Final Engineering Report

3807 Highland Avenue Site
BCP Site No. C932145
Niagara Falls, New York

May 2010 0170-001-300

Prepared For:

Globe, Inc. & Solsil, Inc

Prepared By:

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

2558 Hamburg Turnpike, Buffalo, New York 14218 | phone: (716) 856-0599 | fax: (716) 856-0583

BROWNFIELD CLEANUP PROGRAM

FINAL ENGINEERING REPORT

3807 HIGHLAND AVENUE SITE
NYSDEC SITE No. C932145
NIAGARA FALLS, NEW YORK

May 2010 0170-001-300

Prepared for:

Globe Metallurgical, Inc. & Solsil, Inc.
1595 Sparling Road
PO Box 157
Beverly, Ohio 45715

Prepared By:

Benchmark Environmental Engineering & Science, PLLC
2558 Hamburg Turnpike, Suite 300
Buffalo, NY 14218
(716)856-0599

DRAFT

CERTIFICATIONS

I, Paul H. Werthman, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Investigation / Alternatives Analysis Report / Interim Remedial Measures Work Plan (September 2009) was implemented and that all remedial activities were completed in substantial conformance with the Department-approved Remedial Investigation / Alternative Analysis Report / Interim Remedial Measures Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Investigation / Alternative Analysis Report / Interim Remedial Measures Work Plan and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in for the remedy.

I certify that all use restrictions, Institutional Controls and/or any monitoring requirements applicable to the Site are contained in an environmental easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, Paul Werthman, of Benchmark Environmental Engineering and Science, PLLC, 2558 Hamburg Turnpike, Buffalo, New York, am certifying as Owner's Designated Site Representative

_____

Date

DRAFT

FINAL ENGINEERING REPORT

3807 Highland Avenue Site

Table of Contents

1.0 BACKGROUND AND SITE DESCRIPTION 1

2.0 SUMMARY OF SITE REMEDY 3

2.1 Remedial Action Objectives 3

2.1.1 Groundwater RAOs 3

2.1.2 Soil RAOs 3

2.1.3 Sediment and Stack Deposits RAOs 3

2.2 Description of selected remedy 3

3.0 IRMS, OPERABLE UNITS, & REMEDIAL CONTRACTS 5

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED 8

4.1 Governing Documents 8

4.1.1 Site Specific Health & Safety Plan (HASP) 8

4.1.2 Quality Assurance Project Plan (QAPP) 8

4.1.3 Community Air Monitoring Plan (CAMP) 9

4.1.4 Community Participation Plan (CP) 9

4.2 Remedial Program Elements 10

4.2.1 Contractors and Consultants 10

4.2.2 Site Preparation 11

4.2.3 General Site Controls 12

4.2.4 Nuisance controls 13

4.2.5 CAMP results 13

4.2.6 Reporting 13

4.3 Contaminated Materials Removal 13

4.3.1 Aboveground Storage Tanks Removal 14

4.3.1.1 Aboveground Storage Tank Disposal Details 15

4.3.2 Drum/Container Removal 15

4.3.2.1 Drum/Container Disposal Details 16

4.3.3 Soil/Fill/Debris Pile Removal 16

4.3.3.1 Soil/Fill/Debris Pile Disposal Details 16

4.3.4 Sediment Removal 17

4.3.4.1 Sediment Disposal Details 17

4.3.5 Light Ballast and eWaste Removal 17

4.3.5.1 Light Ballast and Electronic Waste (eWaste) Disposal Details 17

4.3.6 Chromium Impacted Soil/Fill Removal 18

4.3.6.1 Chromium Impacted Soil/Fill Disposal Details 18

4.3.7 SS-9 Area Surface Soil Removal 18

4.3.7.1 SS-9 Area Surface Soil Disposal Details 18

4.3.8 Arsenic Impacted Soil/Fill Removal 19

4.3.8.1 Arsenic Impacted Soil/Fill Disposal Details 19

4.3.9 Stack Deposits Removal 19

4.3.9.1 Stack Deposits Disposal Details 19

DRAFT

Table of Contents

4.3.10 Spent Electrode Removal *20*
4.3.10.1 Spent Electrode Disposal Details *20*
4.4 Remedial Performance/Documentation Sampling 20
4.5 Imported Material 21
4.6 Contamination Remaining at the Site 21
4.7 Institutional Controls 21
4.8 Deviations from the Remedial Action Work Plan 22

5.0 REFERENCES 23

DRAFT

Table of Contents

LIST OF TABLES

Table 1	Soil Cleanup Objectives (SCOs) for the Project
Table 2	Summary of Materials Disposed / Recycled Off-Site
Table 3	Summary of Remedial Excavation End-Point Analytical Results
Table 4a	Comparison of Remaining on-Site Surface Soil/Fill to Unrestricted Use SCOs
Table 4b	Comparison of Remaining on-Site Sub-Surface Soil/Fill to Unrestricted Use SCOs – Historical Soil Borings
Table 4c	Comparison of Remaining on-Site Sub-Surface Soil/Fill to Unrestricted Use SCO – RI Soil Borings
Table 4d	Comparison of Remaining on-Site Sub-Surface Soil/Fill to Unrestricted Use SCOs – RI Test Pit

LIST OF FIGURES

Figure 1	Site Location and Vicinity Map
Figure 2	Site Plan (Aerial)
Figure 3	Location of Remedial Excavation
Figure 4	Location of Remedial Activities

DRAFT

Table of Contents

LIST OF APPENDICES

Appendix A	Survey Map, Metes and Bounds
Appendix B	Electronic Copy of the FER (CD)
Appendix C	Agency Permits, Applications and Approvals
Appendix D	Daily Reports
Appendix E	Community Air Monitoring Documentation (CD)
Appendix F	Site Photographs
Appendix G	Soil/Waste Characterization and Disposal Documentation
Appendix G1	Disposal Facility Applications and Approval Letters
Appendix G2	Waste Manifests, Disposal Receipts, and Bills of Lading (CD)
Appendix H	Laboratory Analytical Data Reports (CD)
Appendix I	Data Usability Summary Reports
Appendix J	Imported Materials Documentation
Appendix K	Environmental Easement and Proof of Filing
Appendix L	Fact Sheets

DRAFT

Table of Contents

LIST OF ACRONYMS

AAR	Alternatives Analysis Report
AST	Aboveground Storage Tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
CP	Citizen Participation
CY	Cubic Yard
DUSR	Data Usability Summary Report
ESA	Environmental Site Assessment
fbgs	feet below ground surface
FER	Final Engineering Report
FOP	Field Operating Procedure
GWQS	Groundwater Quality Standards
HASP	Health and Safety Plan
IC	Institutional Controls
IRM	Interim Remedial Measure
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PID	Photo-ionization Detector
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAO	Remedial Action Objective
RI	Remedial Investigation
SCO	Soil Cleanup Objective
SVOC	Semi-volatile Organic Compound
TCL	Target Compound List
USEPA	Untied States Environmental Protection Agency
VOC	Volatile Organic Compound

DRAFT

1.0 BACKGROUND AND SITE DESCRIPTION

Co-applicants Globe Metallurgical, Inc. (Globe) and Solsil, Inc. (Solsil) entered into a Brownfield Cleanup Agreement (BCA), (Index# B9-0793-08-11, Site #C932145) with the New York State Department of Environmental Conservation (NYSDEC) in September 2009 , to investigate and remediate a 22.25-acre property located in the City of Niagara Falls, Niagara County, New York. The property was remediated to Industrial Use soil cleanup objectives (SCOs), and will be utilized for industrial use.

The 3807 Highland Avenue Site is located in the City of Niagara Falls, County of Niagara, New York (see Figure 1). The 22.25-acre BCP parcel is comprised of 10 contiguous parcels as identified below.

- 3801 Highland Avenue - SBL No. 130.14.2.41
- 4002 Hyde Park – SBL No. 130.15-1-8
- 4024 Hyde Park – SBL No. 130.15-1-17
- 1725 Maple Avenue – SBL No. 130.15-1-13
- 1911 Maple Avenue – SBL No. 130.15-1-6
- 1925 Maple Avenue – SBL No. 130.15-1-16
- 1702 Massachusetts Avenue – SBL No. 130.15-1-12
- 1724 Massachusetts Avenue – SBL No. 130.15-1-11.1
- 1914 Massachusetts Avenue – SBL No. 130.15-1-15
- 1930 Massachusetts Avenue – SBL No. 130.15-1-7

The Site is bordered by College Avenue to the south, Highland Avenue to the west, Maple Avenue to the north, and Hyde Park to the east (see Figure 2). The boundaries of the Site are more fully described in the Metes and Bounds description included in Appendix A.

In September 2008, Benchmark conducted a Phase I Environmental Site Assessment (ESA) at the Site. Benchmark identified several recognized environmental conditions (RECs) based on the historic industrial use of the Site and recommended additional investigation.

In September 2008, Benchmark conducted a limited Preliminary Site Investigation at the Site. The limited investigation was conducted to evaluate potential impacts, and to

DRAFT

provide general characterization of the property. Surface, sub-surface soil/fill and historical stack deposit samples were collected for analysis. Based on the results of the investigation, Benchmark recommended that a BCP application be submitted to the NYSDEC.

In January 2009, Benchmark completed a Supplemental Investigation at the Site. The supplemental investigation included collection of samples from various areas of the Site.

The RI/IRM Work Plan was approved by the NYSDEC on September 30, 2009. Benchmark performed RI activities at the Site from October 6, 2009 through January 4, 2010, and IRM activities were conducted at the Site from November 11, 2009 through March 10, 2010. The NYSDEC Division of Environmental Remediation monitored the IRM construction activities to verify the work was performed in accordance with the BCA, the approved Work Plan, and DER-10.

An electronic copy of this FER with all supporting documentation is included as Appendix B.

DRAFT

2.0 SUMMARY OF SITE REMEDY

2.1 Remedial Action Objectives

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) were identified for this site.

2.1.1 Groundwater RAOs

RAOs for groundwater include:

- Prevention of ingestion or direct contact with groundwater containing concentrations of COPCs above GWQS.

2.1.2 Soil RAOs

RAOs for soil/fill include:

- Removal of certain 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.

2.1.3 Sediment and Stack Deposits RAOs

RAOs for sediment and stack deposits include:

- Removal of impacted sediments and stack deposits to levels protective of human health (Part 375 Industrial SCOs).

2.2 Description of Selected Remedy

The site was remediated in accordance with the approved RI/AAR/IRM Work Plan (September 2009). The following remedial work was completed as an IRM:

1. Cleaning and removal of aboveground storage tanks (ASTs);
2. Collection and removal of historic drums, containers, and former laboratory wastes;
3. Collection and recycling of former eWastes (computers and light bulbs);

DRAFT

4. Loading and disposal of non-hazardous soil/fill/debris pile;
5. Excavation and off-site disposal of impacted soil/fill;
6. Removal and off-site disposal of sediment;
7. Removal and off-site disposal of historic stack deposits;
8. Placement and compaction of approved backfill;

Based on the Alternatives Analysis Report (AAR), which was prepared after the IRM was completed, the final selected remedy includes:

1. No additional remedial work beyond that which was completed as an IRM;
2. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to any contamination remaining at the site;
3. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional Controls, (2) monitoring, (and 3) reporting; and
4. Periodic certification of the institutional controls.

