND	370 T,D	3.5 D,J	37 T,D,J	11 D	1.3 D	0.92 D,J	0.022 J	12 D	ND	1.6 D	ND	3 J	12 J	46	29
Acenaphthylene	**1000**	ND	ND	ND	ND	ND	ND	ND	0.033 J	0.67 D,J	1.2 D,J	ND	ND	0.26 D,J	0.17 D,J	ND	ND	ND	ND	48 T,D	3.4 D,J	ND	ND	0.12 D,J	0.12 D,J	ND	ND	ND	0.054 D,J	ND	ND	ND	4.2 J	6.7 J
Anthracene	**1000**	0.2 D,J	5.5 D	3.6 D	0.28 D,J	13 D	ND	2.8 D	0.065 J	5.3 D	3.3 D,J	13 D	8.2 D,J	1.7 D	0.78 D,J	ND	0.032 J	2.2 D	ND	500 T,D	13 D	68 T,D	14 D	3.5 D	1.9 D	0.024 J	13 D	0.14 D,J	0.81 D,J	0.38 T,D,J	4.6 J	21	98	44
Benzo(a)anthracene	**11**	1.2 D,J	**29 D**	**13 D**	1 D	7.4 D	ND	8.3 D	0.49	**17 D**	9 D	**28 D**	**39 D**	4.7 D	4 D	0.055 J	0.19 J	2.9 D	0.022 J	**580 T,D**	**55 D**	**210 T,D**	**62 D**	**16 D**	5.5 D	0.17 J	**83 D**	0.87 D,J	5.5 D	1.9 T,D,J	**23**	**84**	**170**	**110**
Benzo(a)pyrene	**1.1**	**1.4 D,J**	**45 D**	**15 D**	**1.3 D**	**12 D**	**12 T,D,J**	**10 D**	0.63	**20 D**	**9.6 D**	**29 D**	**69 D**	**5.4 D**	**5.8 D**	0.074 J	0.3	**3.2 D**	0.03 J	**530 T,D**	**71 D**	**240 T,D**	**83 D**	**19 D**	**5.4 D**	0.27	**110 D**	0.55 D,J	**9.4 D**	**2.1 T,D,J**	**36**	**110**	**140**	**120**
Benzo(b)fluoranthene	**11**	1.7 D,J	**44 D**	**16 D**	1.4 D	**12 D**	6.2 T,D,J	**12 D**	0.67	**21 D**	8.8 D	**28 D**	**61 D**	6.7 D	6.4 D	0.085 J	0.31	3.2 D	0.029 J	**530 T,D**	**84 D**	**270 T,D**	**81 D**	**24 D**	6.6 D	0.3	**110 D**	1.2 B,D	9.3 B,D	2.1 T,D,J,B	**33**	**110**	**170**	**120**
Benzo(ghi)perylene	**1000**	0.96 D,J	28 D	8.9 D	0.84 D,J	4.4 D	ND	7.7 D	0.44	12 D	7.5 D	20 D	57 D	1.8 D	3.2 D	0.06 J	0.31	2.1 D	0.023 J	280 T,D	55 D	190 T,D	67 D	9.1 D	2.2 D	0.23	81 D	0.48 B,D,J	6.2 B,D	1.5 T,D,J,B	27	82	86	88
Benzo(k)fluoranthene	**110**	0.46 D,J	16 D	6.7 D	0.41 D,J	2.9 D	ND	3.3 D	0.24	6.6 D	4 D,J	13 D	34 D	2.9 D	2.5 D	0.034 J	0.083 J	1 D	ND	**220 T,D**	25 D	**120 T,D**	30 D	6.8 D	2.6 D	0.1 J	49 D	0.4 B,D,J	3.8 B,D	1.2 T,D,J,B	22	56	72	68
Biphenyl	**--**	ND	ND	ND	0.19 D,J	350 D	ND	ND	ND	ND	ND	0.36 D,J	ND	ND	ND	ND	ND	ND	ND	80 T,D	ND	ND	ND	ND	0.067 D,J	ND	ND	ND	ND	ND	ND	ND	4.8 J	1.9 J
Bis(2-ethylhexyl) phthalate	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.087 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.62 D,J	ND	11 J	ND	ND	ND
Butyl benzyl phthalate	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	**--**	0.14 D,J	3 D,J	1.9 D,J	0.16 D,J	0.93 D,J	ND	0.67 D,J	ND	2.7 D	1.3 D,J	5.4 D	5.4 D,J	0.78 D,J	0.5 D,J	ND	0.024 J	0.83 D,J	ND	240 T,D	8.6 D	62 T,D	8.7 D,J	2.2 D	0.99 D,J	0.016 J	8.7 D	0.055 D,J	0.6 D,J	ND	2.7 J	13 J	55	22
Chrysene	**110**	1.1 D,J	29 D	14 D	0.99 D,J	12 D	33 T,D,J	8.3 D	0.48	17 D	7.8 D	26 D	39 D	5.4 D	4 D	0.056 J	0.19 J	2.6 D	0.015 J	**480 T,D**	58 D	**220 T,D**	57 D	16 D	5.4 D	0.18 J	78 D	1.4 D	6.2 D	1.8 T,D,J	26	84	**150**	**110**
Dibenzo(a,h)anthracene	**1.1**	ND	ND	ND	ND	ND	ND	ND	0.11 J	ND	**1.9 D,J**	ND	ND	0.45 D,J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.9 J**	**18 J**	**29**	**19**
Dibenzofuran	**1000**	ND	0.94 D,J	0.78 D,J	0.18 D,J	400 D	ND	0.26 D,J	ND	1.3 D,J	4.8 D	3.4 D,J	ND	0.41 D,J	ND	ND	ND	0.81 D,J	ND	400 T,D	3.2 D,J	19 T,D,J	3.4 D,J	0.68 D,J	0.49 D,J	ND	2.1 D,J	0.043 D,J	0.18 D,J	ND	ND	5.1 J	39	14 J
Fluoranthene	**1000**	2 D	39 D	24 D	1.7 D	29 D	6.9 T,D,J	17 D	0.6	28 D	26 D	53 D	64 D	9.1 D	6.2 D	0.087 J	0.28	6.2 D	0.023 J	**1800 D**	110 D	450 T,D	94 D	31 D	9.9 D	0.23	97 D	1.7 D	7.3 D	2.7 T,D,J	36	130	350	200
Fluorene	**1000**	ND	1.7 D,J	1.3 D,J	0.35 D,J	290 D	13 T,D,J	0.68 D,J	0.019 J	2 D,J	6.7 D	6.1 D	2.7 D,J	0.7 D,J	0.42 D,J	ND	ND	1.2 D	ND	570 T,D	6 D,J	42 T,D	4.7 D,J	1.3 D	0.81 D,J	ND	4.7 D,J	ND	0.4 D,J	ND	1.5 J	9.5 J	54	22
Indeno(1,2,3-cd)pyrene	**11**	0.79 D,J	**24 D**	8 D	0.69 D,J	4.3 D	ND	6 D	0.38	10 D	6.2 D	**17 D**	**46 D**	1.5 D	2.6 D	0.041 J	0.21 J	1.7 D	0.02 J	**260 T,D**	**47 D**	**150 T,D**	ND	7.3 D	2 D	0.19 J	**73 D**	0.43 B,D,J	5.7 B,D	1.2 T,D,J,B	**21**	**66**	**77**	**77**
Naphthalene	**1000**	0.3 D,J	0.62 D,J	0.79 D,J	0.49 D,J	930 D	40 T,D	ND	0.073 J	1 D,J	1.7 D,J	2.7 D,J	ND	0.5 D,J	0.17 D,J	ND	ND	0.6 D,J	0.1 J	**1800 D**	2.7 D,J	23 T,D,J	ND	0.73 D,J	0.47 D,J	ND	1.6 D,J	ND	0.12 D,J	ND	ND	7.6	71	23
Phenanthrene	**1000**	1.1 D,J	20 D	15 D	1.3 D	39 D	77 T,D	5.6 D	0.16 J	19 D	22 D	47 D	35 D	5.4 D	3.4 D	0.053 J	0.19 J	6.8 D	ND	**2100 D**	52 D	310 T,D	56 D	17 D	7.9 D	0.097 J	48 D	0.73 D,J	3.4 D	1.5 T,D,J	19	86	380	170
Phenol	**1000**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1 J	ND
Pyrene	**1000**	1.8 D,J	40 D	21 D	1.4 D	22 D	29 T,D,J	12 D	0.79	25 D	24 D	48 D	61 D	5.7 D	5.1 D	0.077 J	0.29	5.4 D	0.023 J	**1100 T,D**	90 D	370 T,D	87 D	24 D	7.6 D	0.2 J	95 D	0.94 D,J	6.6 D	2.2 T,D,J	32	120	270	190
Polychlorinated biphenyls (PCBs) - mg/Kg																																		
Aroclor 1242	**25**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8 D	ND	ND	ND	0.0086 J	0.012 J	ND	ND	ND	ND	ND	ND	ND	ND	0.44 D	ND	0.28 D	0.077	ND	ND	ND	ND
Aroclor 1248	**25**	ND	ND	ND	ND	ND	ND	ND	ND	0.029	ND	ND	ND	ND	0.011 J	ND	ND	ND	ND	ND	ND	ND	ND	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	**25**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26 D	0.082 J	ND	ND	ND	ND
Aroclor 1260	**25**	ND	0.2 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014 J	1.5 D,NJ	0.16	ND	ND	ND	ND
Aroclor 1262	**25**	ND	ND	ND	ND	ND	ND	ND	ND	0.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	**25**	0.037	0.074 D,J	ND	0.041	ND	ND	ND	ND	0.093	0.22 D	0.15	0.59 D	0.7 D	0.093	ND	0.0066 J	0.068 NJ	ND	ND	ND	ND	0.054 D,J	0.14	7.6 D	ND	ND	0.03	1.8 D	0.099 NJ	2.7	0.85	1.4	3.4
Total Metals - mg/Kg																																		
Aluminum	**--**	13300 B	3730 B	17800 B	8100 B	14000 B	4500 B	16100 B	15400 B,J	14100 B,J	11200 B,J	7390 B,J	9690 B	8830 B	5340 B	15900 B	16100 B	7890 B	19800 B	9120 B	8220 B	11200 B	8040 B,J	9980 B	5430 B	11000 B	1880 B	8910 B	8010 B	6100 B	22200	9730	4370	6030
Antimony	**--**	0.8 B,J	1.1 B,J	ND UJ	ND UJ	ND UJ	ND	ND	ND UJ	ND UJ	ND UJ	ND UJ	ND	1.2 J	0.6 J	ND	ND	ND UJ	ND UJ	0.7 J	ND J	ND UJ	ND UJ	ND UJ	0.9 J	ND UJ	ND UJ	ND UJ	0.7 J	1.1 J	0.97 J	0.93	4.6 J	2.6
Arsenic	**16**	11.5 B	4 B	5.3 B	2.1 B,J	3.4 B	1.2 J	3.9	6.9 B	4.3 B	3.5 B	7.8 B	5.9	4.5	4.7	3.9	3	7.2	5	**20.2**	4.6	4.3	3 B	5.8	7.1	12.3	1.4 J	13.8	7.2	5.3	5.6	7.3	6.4	**198**
Barium	**10000**	106 B	39.4 B	116 B	55.6 B	66.3 B	15.4 B	104 B	122 B,J	105 B,J	94.2 B,J	292 B,J	153 B	81.2 B,J	41 B,J	147 B	134 B	85.5 B	77.3 B	143 B	116 J	84.4 J	48.7 B,J	81.5 B,J	58.8 B,J	115 J	13.9 J	89.6 B,J	71.9 B,J	73.7 B,J	69.9 J	337	32.9	135
Beryllium	**2700**	0.699 B	0.265 B	0.747 B	0.295 B	0.651 B	0.202 J	0.756	0.749	0.696	0.65	0.425	0.399	0.491	0.204 J	0.722	0.613	0.593	0.929	1.01	0.588	0.541	0.286	0.506	0.379	0.637	0.072 J	0.476	0.364	0.37	1.9	0.63	0.23	0.52
Cadmium	**60**	ND UJ	0.139 J	ND UJ	ND UJ	ND UJ	0.153 J	0.637	0.266	0.304	4.32	1.08	2.19	0.881 J	ND	0.328	0.225 J	0.904 J	0.565 J	0.318 J	0.586	0.926	0.739	0.369	0.677	0.071 J	0.154 J	0.329	9.11	0.547	1.4 B	1.4 B	0.97 B	4 B
Calcium	**--**	2810 B	98000 B,D	1060 B	26900 B	54800 B	806 B	25900 B	30500 B,J	43800 B,J	24200 B,J	29000 B,J	15100 B,D	41400 B	19800 B	43000 B	2930 B	7590 B	1870 B	19200 B	16300 B	23600 B	95500 B,D,J	26700 B	44500 B	43000 B	5970 B	31300 B	41300 B	106000 B,D	49200 B	41700 B	10200 B	15600 B
Chromium	**6800**	21	35.8	20.1	17.8	18	4.37	18.3	18.9 J	19.8 J	15.3 J	18.4 J	30.3	21.5 J	26.8	22.8	16.4	13.2	26.9	11	11.4	23.7	30.9 J	68.5	14.1	17.6	18.4	30.7	40.4	31.8	62.1	32.9	52.7	143
Cobalt	**--**	9.45 B	4.06 B	12.6 B	5.92 B	11.7 B	2.9	10.8	12.3	10.9	9.37	6.16	5.88	9.04	5.38	11.7	3.73	8.54	18.8	4.92	6.42	9.83	3.82	8.03	4.06	3.23	1.49	4.46	7.47	4.96	9	8.8	4.7	15.8
Copper	**10000**	30.2	91.8	29	16.1	21.4	10.8 B	14.3 B	18.1 J	22.5 J	21.6 J	403 J	87.1 B	34.3	36.4	18.9 B	41.5 B	1080 B	21.6 B	27.2 B	53	27.4	26.8 J	60.9	18.9	11.5	16.3	16	55.1	170	68.9	69.6	104	162
Iron	**--**	23800 B	30400 B	24700 B	14700 B	23700 B	7150	35300	23600 J	22600 J	18800 J	18300 J	21300	26000 B,J	28000 B	23100	14600	15200	43000	13700	13400 B	17900 B	10000 J	21300 B	14100 B	26800 B	1900 B	13600 B	28400 B	13300 B	8020	16300	12700	38
Lead	**3900**	46.8 J	31 J	13.8 J	8.1 J	4.8 J	3.2 B	21.4 B	11.1 B,J	43.3 B,J	47.4 B,J	649 B,J	314 B	72.4 J	29.9	7.3 B	13.2 B	78.8 B,J	14 B,J	75.9 B,J	174	47.9	49 B,J	61	46.8	11.1	9.3	51.6	162	107	114	191	170	350
Magnesium	**--**	4450	4120	6670	4660	9660	1370 B	5580 B	6900 J	12600 J	13 J	7410 J	17000 B	13800 J	8820	9610 B	2290 B	2710 B	6380 B	4260 B	6700 B	9510 B	20900 J	8470	11200	2050 B	3060 B	4030	13100	43200	16300	7800	3700	5680
Manganese	**10000**	561 B	371 B	539 B	372 B	775 B	306	869	787 J	670 J	268 J	369 J	531	562 B	415 B	503	137	339	468	543	422 B	382 B	803 J	463 B	293 B	170 B	55.6 B	224 B	580 B	541 B	696	476	259	**2030**
Nickel	**10000**	23.8	20.5	26.4	14	26.6	6.38	17	22.3 J	25.3 J	29.4 J	17.5 J	22	25.8 J	21.7 J	25.5	10.6	48.4	24.8	13	15.8 J	39.5 J	11.9 J	21.5 J	14.2 J	9.22 J	15.8 J	16 J	32.5 J	48.5 J	34.9	32.7	48.6	154
Potassium	**--**	1230	510	1730	980	1830	706 B	1580 B	1590	2410	1.5	1400	916 B	1240 B	532 B	32320 B	1720 B	837 B	2150 B	1010 B	1340	1690	669	1190 B	688 B	6630	155	3150 B	1340 B	1180 B	720	904	275	700
Selenium	**6800**	2 J	1.7 J	2.2 J	1.2 J	1 J	0.5 J	2.4 J	2 J	1.1 J	1.4 J	1.5 J	1.3 J	1.1 J	0.7 J	1.5 J	1 J	1.5 J	2.9 J	1.1 J	1.2 J	1.4 J	ND	0.8 J	0.6 J	3.6 J	ND	2.1 J	1.5 J	0.8 J	0.65 J	ND	0.85 J	1.1 J
Silver	**6800**	0.079 J	ND	ND	ND	ND	ND	ND	0.131 J	ND	ND	0.154 J	ND	0.097 J	ND	ND	ND	ND	ND	ND	ND	ND	0.138 J	ND	0.095 J	ND	ND	ND	0.118 J	0.122 J	ND	ND	ND	ND
Sodium	**--**	124 J	96.8 J	118 J	92.7 J	109 J	57.9 J	0.355	460 J	105 J	98.5 J	102 J	372	216	106 J	266	94.8 J	111 J	329	267	99.8 J	146 J	148 J	128 J	211	1380	101 J	977	375	361	1380	465	139 J	135
Vanadium	**--**	26.5	72.7	30.2	16	24.8	11.3	31.5	39.8 J	30.8 J	19.4 J	15.8 J	155	26.5	13.6	28.3	19.3	34.9	40.8	13.6	19.6	25.5	193 J	22.4	18.4	25.3	32	30.5	28.7	24.7	1680	264	248	97.1
Zinc	**10000**	60 J	128 J	72.2 J	40.2 J	48.3 J	14.6 B	55.8 B	61 B,J	87.9 B,J	438 B,J	435 B,J	357 B	215 B,J	81.8 B	51.3 B	37.1 B	212 B,J	64.2 B,J	46.7 B,J	114 B	243 B	454 B,J	199 B	212 B	26.6 B	31.9 B	51.7 B	195 B	218 B	214 B	283 B	112 B	511 B
Mercury	**5.7**	0.206	0.0381	0.0413	0.0132 J	0.0157 J	ND	0.0147 J	0.0114 J	0.0498	0.0842	0.0758	0.106	0.0385	0.0353	ND	0.0687	0.113	0.0178 J	0.0252	0.0674	0.0355	0.0494	0.171	0.0783	ND	0.0177 J	0.0304	0.226	0.652	0.036	0.081	0.058	22.7
Pesticides and Herbicides - mg/Kg																																		
Aldrin	**1.4**	--	--	--	--	--	0.28 D,J	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
alpha-BHC	**6.8**	--	--	--	--	--	0.51 D,J	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
beta-BHC	**14**	--	--	--	--	--	0.34 D,J	0.0027 D,J	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
delta-BHC	**1000**	--	--	--	--	--	0.47 D,J	0.0055 D,J	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Dieldrin	**2.8**	--	--	--	--	--	0.45 D,J	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Endosulfan I	**920**	--	--	--	--	--	ND	0.0052 D,J	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Endosulfan II	**920**	--	--	--	--	--	0.36 B,D,J	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Endrin	**410**	--	--	--	--	--	0.3 D,J	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.44 J	ND	0.42	ND
Endrine ketone	**--**	--	--	--	--	--	ND	ND	--	--	--	--	--	--	0.015 D,N,J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	1	ND	ND
gamma-BHC (Lindane)	**--**	--	--	--	--	--	0.44 D,J	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
gamma-Chlordane	**--**	--	--	--	--	--	ND	ND	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Heptachlor	**29**	--	--	--	--	--	ND	0.0038 B,D,J	--	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