The factors considered during the selection of the remedy are those listed in 6NYCRR Part 375-1.8.

DRAFT

3.0 IRMS, OPERABLE UNITS, & REMEDIAL CONTRACTS

The following NYSDEC-approved remedy was completed as an IRM:

- Removal and cleaning of historic aboveground storage tanks (ASTs) including: Three (3) steel 250-gallon ASTs with steel secondary containment from the factory building; two (2) 500-gallon hydraulic oil ASTs, one (1) 275-gallon oil AST, and one (1) 500-gallon waste oil AST with steel secondary containment from the Oil House. All removed ASTs were cleaned of residual product/water by Green Environmental Specialists, Inc. (GES). All tank cleaning residuals (oil/water sludge mixture) were collected and disposed of by GES at Environmental & Industrial Contracting Services, Inc (EICS) in Niagara Falls, New York. Five of the ASTs including the two secondary containment units were recycled as scrap by GES at Niagara Metal Recycling. The two 500-gallon hydraulic oil ASTs were transported off-site for reuse at Globe's Ohio facility. A 1,000-gallon gasoline AST located on-Site was inspected and cleaned by GES, and Globe/Solsil plan to reuse on-Site in the future. An empty 150-gallon polyethylene AST was cleaned and disposed of by GES at EICS.

- Approximately 54 drums containing waste materials and 8 additional empty drums were removed from the Site by GES. The waste materials drums removed from the site included: 10 drums of RI well drilling spoils; 13 drums of oil/water sludge mixture related to the ASTs cleaning, 16 drums of gear lube and 15 drums of lubricating oils. Drums were collected and disposed of by GES at EICS in Niagara Falls, New York. In addition, two pallets of grease pails (approximately 1,500-lbs) were also disposed of with the drums at EICS.

- Loading of approximately 2,731-tons of non-hazardous soil/fill/debris from the eastern portion of the Site and transportation off-site for disposal at Modern Landfill in Model City, New York.

- Approximately 1.35-tons of sediment and debris were removed from on-site catch basins and sumps. The material was collected by GES and disposed at EICS in Niagara Falls, New York.

- Collection, removal, and recycling of approximately 1,150-lbs of electronic wastes (eWaste) including old computers and equipment using Waste Management eScrap Tracker™ program. An additional 34-lbs. of spent light bulbs were collected and recycled utilizing Waste Management's Lamp Tracker™ and Mercury Tracker™ programs.

- Collection, removal and disposal of three drums from the factory building containing light ballasts with PCBs, Potassium Hydroxide and Sodium Hydroxide. The material was collected by GES, and transported off-site by Frank's Vacuum Truck Service, Inc. for disposal at CWM Chemical Service, in Model City, NY;

DRAFT

- Collection and removal of five (5) lab-pack drums, identified as LP-01 through LP-05, containing spent laboratory chemicals including Sulfuric Acid, Hydrochloric Acid, Ammonium Hydroxide, Sodium Hydroxide, Caustic detergent and cleaner, ethanolamine, waste paint, adhesive, glycol, and spent laboratory titrate and indicator solutions. These materials were over-packed and transported off-site by Tonawanda Tank Transport Services, Inc. for disposal at Chemtron Corp. located in Avon, Ohio;

- Excavation and off-site disposal of approximately 358-tons of chromium-impacted soil/fill in the vicinity of TP-13 and TP-16. A delineation investigation was conducted as part of the RI to determine the lateral extents of the chromium contamination. The soil was characterized as non-hazardous based on TCLP analysis. Approximately 187-tons of soil/fill was excavated from the TP-13 area, which was excavated from the ground surface to approximately 3.5 fbgs, and approximately 171-tons was excavated from the TP-16, which was excavated from the ground surface to approximately 2.5 fbgs. Confirmatory samples were collected and analytical results were below Part 375 Industrial SCOs. Excavated soil/fill was transported off-site by RE Lorenz for disposal at Modern Landfill in Model City, New York.

- Excavation of approximately 26-tons of impacted surface soil/fill in the former spent electrode storage area (SS-9). The soil was characterized as non-hazardous based on TCLP analysis. Excavated soil/fill was transported off-site for disposal at Modern Landfill in Model City, New York. Additionally, three spent electrodes were direct-loaded and transported off-site for disposal at Chemical Waste Management in Chafee, New York.

- Approximately 250-tons of stack deposits were removed from the western stack. Waste characterization samples confirmed the deposits to be non-hazardous, and the removed stack deposits were loaded and transported off-site by RE Lorenz for disposal at Modern Landfill in Model City, New York.

- Excavation and off-site disposal of approximately 728-tons of arsenic-impacted soil/fill in the vicinity of TP-1 and TP-5. A supplemental delineation investigation was conducted as part of the RI to determine the lateral extents of the arsenic contamination in those areas. The soil was characterized as non-hazardous based on TCLP analysis. Approximately 385-tons of material was excavated from the TP-1 area and approximately 343-tons of material was excavated from the TP-5 area. Both excavations were completed from the ground surface to approximately four fbgs. Confirmatory samples were collected from both areas, with analytical results below Part 375 Industrial SCOs, with one minor exception. Excavated soil/fill was transported off-site by RE Lorenz for disposal at Modern Landfill in Model City, New York.

DRAFT

- Placement and compaction of approximately 1,115-tons of native silty clay backfill material in the TP-13, TP-16, SS-9, TP-1 and TP-5 excavation areas. Backfill materials consisted of on-Site silty clay soils excavated during factory refurbishment (i.e., new sub-surface material feed hopper), which were analyzed to confirm they met NYSDEC on-Site re-use criteria and were pre-approved by NYSDEC for reuse. Additional material included virgin gravel/stone from LaFarge gravel pit, which was used for approximately 3-4-inches of surface cover over the silty clay backfill in the TP-1, TP-5, and TP-16 areas.

Additional details of the IRM activities are included in Section 4.0.

DRAFT

4.0 DESCRIPTION OF REMEDIAL ACTIONS PERFORMED

The remedial work, which was completed at the Site as an IRM, was conducted in accordance with the NYSDEC-approved RI/AAR/IRM Work Plan for the 3807 Highland Avenue Site (September 2009), as summarized in Sections 2.0 and 3.0, above. Upon completion of the RI/IRM, an AAR was prepared to select the final Site remedy. Based on the AAR, the final selected remedy includes:

- No additional remedial work beyond that which was completed as an IRM;
- Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to contamination remaining at the Site;
- Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) institutional controls, (2) monitoring, and (3) reporting; and,
- Periodic certification of the institutional controls.

Based on the above, the RI/AAR/IRM Work Plan became, in essence, the Remedial Action Work Plan. Any deviations from the RI/AAR/IRM Work Plan are noted below.

4.1 Governing Documents

4.1.1 Site Specific Health & Safety Plan (HASP)

All remedial work performed under this Remedial Action was in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Health and Safety Plan (HASP) was complied with for all remedial and invasive work performed at the Site. The HASP was included as Appendix B of the approved Work Plan.

4.1.2 Quality Assurance Project Plan (QAPP)

The QAPP was prepared as a stand-alone document for the Department-approved RI/AAR/IRM Work Plan. The QAPP describes the specific policies, objectives,

DRAFT

organization, functional activities and quality assurance/ quality control activities designed to achieve the project data quality objectives.

The QAPP was prepared in accordance with USEPA's Requirements for Quality Assurance Project Plans for Environmental Data Operations; the EPA Region II CERCLA Quality Assurance Manual; and NYSDEC's November 2009 draft DER-10 Technical Guidance for Site Investigation and Remediation.

4.1.3 Community Air Monitoring Plan (CAMP)

A Community Air Monitoring Plan (CAMP) that described required particulate and vapor monitoring to protect the neighboring community during intrusive site investigation and remediation activities was included in the approved RI/AAR/IRM Work Plan (September 2009). The CAMP was included as part of the HASP (Appendix B of the Work Plan).

Real-time community air monitoring, using an air monitoring station including a MiniRAE 2000 (PGM 7600) PID and DataRam 4 (Model DR-4000) particulate meter, was performed during intrusive activities. Results of the CAMP monitoring related to remedial activities at the Site are described below.

A generic CAMP was prepared for the Site as a component of the Site Management Plan (March 2010). The generic CAMP details the requirements during intrusive redevelopment activities as defined by the NYSDOH Community Air Monitoring Plan and NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4031- Fugitive Dust Suppression and Particulate Monitoring Program, as detailed in Appendix A of the SMP.

4.1.4 Community Participation Plan (CP)

The NYSDEC has coordinated and led community relations throughout the course of the BCP project. Benchmark has supported the NYSDEC's community relation activities as necessary. A Citizen Participation (CP) Plan was included as Appendix C of the Department-approved RI/AAR/IRM Work Plan (September 2009). The CP Plan followed the NYSDEC's template for BCP sites.

As required for BCP sites, copies of the BCP application, RI/AAR/IRM Work Plan, including the HASP, CP, and QAPP, for the Site were provided to the Niagara Falls Public

DRAFT

Library, Earl W. Brydges Building, 1425 Main Street, Niagara Falls, New York, for public review.

Fact Sheets were prepared and mailed to the Department's approved Citizen Participation distribution list. A summary of the project's fact sheets is presented below. Copies of the fact sheets issued to date are provided in Appendix L.

- November 2008 – Public Notice Brownfield Cleanup Program. NYSDEC accepted comments on the BCP Application until December 29, 2008. No comments were received.
- January 2009 – Report on 3807 Highland Avenue Site Available for Public Comment was available for review and public comment. The public comment period was from January 7, 2009 to February 20, 2009. No public comments were received.
- November 2009 - Environmental Investigation Completed; Cleanup Work Underway at 3807 Highland Avenue (Globe and Solsil) Site in Niagara Falls.
- April 2010 – Environmental Investigation and Cleanup Work Completed at 3807 Highland Avenue (Globe and Solsil) Site in Niagara Falls.

Once the NYSDEC approves the Final Engineering Report, a final Fact Sheet will be prepared and distributed to announce that (1) remedial construction has been completed; and (2) the Certificate of Completion (COC) has been issued.