D = Compounds were identified in an analyisis at the secondary dilution factor.

W = Sample was prepared and analyzed using a medium level extraction.

T = Sample had an adjusted final volume during extraction due to extract matrix and/or viscosity.

NJ = Estimated value; potential false positive and/or elevated quantitative value.

Bold = Result exceeds 6NYCRR Part 375 Industrial SCO.

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives (December 2006)

TABLE 4

Summary of Groundwater Analytical Data

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	GWQS[2]	MW-1	MW-2	MW-3	MW-4	MW-5
		October 2010				
Volatile Organic Compounds (VOCs) - ug/L						
1,2,4-Trimethylbenzene	**5**	ND	ND	ND	0.78 J	ND
Acetone	**50**	3.4 J	ND	ND	4.3 J	4.7 J
Trichlorofluoromethane (Freon-11)	**5**	ND	ND	ND	1.4	ND
Semi-Volatile Organic Compounds (SVOCs) - ug/L						
2-Methylnaphthalene	**--**	ND	ND	ND	0.58 J	ND
Acenaphthene	**20**	ND	ND	ND	2.8 J	12
Acetophenone	**--**	ND	ND	ND	ND	0.88 J
Anthracene	**50**	ND	ND	ND	0.95 J	ND
Benzo(a)anthracene	**0.002**	ND	ND	ND	**0.71 J**	ND
Benzo(a)pyrene	**ND**	ND	ND	ND	**0.63 J**	ND
Benzo(b)fluoranthene	**0.002**	ND	ND	ND	**0.71 J**	ND
Carbazole	**--**	ND	ND	ND	1.7 J	ND
Chrysene	**0.002**	ND	ND	ND	**0.58 J**	ND
Dibenzofuran	**--**	ND	ND	ND	1 J	ND
Di-n-butyl phthalate	**50**	0.57 B,J	0.53 B,J	0.32 B,J	0.39 B,J	0.49 B,J
Fluoranthene	**50**	ND	ND	ND	2 J	ND
Fluorene	**50**	ND	ND	ND	1.8 J	ND
Naphthalene	**10**	ND	ND	ND	1.5 J	ND
Phenanthrene	**50**	0.52 J	ND	ND	0.94 J	ND
Pyrene	**50**	ND	ND	ND	1.4 J	ND
Total Metals - ug/L						
Aluminum	**--**	585	1590	2410	2250	454
Barium	**1000**	20.1	34.6	32.1	86.1	21
Cadmium	**5**	0.4 J	ND	ND	ND	ND
Calcium	**--**	103000	77800	108000	121000	224000
Chromium	**50**	1.4 J	1.6 J	3.1 J	2.3 J	ND
Cobalt	**5**	2.5 J	1.7 J	3.8 J	0.9 J	2.7 J
Copper	**200**	4.3 J	3.9 J	4.3 J	3.2 J	2.5 J
Iron	**300**	**565**	**1360**	**2170**	**1610**	**580**
Lead	**25**	ND	ND	ND	4.2 J	ND
Magnesium	**35000**	**100000**	**93700**	**114000**	13800	**132000**
Manganese	**300**	105	99.6	240	245	**564**
Nickel	**100**	5.6 J	5.4 J	6.9 J	3.2 J	4.4 J
Potassium	**--**	3830	3020	6520	11300	4820
Sodium	**20000**	**52400**	**51400**	**48600**	**31000**	**53400**
Vanadium	**14**	2.3 J	4.7 J	4.8 J	8	2.4 J
Zinc	**2000**	12.5	12.4	8.2	6.7 J	9.6 J
Pesticides and Herbicides - ug/L						
4,4'-DDD	**0.3**	0.22 D,J	0.21 D,J	0.21 D,J	0.071	0.24 D
4,4'-DDT	**0.2**	**0.22 D,J**	0.2 D,J	**0.21 D,J**	ND	ND
delta-BHC	**--**	ND	ND	ND	0.038 J	ND
Endosulfan I	**--**	ND	ND	ND	ND	0.072 D,J
Endosulfan II	**--**	ND	ND	ND	0.022 J	ND
Endrin	**ND**	**0.17 D,J**	ND	ND	ND	ND
Endrine ketone	**5**	ND	ND	ND	ND	0.082 D,J
gamma-Chlordane	**--**	0.1 D,J	0.095 D,J	0.094 D,J	0.025 J	0.095 D,J
Heptachlor epoxide	**0.03**	**0.051**	ND	ND	ND	**0.075 D,J**
Methoxychlor	**35**	0.088	ND	ND	0.025 J	ND

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Division of Water Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations - GA Class (TOGS 1.1.1)

Definitions:

ND = Non-detect; Parameter not detected above laboratory detection limit.
"--" = No SCO available for the parameter.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
D = Compounds were identified in an analyisis at the secondary dilution factor.
Bold = Result exceeds GWQS.

TABLE 5

Summary of Groundwater Elevations

1501 College Avenue Site

Niagara Falls, New York

Location	TOR Elevation [1] (fmsl)	DTW (fbTOR)	Groundwater Elevation (fmsl)
MW-1	106.42	11.15	95.27
MW-2	108.97	7.35	101.62
MW-3	110.01	9.16	100.85
MW-4	109.83	8.46	101.37
MW-5	110.11	10.82	99.29

Notes:

1. Top of riser elevation based upon an assumed datum of 100.00 fmsl; from manhole cover east of access road and south of College Ave. Surveyed on Oct 14, 2010 by TurnKey personnel.
2. DTW = depth to water
3. TOR = top of riser.
4. fmsl = feet above mean sea level.
5. fbgs = feet below ground surface.

TABLE 6a

Summary of Post Excavation Sample Results for Excavation Area A

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Industrial SCOs[2]	Sample Location F-1 (3.5)	F-2 (3.5)	F-3 (3)	F-4 (3.5)	F-5 (3.5)	F-6 (3.5)	F-7 (5-7)	F-8 (5-7)	F-9 (10)	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8	SW-9	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15	SW-16
		3/21/2011	3/23/2011		3/30/2011		3/31/2011	4/12/2011		4/15/2011	3/21/2011	3/23/2011				3/24/2011		3/30/2011		3/31/2011	4/13/2011		4/15/2011		4/22/2011	
Volatile Organic Compounds (VOCs) - mg/Kg																										
1,2,4-Trimethylbenzene	**380**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0039 J	ND	ND	NA
1,3,5-Trimethylbenzene	**380**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0019 J	ND	0.00053 J	NA
2-Butanone (MEK)	**1000**	NA	NA	NA	NA	NA	0.0034 J	NA	NA	0.0031 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0096 J	ND	0.0099 J	NA
p-Cymene (p-isopropyltoluene)	**--**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0015 J	ND	ND	NA
Acetone	**1000**	NA	NA	NA	NA	NA	0.041	NA	NA	0.02 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.044	0.029 J	0.07	NA
Ethylbenzene	**780**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0051 J	ND	ND	NA
Isopropylbenzene (Cumene)	**--**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0051 J	ND	ND	NA
Methylcyclohexane	**--**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.03	ND	0.001 J	NA
Methylene chloride	**1000**	NA	NA	NA	NA	NA	0.0075	NA	NA	0.016	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0046 J	NA	NA	0.014 J	0.015	0.0053 J	NA
Naphthalene	**1000**	NA	NA	NA	NA	NA	0.00091 J	NA	NA	0.017 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0075	NA	NA	0.016 B	0.0014 J,B	0.0012 J	NA
n-Butylbenzene	**1000**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.017	ND	0.002 J	NA
n-Propylbenzene	**1000**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.02	ND	0.0033 J	NA
Total Xylene	**1000**	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	0.0041 J	ND	ND	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																										
2-Methylnaphtalene	**--**	ND	ND	ND	ND	ND	ND	ND	ND	0.0074 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	0.058 J	ND	ND	ND
Acenaphthene	**1000**	0.026 J	0.0052 J	0.012 J	0.036 J	0.22 J	ND	0.11 J	ND	ND	0.9	0.25	50	6 J	4.2 J	28	2.1 J	19 J	5 J	5.8 J	2.4	0.99 J	0.0027 J	ND	0.017 J	0.15 J
Acenaphthylene	**1000**	0.04 J	ND	ND	ND	0.1 J	ND	0.028 J	ND	ND	0.3	0.011 J	ND	0.9 J	ND	2.7 J	4.5 J	ND	4.3 J	12	0.14 J	0.094 J	ND	ND	ND	0.5
Anthracene	**1000**	0.15 J	0.013 J	0.014 J	0.0099 J	0.36 J	ND	0.12 J	ND	ND	1.5	0.56	68	9.5 J	7 J	35	ND	48	13	19	5.7	4.2	0.0092 J	ND	ND	0.67
Benzo(a)anthracene	**11**	0.31	0.052 J	0.055 J	0.014 J	1	ND	0.3	0.018 J	ND	4.9	2	**190**	**33**	**24**	**93**	**19**	**120**	**35**	**70**	**21**	**23**	0.029 J	0.012 J	0.051 J	2.3
Benzo(a)pyrene	**1.1**	0.31	0.064 J	0.074 J	0.012 J	1	ND	0.55	0.022 J	ND	**6**	**2.5**	**230**	**46**	**30**	**120**	**30**	**140**	**42**	**87**	**25**	**25**	0.018 J	0.013 J	0.043 J	**2.5**
Benzo(b)fluoranthene	**11**	0.34	0.066 J	0.077 J	0.012 J	1.2	ND	0.65	0.029 J	ND	6.9	2.7	**240**	**44**	**32**	**140**	**32**	**150**	**39**	**86**	**26**	**28**	0.022 J	0.014 J	0.06 J	2.8
Benzo(ghi)perylene	**1000**	0.2 J	0.057 J	0.053 J	ND	0.78	ND	0.38	0.018 J	ND	4.1	2	160	37	23	82	29	110	31	49	19	18	0.013 J	0.0091 J	0.047 J	2
Benzo(k)fluoranthene	**110**	0.16 J	0.037 J	0.029 J	0.0067 J	0.35 J	ND	0.25	0.013 J	ND	2.8	1.3	**110**	24	15	46	15	66	21	40	12	13	0.014 J	0.0081 J	0.028 J	1.4
Chrysene	**110**	0.3	0.062 J	0.056 J	0.0097 J	0.87	ND	0.29	0.013 J	ND	5.2	2.3	**200**	33	26	100	23	**130**	33	66	23	23	0.027 J	0.011 J	0.056 J	2.2
Dibenzo(a,h)anthracene	**1.1**	0.051 J	ND	ND	ND	0.23 J	ND	0.095 J	0.0044 J	ND	**1.5**	0.45	**42**	**7.7 J**	**5.6 J**	**24**	**5.6 J**	**23 J**	**8.6 J**	**13**	**5.5**	**5**	ND	ND	ND	0.56
Fluoranthene	**1000**	0.94	0.13 J	0.09 J	0.017 J	2	ND	0.48	0.024 J	0.0048 J	9.6	4.1	360	60	48	190	39	310	66	110	40	40	0.067 J	0.019 J	0.14 J	4.7
Fluorene	**1000**	0.16 J	ND	ND	0.035 J	0.28	ND	0.16 J	ND	ND	1.1	0.18 J	33	3.6 J	2.4 J	19	1.5 J	21 J	7.3 J	6.5 J	2.4	0.89 J	0.0064 J	ND	0.022 J	0.29
Indeno(1,2,3-cd)pyrene	**11**	0.17 J	0.037 J	0.042 J	0.0076 J	0.68	ND	0.3	0.015 J	ND	3.7	1.4	**120**	**28**	**17**	**74**	**20**	**78**	**26**	**44**	**15**	**16**	0.011 J	0.0082 J	0.041 J	1.7
Naphthalene	**1000**	0.14 J	ND	ND	0.031 J	0.11 J	ND	0.17 J	ND	0.017	0.34	0.14 J	53	5.4 J	2.4 J	29	ND	6.4 J	3.5 J	3.5 J	1.1 J	0.27 J	0.02 J	ND	0.12 J	0.055 J
Phenanthrene	**1000**	0.83	0.083 J	0.063 J	0.021 J	1.3	ND	0.53	0.02 J	ND	6.3	2.8	300	41	31	150	20	250	28	56	20	19	0.043 J	0.0092 J	0.075 J	1.9
Pyrene	**1000**	0.73	0.11 J	0.082 J	0.02 J	1.6	ND	0.51	0.026 J	0.0037 J	8.2	3.4	280	55	39	160	36	230	52	100	32	33	0.055	0.016 J	0.12 J	3.4