4.2 Remedial Program Elements

4.2.1 Contractors and Consultants

Benchmark Environmental Engineering and Science, PLLC, in conjunction with TurnKey Environmental Restoration, LLC, served as the Engineer of Record. The following contractors also completed various tasks as noted:

- Test America Laboratories, Inc. performed all analytical analysis related to the RI and IRM activities, including soil, groundwater, sediment, and stack deposit samples;
- Data Validation Services reviewed and validated analytical data packages from Test America Laboratories;
- TREC Environmental, Inc. provided excavation and loading of soil/fill/debris pile;

DRAFT

- Modern Disposal Service (Permit No. 9A-073) transported soil/fill/debris for disposal at Modern Landfill located in Model City, New York;
- RE Lorenz completed remedial excavation and transportation (Permit No. 9A-799) of impacted soil/fill to Modern Landfill in Model City, NY; and on-Site transportation, placement and compaction of backfill material;
- Green Environmental Specialists, Inc. (Permit No. (9A-520) provided services related to: removal of sediments from on-Site catch basins and sumps; collection and packing of historic process materials (i.e. maintenance greases, lubricants, spent paints and solvents, laboratory wastes); removal, inspection and cleaning of ASTs and secondary containment units; collection and disposal of residual product/water from the ASTs; and transportation of collected soil/fill/sediments/tank residuals for off-site disposal at Environmental & Industrial Contracting Services, Inc. (EICS) in Niagara Falls, NY; transportation services for disposal of cleaned ASTs for scrap at Niagara Metals in Niagara Falls, NY; and collection, removal and recycling of eWastes including spent light bulbs utilizing Waste Management's Lamp Tracker® and eScrap Tracker programs;
- Frank's Vacuum Truck Service, Inc. (Permit No. 9A-332) provided transportation services for off-site disposal of three drums from the factory building at CWM Chemical Services, LLC in Model City, New York;
- Price Trucking, Inc. (Permit No. 9A-025) transported spent furnace electrodes off-site for disposal at Waste Management – Chaffee Landfill located in Chaffee, NY;
- Tonawanda Tank Transport Service, Inc. (Permit No. 9A-080) transported lab-packs for disposal at Chemtron Corp. located in Avon, Ohio.
- Morgan Mechanical, Inc. transported two (2) 500-gallon hydraulic oil ASTs to Globe's facility in Beverly, Ohio for reuse. Tanks were inspected and cleaned by Green Environmental Specialists, Inc, as described above, prior to off-site transport.

4.2.2 Site Preparation

A meeting was held on-Site with NYSDEC, Globe/Solsil, and Benchmark personnel prior to commencement of the remedial investigation and cleanup activities.

DRAFT

Prior to intrusive activities, Dig Safe New York was contacted and informed of the intent to perform intrusive sub-grade activities at the Site. Globe/Solsil engineers reviewed the planned investigation locations to "pre-clear" on-Site areas for sub-grade utilities and production-related lines. Utility marker layout was completed prior to initiation of intrusive activities on October 6, 2009.

Documentation of agency approvals required by the RI/AAR/IRM Work Plan is included in Appendix C.

A NYSDEC-approved project sign was erected at the project entrance along Highland Avenue and remained in place during all phases of the remedial activities.

4.2.3 General Site Controls

The entire site is secured by fencing and earthen-berm, with 24-hr. surveillance and security personnel on duty. All visitors are required to sign in at the guard station prior to admittance. Daily exclusion-zones were outlined by the contractor, and a PID was used to screen soil/fill materials for VOCs. All excavation work was observed by an experienced Benchmark Scientist.

Benchmark personnel completed Daily Inspection Reports to keep track of daily activities, on-Site visitors, contractors, and deviation from the work plan, as related to the remedial activities. Copies of the daily reports are presented in Appendix D.

During factory redevelopment, a sub-grade raw-materials hopper was installed. The excavation spoils, were staged on-Site adjacent to College Avenue in existing material storage areas. The material was sampled and analyzed for acceptance as backfill material, per the Department-approved RI/AAR/IRM Work Plan. Due to space limitation in the raw material storage area along College Avenue, the previously excavated material was moved to the woodchip storage area along the eastern property fence-line. Due to the additional handling and potential for intermingling, an additional round of sampling was undertaken to determine continued acceptability of the material for backfill. Based on the analytical results, the excavated material was deemed acceptable and used for backfill in the remedial excavations. On-Site reuse backfill material laboratory analytical results are presented in Appendix H.

Equipment decontamination at the completion of IRM activities consisted of brushing clean all loose debris and soil from equipment. All removed soil and/or debris was

DRAFT

then placed into the dump truck containing the removed impacted soil/fill and handled/disposed in the same manner as that material.

4.2.4 Nuisance controls

Nuisance controls were not required during RI/IRM activities.

4.2.5 CAMP results

All monitoring results conformed to the CAMP perimeter particulate requirement of 100 ug/m^3 and the organic vapor requirement of less than 5 part per million (ppm).

One work stoppage on January 13, 2010 was related to visual observation of dust. Benchmark personnel stopped work during the removal and loading of stack deposits based on visual observations related to strong winds during intrusive work. Copies of all field data sheets relating to the CAMP are provided electronically in Appendix E.

4.2.6 Reporting

Benchmark completed Inspector's Daily Report logs during RI/IRM activities, for November 2009 through March 2010. All daily reports are presented in Appendix D. The photolog of RI/IRM activities is included in Appendix F.

During RI/IRM activities, conference calls were held with Benchmark, Globe/Solsil, NYSDEC, and NYSDOH representatives to discuss the project's progress and planned activities. Conference call minutes are provided in Appendix D.

4.3 Contaminated Materials Removal

Cleanup objectives for the Site included implementation of remedial measures to protect human health and the environment and to mitigate potential short-term impact to Site construction workers and the surrounding community during the remedial construction period to below Part 375 Industrial SCOs. Cleanup tasks employed at the Site to achieve these public health objectives include:

- Implementation of community air monitoring during remedial intrusive activities to monitor and mitigate unacceptable fugitive releases of airborne particulates

DRAFT

(i.e., dust and VOCs) during intrusive activities. Community air monitoring followed New York State Department of Health (NYSDOH) and NYSDEC-approved procedures;

- Removal and cleaning of eight ASTs, including off-site disposal of residual product/water mixture and wash rinsate generated from the ASTs and secondary containment units at permitted waste and metal recycling facilities; one AST was inspected and cleaned by GES for reuse on-Site by Globe/Solsil; two ASTs were transported off-site for reuse at Globe's Ohio facility.
- Removal of abandoned drums and maintenance lubricants followed by off-site disposal at a permitted waste facility;
- Removal of intermixed soil/fill/debris and off-site disposal at a permitted waste management facility;
- Removal of accumulated sediments within selected on-Site sumps and catch basins followed by off-site disposal at a permitted waste management facility;
- Removal of historic production and laboratory chemicals, light ballasts and eWaste, followed by off-site disposal and recycling at a permitted waste disposal facility;
- Excavation of impacted soil/fill followed by off-site disposal at a permitted solid waste disposal facility; and
- Removal of historic stack deposits and off-site disposal at a permitted waste disposal facility.

Table 1 presents a list of the Part 375 Industrial SCOs for the contaminants of concern for this Site. Table 2 shows the total quantities of each category of material removed from the Site and the disposal locations. Figures 3 and 4 present the location of remedial activities performed.

4.3.1 Aboveground Storage Tanks Removal

Remedial activities related to the removal of the eight (8) ASTs began on December 4, 2009. Green Environmental Specialist, Inc (GES) removed three (3) steel 250-gallon ASTs with steel secondary containment from the factory building; two (2) 500-gallon hydraulic oil ASTs (green tanks), one (1) 275-gallon oil AST, one (1) 500-gallon waste oil AST with steel secondary containment, and one (1) 150-gallon

DRAFT

polyethylene tank from the Oil House and adjacent Storage Building. GES vacuumed out residual product/water mixture and collected in drums for off-site disposal.

All ASTs removed from the Site were properly registered as "Close/Remove Tank" with the NYSDEC Petroleum Bulk Storage program. Tanks 009 through 015 were registered closed to Globe's active PBS permit (No. 9-120316). Registration documents are provided in Appendix C.

4.3.1.1 Aboveground Storage Tank Disposal Details

A total of five of the steel ASTs (three 250-gallon ASTs with steel secondary containment from the factory building; and one 275-gallon oil AST, and one 500-gallon waste oil AST with steel secondary containment from the Oil House) were recycled as scrap by GES (Permit No. 9A-520) at Niagara Metal Recycling in Niagara Falls, NY. The one 150-gallon polyethylene tank was disposed of by GES at EICS in Niagara Falls, NY.

The two 500-gallon hydraulic oil ASTs (green tanks) were transported off-site for reuse at Globe's facility in Ohio.

Waste acceptance letters manifests, disposal receipts, and bills of lading are presented in Appendix G.

4.3.2 Drum/Container Removal

Fifty-four (54) drums containing various waste materials and eight (8) empty drums were removed by GES and disposed of off-site. Contents of the drums included: 10-drums of RI well drilling spoils; 13-drums of tank sludge/product/water mixture related to AST cleaning; and 31-drums of spent gear lubricants and grease. An additional two pallets (approximately 1,500-lbs) of spent grease were removed by GES and disposed of off-site.

Five lab-pack drums, identified as LP-01 through LP-05, containing spent laboratory chemicals including Sulfuric Acid, Hydrochloric Acid, Ammonium Hydroxide, Sodium Hydroxide, Caustic detergent and cleaner, ethanolamine, waste paint, adhesive, glycol, and spent laboratory titrate and indicator solutions, were over-packed and transported off-site for disposal by Tonawanda Tank Transport Services, Inc.

DRAFT

Three drums containing spent industrial chemicals including Corrshield MD401 (corrosive basic), Betz Entec 552 (corrosive basic) and PCB containing light ballasts, were transported by Frank's Vacuum Truck Service, Inc. off-site for disposal.

4.3.2.1 Drum/Container Disposal Details

Sixty two (62) drums were collected and transported off-site by GES (Permit No. 9A-520) for disposal at Environmental & Industrial Contracting Services, Inc (EICS) in Niagara Falls, New York.

Five of the steel ASTs (3-250-gallon ASTs with steel secondary containment from the factory building, 1-275-gallon oil AST, and 1-500-gallon waste oil AST with steel secondary containment) were recycled as scrap by GES at Niagara Metal Recycling. The one 150-gallon polyethylene tank was transported by GES for disposal at EICS.

The two 500-gallon hydraulic oil ASTs (green tanks) were transported off-site by Globe for reuse at Globe's facility in Ohio.

The five lab-pack drums (LP-01 through LP-05) were transported off-site for disposal by Tonawanda Tank Transport Services, Inc. (Permit No. 9A-080) to Chemtron Corp. in Avon, Ohio. Land disposal restriction notification and certification forms were completed.

The three drums transported by Frank's Vacuum Truck Service, Inc. (Permit No. 9A-332) were disposed of at CWM Chemical Service in Model City, NY.

Waste acceptance letters, manifests, disposal receipts, and bills of lading are presented in Appendix G.

4.3.3 Soil/Fill/Debris Pile Removal

Remedial activities related to the loading and off-site transportation of the intermingled soil/fill/debris pile located in the eastern portion of the site (see Figure 3) began on November 11, 2009. TREC Environmental, Inc. utilized an excavator to direct-load dump trucks for off-site disposal. Modern Disposal Services provided transportation to Modern Landfill in Model City, NY.

4.3.3.1 Soil/Fill/Debris Pile Disposal Details

Between November 11th and 16th, 2009, approximately 2,731-tons of soil/fill/debris was direct loaded by TREC Environmental, Inc. and transported by

DRAFT

Modern Disposal Services (Permit No. 9A-073) offsite for disposal at Modern Landfill in Model City, NY. Waste Generator and Characterization forms, disposal applications, waste manifests and certificates of disposal are presented in Appendix G.