PARAMETER[1]	Industrial SCOs[2]	Sample Location Bottom 1R Pipe Trench	Bottom 2 Pipe Trench	Bottom 3 Pipe Trench	Bottom 4 Pipe Trench	Bottom 5 Pipe Trench	Bottom 6 Pipe Trench	Bottom 7 Pipe Trench	Bottom 8 Pipe Trench	Bottom 9 Pipe Trench	Northwall Pipe Trench	Southwall Pipe Trench
		6/10/2011	5/17/2011			6/10/2011					5/13/2011	
Volatile Organic Compounds (VOCs) - mg/Kg												
1,2,4-Trimethylbenzene	**380**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	**380**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (p-isopropyltoluene)	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	**780**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	**--**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Butylbenzene	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Xylene	**1000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg												
2-Methylnaphtalene	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	**1000**	0.028 J	0.018 J	ND	ND	ND	0.01 J	ND	0.05 J	ND	0.44 J	0.27
Acenaphthylene	**1000**	0.031 J	ND	ND	ND	ND	ND	ND	ND	ND	0.44 J	0.15 J
Anthracene	**1000**	0.049 J	0.029 J	ND	ND	0.023 J	0.04 J	0.011 J	0.076 J	ND	1.9	0.28
Benzo(a)anthracene	**11**	0.12 J	0.092 J	0.016 J	ND	0.094 J	0.077 J	0.035 J	0.22	ND	3.9	0.49
Benzo(a)pyrene	**1.1**	0.11 J	0.091 J	0.013 J	ND	0.053 J	0.089 J	0.03 J	0.22	ND	**4.1**	0.48
Benzo(b)fluoranthene	**11**	0.12 J	0.11 J	0.017 J	ND	0.05 J	0.091 J	0.037 J	0.2	ND	5.1	0.64
Benzo(ghi)perylene	**1000**	0.068 J	ND	ND	ND	0.029 J	0.067 J	0.021 J	0.15 J	ND	2.3	0.27
Benzo(k)fluoranthene	**110**	0.065 J	0.068 J	0.027 J	ND	0.065 J	0.053 J	0.018 J	0.12 J	ND	1.9	0.21 J
Chrysene	**110**	0.11 J	0.1 J	0.013 J	ND	0.081 J	0.094 J	0.036 J	0.23	ND	3.5	0.45
Dibenzo(a,h)anthracene	**1.1**	0.02 J	0.02 J	ND	ND	ND	0.02 J	ND	0.043 J	ND	**1.1**	0.15 J
Fluoranthene	**1000**	0.29	0.17 J	0.02 J	ND	0.17 J	0.14 J	0.068 J	0.37	ND	8.5	1.2
Fluorene	**1000**	0.048 J	ND	ND	ND	ND	ND	ND	0.032 J	ND	1.7	0.53
Indeno(1,2,3-cd)pyrene	**11**	0.064 J	0.051 J	ND	ND	0.026 J	0.056 J	0.019 J	0.13 J	ND	2.3	0.26
Naphthalene	**1000**	ND	ND	ND	ND	ND	ND	ND	0.058 J	ND	0.52 J	0.32 J
Phenanthrene	**1000**	0.26	0.01 J	ND	ND	0.021 J	0.087 J	0.033 J	0.25	ND	7.4	1.2
Pyrene	**1000**	0.21	0.14 J	0.019 J	ND	0.18 J	0.11 J	0.059 J	0.36	ND	5.8	0.8

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

Bold

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Industrial Soil Cleanup Objectives (December 2006)

TABLE 6b

Summary of Post Excavation Sample Results for Test Pit-5 Area

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Industrial SCOs[2]	Sample Locations							
		Northwall 1	Southwall 1	Southwall 2	Eastwall 1	Westwall 1	Bottom 1	Bottom 2	Bottom 3
		5/27/2011	5/6/2011	5/9/2011	5/6/2011	5/9/2011	5/6/2011	5/6/2011	5/9/2011
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg									
2-Methylnaphthalene	**--**	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	**1000**	ND	30	0.01 J	0.29 J	0.096 J	2.8	0.033 J	ND
Acenaphthylene	**1000**	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	**1000**	ND	4.9	ND	0.34 J	0.031 J	0.39 J	0.017 J	ND
Benzo(a)anthracene	**11**	ND	3.8	ND	1 J	0.11 J	0.52 J	0.08 J	ND
Benzo(a)pyrene	**1.1**	ND	**2.5**	ND	**1.2**	0.092 J	0.21 J	0.07 J	ND
Benzo(b)fluoranthene	**11**	ND	3.1	ND	1.4	0.1 J	0.32 J	0.072 J	ND
Benzo(ghi)perylene	**1000**	ND	1.6 J	ND	1 J	0.06 J	ND	0.045 J	ND
Benzo(k)fluoranthene	**110**	ND	0.84 J	ND	0.68 J	0.044 J	0.072 J	0.042 J	ND
Chrysene	**110**	ND	3.7	ND	1.2	0.1 J	0.39 J	0.11 J	ND
Dibenzo(a,h)anthracene	**1.1**	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	**1000**	ND	23	0.0088 J	2 J	0.25	4.4	0.12 J	ND
Fluorene	**1000**	ND	15	ND	0.16 J	0.025 J	1.7	ND	ND
Indeno(1,2,3-cd)pyrene	**11**	ND	1.3 J	ND	0.78 J	0.053 J	ND	0.037 J	ND
Naphthalene	**1000**	ND	5.5	ND	ND	ND	ND	ND	ND
Phenanthrene	**1000**	ND	60	ND	1.7	0.088 J	9.4	0.058 J	ND
Pyrene	**1000**	ND	19	0.0068 J	1.8 J	0.26	3.2	0.14 J	ND

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

Bold = Result exceeds 6NYCRR Part 375 Industrial SCO.

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Industrial Soil Cleanup Objectives (December 2006)

TABLE 6c

Sumary of Post Excavation Sample Results for SS-6 Area

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Industrial SCOs[2]	Sample Location							
		SS-6-S1	SS-6-S2	SS-6-3E	SS-6-3W	SS-6-W-7	SS-6-W-8	SS-6-N-16	SS-6-N-17
		5/27/2011		5/13/2011		6/13/2011		6/13/2011	
Polychlorinated Biphenyls (PCBs) - mg/Kg									
Aroclor 1268	**25**	24	23	8.9	23	1.2	1.8	6.8	5.9
Aroclor 1254	**25**	--	--	--	--	--	--	--	--

PARAMETER[1]	Industrial SCOs[2]	Sample Location													
		SS-6 Confirmatory Sample 1	SS-6 Confirmatory Sample 2	SS-6 Confirmatory Sample 3	SS-6 Confirmatory Sample 4	SS-6 Confirmatory Sample 5	SS-6 Confirmatory Sample 6	SS-6 Confirmatory Sample 7	SS-6 Confirmatory Sample 8	SS-6 Confirmatory Sample 9	SS-6 Confirmatory Sample 10R	SS-6 Confirmatory Sample 11R	SS-6 Confirmatory Sample 12	SS-6 Confirmatory Sample 13	SS-6 Confirmatory Sample 14
		7/15/2011								7/25/2011	8/15/2011		7/25/2011		
Polychlorinated Biphenyls (PCBs) - mg/Kg															
Aroclor 1268	**25**	ND	12	6.7	1.8	ND	1.7	9.4	1.9	1.1	8.7	5.3	4.5	0.26	0.21
Aroclor 1254	**25**	--	--	--	--	--	--	--	--	--	--	0.22	--	--	--

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Industrial Soil Cleanup Objectives (December 2006)

TABLE 6d

Summary of Post Excavation PCB Wipe Sample Results from SS-6 Area

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Sample Location							
	PCB Wipe 1	PCB Wipe 2	PCB Wipe 3	PCB Wipe 4	PCB Wipe 5	PCB Wipe 6	PCB Wipe 6 (2)	PCB Wipe 7
	5/19/2011		7/7/2011			7/25/2011	2/13/2012	
Polychlorinated Biphenyls (PCBs) - ug/100cm^2								
Aroclor 1268	**2.7**	**2.3**	**1.5**	**3.3**	**ND**	**2.4**	**11**	**110**

Average PCBs[2]	19.03

Definitions:

ND = Parameter not detected above laboratory detection limit.

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Average PCBs via EPA PCB cleanup plicy for restricted access outdoor low contact surfaces (>100ug/100cm^2).

TURNKEY ENVIRONMENTAL RESTORATION, LLC

TABLE 7a

Cost Estimates for Unrestricted Use Alternative

1501 College Avenue Site

Niagara Falls, New York

Item	Quantity	Units	Unit Cost	Total Cost
<u>Impacted Soil/Fill Removal</u>				
Soil/Fill Excavating & Hauling	101750	CY	$ 25.00	$ 2,543,750
Disposal at TSDF (1.5 tons per CY)	152625	TON	$ 30.00	$ 4,578,750
Post-Excavation Confirmatory Sampling [1]	750	EA	$ 250.00	$ 187,500
Subtotal:				**$ 7,310,000**
<u>Site Restoration</u>				
Backfill, Place & Compact	101750	CY	$ 15.00	$ 1,526,250
Backfill Characterization Sampling	30	EA	$ 900.00	$ 27,000
Subtotal:				**$ 1,553,250**
Subtotal Capital Cost				**$ 8,863,250**
Contractor Mobilization/Demobilization (5%)				$ 443,163
Health and Safety (2%)				$ 177,265
Engineering/Contingency (35%)				$ 3,102,138
Total Unrestricted Cleanup Cost				**$ 12,585,815**
Total IRM Cost				**$ 1,800,000**
Total Capital Cost				**$ 14,385,815**

Notes:

1. Assumes SVOCs and Metals

TABLE 7b

Cost For IRM and Implementation of a Site Management Plan

1501 College Avenue Site

Niagara Falls, New York

Item	Quantity	Units	Unit Cost	Total Cost
Interim Remedial Measures	1	EST	$ 1,800,000.00	$ 1,800,000
Institutional Controls				
Develop Site Management Plan	1	LS	$ 15,000.00	$ 15,000
Environmental Easement	1	LS	$ 6,500.00	$ 6,500
Subtotal:				**$ 1,821,500**
Total Capital Cost				**$ 1,821,500**
Annual Operation Maintenance & Monitoring (OM&M):				
Annual Certifications	1	Yr	$ 4,000.00	$ 4,000
Total Annual OM&M Cost				**$ 4,000**
Number of Years (n):				30
Interest Rate (I):				5%
p/A value:				15.37
OM&M Present Worth (PW):				**$ 61,480**

Total Present Worth (PW): Capital Cost + OM&M PW	**$ 1,882,980**

TURNKEY ENVIRONMENTAL RESTORATION, LLC

TABLE 7c

Summary of Remedial Alternatives Cost

1501 College Avenue Site

Niagara Falls, New York

Remedial Alternative	Estimated Cost
No Further Action (Cost of completed IRM)	**$1,800,000**
IRM and Implementation of Site Management Plan (SMP) (Cost of completed IRM, plus SMP and future O&M)	**$1,882,980**
Unrestricted Use Cleanup (Cost of completed IRM, plus unrestricted use cleanup)	**$14,385,815**

TABLE 8a

Summary of Remaining on Site Surface Soil Analytical Data Compared to Unrestricted SCOs

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	Sample Location																		
		SS-1	SS-2	SS-3	SS-4	SS-1	SS-2	SS-4	SS-5	SS-6	SS-7A	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-18	SS-19	SS-23
		August 2007				September 2010														
Volatile Organic Compounds (VOCs) - mg/Kg																				
1,2,4-Trimethylbenzene	**3.6**	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	0.055	ND	--	--	--
1,3,5-Trimethylbenzene	**8.4**	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	0.014 J	ND	--	--	--
p-Cymene (p-isopropyltoluene)	**--**	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	0.012 J	ND	--	--	--
Methylene chloride	**0.05**	--	--	--	--	--	0.0024 J	--	--	--	--	--	--	--	--	0.019 J	0.0032 J	--	--	--
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																				
2-Methylnaphthalene	**--**	ND	0.13 J	43	1.8	ND	ND	0.28 D,J	2.6 D,J	ND	0.25 D,J	0.59 D,J	2.7 D,J	ND	0.59 D,J	8.7 D,J,T	ND	ND	1.2 D,J	0.038 D,J
Acenaphthene	**20**	ND	2.5	36	6.9	0.47 D,J	0.087	1.6 D,J	8.7 D,J	1.2 D,J	1.2 D,J	2.8 D	5.5 D	3.5 D,J	3.1 D,J	6.1 D,J,T	19 D,J,T	4 D	3.1 D,J	0.28 D,J
Acenaphthylene	**100**	ND	0.33 J	39	0.6	0.39 D,J	ND	0.86 D,J	3.7 D,J	ND	ND	0.6 D,J	3.4 D,J	0.57 D,J	1.3 D,J	2.6 D,J,T	10 D,J,T	ND	0.37 D,J	ND
Anthracene	**100**	ND	3.1	140	12	1.1 D,J	130	4.4 D	16 D	2.3 D,J	1.2 D,J	3.9 D	6 D	5 D	4.6 D	7.3 D,J,T	20 D,J,T	3.5 D	5.3 D	0.4 D,J
Benzo(a)anthracene	**1**	**1.5 J**	**28**	**340**	**28**	**4.6 D**	0.72	**13 D**	**56 D**	**13 D**	**5.6 D**	**24 D**	**21 D**	**28 D**	**21 D**	**22 D,T**	**100 D,T**	**22 D**	**28 D**	**3 D**
Benzo(a)pyrene	**1**	**2.2 J**	**38**	**210**	**28**	**7 D**	**1.4 D**	**17 D**	**73 D**	**16 D**	**9.8 D**	**20 D**	**41 D**	**48 D**	**29 D**	**30 D,T**	**150 D,T**	**38 D**	**39 D**	**4.3 D**
Benzo(b)fluoranthene	**1**	**3.2 J**	**48**	**360**	**41**	**7.4 D**	**1.5 D**	**16 D**	**74 D**	**16 D**	**9.9 D**	**39 D**	**43 D**	**51 D**	**29 D**	**29 D,T**	**150 D,T**	**38 D**	**41 D**	**5.4 B,D**
Benzo(ghi)perylene	**100**	1.6 J	24	96	15	5.1 D	1.5 D	12 D	46 D	11 D	8.8 D	9.1 D	32 D	40 D	22 D	20 D,T	**120 D,T**	40 D	26 D	2.7 B,D
Benzo(k)fluoranthene	**0.8**	**0.92 J**	**17**	**120**	**13**	**3 D,J**	0.52	**8.1 D**	**33 D**	**7.2 D**	**3.5 D**	**9.5 D**	**18 D**	**14 D**	**13 D**	**12 D,T**	**53 D,T**	**11 D**	**13 D**	**1.4 B,D**
Biphenyl	**--**	--	--	--	--	ND	ND	0.11 D,J	ND	ND	ND	ND	0.28 D,J	ND	ND	1.6 D,J,T	ND	ND	ND	ND
Bis(2-ethylhexyl) phthalate	**--**	ND	ND	150	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND UJ
Butyl benzyl phthalate	**--**	ND	ND	60	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	**--**	--	--	--	--	0.7 D,J	0.065 D,J	1.9 D	9.1 D,J	1.5 D,J	0.77 D,J	2 D	3.7 D	3.1 D,J	2.8 D,J	ND	11 D,J,T	2.3 D,J	3.9 D	0.36 D,J
Chrysene	**1**	**1.8 J**	**27**	**340**	**29**	**4.7 D**	0.76 D,J	**13 D**	**55 D**	**1.2 D**	**5.5 D**	**38 D**	**22 D**	**28 D**	**21 D**	**20 D,T**	**95 D,T**	**21 D**	**27 D**	**3.6 D**
Dibenzo(a,h)anthracene	**0.33**	ND	**6.1**	**35**	**4.2**	ND	ND	ND	ND	ND	ND	**2.4 D**	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	**7**	ND	0.4 J	**36**	4.8	ND	ND	0.7 D,J	5 D,J	ND	0.47 D,J	1.1 D,J	1.7 D,J	0.8 D,J	1.3 D,J	2.8 D,J,T	4.6 D,J,T	0.6 D,J	1.5 D,J	0.064 D,J
Fluoranthene	**100**	1.7 J	34	**780 D**	57	7.7 D	1 D	22 D	**100 D**	17 D	9.7 D	31 D	33 D	43 D	37 D	37 D,T	**150 D,T**	30 D	42 D	5 D
Fluorene	**30**	ND	0.97 J	**65**	5.4	0.35 D,J	ND	1.3 D,J	6.7 D,J	0.51 D,J	0.71 D,J	1.4 D,J	2.2 D,J	1.6 D,J	2 D,J	5.3 D,J,T	9.5 D,J,T	1.2 D,J	2.1 D,J	0.11 D,J
Indeno(1,2,3-cd)pyrene	**0.5**	**2.4 J**	**22**	**96**	**14**	**4.3 D**	**1.1 D**	**9.7 D**	**38 D**	**9.4 D**	**6.9 D**	**8.2 D**	**27 D**	**34 D**	**18 D**	**17 D,T**	**100 D,T**	**30 D**	**22 D**	**2.5 B,D**
Naphthalene	**12**	ND	0.24 J	**26**	3.6	ND	ND	0.53 D,J	6.5 D,J	ND	0.94 D,J	1.3 D,J	3.2 D,J	0.75 D,J	0.97 D,J	2.1 D,J,T	ND	0.63 D,J	2.7 D,J	ND
Phenanthrene	**100**	1 J	12	**920 D**	52	4.8 D	0.52 D,J	14 D	76 D	8.9 D	5.8 D	17 D	21 D	21 D	22 D	28 D,T	80 D,T	14 D	25 D	1.9 D
Phenol	**0.33**	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	**100**	1.9 J	27	**480**	37	7.1 D	0.94 D	19 D	97 D	18 D	8.9 D	25 D	29 D	42 D	33 D	31 D,T	**160 D,T**	31 D	41 D	4 D
Polychiorinated biphenyls (PCBs) - mg/Kg																				
Aroclor 1242	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.12**	**0.24 D,J**	ND	**1.1 D**	**0.33 D**	**0.22 D,J**	ND	ND	ND	ND
Aroclor 1248	**0.1**	ND	**0.11**	**7.1**	ND	ND	ND	0.025 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6.3 D**	ND
Aroclor 1254	**0.1**	ND	0.089	ND	ND	0.081 D,J	0.01 J	0.086 J	6 D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.048 D,N,J
Aroclor 1260	**0.1**	ND	ND	ND	ND	**0.52 D**	0.056	ND	ND	ND	**0.28**	ND	**0.34**	**1.1 D**	**4.9 D**	ND	ND	ND	ND	**0.11 D,N,J**
Aroclor 1268	**0.1**	**8.4 B**	**0.12 B**	**1.4 B**	**0.34 B**	**0.39 D**	0.035	0.074 J	**1.7 D,N,J**	**43 J**	**0.16**	**7.6 D**	**0.1**	**0.64 D**	**2.4 D**	**2.9 D**	0.085 D,J	**0.19 D,J**	**13 D**	**0.1 D,N,J**
Total Metals - mg/Kg																				
Aluminum	**--**	--	--	--	--	5290 B	5850 B	5460 B,J	5610 B,J	10100 B,J	10500 B	6600 B	5110 B	8310 B	6490 B	5020 B	2750 B	9900 B,J	2010 B	5500 B
Antimony	**--**	--	--	--	--	3.4 J	1.1 B,J	ND UJ	1 J	0.8 J	ND	1.8 J	2.5 J	0.6 J	1.9 J	2.1 J	0.7 J	ND UJ	1.6 J	ND UJ
Arsenic	**13**	**89**	2.8	**23.9**	8.1	11.7	1.7 B,J	3.1 B	6.1 B	3.7 B	4.5	7.1	**21.8**	9.9	6.9	11.2	**20.5**	3.1 B	10.6	2.8
Barium	**350**	127	75.8	**2520**	81.2	**334 B**	51.8 B	57.4 B,J	**698 B,J**	97.1 B,J	75.1 B	110 B,J	87.2 B	86.6 B	167 B	260 B	57.9 B	76.8 B,J	63.1 B,J	75.7 B,J
Beryllium	**7.2**	--	--	--	--	0.353	0.728 B	0.253	0.296	0.2 J	0.493	0.671	0.459	0.518	0.418	0.318	0.245	0.342	0.368	0.377
Cadmium	**2.5**	**30.8**	1.8	**12.6**	0.96	**4.14**	1.13	0.642	**4.3**	1.19	0.714	1.77	1.22	**3.13**	1.9 J	**8.56 J**	0.787 J	0.906	**3.05**	1.01
Calcium	**--**	--	--	--	--	57400 B	18300 B	1E+05 B,D,J	52700 B,D,J	34200 B,J	21500 B	85100 B,D	27200 B	26100 B	46200 B	63900 B	74700 B,D	40400 B,J	19300 B	6910 B
Chromium	**1**	**73.2**	**38**	**297**	**66.1**	**173**	**22.4**	**10.4 J**	**58.7 J**	**34.4 J**	**25.5**	**27.7**	**41.7**	**44.8**	**35.3**	**118**	**21.2**	**41.4 J**	**80.3**	**25.2**
Cobalt	**--**	--	--	--	--	6.54	2.87 B	2.74	5.92	4.72	6.13	7.46	5.97	12.2	6.31	9.85	3.78	4.52	6.22	6.38
Copper	**50**	--	--	--	--	497 B	25.9	16.6 J	55.3 J	67.4 J	19.5 B	82.1	122 B	2770 B	150 B	163 B	50.5 B	28.6 J	83.4	26.4
Iron	**2000**	--	--	--	--	26200	3650 B	10200 J	28900 J	16500 J	16500	26600 B	10700	64500 D	18200	4910	15400	21400 J	12300 B	10.3 B
Lead	**63**	**171**	**208**	**3310**	**232**	**465 B**	60.2	**117 J**	**313 J**	**276 J**	49.6 B	**325**	**211 B**	**2060 B**	**549 B,J**	**591 B,J**	**112 B,J**	**156 J**	**156**	43.4
Magnesium	**--**	--	--	--	--	25800 B	7560	23000 J	7820 J	11400 J	9580 B	17300	15000 B	6970 B	16500 B	25000 B	36100 B	9510 J	9890	11400
Manganese	**1600**	--	--	--	--	633	403 B	353 J	426 J	993 J	371	1210 B	404	653	695	1240	562	2010 J	794 B	211 B
Nickel	**30**	--	--	--	--	**73.5**	19.7	8.07 J	24.1 J	25.3 J	14.7	**30.1 J**	**30.4**	**58.1**	**54.7**	**55.2**	21.1	14.1 J	**120 J**	18.9 J
Potassium	**--**	--	--	--	--	913 B	141	665	532	314	1310 B	821 B	461 B	627 B	1120 B	656 B	525 B	530	308 B	3400 B
Selenium	**3.9**	ND	ND	ND	ND	1.7 J	0.6 J	0.9 J	1.9 J	1.1 J	1.5 J	1.2 J	1.1 J	**5.7**	1.5 J	3.4 J	1 J	1.4 J	1.6 J	**4.4 J**
Silver	**2**	ND	ND	1.1	ND	0.467 J	ND	ND	0.389 J	0.164 J	0.071 J	0.154 J	0.212 J	0.338 J	0.144 J	0.168 J	ND	0.17 J	0.221 J	0.29 J
Sodium	**--**	--	--	--	--	286	110 J	191 J	132 J	137 J	109 J	283	113 J	169	314	21	79.6 J	92.2 J	143 J	16400
Vanadium	**--**	--	--	--	--	**141**	**221**	**130 J**	48.2 J	90.5 J	21.9	31.6	21.6	66.7	**130**	62.5	23.9	**512 J**	25.3	80.5
Zinc	**109**	--	--	--	--	**955 B**	54.6	**136 B,J**	**610 B,J**	**408 B,J**	93.9 B	**804 B**	**182 B**	**365 B**	**462 B,J**	**797 B,J**	**115 B,J**	**164 B,J**	**322 B**	**250 B**
Mercury	**0.18**	0.086	0.035	**3.1**	0.046	**5.25 D**	0.0078 J	0.0417	**0.28**	0.0699	0.164	**0.226**	**0.945**	**0.481**	0.177	0.115	0.0816	0.168	**0.366**	ND
Pesticides and Herbicides - mg/Kg																				
4,4'-DDT	**0.0033**	--	--	--	--	--	**0.0084 D,J**	--	--	--	--	**0.058 D,J**	0.0084 D,J	--	--	--	--	--	--	--
Dieldrin	**0.005**	--	--	--	--	--	**0.016 D,J**	--	--	--	--	ND	**0.016 D,J**	--	--	--	--	--	--	--
Endrin	**0.014**	--	--	--	--	--	ND	--	--	--	--	**0.029 D,J**	ND	--	--	--	--	--	--	--

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

D = Compounds were identified in an analyisis at the secondary dilution factor.

NJ = Estimated value; potential false positive and/or elevated quantitative value.

Bold = Result exceeds Unrestricted SCOs.

Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Unrestricted Soil Cleanup Objectives (December 2006)

TABLE 8b

Summary of Remaining on Site Subsurface Soil Analytical Data Compared to Unrestricted SCOs

1501 College Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	BCP MW-1 (0-4)	BCP MW-2 (0-4)	BCP MW-3 (0-4)	BCP MW-4 (8-11.5)	BCP MW-5 (4-8)	TP-1 (5-7)	TP-2 (3-5)	TP-3 (1-4)	TP-4 (1-2)	TP-5 (1-2.5)	TP-6 (1-2)	TP-7A (1-2.5)	TP-9 (0.5-1.5)	TP-10 (5-7)
		September 2010					September 2010								
Volatile Organic Compounds (VOCs) - mg/Kg															
1,1-Dichloroethane	**0.33**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND
1,2,4-Trimethylbenzene	**3.6**	--	--	--	ND	0.66	**23 D,W**	ND	--	--	--	ND	--	--	ND
1,3,5-Trimethylbenzene	**8.4**	--	--	--	ND	0.22	6.1 D,W	ND	--	--	--	ND	--	--	ND
2-Butanone (MEK)	**0.12**	--	--	--	ND	ND	ND	0.026 J	--	--	--	ND	--	--	ND
p-Cymene (p-	**--**	--	--	--	ND	0.048 J	1.3 D,W	ND	--	--	--	ND	--	--	ND
Acetone	**0.05**	--	--	--	ND	ND	ND	0.15	--	--	--	ND	--	--	ND
Benzene	**0.06**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND
Chloroethane	**--**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND
Cyclohexane	**--**	--	--	--	ND	ND	0.55 D,J,W	ND	--	--	--	ND	--	--	ND
Ethylbenzene	**1**	--	--	--	ND	0.33	**4 D,W**	ND	--	--	--	ND	--	--	ND
Isopropylbenzene (Cumene)	**--**	--	--	--	ND	0.054	0.88 D,J,W	ND	--	--	--	ND	--	--	ND
Methylcyclohexane	**--**	--	--	--	ND	ND	2.6 D,W	ND	--	--	--	ND	--	--	ND
Methylene chloride	**0.05**	--	--	--	ND	ND	ND	0.0033 J	--	--	--	0.0037 J	--	--	ND
n-Butylbenzene	**--**	--	--	--	ND	1	5 D,W	ND	--	--	--	ND	--	--	0.014 J
n-Propylbenzene	**3.9**	--	--	--	ND	ND	2.9 D,W	ND	--	--	--	ND	--	--	ND
sec-Butylbenzene	**11**	--	--	--	ND	ND	1.2 D,W	ND	--	--	--	ND	--	--	ND
Styrene	**--**	--	--	--	ND	ND	ND	ND	--	--	--	ND	--	--	ND
Toluene	**0.7**	--	--	--	ND	0.18	ND	ND	--	--	--	ND	--	--	ND
Total Xylene	**0.26**	--	--	--	ND	**0.76**	**19 D,W**	ND	--	--	--	ND	--	--	ND
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg															
2-Methylnaphthalene	**--**	0.43 D,J	ND	0.57 D,J	0.65 D,J	260 D	110 T,D	ND	ND	0.58 D	0.54 D,J	1.4 D,J	ND	0.21 D,J	0.36 D,J
Acenaphthene	**20**	0.18 D,J	3.1 D,J	1.3 D,J	0.48 D,J	210 D	6.7 T,D,J	0.51 D,J	0.018 J	2.3 D	17 D	6.1 D	6.2 D,J	0.81 D,J	0.63 D,J
Acenaphthylene	**100**	ND	ND	ND	ND	ND	ND	ND	0.033 J	0.67 D,J	1.2 D,J	ND	ND	0.26 D,J	0.17 D,J
Anthracene	**100**	0.2 D,J	5.5 D	3.6 D	0.28 D,J	13 D	ND	2.8 D	0.065 J	5.3 D	3.3 D,J	13 D	8.2 D,J	1.7 D	0.78 D,J
Benzo(a)anthracene	**1**	**1.2 D,J**	**29 D**	**13 D**	**1 D**	**7.4 D**	ND	**8.3 D**	0.49	**17 D**	**9 D**	**28 D**	**39 D**	**4.7 D**	**4 D**
Benzo(a)pyrene	**1**	**1.4 D,J**	**45 D**	**15 D**	**1.3 D**	**12 D**	**12 T,D,J**	**10 D**	0.63	**20 D**	**9.6 D**	**29 D**	**69 D**	**5.4 D**	**5.8 D**
Benzo(b)fluoranthene	**1**	**1.7 D,J**	**44 D**	**16 D**	**1.4 D**	**12 D**	**6.2 T,D,J**	**12 D**	0.67	**21 D**	**8.8 D**	**28 D**	**61 D**	**6.7 D**	**6.4 D**
Benzo(ghi)perylene	**100**	0.96 D,J	28 D	8.9 D	0.84 D,J	4.4 D	ND	7.7 D	0.44	12 D	7.5 D	20 D	57 D	1.8 D	3.2 D
Benzo(k)fluoranthene	**0.8**	0.46 D,J	**16 D**	**6.7 D**	0.41 D,J	**2.9 D**	ND	**3.3 D**	0.24	**6.6 D**	**4 D,J**	**13 D**	**34 D**	**2.9 D**	**2.5 D**
Biphenyl	**--**	ND	ND	ND	0.19 D,J	350 D	ND	ND	ND	ND	ND	0.36 D,J	ND	ND	ND
Bis(2-ethylhexyl) phthalate	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Butyl benzyl phthalate	**--**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6 D	ND
Carbazole	**--**	0.14 D,J	3 D,J	1.9 D,J	0.16 D,J	0.93 D,J	ND	0.67 D,J	ND	2.7 D	1.3 D,J	5.4 D	5.4 D,J	0.78 D,J	0.5 D,J
Chrysene	**1**	**1.1 D,J**	**29 D**	**14 D**	0.99 D,J	**12 D**	**33 T,D,J**	**8.3 D**	0.48	**17 D**	**7.8 D**	**26 D**	**39 D**	**5.4 D**	**4 D**
Dibenzo(a,h)anthracene	**0.33**	ND	ND	ND	ND	ND	ND	ND	0.11 J	ND	**1.9 D,J**	ND	ND	**0.45 D,J**	ND
Dibenzofuran	**7**	ND	0.94 D,J	0.78 D,J	0.18 D,J	**400 D**	ND	0.26 D,J	ND	1.3 D,J	4.8 D	3.4 D,J	ND	0.41 D,J	ND
Fluoranthene	**100**	2 D	39 D	24 D	1.7 D	29 D	6.9 T,D,J	17 D	0.6	28 D	26 D	53 D	64 D	9.1 D	6.2 D
Fluorene	**30**	ND	1.7 D,J	1.3 D,J	0.35 D,J	**290 D**	13 T,D,J	0.68 D,J	0.019 J	2 D,J	6.7 D	6.1 D	2.7 D,J	0.7 D,J	0.42 D,J
Indeno(1,2,3-cd)pyrene	**0.5**	**0.79 D,J**	**24 D**	**8 D**	**0.69 D,J**	**4.3 D**	ND	**6 D**	0.38	**10 D**	**6.2 D**	**17 D**	**46 D**	**1.5 D**	**2.6 D**
Naphthalene	**12**	0.3 D,J	0.62 D,J	0.79 D,J	0.49 D,J	930 D	**40 T,D**	ND	0.073 J	1 D,J	1.7 D,J	2.7 D,J	ND	0.5 D,J	0.17 D,J
Phenanthrene	**100**	1.1 D,J	20 D	15 D	1.3 D	39 D	77 T,D	5.6 D	0.16 J	19 D	22 D	47 D	35 D	5.4 D	3.4 D
Phenol		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	**100**	1.8 D,J	40 D	21 D	1.4 D	22 D	29 T,D,J	12 D	0.79	25 D	24 D	48 D	61 D	5.7 D	5.1 D
Polychlorinated biphenyls (PCBs) - mg/Kg															
Aroclor 1242	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.8 D**	ND	ND
Aroclor 1248	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	0.029	ND	ND	ND	ND	0.011 J
Aroclor 1254	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1260	**0.1**	ND	**0.2 D**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.8 D**	ND	ND
Aroclor 1262	**0.1**	ND	ND	ND	ND	ND	ND	ND	ND	**0.17**	ND	ND	ND	ND	ND
Aroclor 1268	**0.1**	0.037	0.074 D,J	ND	0.041	ND	ND	ND	ND	0.093	**0.22 D**	**0.15**	**0.59 D**	**0.7 D**	0.093
Total Metals - mg/Kg															
Aluminum	**--**	13300 B	3730 B	17800 B	8100 B	14000 B	4500 B	16100 B	15400 B,J	14100 B,J	11200 B,J	7390 B,J	9690 B	8830 B	5340 B
Antimony	**--**	0.8 B,J	1.1 B,J	ND UJ	ND UJ	ND UJ	ND	ND	ND UJ	ND UJ	ND UJ	ND UJ	ND	1.2 J	0.6 J
Arsenic	**13**	11.5 B	4 B	5.3 B	2.1 B,J	3.4 B	1.2 J	3.9	6.9 B	4.3 B	3.5 B	7.8 B	5.9	4.5	4.7
Barium	**350**	106 B	39.4 B	116 B	55.6 B	66.3 B	15.4 B	104 B	122 B,J	105 B,J	94.2 B,J	292 B,J	153 B	81.2 B,J	41 B,J
Beryllium	**7.2**	0.699 B	0.265 B	0.747 B	0.295 B	0.651 B	0.202 J	0.756	0.749	0.696	0.65	0.425	0.399	0.491	0.204 J
Cadmium	**2.5**	ND UJ	0.139 J	ND UJ	ND UJ	ND UJ	0.153 J	0.637	0.266	0.304	4.32	1.08	2.19	0.881 J	ND
Calcium	**--**	2810 B	98000 B,D	1060 B	26900 B	54800 B	806 B	25900 B	30500 B,J	43800 B,J	24200 B,J	29000 B,J	15100 B,D	41400 B	19800 B
Chromium	**1**	**21**	**35.8**	**20.1**	**17.8**	**18**	**4.37**	**18.3**	**18.9 J**	**19.8 J**	**15.3 J**	**18.4 J**	**30.3**	**21.5 J**	**26.8**
Cobalt	**--**	9.45 B	4.06 B	12.6 B	5.92 B	11.7 B	2.9	10.8	12.3	10.9	9.37	6.16	5.88	9.04	5.38
Copper	**50**	30.2	**91.8**	29	16.1	21.4	10.8 B	14.3 B	18.1 J	22.5 J	21.6 J	**403 J**	**87.1 B**	34.3	36.4
Iron	**--**	**23800 B**	**30400 B**	**24700 B**	**14700 B**	**23700 B**	**7150**	**35300**	**23600 J**	**22600 J**	**18800 J**	**18300 J**	**21300**	**26000 B,J**	**28000 B**
Lead	**63**	46.8 J	31 J	13.8 J	8.1 J	4.8 J	3.2 B	21.4 B	11.1 B,J	43.3 B,J	47.4 B,J	**649 B,J**	**314 B**	**72.4 J**	29.9
Magnesium	**--**	4450	4120	6670	4660	9660	1370 B	5580 B	6900 J	12600 J	13 J	7410 J	17000 B	13800 J	8820
Manganese	**1600**	561 B	371 B	539 B	372 B	775 B	306	869	787 J	670 J	268 J	369 J	531	562 B	415 B
Nickel	**30**	23.8	20.5	26.4	14	26.6	6.38	17	22.3 J	25.3 J	29.4 J	17.5 J	22	25.8 J	21.7 J
Potassium	**--**	1230	510	1730	980	1830	706 B	1580 B	1590	2410	1.5	1400	916 B	1240 B	532 B
Selenium	**3.9**	2 J	1.7 J	2.2 J	1.2 J	1 J	0.5 J	2.4 J	2 J	1.1 J	1.4 J	1.5 J	1.3 J	1.1 J	0.7 J
Silver	**2**	0.079 J	ND	ND	ND	ND	ND	ND	0.131 J	ND	ND	0.154 J	ND	0.097 J	ND
Sodium	**--**	124 J	96.8 J	118 J	92.7 J	109 J	57.9 J	0.355	460 J	105 J	98.5 J	102 J	372	216	106 J
Vanadium	**--**	26.5	72.7	30.2	16	24.8	11.3	31.5	39.8 J	30.8 J	19.4 J	15.8 J	155	26.5	13.6
Zinc	**109**	60 J	128 J	72.2 J	40.2 J	48.3 J	14.6 B	55.8 B	61 B,J	87.9 B,J	**438 B,J**	**435 B,J**	**357 B**	**215 B,J**	81.8 B
Mercury	**0.18**	**0.206**	0.0381	0.0413	0.0132 J	0.0157 J	ND	0.0147 J	0.0114 J	0.0498	0.0842	0.0758	0.106	0.0385	0.0353
Pesticides and Herbicides - mg/Kg															
Aldrin	**0.005**	--	--	--	--	--	**0.28 D,J**	ND	--	--	--	--	--	--	ND
alpha-BHC	**0.02**	--	--	--	--	--	**0.51 D,J**	ND	--	--	--	--	--	--	ND
beta-BHC	**0.036**	--	--	--	--	--	**0.34 D,J**	0.0027 D,J	--	--	--	--	--	--	ND
delta-BHC	**0.04**	--	--	--	--	--	**0.47 D,J**	0.0055 D,J	--	--	--	--	--	--	ND
Dieldrin	**0.005**	--	--	--	--	--	**0.45 D,J**	ND	--	--	--	--	--	--	ND
Endosulfan I	**2.4**	--	--	--	--	--	ND	0.0052 D,J	--	--	--	--	--	--	ND
Endosulfan II	**2.4**	--	--	--	--	--	0.36 B,D,J	ND	--	--	--	--	--	--	ND
Endrin	**0.014**	--	--	--	--	--	**0.3 D,J**	ND	--	--	--	--	--	--	ND
Endrine ketone	**--**	--	--	--	--	--	ND	ND	--	--	--	--	--	--	0.015 D,N,J
gamma-BHC (Lindane)	**0.1**	--	--	--	--	--	**0.44 D,J**	ND	--	--	--	--	--	--	ND
Heptachlor	**0.042**	--	--	--	--	--	ND	0.004 B,D,J	--	--	--	--	--	--	ND