4.3.4 Sediment Removal

Remedial activities related to the collection and removal of accumulated sediments and debris from on-Site sumps and catch basins was conducted on January 12, 2010 by GES. Catch basins identified as SED-2 and SED-3, located in the western portion of the site, and an interior building sump, identified as Sump-2, and surface trench identified as SS-7, located within the maintenance building (see Figure 4) were vacuumed out by GES.

4.3.4.1 Sediment Disposal Details

Approximately 1.35-tons of collected sediment from SED-2, SED-3, Sump-2, and SS-7 and transported off-site by GES (Permit No. 9A-520) for disposal at EICS in Niagara Falls, NY. Waste acceptance letters, manifests, disposal receipts, and bills of lading are presented in Appendix G.

4.3.5 Light Ballast and eWaste Removal

GES collected and shipped spent factory light bulbs and electronic waste for off-site recycling/disposal utilizing Waste Management's LampTracker® program for light bulbs and eWaste.

4.3.5.1 Light Ballast and Electronic Waste (eWaste) Disposal Details

Approximately 1,150-lbs of electronic wastes were collected and shipped off-site for recycling by GES utilizing Waste Management eScrap Tracker® program. eScrap Tracker containers No. 794936 weighing 315-lbs, No.794935 weighing 403-lbs, and No. 794937 weighing 427-lbs were received by Waste Management on December 17, 2009.

Spent factory light bulbs were shipped off-site by GES utilizing LampTracker container No. 794933 weighing 29-lbs, and LampTracker MercuryTracker™ VaporTracker™ container No. 794934 weighing 5–lbs. was received by Waste Management on December 30, 2009.

Certificates of Recycling are presented in Appendix G.

DRAFT

4.3.6 Chromium Impacted Soil/Fill Removal

Remedial excavation activities related to chromium impacted soil/fill in the vicinity of TP-13 was conducted on January 13, 2010 and TP-16 on January 14, 2010. The extents of the chromium impact in the vicinity of TP-13 and TP-16 was determined by delineation investigation conducted as part of the RI. Impacted soil/fill was excavated and direct loaded in dump trucks for off-site disposal by RE Lorenz.

The extents of the TP-13 excavation are shown on Figure 3. Confirmatory samples were collected and analytical results were below Part 375 Industrial SCOs.

The extents of the TP-16 excavation are shown on Figure 3. Confirmatory samples were collected and analytical results were below Part 375 Industrial SCOs.

4.3.6.1 Chromium Impacted Soil/Fill Disposal Details

Approximately 187-tons of impacted soil/fill were excavated from the TP-13 area and approximately 171-tons of impacted soil/fill were excavated from the TP-16 area. On January 13 and 14, 2010, RE Lorenz (Permit No. 9A-799) excavated approximately 358-tons of impacted soil/fill and transported off-site for disposal at Modern Landfill in Model City, NY.

Waste Generator and Characterization forms, disposal applications, waste manifests and certificates of disposal are presented in Appendix G.

4.3.7 SS-9 Area Surface Soil Removal

Remedial excavation activities related to the SS-9 area surface soil was conducted on January 14, 2010. The extents of the surface soil removed were approximately 36 ft by 24 ft by 0.5 ft deep. Impacted soil/fill was excavated and direct loaded in dump trucks for off-site disposal by RE Lorenz. Confirmatory samples were collected and analytical results were below Part 375 Industrial SCOs.

4.3.7.1 SS-9 Area Surface Soil Disposal Details

Approximately 26-tons of impacted soil/fill were excavated from the SS-9 area and transported off-site by RE Lorenz (Permit No. 9A-799) for disposal at Modern Landfill in Model City, NY.

Waste Generator and Characterization forms, disposal applications, waste manifests and certificates of disposal are presented in Appendix G.

DRAFT

4.3.8 Arsenic Impacted Soil/Fill Removal

Remedial excavation activities related to arsenic impacted soil/fill in the vicinity of TP-1 began January 27, 2010. Clean overburden was removed and stockpiled on plastic sheeting for reuse as backfill. RE Lorenz excavated impacted soil/fill in the TP-1 area and staged excavated material on plastic sheeting. The extents of the TP-1 excavation area are presented on Figure 3. On January 29, 2010 and February 1, 2010 RE Lorenz loaded TP-1 excavation spoils into dump trucks and transported off-Site for disposal.

Remedial excavation activities related to impacted soil/fill in the TP-5 area began on February 1, 2010. RE Lorenz excavated and transported the material for off-site disposal. The extents of the irregular shaped excavation are shown on Figure 3. Confirmatory samples were collected and analytical results were below Part 375 Industrial SCOs with one minor exception as noted in Table 3.

4.3.8.1 Arsenic Impacted Soil/Fill Disposal Details

Approximately 385-tons of arsenic impacted soil/fill were excavated from the TP-1 area and approximately 343-tons of impacted soil/fill were excavated from the TP-5 area. Between January 29, 2010 and February 2, 2010, RE Lorenz (Permit No. 9A-799) excavated approximately 728-tons of impacted soil/fill and transported off-site for disposal at Modern Landfill in Model City, NY.

Waste Generator and Characterization forms, disposal applications, waste manifests and certificates of disposal are presented in Appendix G.

4.3.9 Stack Deposits Removal

Remedial activities related to the removal of stack deposit from the western stack began on January 11, 2010. Stack deposits were removed and temporarily staged on plastic sheeting, prior to be loaded and transported off-site for disposal by RE Lorenz. Any removed and collected stack deposit stockpiled on-Site were placed on and covered with plastic sheeting to prevent particle suspension related to wind.

4.3.9.1 Stack Deposits Disposal Details

Between January 11th and 29th, 2010, approximately 250-tons of stack deposits were removed from the western stack, loaded and transported by RE Lorenz (Permit No. 9A-799) for off-site disposal at Modern Landfill in Model City, NY.

DRAFT

Waste characterization, application, acceptance letters, manifests, disposal receipts, and bills of lading are presented in Appendix G.

4.3.10 Spent Electrode Removal

Remedial activities related to the removal of three spent furnace electrodes were conducted on March 5th and March 12th, 2010. Price Trucking transported the electrodes for off-site disposal.

4.3.10.1 Spent Electrode Disposal Details

On March 5, 2010, Price Trucking (Permit No. 9A-025) transported one spent electrode, weighing approximately 5-tons off-site for disposal at Waste Management's Chaffee Landfill, located in Chaffee NY.

On March 12, 2010, Price Trucking (Permit No. 9A-025) transported two spent electrodes, weighing approximately 11-tons off-site for disposal at Waste Management's Chaffee Landfill, located in Chaffee NY.

Waste characterization, application, acceptance letters, manifests, and bills of lading are presented in Appendix G.

4.4 Remedial Performance/Documentation Sampling

Benchmark personnel collected a total of 24 excavation end-point (e.g., delineation investigation and post-excavation) confirmatory samples. The number of end-point samples collected from each remedial excavation area included: six (6) from the TP-5 excavation area, five (5) each from the TP-1, TP-13, and TP-16 excavation areas, respectively, and three (3) from the SS-9 excavation area. As summarized on Table 3, all remedial excavation end-point soil/fill sample results were below 6NYCRR Part 375 Industrial SCOs, with one minor exception noted in Table 3. Approximate locations of the end-point sample locations are shown on Figure 3.

All samples were collected and analyzed in accordance with USEPA SW-846 methodology with equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment. Appendix H includes a copy of the laboratory analytical data package. The Data Usability Summary Report (DUSR), completed by Data Validation Services (see Appendix I), indicates that the analytical results for the samples are

DRAFT

usable as reported, or usable with minor qualification due to sample matrix or to processing outliers.

4.5 Imported Material

Virgin-source 2-inch crushed stone was imported from LaFarge's quarry in Lockport, NY during factory refurbishment for non-remedial site work (i.e. grading). Approximately 100-tons of the 2" crushed stone was spread as a top-coat over the remedial excavations in the vicinity of TP-1, TP-5, and TP-16. Compaction and screen sieve testing data from LaFarge are provided in Appendix J.

4.6 Contamination Remaining at the Site

The 3807 Highland Avenue Site was remediated to Industrial SCOs. The achieved cleanup objectives are consistent with the intended industrial use of the site. Residual contamination remaining at the Site above unrestricted SCOs includes certain VOCs, SVOCs, PCBs and Metals (see Tables 4a through 4d). Constituents above unrestricted SCOs are located site-wide, with the majority in areas of the Site covered by buildings, asphalt, concrete pavement and compacted gravel. A portion of the site in the northeast is not covered by an impermeable surface, however, that area is covered with vegetation and segregated from the rest of the Site and adjacent properties by a chain-link fence and an approximate 5 to 7-foot high earthen berm. Another portion of the northeast area is utilized for the storage of raw materials (i.e. wood chips), and large piles of wood chip cover the ground surface, thereby limiting access to that area.

Since there are some constituents of concern remaining in soil/fill above unrestricted SCOs after completion of the Remedial Action, Institutional Controls are required to protect human health and the environment. These Institutional Controls (ICs) are described below. Long-term management of the ICs and residual contamination will be performed under the Site Management Plan (SMP) approved by the NYSDEC.

4.7 Institutional Controls

The site remedy requires that an environmental easement be placed on the property to: (1) prevent future exposure to remaining contamination by controlling disturbances of

DRAFT

the subsurface contamination; and, (2) limit the use and development of the Site to Industrial Use.

The NYSDEC-approved environmental easement for the site was executed by Globe on DATE, 2010, and filed with the Niagara County Clerk on DATE, 2010. The Niagara County Recording Identifier number for this filing is Control No. NUMBER. A copy of the easement and proof of filing is provided in Appendix K.

4.8 Deviations from the Remedial Action Work Plan

The following deviations from the Department-approved RI/AAR/IRM Work Plan (September 2009) included:

- A total of 13 monitoring wells were proposed across the BCP Site. A total of six monitoring wells were successfully installed, identified as MW-1, MW-2, MW-3S, MW-3D, MW-4, and MW-5. Nineteen (19) total well borings were advanced to investigate potential for groundwater monitoring well placement within the overburden, however based on the shallow bedrock encountered during the RI, installation of the proposed monitoring wells in the northeast portion of the site was deemed unnecessary as soil borings in that area did not encounter evidence of groundwater;
- Several proposed RI test-pit location were modified to soil boring location due to on-Site obstructions (i.e. roadways, pavement cover, equipment accessibility, and proximity to subsurface utilities). Modified locations included SB-4, SB-6, SB-7, SB-8, SB-9, SB-10, SB-11, SB-15, SB-18, SB-21, SB-22, and SB-23.

All deviations from the work plan were discussed with and pre-approved by the Department.

DRAFT

5.0 REFERENCES

1. Benchmark Environmental Engineering and Science, PLLC. Site Management Plan, *3807 Highland Avenue Site, Niagara Falls, New York. BCP Site No. 932145.* March 2010

2. Benchmark Environmental Engineering and Science, PLLC. *Remedial Investigation/Alternative Analysis Report/Interim Remedial Measures Report, 3807 Highland Avenue Site, Niagara Falls, New York. BCP Site No. 932145.* March 2010

3. Benchmark Environmental Engineering and Science, PLLC. *Remedial Investigation/Alternative Analysis Report/Interim Remedial Measures Work Plan, 3807 Highland Avenue Site, Niagara Falls, New York. BCP Site No. 932145.* December 2008, revised September 2009

4. Benchmark Environmental Engineering and Science, PLLC. *Quality Assurance Project Plan for Remedial Investigation / Alternatives Analysis Report Work Plan, 3807 Highland Avenue Site, Niagara Falls, New York.* December. 2008

5. Benchmark Environmental Engineering and Science, PLLC. *Phase I Environmental Site Assessment Report, 3807 Highland Avenue Site, Niagara Falls, New York.* September 2008

6. Benchmark Environmental Engineering and Science, PLLC. *Preliminary Site Investigation, Globe Metallurgical and Solsil, Inc. Site, 3807 Highland Avenue, Niagara Falls, New York.* September 2008.

7. Benchmark Environmental Engineering and Science, PLLC. *Supplemental Site Investigation, Globe Metallurgical Site, 3807 Highland Avenue, Niagara Falls, New York.* March 2009.

8. New York State Department of Environmental Conservation. *Draft DER-10; Technical Guidance for Site Investigation and Remediation.* December 2009.

DRAFT

TABLES

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 1

Industrial SCOs for Remaiing On-Site COPCs

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER	Industrial SCOs[1]
Volatile Organic Compounds (VOCs) - mg/Kg	
1,2,4-Trimethylbenzene	380
2-Butanone (MEK)	1000
Acetone	1000
Benzene	89
Carbon disulfide	--
Cyclohexane	--
Ethylbenzene	780
Isopropylbenzene (Cumene)	--
Methylene chloride	1000
n-Propylbenzene	1000
p-Cymene (p-isopropyltoluene)	--
sec-Butylbenzene	1000
Toluene	1000
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg	
2-Methylnaphthalene	--
Acenaphthene	1000
Acenaphthylene	1000
Anthracene	1000
Benzo(a)anthracene	11
Benzo(a)pyrene	1.1
Benzo(b)fluoranthene	11
Benzo(ghi)perylene	1000
Benzo(k)fluoranthene	110
Biphenyl	--
Carbazole	--
Chrysene	110
Dibenzo(a,h)anthracene	1.1
Dibenzofuran	1000
Fluoranthene	1000
Fluorene	1000
Indeno(1,2,3-cd)pyrene	11
Naphthalene	1000
Phenanthrene	1000
Pyrene	1000
PCBs - mg/Kg	
Aroclor 1242	25
Aroclor 1254	25
Aroclor 1260	25
Pesticides/Herbicides - mg/Kg	
Alpha BHC	6.8
Delta BHC	1000
Endrin	410
Gamma BHC	--
Methoxychlor	--
Total Metals - mg/Kg	
Aluminum	--
Arsenic	16
Barium	10000
Beryllium	2700
Cadmium	60
Calcium	--
Chromium	6800
Chromium (Hexavalent)	800
Cobalt	--
Copper	10000
Iron	--
Lead	3900
Magnesium	--
Manganese	10000
Nickel	10000
Potassium	--
Silver	6800
Sodium	--
Thallium	--
Vanadium	--
Zinc	10000
Mercury	5.7

Notes:

1. Values per NYSDEC 6 NYCRR Part 375 6.8(b): Restricted Use Soil Cleanup Objectives

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 2

SUMMARY OF MATERIALS RECYCLED/DISPOSED OFF-SITE

3807 Highland Avenue Site

Niagara Falls, New York

Material / Item	Quantity	Units	Responsible Company	Disposal Location
Soil (Well drilling spoils)	10	drum	Green Environmental Specialists, Inc.	Environmental & Industrial Contracting Services, Inc. (EICS)
Steel ASTs (recyceld for scrap)	5	tank	Green Environmental Specialists, Inc.	EICS / Niagara Metal Recycling
Steel ASTs (hydraulic tanks)	2	tank	Green Environmental Specialists, Inc.	Transported to Globe Ohio facility for re-use
Poly AST (150-gal)	1	tank	Green Environmental Specialists, Inc.	Environmental & Industrial Contracting Services, Inc. (EICS)
Waste Grease (pallets)	1500	lbs	Green Environmental Specialists, Inc.	Environmental & Industrial Contracting Services, Inc. (EICS)
Waste Lubiricants (gear lube, various lubricating oils, grease, oily debris)	54	drum	Green Environmental Specialists, Inc.	Environmental & Industrial Contracting Services, Inc. (EICS)
Former Production Chemicals and Light Ballast (PCBs, Potassium Hydroxide, Sodium Hydroxide)	3	drum	Frank's Vacuum Truck Service, Inc.	CWM Chemical Services
Former Laboratory Wastes - Lab Packs 1-5 (Waste Acids, Bases, Paints)	452	lbs	Tonawanda Tank Transport Service, Inc	Chemtron Corp
eWaste (computers, light bulbs) - (recycled) (Lamp Tracker)	1184	lbs	Green Environmental Specialists, Inc.	Waste Management
Chromium Impacted Soil/Fill (TP-13 & TP-16 Areas)	358	ton	RE Lorenz	Modern Landfill
Arsenic Impacted Soil/Fill (TP-1 & TP-5 Areas)	728	ton	RE Lorenz	Modern Landfill
Stack Deposits (W-Stack)	250	ton	RE Lorenz	Modern Landfill
Spent Electrode Area Soil/Fill (SS-9)	26	ton	RE Lorenz	Modern Landfill
Spent Electrodes	16	ton	Green Environmental Specialists, Inc. / Price Trucking	Chaffee Landfill
Intermingled Soil/Fill and Debris Pile	2,731	ton	TREC Environmental / Modern Transportation	Modern Landfill
On-Site sumps/catchbasins	1.35	ton	Green Environmental Specialists, Inc.	Environmental & Industrial Contracting Services, Inc. (EICS)

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 3

Summary of Excavation End-Point Subsurface Soil Analytical Data

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Industrial SCOs[2]	TP-13 (3)	TP-13N2 (0-2)	TP-13E (0-2)	TP-13S (0-2)	TP-13W (0-2)	TP-16 (1.5)	TP-16N2 (0-1)	TP-16S (0-1)	TP-16W (0-1)	TP-16E (0-1)	TP/SS-1 (3)	TP/SS-1 (5)	TP/SS-1 (10)	TP/SS-1 (F-1)	TP/SS-1 (F-2)	TP/SS-5 (3)	TP/SS-5 (4)	TP/SS-5 (7)	TP/SS-5 (8)	TP/SS-5 (F-1)	TP/SS-5 (F-2)	SS-9 (W)	SS-9 (E)	SS-9 (S)
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																									
Acenaphthene	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.37 D,J	ND
Anthracene	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.52 D,J	ND
Benzo(a)anthracene	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3 D,J	1.6 D,J	0.32 D,J
Benzo(a)pyrene	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.29 D,J	1.1 D,J	ND
Benzo(b)fluoranthene	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.34 D,J	1.6 D,J	0.43 D,J
Benzo(ghi)perylene	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.28 D,J	0.83 D,J	0.29 D,J
Benzo(k)fluoranthene	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.22 D,J	0.84 D,J	ND
Chrysene	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.41 D,J	2 D,J	0.37 D,J
Fluoranthene	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.58 D,J	4.2 D,J	0.56 D,J
Indeno(1,2,3-cd)pyrene	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.62 D,J	ND
Phenanthrene	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.37 D,J	1.9 D,J	0.36 D,J
Pyrene	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.55 D,J	3.3 D,J	0.46 D,J
Total Metals - mg/Kg																									
Arsenic	16	NA	NA	NA	NA	NA	4.4 J	NA	9.2 J	9.8 J	9.4 J	7.7	2.1	11.6	ND	3.9	10.6	10.8	10.4	20	2.7	ND	NA	NA	NA
Chromium	6800	20.6 J	3450	174 J	241 J	3670 J	23.1 J	609	1190 J	462 J	527 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	10000	NA	NA	NA	NA	NA	28.1 J	NA	1100 J	2460 J	800 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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 6NYCRR Part 375 Soil Cleanup Objectives

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
J = Estimated value; result is less than the sample quantitation limit but greater than zero.
D = Compounds were identified in an analyisis at the secondary dilution factor.

= Result exceeds 6NYCRR Part 375 Industrial SCO.