PARAMETER[1]	TP-11 (1-2)	TP-12 (1-2.5)	TP-13 (1-3)	TP-14 (1.5-2)	TP-15 (0-2)	TP-16 (0.5-1.5)	TP-17 (2-4)	TP-18 (0.5-1.5)	TP-19 (4-6)	TP-20 (2-4)	TP-21 (0.5-2)	TP-22 (0.5-6)	TP-23 (1-5)	TP-24 (1-7)	TP-25 (1-7)	Railroad Siding 1	Railroad Siding 2	Railroad Siding 3	Railroad Siding 4
	September 2010															July 2011			
Volatile Organic Compounds (VOCs) - mg/Kg																			
1,1-Dichloroethane	--	--	--	--	ND	ND	0.26 W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
1,2,4-Trimethylbenzene	--	--	--	--	0.22	0.15 W	0.072 J,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
1,3,5-Trimethylbenzene	--	--	--	--	0.092	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
2-Butanone (MEK)	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
p-Cymene (p-	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Acetone	--	--	--	--	0.082 J	ND	ND	--	--	--	--	--	--	--	--	0.013 J	ND	ND	ND
Benzene	--	--	--	--	0.041 J	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Chloroethane	--	--	--	--	ND	ND	0.21 W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Cyclohexane	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Ethylbenzene	--	--	--	--	0.055	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Isopropylbenzene (Cumene)	--	--	--	--	ND	ND	0.077 NJ,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Methylcyclohexane	--	--	--	--	ND	0.17 W	0.068 J,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Methylene chloride	--	--	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	**8.9**	0.0031 J	0.0026 J	0.0075
n-Butylbenzene	--	--	--	--	ND	U	0.14 NJ,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
n-Propylbenzene	--	--	--	--	ND	ND	0.14 NJ,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
sec-Butylbenzene	--	--	--	--	ND	ND	0.097 J,W	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Styrene	--	--	--	--	0.028 J	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Toluene	--	--	--	--	0.087 J	0.062 J,W	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Total Xylene	--	--	--	--	**0.31 J**	ND	ND	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																			
2-Methylnaphthalene	ND	ND	0.35 D,J	ND	320 T,D	2 D,J	8.3 T,D,J	ND	0.33 D,J	0.27 D,J	ND	ND	ND	0.093 D,J	ND	ND	2.4	27	7.5 J
Acenaphthene	ND	ND	0.9 D,J	ND	370 T,D	3.5 D,J	37 T,D,J	11 D	1.3 D	0.92 D,J	0.022 J	12 D	ND	1.6 D	ND	3 J	12 J	**46**	**29**
Acenaphthylene	ND	ND	ND	ND	48 T,D	3.4 D,J	ND	ND	0.12 D,J	0.12 D,J	ND	ND	ND	0.054 D,J	ND	ND	ND	4.2 J	6.7 J
Anthracene	ND	0.032 J	2.2 D	ND	500 T,D	13 D	68 T,D	14 D	3.5 D	1.9 D	0.024 J	13 D	0.14 D,J	0.81 D,J	0.38 T,D,J	4.6 J	21	98	44
Benzo(a)anthracene	0.055 J	0.19 J	**2.9 D**	0.022 J	**580 T,D**	**55 D**	**210 T,D**	**62 D**	**16 D**	**5.5 D**	0.17 J	**83 D**	0.87 D,J	**5.5 D**	**1.9 T,D,J**	**23**	**84**	**170**	**110**
Benzo(a)pyrene	0.074 J	0.3	**3.2 D**	0.03 J	**530 T,D**	**71 D**	**240 T,D**	**83 D**	**19 D**	**5.4 D**	0.27	**110 D**	0.55 D,J	**9.4 D**	**2.1 T,D,J**	**36**	**110**	**140**	**120**
Benzo(b)fluoranthene	0.085 J	0.31	**3.2 D**	0.029 J	**530 T,D**	**84 D**	**270 T,D**	**81 D**	**24 D**	**6.6 D**	0.3	**110 D**	**1.2 B,D**	**9.3 B,D**	**2.1 T,D,J,B**	**33**	**110**	**170**	**120**
Benzo(ghi)perylene	0.06 J	0.31	2.1 D	0.023 J	280 T,D	55 D	**190 T,D**	67 D	9.1 D	2.2 D	0.23	81 D	0.48 B,D,J	6.2 B,D	1.5 T,D,J,B	27	82	86	88
Benzo(k)fluoranthene	0.034 J	0.083 J	**1 D**	ND	**220 T,D**	**25 D**	**120 T,D**	**30 D**	**6.8 D**	**2.6 D**	0.1 J	**49 D**	0.4 B,D,J	**3.8 B,D**	**1.2 T,D,J,B**	**22**	**56**	**72**	**68**
Biphenyl	ND	ND	ND	ND	80 T,D	ND	ND	ND	ND	0.067 D,J	ND	ND	ND	ND	ND	ND	ND	4.8 J	1.9 J
Bis(2-ethylhexyl) phthalate	ND	0.087 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.62 D,J	ND	11 J	ND	ND	ND
Butyl benzyl phthalate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	ND	0.024 J	0.83 D,J	ND	240 T,D	8.6 D	62 T,D	8.7 D,J	2.2 D	0.99 D,J	0.016 J	8.7 D	0.055 D,J	0.6 D,J	ND	2.7 J	13 J	55	22
Chrysene	0.056 J	0.19 J	**2.6 D**	0.015 J	**480 T,D**	**58 D**	**220 T,D**	**57 D**	**16 D**	**5.4 D**	0.18 J	**78 D**	**1.4 D**	**6.2 D**	**1.8 T,D,J**	**26**	**84**	**150**	**110**
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.9 J**	**18 J**	**29**	**19**
Dibenzofuran	ND	ND	0.81 D,J	ND	400 T,D	3.2 D,J	**19 T,D,J**	3.4 D,J	0.68 D,J	0.49 D,J	ND	2.1 D,J	0.043 D,J	0.18 D,J	ND	ND	5.1 J	**39**	**14 J**
Fluoranthene	0.087 J	0.28	6.2 D	0.023 J	**1800 D**	**110 D**	**450 T,D**	94 D	31 D	9.9 D	0.23	97 D	1.7 D	7.3 D	2.7 T,D,J	36	**130**	**350**	**200**
Fluorene	ND	ND	1.2 D	ND	570 T,D	6 D,J	**42 T,D**	4.7 D,J	1.3 D	0.81 D,J	ND	4.7 D,J	ND	0.4 D,J	ND	1.5 J	9.5 J	**54**	22
Indeno(1,2,3-cd)pyrene	0.041 J	0.21 J	**1.7 D**	0.02 J	**260 T,D**	**47 D**	**150 T,D**	ND	**7.3 D**	**2 D**	0.19 J	**73 D**	0.43 B,D,J	**5.7 B,D**	**1.2 T,D,J,B**	**21**	**66**	**77**	**77**
Naphthalene	ND	ND	0.6 D,J	0.1 J	**1800 D**	2.7 D,J	23 T,D,J	ND	0.73 D,J	0.47 D,J	ND	1.6 D,J	ND	0.12 D,J	ND	ND	7.6	**71**	**23**
Phenanthrene	0.053 J	0.19 J	6.8 D	ND	**2100 D**	52 D	310 T,D	56 D	17 D	7.9 D	0.097 J	48 D	0.73 D,J	3.4 D	1.5 T,D,J	19	86	**380**	**170**
Phenol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1 J	ND
Pyrene	0.077 J	0.29	5.4 D	0.023 J	**1100 T,D**	90 D	370 T,D	87 D	24 D	7.6 D	0.2 J	95 D	0.94 D,J	6.6 D	2.2 T,D,J	32	**120**	**270**	**190**
Polychlorinated biphenyls (PCBs) - mg/Kg																			
Aroclor 1242	ND	0.0086 J	0.012 J	ND	ND	ND	ND	ND	ND	ND	ND	**0.44 D**	ND	**0.28 D**	0.077	ND	ND	ND	ND
Aroclor 1248	ND	ND	ND	ND	ND	ND	ND	ND	0.052	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.26 D**	0.082 J	ND	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.014 J	**1.5 D,NJ**	0.16	ND	ND	ND	ND
Aroclor 1262	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1268	ND	0.0066 J	0.068 NJ	ND	ND	ND	ND	0.054 D,J	**0.14**	**7.6 D**	ND	ND	0.03	**1.8 D**	0.099 NJ	**2.7**	**0.85**	**1.4**	**3.4**
Total Metals - mg/Kg																			
Aluminum	15900 B	16100 B	7890 B	19800 B	9120 B	8220 B	11200 B	8040 B,J	9980 B	5430 B	11000 B	1880 B	8910 B	8010 B	6100 B	22200	9730	4370	6030
Antimony	ND	ND	ND UJ	ND UJ	0.7 J	ND J	ND UJ	ND UJ	ND UJ	0.9 J	ND UJ	ND UJ	ND UJ	0.7 J	1.1 J	0.97 J	0.93	4.6 J	2.6
Arsenic	3.9	3	7.2	5	**20.2**	4.6	4.3	3 B	5.8	7.1	12.3	1.4 J	13.8	7.2	5.3	5.6	7.3	6.4	**198**
Barium	147 B	134 B	85.5 B	77.3 B	143 B	116 J	84.4 J	48.7 B,J	81.5 B,J	58.8 B,J	115 J	13.9 J	89.6 B,J	71.9 B,J	73.7 B,J	69.9 J	337	32.9	135
Beryllium	0.722	0.613	0.593	0.929	1.01	0.588	0.541	0.286	0.506	0.379	0.637	0.072 J	0.476	0.364	0.37	1.9	0.63	0.23	0.52
Cadmium	0.328	0.225 J	0.904 J	0.565 J	0.318 J	0.586	0.926	0.739	0.369	0.677	0.071 J	0.154 J	0.329	9.11	0.547	1.4 B	1.4 B	0.97 B	**4 B**
Calcium	43000 B	2930 B	7590 B	1870 B	19200 B	16300 B	23600 B	95500 B,D,J	26700 B	44500 B	43000 B	5970 B	31300 B	41300 B	106000 B,D	49200 B	41700 B	10200 B	15600 B
Chromium	**22.8**	**16.4**	**13.2**	**26.9**	**11**	**11.4**	**23.7**	**30.9 J**	**68.5**	**14.1**	**17.6**	**18.4**	**30.7**	**40.4**	**31.8**	**62.1**	**32.9**	**52.7**	**143**
Cobalt	11.7	3.73	8.54	18.8	4.92	6.42	9.83	3.82	8.03	4.06	3.23	1.49	4.46	7.47	4.96	9	8.8	4.7	**15.8**
Copper	18.9 B	41.5 B	**1080 B**	21.6 B	27.2 B	**53**	27.4	26.8 J	**60.9**	18.9	11.5	16.3	16	**55.1**	**170**	**68.9**	**69.6**	**104**	**162**
Iron	**23100**	**14600**	**15200**	**43000**	**13700**	**13400 B**	**17900 B**	**10000 J**	**21300 B**	**14100 B**	**26800 B**	**1900 B**	**13600 B**	**28400 B**	**13300 B**	8020	16300	12700	38
Lead	7.3 B	13.2 B	**78.8 B,J**	14 B,J	**75.9 B,J**	**174**	47.9	49 B,J	61	46.8	11.1	9.3	51.6	**162**	**107**	**114**	**191**	**170**	**350**
Magnesium	9610 B	2290 B	2710 B	6380 B	4260 B	6700 B	9510 B	20900 J	8470	11200	2050 B	3060 B	4030	13100	43200	16300	7800	3700	5680
Manganese	503	137	339	468	543	422 B	382 B	803 J	463 B	293 B	170 B	55.6 B	224 B	580 B	541 B	696	476	259	**2030**
Nickel	25.5	10.6	**48.4**	24.8	13	15.8 J	**39.5 J**	11.9 J	21.5 J	14.2 J	9.22 J	15.8 J	16 J	**32.5 J**	**48.5 J**	**34.9**	**32.7**	**48.6**	**154**
Potassium	32320 B	1720 B	837 B	2150 B	1010 B	1340	1690	669	1190 B	688 B	6630	155	3150 B	1340 B	1180 B	720	904	275	700
Selenium	1.5 J	1 J	1.5 J	2.9 J	1.1 J	1.2 J	1.4 J	ND	0.8 J	0.6 J	3.6 J	ND	2.1 J	1.5 J	0.8 J	0.65 J	ND	0.85 J	1.1 J
Silver	ND	ND	ND	ND	ND	ND	ND	0.138 J	ND	0.095 J	ND	ND	ND	0.118 J	0.122 J	ND	ND	ND	ND
Sodium	266	94.8 J	111 J	329	267	99.8 J	146 J	148 J	128 J	211	1380	101 J	977	375	361	1380	465	139 J	135
Vanadium	28.3	19.3	34.9	40.8	13.6	19.6	25.5	193 J	22.4	18.4	25.3	32	30.5	28.7	24.7	**1680**	**264**	**248**	97.1
Zinc	51.3 B	37.1 B	**212 B,J**	64.2 B,J	46.7 B,J	**114 B**	**243 B**	**454 B,J**	**199 B**	**212 B**	26.6 B	31.9 B	51.7 B	**195 B**	**218 B**	**214 B**	**283 B**	**112 B**	**511 B**
Mercury	ND	0.0687	0.113	0.0178 J	0.0252	0.0674	0.0355	0.0494	0.171	0.0783	ND	0.0177 J	0.0304	**0.226**	**0.652**	0.036	0.081	0.058	**22.7**
Pesticides and Herbicides - mg/Kg																			
Aldrin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
alpha-BHC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
beta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
delta-BHC	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Dieldrin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Endosulfan I	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Endosulfan II	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Endrin	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.44 J**	ND	**0.42**	ND
Endrine ketone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	1	ND	ND
gamma-BHC (Lindane)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND
Heptachlor	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	ND

Definitions:

ND = Parameter not detected above laboratory detection limit.

"--" = Sample not analyzed for parameter or no SCO available for the parameter.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

B = Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

Bold = Result exceeds 6NYCRR Part 375 Unrestricted SCO.