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 4a

Remaining On-Site Surface Soil Above Unrestricted SCOs

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	Historic Data			*Remedial Investigation Data (October 2009)*											
		SS-2	SS-3	SS-8	SS-2	SS-3	SS-4	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14
		Aug 08	Aug 08	Jan 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09
Semi-Volatile Organic Compounds (SVOCs) (mg/kg)																
2-Methylnaphthalene	--	NA	ND	0.07 D,J	ND	0.13 D,J	ND	0.31 D,J	0.13 D,J	0.15 D,J	ND	1.5 D,J	0.98 D,J	2.6 D,J	5.6 D,J	ND
Acenaphthene	20	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	100	NA	ND	ND	ND	ND	ND	0.6 D,J	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	100	NA	ND	0.06 D,J	ND	ND	ND	0.26 D,J	0.079 D,J	0.096 D,J	ND	ND	ND	ND	ND	0.2 D,J
Benzo(a)anthracene	1	NA	1 J	0.17 D,J	0.21 D,J,B	0.3 D,J,B	0.61 D,J,B	1.7 D,J	0.39 D,J	0.37 D,J	0.62 D,J	0.96 D,J	0.77 D,J	0.66 D,J	0.78 D,J	1.1 D,J
Benzo(a)pyrene	1	NA	ND	0.37 D,J	0.22 D,J,B	0.28 D,J,B	0.46 D,J,B	3.5 D,J	0.29 D,J	0.38 D,J	0.52 D,J	0.96 D,J	ND	0.57 D,J	0.51 D,J	1.4 D,J
Benzo(b)fluoranthene	1	NA	ND	0.24 D,J	0.41 D,J,B	0.52 D,J,B	0.77 D,J,B	5.7 D	0.51 D,J	0.62 D,J	0.84 D,J	1.3 D,J	0.66 D,J	0.86 D,J	0.64 D,J	1.5 D,J
Benzo(ghi)perylene	100	NA	ND	0.17 D,J	0.22 D,J	0.33 D,J	0.45 D,J	3.7 D,J	0.31 D,J	0.42 D,J	0.53 D,J	0.86 D,J	ND	0.47 D,J	ND	1.1 D,J
Benzo(k)fluoranthene	0.8	NA	ND	0.08 D,J	0.092 D,J,B	0.14 D,J,B	0.34 D,J,B	2 D,J	0.21 D,J	0.21 D,J	ND	0.73 D,J	ND	0.45 D,J	ND	0.57 D,J
Butyl benzyl phthalate	--	NA	ND	ND	ND	ND	ND	ND	ND	0.98 D,J	ND	ND	ND	ND	ND	ND
Chrysene	1	NA	1.3 J	0.22 D,J	0.33 D,J,B	0.35 D,J,B	0.66 D,J,B	3 D,J	0.41 D,J	0.48 D,J	0.55 D,J	1.2 D,J	0.44 D,J	0.94 D,J	0.78 D,J	1.2 D,J
Dibenzo(a,h)anthracene	0.33	NA	ND	0.31 D,J	ND	ND	ND	1.1 D,J	ND	0.11 D,J	ND	ND	ND	ND	ND	0.28 D,J
Dibenzofuran	--	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.53 D,J	1.1 D,J	ND
Fluoranthene	100	NA	2 J	0.44 D,J	0.33 D,J,B	0.48 D,J,B	0.59 D,J,B	0.81 D,J	0.65 D,J	0.65 D,J	1.1 D,J	1.7 D,J	0.77 D,J	1.4 D,J	1.2 D,J	1.8 D,J
Fluorene	30	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	NA	ND	0.12 D,J	0.18 D,J,B	0.25 D,J,B	0.37 D,J,B	3.1 D,J	0.26 D,J	0.33 D,J	0.4 D,J	0.65 D,J	ND	0.38 D,J	ND	0.9 D,J
Naphthalene	12	NA	ND	0.09 D,J	ND	ND		0.2 D,J	ND	ND	ND	0.94 D,J	ND	1.7 D,J	3.5 D,J	ND
Phenanthrene	100	NA	ND	0.27 D,J	0.2 D,J,B	0.25 D,J,B	0.37 D,J,B	0.31 D,J	0.51 D,J	0.58 D,J	0.59 D,J	1.1 D,J	0.66 D,J	1.5 D,J	2.6 D,J	1 D,J
Pyrene	100	NA	1.2 J	0.32 D,J	0.28 D,J,B	0.38 D,J,B	0.53 D,J,B	0.77 D,J	0.53 D,J	0.54 D,J	0.86 D,J	1.5 D,J	0.81 D,J	1.3 D,J	0.98 D,J	1.6 D,J
Total PCBs (mg/kg)																
Aroclor 1242	0.1	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	0.1	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	0.1	NA	NA	NA	0.0075 J	0.014 J	0.028	0.012 C, J	0.0086 C, J	0.026 C	0.0061 C, J	0.011 C, J	0.026 C	0.011 C, J	0.006 C, J	ND
Aroclor 1260	0.1	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND J	ND J	ND J	ND J	ND J
Total Metals (mg/kg)																
Aluminum - Total	--	ND	ND	3590	1230	2280	4350	2760	973	871	4350 J	2340	1720	822	1040	13300
Antimony - Total	--	ND	ND	0.662 J	ND J	ND J	ND J	ND J	ND J	ND J	ND J	ND	ND	ND	ND	ND
Arsenic - Total	13	ND	5.4	3.02	7.1 J	4.2 J	8.9 J	14.5 J	3.5 J	ND	2.2 J	5.2	6.6	3.1	12.2	8.6
Barium - Total	350	88.7	99.5	47.5	22.2 J	55 J	62 J	86.7 J	45.4 J	31.7 J	29.2 J	58.6	35.2	33.5	306	133
Beryllium - Total	7.2	ND	ND	1.28	0.234	0.259	0.394	0.503	0.261	0.648	ND	0.342	0.42	0.344	0.647	0.726
Cadmium - Total	2.5	0.8	3.5	1.57	0.62	0.553	0.837	0.588	0.381	ND	ND	0.765	0.482	0.374	ND	0.87
Calcium - Total	--	ND	ND	19100	37500	89400 D	48200	53600	85400 D	13100	41300 J	59600	45300	64500	16000	19000
Chromium - Total	30	17.1	216	65.5	88.1	62.5	590	61.1	20.4	23.2	109	50.8	66.6	22.6	12.4	58
Cobalt - Total	--	ND	ND	4.35	3.73 J	4.3 J	15.4 J	5.49 J	1.96 J	2.19 J	3.78 J	4.6 J	5.66 J	2.8 J	2.66 J	11.3 J
Copper - Total	50	ND	ND	112	29.7	35.5	171	99.6	27.4	26.2	14.5	42.9	62.6	30.3	15.4	58.1
Iron - Total	--	ND	ND	30000	10700	8520	51800	13700	10700	6220	4080	14000	22000	7940	6350	21700
Lead - Total	63	47.7	255	78.1	39	49.7	56.6	41.2	26.8	25.4	19.9	42.5	28.7	23.4	13.6	149
Magnesium - Total	--	ND	ND	3340	18300	36900	16700	22900	45200	5160	29500	32600	23300	34000	7390	9350
Manganese - Total	1600	ND	ND	321	532 B	1910 B	1780 B	2420 D	500	177	558 J	1820	2870 D	765	213	1190
Mercury - Total	0.18	1.2	0.083	0.0147 J	ND	ND	0.056	ND	ND	ND	ND	ND	ND	ND	ND	0.264
Nickel - Total	30	ND	ND	60.8	85.4	33.1	424	64.5	19.9	26	ND	35.2	52.5	22.9	13.4	51.3
Potassium - Total	--	ND	ND	636	467	585	536	387	338	198	273 J	298	239	204	210	1730
Selenium - Total	3.9	ND	ND	0.64 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver - Total	2	ND	ND	0.194 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium - Total	--	ND	ND	419	ND	ND	175	240	878	289	ND	ND	ND	ND	ND	ND
Vanadium - Total	--	ND	ND	6.12	4.57 J	6.8 J	18.4 J	9.6 J	3.7 J	3.52 J	5.08 J	6.85 J	6.03 J	4.64 J	4.85 J	28.5 J
Zinc - Total	109	ND	ND	3560 D	1670 D	182	571	339	3150 D	4470 D	75.2	225	278	189	168	353

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 4a

Remaining On-Site Surface Soil Above Unrestricted SCOs

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	Remedial Investigation Data (October 2009)												
		SS-15	SS-16	SS-17	SS-18	SS-20	SS-21	SS-22	SS-23	SS-24	SS-25	SS-26	SS-27	SS-28
		Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09
Semi-Volatile Organic Compounds (SVOCs) (mg/kg)														
2-Methylnaphthalene	--	ND	ND	ND	ND	ND	ND	0.18 D,J	0.21 D,J	ND	ND	ND	ND	0.77 D,J
Acenaphthene	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.26 D,J
Benzo(a)anthracene	1	ND	0.42 D,J	ND	0.16 D,J	0.28 D,J	ND	0.31 D,J	0.32 D,J	0.32 D,J	0.73 D,J	0.4 D,J	0.38 D,J	0.67 D,J
Benzo(a)pyrene	1	ND	ND	ND	0.19 D,J	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1	ND	0.66 D,J	ND	0.27 D,J	ND	ND	0.4 D,J	0.4 D,J	0.42 D,J	0.73 D,J	0.29 D,J	0.53 D,J	ND
Benzo(ghi)perylene	100	ND	ND	ND	0.15 D,J	ND	ND	0.28 D,J	ND	ND	ND	ND	ND	0.53 D,J
Benzo(k)fluoranthene	0.8	ND	ND	ND	0.096 D,J	ND	ND	ND	ND	ND	0.51 D,J	ND	ND	ND
Butyl benzyl phthalate	--	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND
Chrysene	1	ND	0.44 D,J	ND	0.17 D,J	0.24 D,J	ND	0.28 D,J	0.3 D,J	0.26 D,J	0.6 D,J	0.26 D,J	0.38 D,J	0.75 D,J
Dibenzo(a,h)anthracene	0.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	ND	0.59 D,J	ND	0.21 D,J	0.5 D,J	ND	0.37 D,J	0.5 D,J	0.42 D,J	0.91 D,J	0.44 D,J	0.54 D,J	1.2 D,J
Fluorene	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.22 D,J
Indeno(1,2,3-cd)pyrene	0.5	ND	0.22 D,J	ND	0.12 D,J	ND	ND	ND	ND	ND	0.37 D,J	ND	ND	0.33 D,J
Naphthalene	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.58 D,J
Phenanthrene	100	ND	ND	ND	0.11 D,J	ND	ND	ND	0.45 D,J	0.23 D,J	0.68 D,J	0.23 D,J	0.38 D,J	1.3 D,J
Pyrene	100	2.6 D,J,	0.5 D,J	ND	0.18 D,J	0.39 D,J	ND	0.31 D,J	0.38 D,J	0.46 D,J	0.83 D,J	ND	ND	1.1 D,J
Total PCBs (mg/kg)														
Aroclor 1242	0.1	ND	ND	ND	ND	ND	ND	ND	0.0044 C, J	ND	ND	ND	0.0069 C, J	ND
Aroclor 1248	0.1	0.12 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	0.1	ND	ND	ND	ND	0.013 J	0.025 J	0.083 J	0.014 C, J	0.017 C, J	0.026 C	0.013 C, J	0.024 C, J	0.014 C, J
Aroclor 1260	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Metals (mg/kg)														
Aluminum - Total	--	2290	1460	1600	2150	869	1630	1830	7760	13300	8360	11300	6230	3020
Antimony - Total	--	ND	ND	ND	ND	30.8	ND	ND	ND J	ND J	ND J	ND J	ND J	ND J
Arsenic - Total	13	7.1	3.2	3.9	ND	ND	8.2	8.5	4.7	5.3	12.3	4.5	4	6.7
Barium - Total	350	65.9	24.2	123	34.2	42.4	83.2	120	109	121	108	150	224	61.6
Beryllium - Total	7.2	ND	ND	ND	0.54	ND	0.322	1.18	0.471	0.633	0.56	0.705	0.505	0.433
Cadmium - Total	2.5	4.95	0.474	1.22	0.347	0.975	1.06	1.24	0.28	0.735	1.38	0.442	3.21	1.98
Calcium - Total	--	58300	12400	71100 D	4320	12700	87000 D	87300 D	4710	12400	15500	32400	109000 D	55300
Chromium - Total	30	237	52.2	107	13.9	1390	190	234	85.8 J	34 J	234 J	55 J	83.1 J	149 J
Cobalt - Total	--	5.95	3.39	4.96	1.09	226	7.29	12.4	9.4 J	11.5 J	16.8 J	11.2 J	6.28 J	7.22 J
Copper - Total	50	140 J	91.5 J	33 J	9.9 J	110 J	130 J	129 J	30.8 J	37.7 J	155 J	27.4 J	27.2 J	92.5 J
Iron - Total	--	41100	21700	13800	1780	24700	27400	41900	20900	21400	7220	20300	13600	23800
Lead - Total	63	75.7	49.9	126	6.2	32.5	197	172	18.9	46.2	364	78.4	116	94.4
Magnesium - Total	--	36300 J	20200 J	24900 J	785 J	6140 J	14600 J	46000 J	12700	7660	9700	18600	61600 D	21200
Manganese - Total	1600	966	498	965 J	44.7	626	1040	886	1260	779	1190	636	525	730
Mercury - Total	0.18	0.0399	ND	ND	ND	ND	0.117 J	ND	ND	0.0763	0.071	0.0441	0.0952	0.0595
Nickel - Total	30	171	54.3	57.3	15.8	2440	133	143	39.5 J	32.6 J	175 J	49.9 J	46.2 J	73.3 J
Potassium - Total	--	670	175	477	64.1	629	294	635	1360	2070	2120	2010	1300	650
Selenium - Total	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver - Total	2	ND	ND	ND	0.99	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium - Total	--	265	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	186	196
Vanadium - Total	--	7.54 J	3.55 J	11.5 J	1.69 J	28.4 J	7.86 J	9.94 J	17.6 J	27.1 J	26.3 J	26.9 J	20 J	15.1 J
Zinc - Total	109	3500 D	108	538	175	118	594	542	102	275	410	132	1720 D	763

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)

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
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.
C = Calibration verification recovery was below the method control limit.
D = Compounds were identified in an analyisis at the secondary dilution factor.
I = Internal standard recovery was outside of method limits.

= Result exceeds 6NYCRR Part 375 Unrestricted SCOs.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 4b

Remaining On-Site Subsurface Soil Above Unrestricted SCOs

Historic Soil Boring Samples

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	SB-2 (4-8)	SB-3 (0-3)	SB-6 (10-14)	SB-8 (0-4)	SB-10 (4-7)	SB-11 (8-10)
		Aug 08	Aug 08	Aug 08	Aug 08	Aug 08	Aug 08
Volatile Organic Compounds (VOCs) - mg/Kg							
1,2,4-Trimethylbenzene	3.6	0.004 J	ND	ND	NA	ND	ND
1,3,5-Trimethylbenzene	8.4	0.003 J	ND	ND	NA	ND	ND
2-Butanone (MEK)	0.12	ND	0.016 J	ND	NA	ND	ND
Acetone	0.05	0.02	0.16	0.02	NA	ND	ND
Carbon disulfide	--	0.003 J	0.004 J	0.003 J	NA	0.002	0.002 J
Isopropylbenzene (Cumene)	--	ND	ND	0.001 J	NA	ND	ND
Methylcyclohexane	--	ND	ND	0.003 J	NA	ND	ND
Methylene chloride	0.05	0.015 B	0.008 B	0.014 B	NA	0.014 B	0.012 B
n-Butylbenzene	12	ND	ND	0.008	NA	ND	ND
n-Propylbenzene	3.9	ND	ND	0.003 J	NA	ND	ND
p-Cymene (p-isopropyltoluene)	--	ND	ND	0.001 J	NA	ND	ND
sec-Butylbenzene	11	ND	ND	0.004 J	NA	ND	ND
Toluene	0.7	ND	ND	ND	NA	ND	ND
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg							
2-Methylnaphthalene	--	ND	0.22 J	0.27 J	ND	ND	ND
Acenaphthene	20	ND	0.55 J	0.14 J	ND	ND	0.11 J
Acenaphthylene	100	ND	0.18 J	0.082 J	ND	ND	ND
Anthracene	100	ND	0.55 J	0.13 J	ND	0.11 J	0.16 J
Benzo(a)anthracene	1	0.009 J	1.4	ND	ND	0.35 J	0.56 J
Benzo(a)pyrene	1	ND	2.1	ND	ND	0.38 J	0.6 J
Benzo(b)fluoranthene	1	0.008 J	2.3	ND	ND	0.5 J	0.82 J
Benzo(ghi)perylene	100	ND	1.6	ND	ND	0.21	0.31 J
Benzo(k)fluoranthene	0.8	0.021 J	0.72 J	ND	ND	0.21 J	0.29 J
Chrysene	1	0.02 B,J	1.5 B	0.13 B,J	0.03 B,J	0.44 B,J	0.71 B,J
Dibenzo(a,h)anthracene	0.33	ND	0.35 J	ND	ND	0.073 J	0.011 J
Fluoranthene	100	0.013 J	2.8	0.048 J	0.009 J	0.5 J	1.1
Fluorene	30	ND	0.39 J	0.3 J	ND	0.043 J	0.064 J
Indeno(1,2,3-cd)pyrene	0.5	ND	1.4	ND	ND	0.22 J	0.27 J
Naphthalene	12	ND	0.33 J	ND	ND	0.04 J	0.072 J
Phenanthrene	100	0.02 B,J	2.1 B	0.68 B,J	0.02 B,J	0.33 B,J	0.74 B,J
Pyrene	100	0.011 J	2.6	0.085 J	ND	0.4 J	0.84 J
PCBs - mg/Kg							
Aroclor 1254	0.1	ND	ND	ND	ND	ND	ND
Aroclor 1260	0.1	ND	0.84	ND	ND	ND	ND
Total Metals - mg/Kg							
Arsenic	13	6.8	11.9	2.4	4.5	10.5	11.2
Barium	350	290	77.6	22	174	94	111
Cadmium	2.5	0.86	1.2	1.8	0.29	1.3	1.5
Chromium	30	692	105	15.6	30.2	310	483
Lead	63	212	74.6	177	10.9	409	508
Mercury	0.18	0.095	ND	0.048	ND	0.036	0.071

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)

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
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.
= Result exceed 6NYCRR Part 375 Unrestricted SCOs.