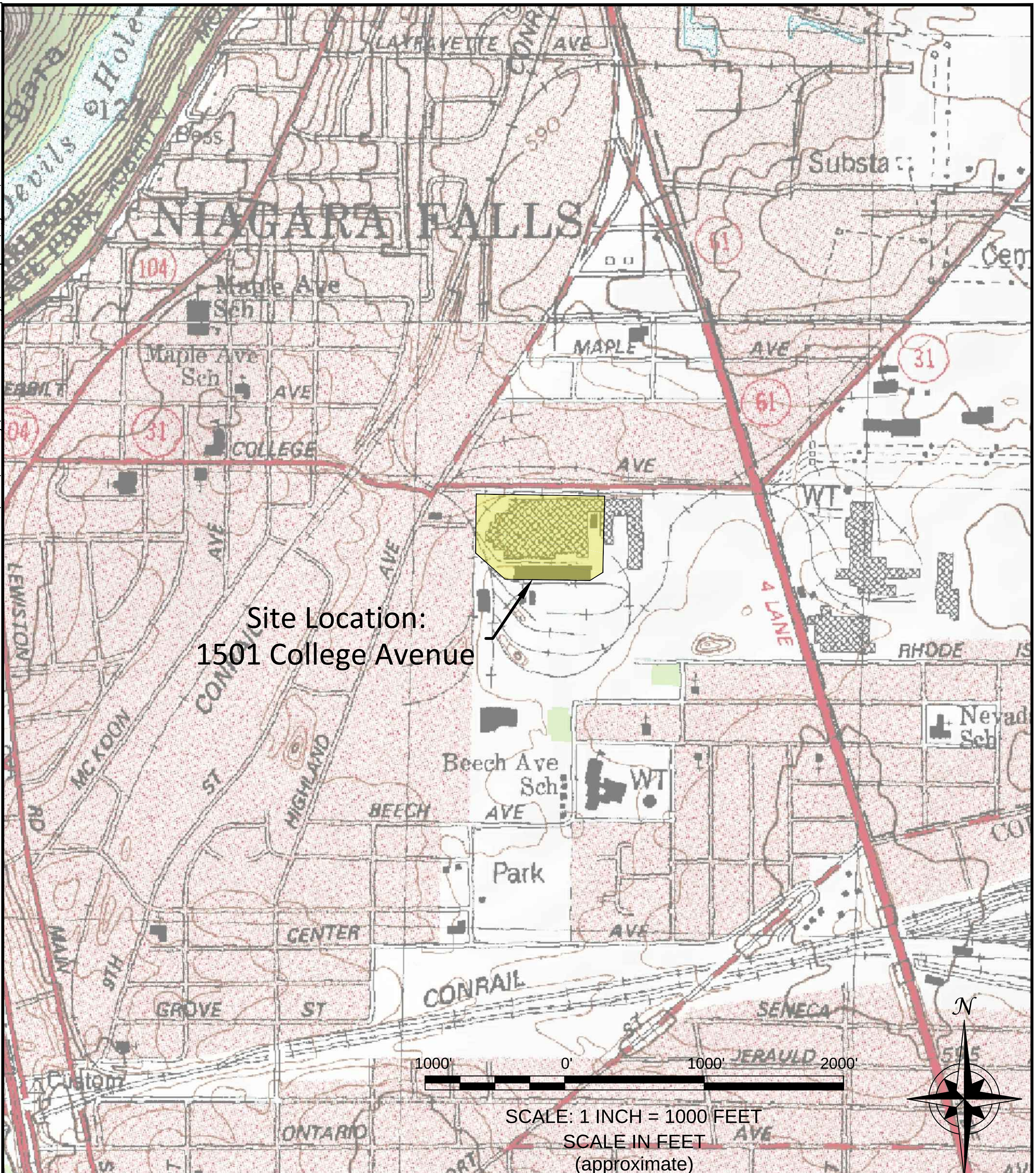
Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Values per NYSDEC Part 375 Soil Cleanup Objectives Unrestricted (December 2006)

FIGURES

F:\CAD\TurnKey\Santorosa Holdings\RI Report\Figure 1; Site Location and Vicinity Map.dwg

FIGURE 1



TurnKey Environmental Restoration, LLC

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SUITE 300
BUFFALO, NY 14218
(716) 856-0635

PROJECT NO.: 0140-001-105

DATE: AUGUST 2012

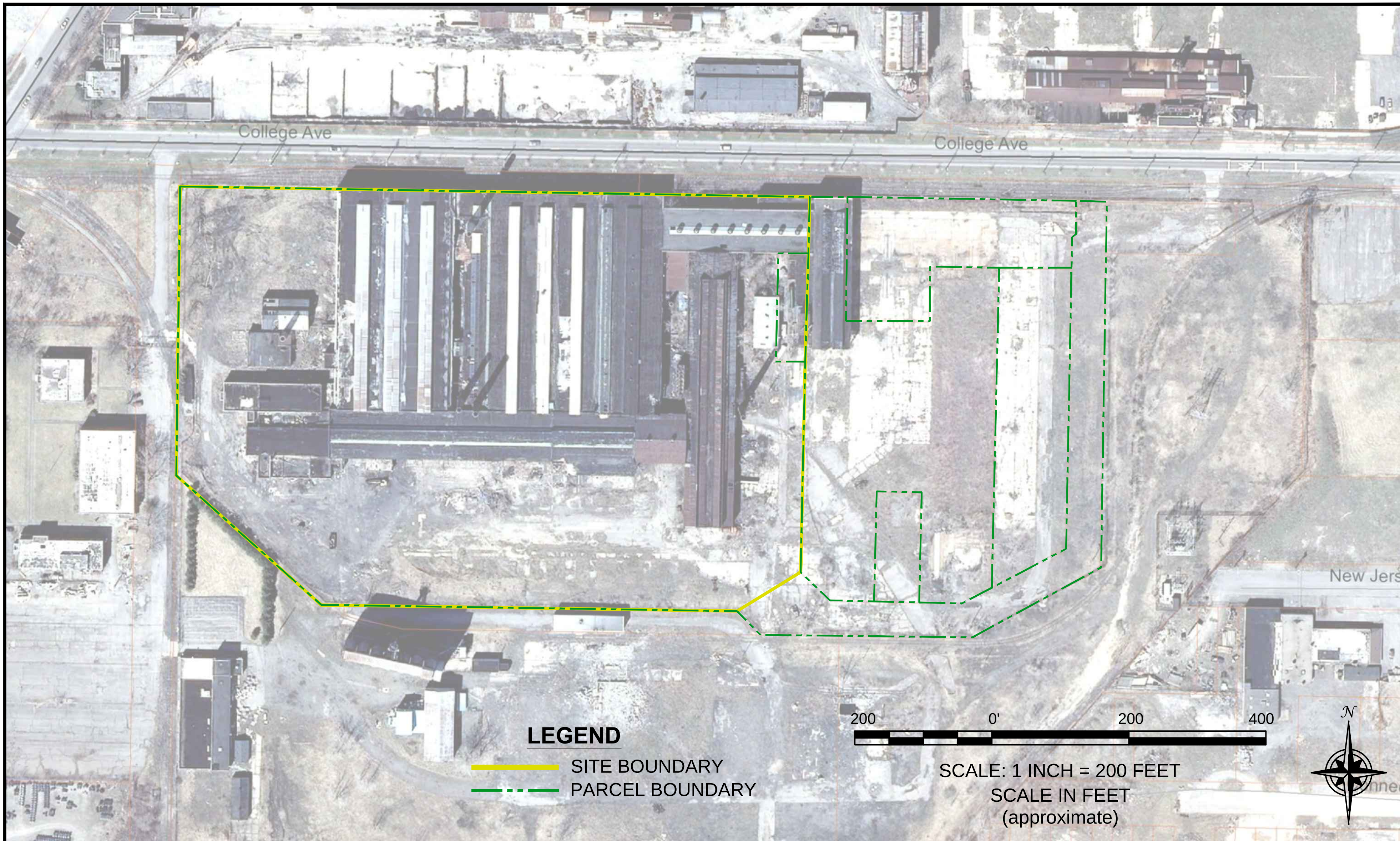
DRAFTED BY: JCT

SITE LOCATION AND VICINITY MAP

RI/AA/IRM REPORT

1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
SANTAROSA HOLDINGS, INC.

F:\CAD\TurnKey\Santorosa Holdings\RI Report\Figure 2; Site Plan Map.dwg



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DATE: AUGUST 2012

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SITE PLAN (AERIAL) (PRE-DEMOLITION)

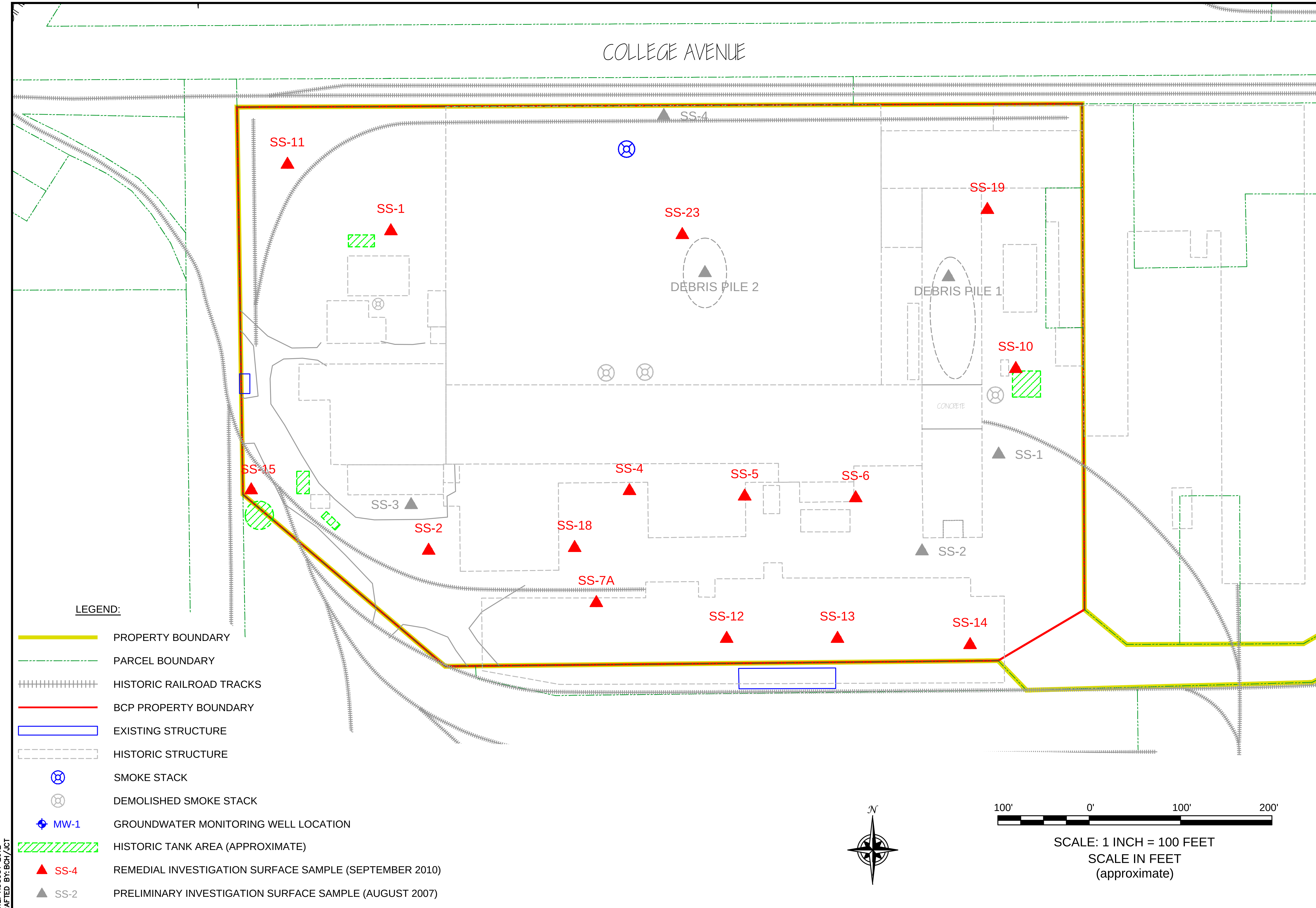
RI/AA/IRM REPORT

1501 COLLEGE AVENUE SITE
NIAGARA FALLS, NEW YORK

PREPARED FOR

SANTAROSA HOLDINGS, INC.

FIGURE 2



F:\CAD\TurnKey\Santorosa Holdings\RI Report\Figure 3; Surface Samples.dwg

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REMEDIAL INVESTIGATION SURFACE SAMPLE LOCATIONS

RI/AA/IRM REPORT

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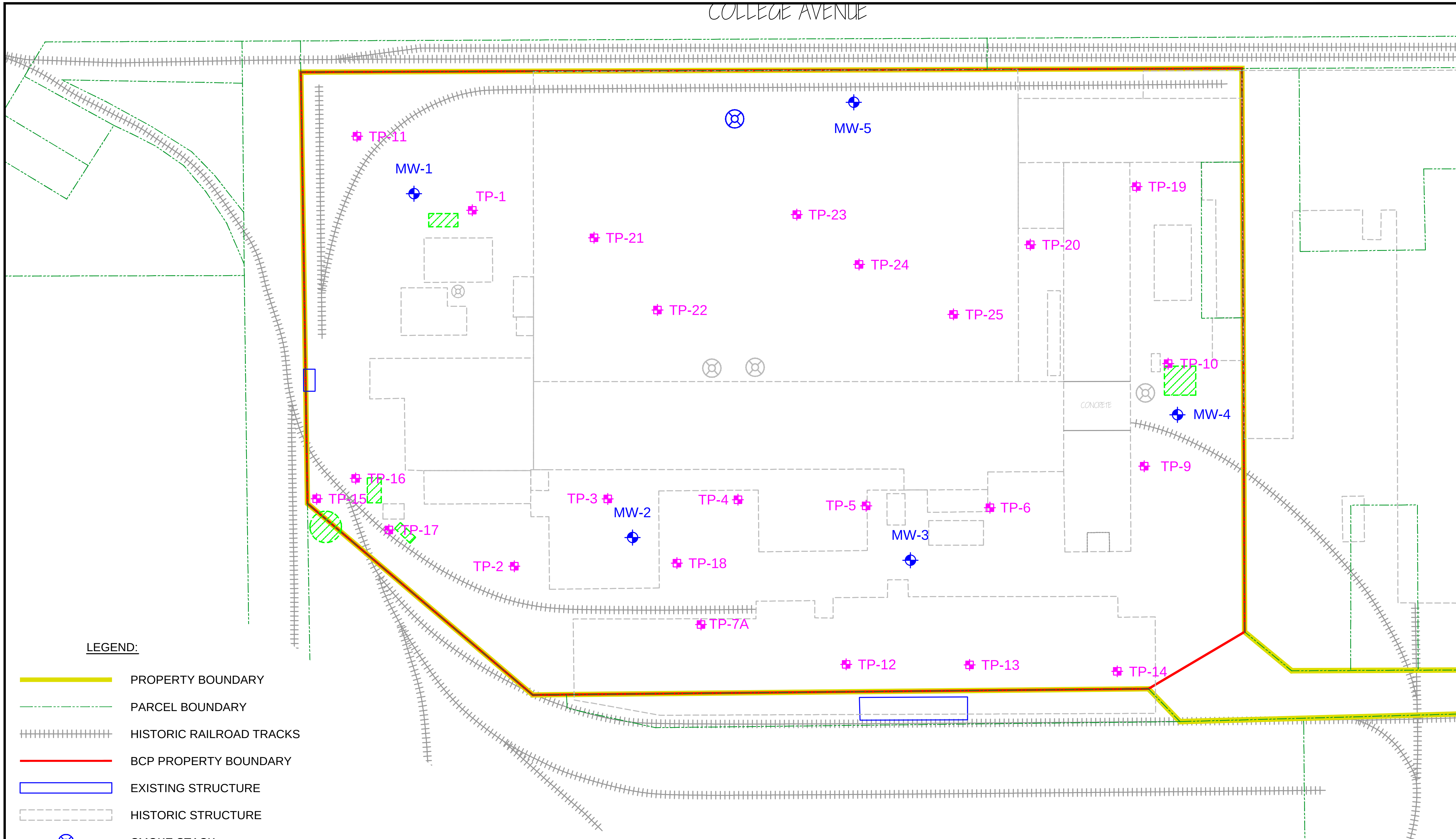
FIGURE 3



LEGEND:

- PROPERTY BOUNDARY
- PARCEL BOUNDARY
- HISTORIC RAILROAD TRACKS
- BCP PROPERTY BOUNDARY
- EXISTING STRUCTURE
- HISTORIC STRUCTURE
- SMOKE STACK
- DEMOLISHED SMOKE STACK
- MW-1 GROUNDWATER MONITORING WELL
- TP-16 REMEDIAL INVESTIGATION TEST PIT (SEPTEMBER 2010)
- HISTORIC TANK AREA (APPROXIMATE)

100' 0' 100' 200'

SCALE: 1 INCH = 100 FEET
SCALE IN FEET
(approximate)

DATE: SEPTEMBER 2011
DRAFTED BY: BCH/JCT

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TURNKEY ENVIRONMENTAL RESTORATION, LLC

JOB NO.: 0140-001-105

SUBSURFACE SAMPLE LOCATIONS

RI/AAR/IRM REPORT

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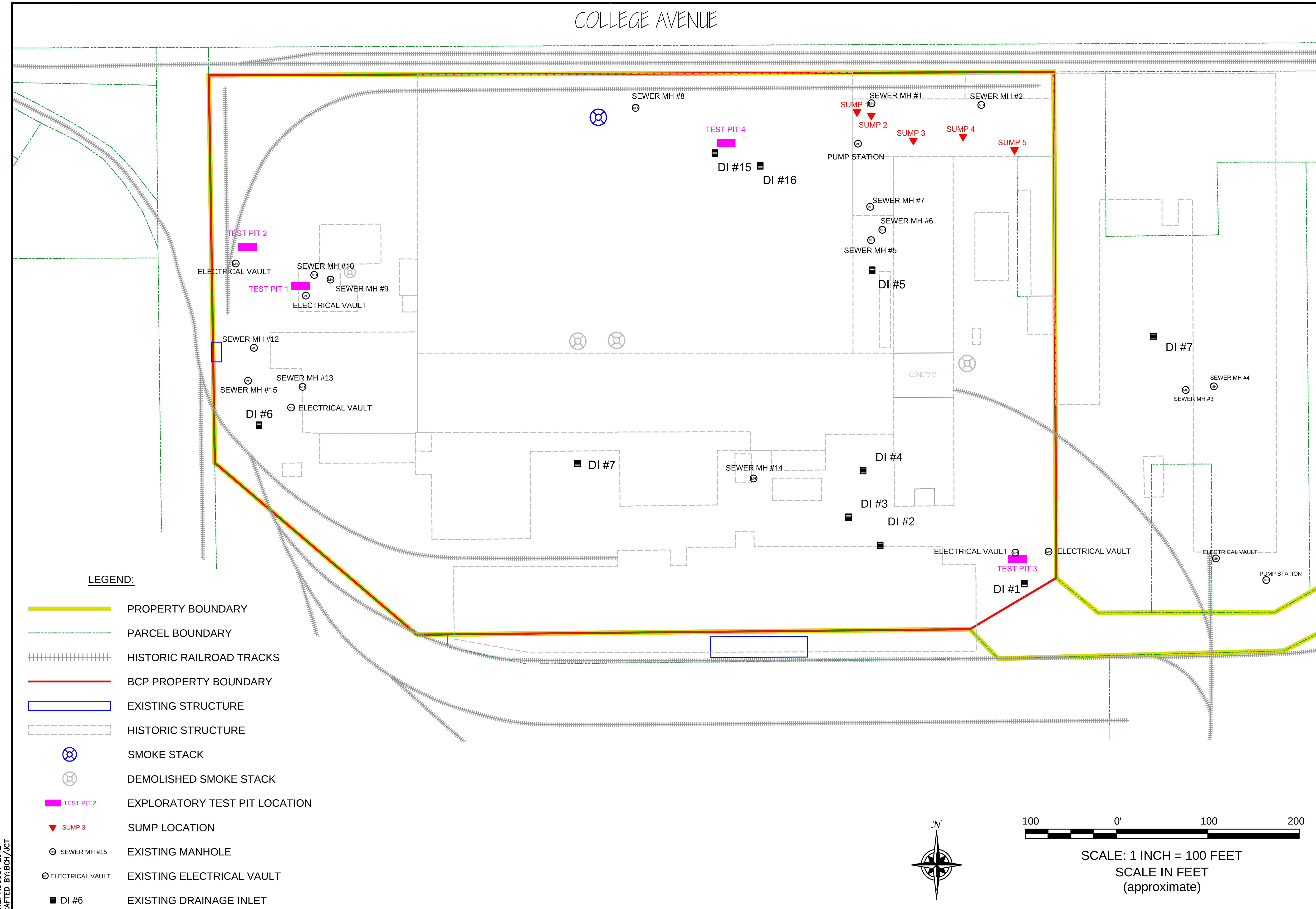
FIGURE 4



F:\CAD\TurnKey\Santorosa Holdings\RI\Figure 5; Manhole Locations.dwg

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MANHOLE LOCATIONS

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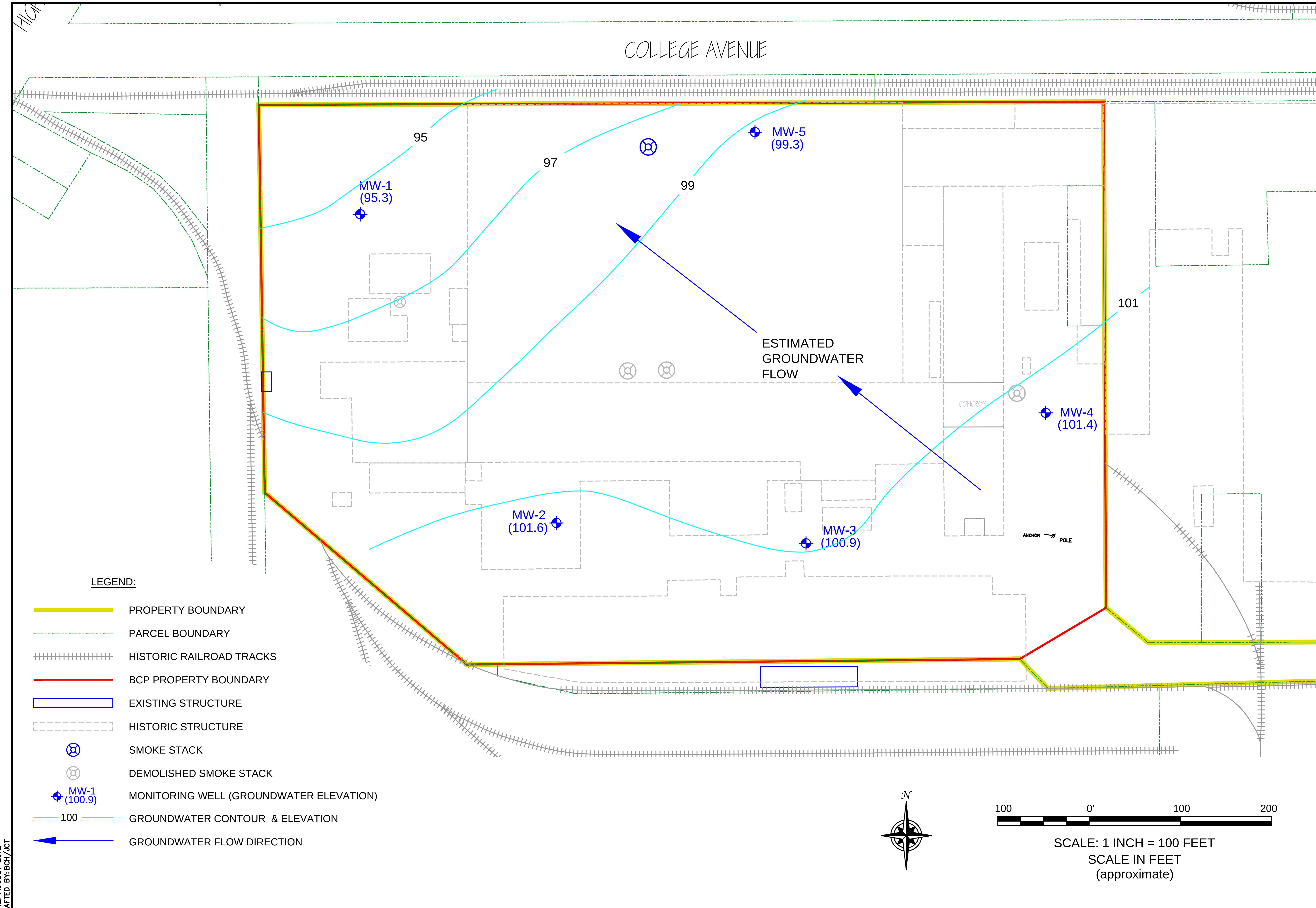
FIGURE 5

F:\CAD\TurnKey\Santarosa Holdings\RI\Figure 6; Groundwater Isopotential.dwg



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GROUNDWATER SAMPLE LOCATIONS & ISOPOTENTIAL MAP

RI/AA/IRM REPORT

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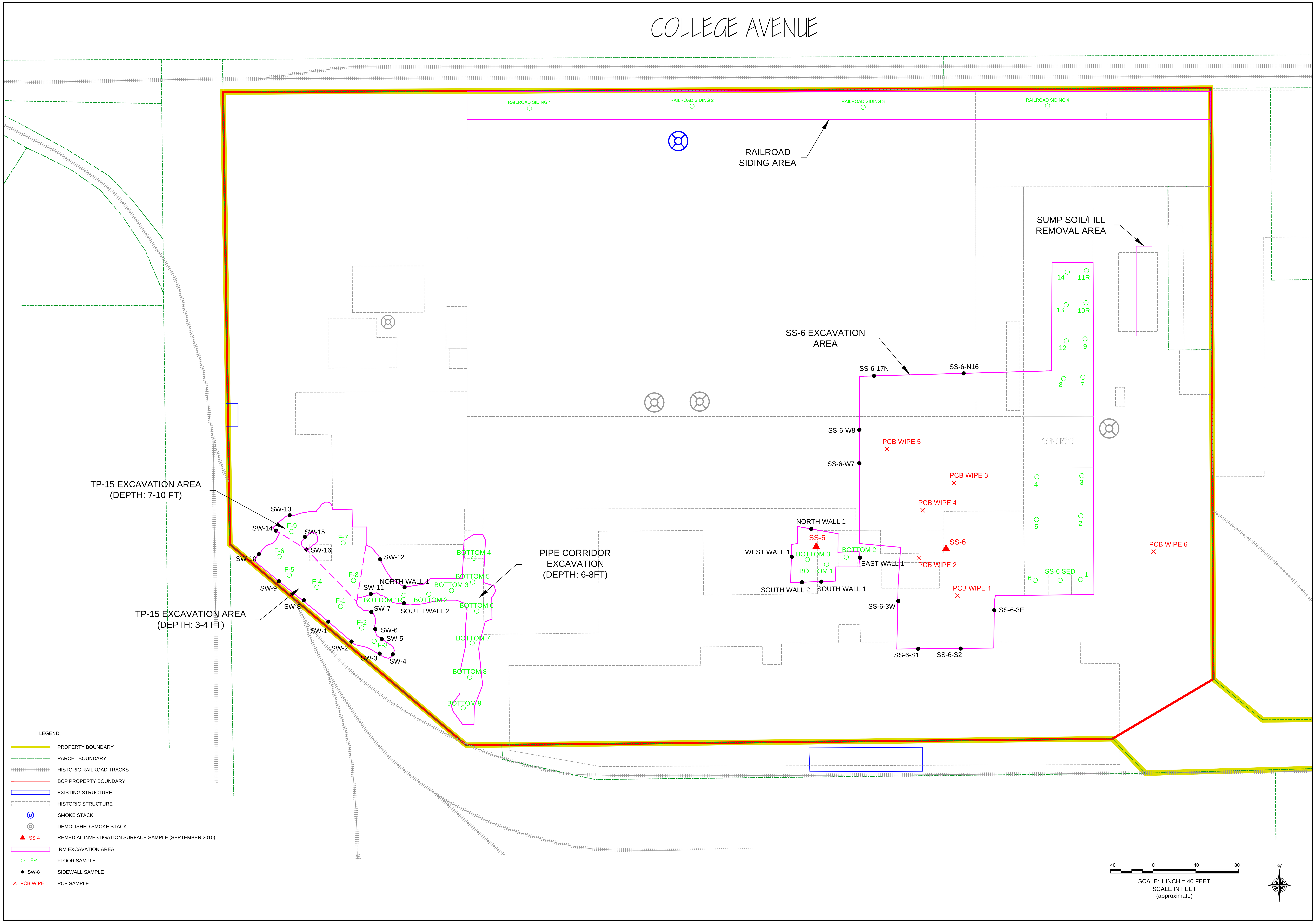
FIGURE 6



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REVISIONS

NO.	BY	DATE	REMARKS

SEAL

DRAWN BY: JCT

DATE: AUGUST 2012

CHECKED BY:

APPROVED BY:

DISCLAIMER:

IRM EXCAVATION AREAS

RI/AA/IRM REPORT

1501 COLLEGE AVENUE SITE

NIAGARA FALLS, NEW YORK

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FIGURE 7

APPENDIX A

PROJECT PHOTOLOG

APPENDIX B

FIELD BOREHOLE AND WELL COMPLETION LOGS

APPENDIX C

LABORATORY ANALYTICAL DATA PACKAGE
(PROVIDED ELECTRONICALLY)

APPENDIX D

DATA USABILITY SUMMARY REPORT (DUSR)

APPENDIX E

LAND USE EVALUATION

APPENDIX F

ELECTRONIC COPY