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 4c

Remaining On-Site Subsurface Soil Above Unrestricted SCOs

Remedial Investigation Soil Boring Samples

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	Remedial Investigation - Sample Locations																				
		SB-1 (2-4)	SB-4 (2-4)	SB-6 (2-4)	SB-7 (3-5)	SB-8 (0-2)	SB-11 (0-2)	SB-12 (0-2)	SB-13 (0-2)	SB-15 (0-2)	SB-17 (0-2)	SB-18 (2-4)	SB-20 (0-2)	SB-21 (12-14)	SB-22 (4-6)	SB-23 (8-12)	SB-24 (4-6)	SB-25 (1-3)	SB-27 (1-3)	SB-29 (4-6)	SB-30 (0-4)	TP/SS-5 (5)
		Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Jan 10
Volatile Organic Compounds (VOCs) - mg/Kg																						
1,2,4-Trimethylbenzene	3.6	NA	NA	ND	NA	0.11	0.0066	ND	ND	NA	NA	ND	NA	0.0041 J	NA	0.002 J	ND	NA	NA	ND	ND	NA
1,3,5-Trimethylbenzene	8.4	NA	NA	ND	NA	0.031	ND	ND	ND	NA	NA	ND	NA	ND	NA	ND	ND	NA	NA	ND	ND	NA
1,4-Dichlorobenzene	1.8	NA	NA	ND	NA	ND	ND	ND	ND	NA	NA	ND	NA	ND	NA	ND	ND	NA	NA	ND	ND	NA
2-Butanone (MEK)	0.12	NA	NA	0.0094 J	NA	ND	ND	ND	ND	NA	NA	0.044	NA	ND	NA	0.011 J	0.012 J	NA	NA	ND	ND	NA
Acetone	0.05	NA	NA	0.073	NA	0.035	0.033	0.04	0.0068 J	NA	NA	0.21	NA	0.016 J	NA	0.054	0.081	NA	NA	0.016 J	0.007 J	NA
Benzene	0.06	NA	NA	ND	NA	ND	ND	ND	ND	NA	NA	ND	NA	ND	NA	ND	ND	NA	NA	ND	0.0016 J	NA
Carbon disulfide	--	NA	NA	0.0019 J	NA	0.0049 J	ND	ND	ND	NA	NA	ND J	NA	ND J	NA	0.0022 J	0.0026 J	NA	NA	0.0015 J	ND	NA
cis-1,2-dichloroethene	0.25	NA	NA	ND	NA	ND	ND	ND	ND	NA	NA	0.0013 J	NA	ND	NA	ND	ND	NA	NA	ND	ND	NA
Cyclohexane	--	NA	NA	ND	NA	0.015	0.0026 J	ND	ND	NA	NA	ND	NA	0.0023 B,J	NA	ND	ND	NA	NA	ND	ND	NA
Ethylbenzene	1	NA	NA	ND	NA	0.0036 J	ND	ND	ND	NA	NA	ND	NA	ND	NA	ND	ND	NA	NA	ND	ND	NA
Isopropylbenzene (Cumene)	--	NA	NA	ND	NA	0.0046 J	ND	ND	ND	NA	NA	ND	NA	0.0013 J	NA	0.0049 J	ND	NA	NA	ND	ND	NA
Methylcyclohexane	--	NA	NA	ND	NA	0.045	0.011 J	ND	ND	NA	NA	ND	NA	0.0037 J	NA	0.0042 J	ND	NA	NA	ND	ND	NA
Methylene chloride	0.05	NA	NA	0.0066 J	NA	0.0044 J	0.0028 J	0.0038 J	ND	NA	NA	0.0048 J	NA	ND	NA	ND	ND	NA	NA	ND	ND	NA
n-Butylbenzene	12	NA	NA	ND	NA	ND	ND	ND	ND	NA	NA	ND	NA	0.0062	NA	0.0055 J	ND	NA	NA	ND	ND	NA
n-Propylbenzene	3.9	NA	NA	ND	NA	0.0045 J	ND	ND	ND	NA	NA	ND	NA	0.0039 J	NA	0.01	ND	NA	NA	ND	ND	NA
p-Cymene (p-isopropyltoluene)	--	NA	NA	ND	NA	0.012	0.0027 J	ND	ND	NA	NA	ND	NA	ND	NA	ND	ND	NA	NA	ND	ND	NA
sec-Butylbenzene	11	NA	NA	ND	NA	0.0072	0.0014	ND	ND	NA	NA	ND	NA	0.0032 J	NA	0.0043 J	ND	NA	NA	ND	ND	NA
Toluene	0.7	NA	NA	ND	NA	0.0029 J	ND	ND	0.0018 J	NA	NA	ND	NA	0.0013 J	NA	0.0014 J	ND	NA	NA	ND	0.0016 J	NA
Total Xylene	0.26	NA	NA	ND	NA	0.03	ND	ND	ND	NA	NA	ND	NA	0.0018 J	NA	0.0031 J	ND	NA	NA	ND	ND	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																						
2-Methylnaphthalene	--	ND	ND	ND	ND	1.2	1.6 D,N,J	ND	ND	0.27 D,J	ND	0.036 J	ND	ND	ND	0.25 D,J	0.17 D,J	ND	ND	ND J	ND J	NA
Acenaphthene	20	ND	ND	ND	ND	0.096 J	0.74 D,J	ND	ND	ND	0.16 D,J	0.037 J	ND	ND	0.15 D,J	0.39 D,J	ND	ND	0.075 D,J	ND	ND	NA
Acenaphthylene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Anthracene	100	ND	ND	ND	ND	ND	ND	ND	ND	0.32 D,J	0.26 D,J	0.042 J	ND	ND	ND	ND	ND	ND	0.16 D,J	ND	ND	NA
Benzo(a)anthracene	1	0.05 J	ND	0.19 D,J	0.016 J	0.068 J	0.44 D,J	ND	0.74 D,J	1.6 D,J	0.53 D,J	0.064 J	ND	ND	0.64 D,J	ND	0.31 D,J	ND	0.41 D,J	ND	0.2 D,J	NA
Benzo(a)pyrene	1	0.062 J	ND	0.18 D,J	0.012 J	0.061 J	0.67 D,J	ND	0.69 D,J	1.7 D,J	0.49 D,J	0.065 J	ND	ND	0.81 D,J	ND	ND	ND	0.36 D,J	ND	0.19 D,J	NA
Benzo(b)fluoranthene	1	0.073 J	ND	0.22 D,J	0.017 J	0.11 J	1.2 D,J	ND	1.5 D,J	2.2 D,J	0.57 D,J	0.067 J	ND	ND	1.3 D,J	ND	ND	ND	0.49 D,J	ND	0.31 D,J	NA
Benzo(ghi)perylene	100	0.051 J	ND	0.17 D,J	ND	0.059 J	0.54 D,J	ND	ND	1.3 D,J	0.27 D,J	0.049 J	ND	ND	0.65 D,J	ND	ND	ND	0.24 D,J	ND	ND	NA
Benzo(k)fluoranthene	0.8	0.026 J	ND	0.11 D,J	ND	ND	ND	ND	ND	0.86 D,J	0.22 D,J	0.038 J	ND	ND	ND	ND	ND	ND	0.16 D,J	ND	ND	NA
Biphenyl	--	ND	ND	ND	ND	0.0041 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Bis(2-ethylhexyl) phthalate	--	ND	ND	1.1 D,J	ND	0.081 J	ND	ND	ND	ND	ND	0.33	ND	ND	ND	ND	ND	ND	ND	0.088 J	ND	NA
Carbazole	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.084 D,J	ND	ND	ND	ND	ND	ND	ND	0.085 D,J	ND	ND	NA
Chrysene	1	0.055 J	ND	0.18 D,J	0.012 J	0.12 J	0.61 D,J	ND	0.68 D,J	1.5 D,J,B	0.53 D,J,B	0.061 B,J	ND	ND	0.67 D,J	ND	0.28 D,J	ND	0.42 D,J	ND	0.22 D,J	NA
Dibenzo(a,h)anthracene	0.33	ND	ND	ND	ND	ND	ND	ND	ND	0.33 D,J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Dibenzofuran	--	ND	ND	ND	ND	ND	ND	ND	ND	0.2 D,J	0.068 D,J	0.012 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Diethyl phthalate	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.057 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Di-n-butyl phthalate	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.16 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Fluoranthene	100	0.081 J	ND	0.33 D,J	0.022 J	0.14 J	0.93 D,J	ND	0.93 D,J	2.4 D,J	1.2 D	0.11 J	ND	ND	1.2 D,J	0.35 D,J	0.54 D,J	ND	0.86 D,J	ND	0.24 D,J	NA
Fluorene	30	ND	ND	ND	ND	0.21	ND	ND	ND	ND	0.15 D,J	0.036 J	ND	ND	ND	0.43 D,J	ND	ND	ND	ND	ND	NA
Indeno(1,2,3-cd)pyrene	0.5	0.04 J	ND	0.13 D,J	ND	ND	0.4 D,J	ND	ND	1 D,J	0.24 D,J	0.037 J	ND	ND	0.5 D,J	ND	ND	ND	0.18 D,J	ND	ND	NA
Naphthalene	12	ND	ND	ND	ND	0.27	0.65 D,N,J	ND	ND	0.23 D,J	ND	0.021 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Phenanthrene	100	0.056 J	ND	ND	0.015 J	0.5	2 D	ND	ND	1.8 D,J	1 D,J	0.081 J	ND	ND	0.86 D,J	0.54 D,J	0.47 D,J	ND	0.76 D,J	ND	0.16 D,J	NA
Pyrene	100	0.071 J	ND	0.32 D,J	0.02 J	0.13 J	1.1 D,J	ND	0.88 D,J	2.2 D,J	1.1 D,J	0.097 J	ND	ND	1 D,J	0.32 D,J	0.46 D,J	ND	0.74 D,J	ND	0.23 D,J	NA
PCBs - mg/Kg																						
Aroclor 1248	0.1	ND	ND	ND	ND	ND	ND	0.16 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Aroclor 1254	0.1	ND	ND	ND	ND	0.072 J	0.23 J	ND	ND	ND	ND	0.015 J	ND	ND	ND	0.0062 J	ND	0.17 D	ND	ND	ND	NA
Aroclor 1260	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.046 J	ND	ND	ND	ND	0.14 D	ND	ND	ND	NA
Total Metals - mg/Kg																						
Aluminum	--	14900	14600	6910	14400	7850	8290	4010	5090	5480	23000	14900	18900	3570	17200	10200	7830	5840	10000	2110	8200	NA
Arsenic	13	8.1	4.2	10.1	4.9	10	7.8	3.7	6.3	12.2	7.1	7.1	2.8	ND	5.1	7.5	8.5	58.2	4.4	16.9	77.3	15
Barium	350	183	96.3	98.5	342	53.3	739	32.4	39.8	2230 D	163	108	84.3	22.7	264	89.7	126	304	64	96.5	249	NA
Beryllium	7.2	0.729	0.654	0.49	0.729	0.505	0.504	0.334	0.309	0.648	1.07	0.638	0.655	0.23	2.71	0.544	0.471	0.58	0.445	0.387	0.414	NA
Cadmium	2.5	0.744	ND	ND	ND	ND	ND	0.625	0.551	1.05	0.288	0.466	0.351	0.641	0.28	1.01	1.52	5.67	0.39	ND	2.71	NA
Calcium	--	15700	4830	18200	45400	10600	31700	143000 D	7680 D	11600	19700	13700	16700	111000 D	32600	60600	33000	40600	44000	2250	19900	NA
Chromium	30	29.3 J	18.4 J	278 J	154 J	141 J	346 J	19.4 J	3630	107	29.8	31.4	271	7.28	118	240	59.8	301	84.9	4.09	793	NA
Cobalt	--	8.73	11.4	8.54	11.4	12.3	4.39	2.23	32.8 J	7.76 J	14.4 J	11.2 J	7.93 J	3.47 J	5.18 J	13.1 J	7.44 J	25.2 J	7.92 J	0.619 J	38.6 J	NA
Copper	50	31.3	18.3	287	21.7	93.1	197	11.9	94.8 J	60.1 J	24.2 J	29.3 J	28.3 J	9 J	1460 J	36.1 J	42.5 J	379 J	22 J	232 J	142 J	NA
Iron	--	19200	22500	31000	21700	95700	27500	7480	18100	71500 D	31400	22600	5960	7590	11400	18000	16400	60400 D	15600	7640	27900	NA
Lead	63	73.8	6.1	77.4	7.5	58.8	74	47.7	21.9	205	9.8	147	64.7	47.5	101	17.9	34	113	38.4	2.6	234	NA
Magnesium	--	5610	5800	8640	14400	4740	8870	53400 D	6200 D	5270	9970	5920	59200 D	52700 D	7310	27700	17300	21300	16600	280	27500	NA
Manganese	1600	1250	684	601	1970	1610	1790	0.69	375 D	6000 D	610	569	645	552	401	2010	2100	20400 D	719	63.8	52800 D	NA
Nickel	30	27.1 J	22.3 J	80.3 J	31.6 J	127 J	67.6 J	12.8 J	1860	22.4	36.8	35.9	144	8.47	44.4	277	28.1	151	19.8	64	180	NA
Potassium	--	1720	1220	1160	2450	810	592	1020	419	836	2410	1050	810	1040	888	1720	1280	707	1140	107	2020	NA
Selenium	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	238	ND	ND	ND	ND	8.1	NA
Silver	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.843	ND	ND	1.68	NA
Sodium	--	355	267	206	399	ND	257	175	ND	394	218	223	ND	ND	ND	ND	222	351	ND	ND	599	NA
Thallium	--	ND	ND	ND	ND	9.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA
Vanadium	--	25.9 J	24.8 J	14.9 J	27.4 J	16.4 J	13.9 J	8.27 J	18.7	11	32.6	26.2	8.71	9.32	11	19.7	16.2	25.8	20.4	1.34	36.6	NA
Zinc	109	437 J	218 J	110 J	50.8 J	68.1 J	86.6 J	188 J	17.5 J	181 J	66 J	83.4 J	142 J	174 J	102 J	526 J	670 J	2180 D,J	126 J	23.5 J	396 J	NA
Mercury	0.18	0.0834	ND	0.037	0.05	0.178	0.0575	0.0413	0.0235	0.0698	0.0645	0.0368	ND	ND	0.0399	ND	0.0316	0.0986	0.0638	ND	0.113	NA

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 6NYCRR Part 375 Soil Cleanup Objectives

Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
b = Analyte was detected in the associated blank as well as in the sample. Value is above the action level for consideration as being external contamination.
C = Calibration verification recovery was below the method control limit.
D = Compounds were identified in an analyisis at the secondary dilution factor.
I = Internal standard recovery was outside of method limits.
I = Internal standard recovery was outside of method limits.
I = Internal standard recovery was outside of method limits.
I = Internal standard recovery was outside of method limits.
ID4 = benzo(b)flouranthene coelutes with benzo(k)fluoranthene; the reported result is a summation of the isomers and the concentration is based on the response factor of benzo(b)fluoranthene.

= Result exceeds 6NYCRR Part 375 Industrial SCO.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 4d

Remaining On-Site Subsurface Soil Above Unrestricted SCOs

Remedial Investigation Test Pit Samples

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	TP-2 (0-3)	TP-3 (0-1.5)	TP-4 (2.5-6)	TP-7 (1-2)	TP-8 (1-2)	TP-11 (0-2)	TP-12 (0-2)	TP-13E (0-2)	TP-13S (0-2)	TP-13W (0-2)	TP-14 (2.5-3.5)	TP-15 (0-2)
		Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09
Volatile Organic Compounds (VOCs) - mg/Kg													
1,2,4-Trimethylbenzene	3.6	NA	ND	ND	0.0016 J	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	0.12	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	NA	ND	0.033	0.027 J	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	ND	ND	0.0017 J	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	--	NA	ND	ND	0.0016 J	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	--	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	NA	ND	ND	0.0022 J	NA	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene (p-isopropyltoluene)	--	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	NA	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg													
2-Methylnaphthalene	--	ND	ND	0.038 D,J	0.19	ND	0.28 D,J	ND	NA	NA	NA	ND	ND
Acenaphthene	20	1.6 D,J	ND	ND	0.13 J	ND	0.37 D,J	ND	NA	NA	NA	ND	ND
Acenaphthylene	100	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND
Anthracene	100	1.2 D,J,B	ND	ND	0.16 J	ND	0.83 D,J	0.055 D,J	NA	NA	NA	ND	0.084 J
Benzo(a)anthracene	1	6.3 D, B	0.36 D,J,B	0.29 D,J,B	0.59	0.75 D,J	2.4 D	0.28 D,J	NA	NA	NA	0.64 D,J	0.46 J
Benzo(a)pyrene	1	7.6 D, B	0.39 D,J,B	0.32 D,J,B	0.43	ND	2.4 D	0.44 D,J	NA	NA	NA	ND	0.54 J
Benzo(b)fluoranthene	1	8.5 D, B	0.46 D,J,B	0.36 D,J,B	0.65	ND	3 D	0.55 D,J	NA	NA	NA	ND	0.61 J
Benzo(ghi)perylene	100	5.3 D	0.4 D,J	0.36 D,J	0.44	1.2 D,J	1.3 D,J	0.37 D,J	NA	NA	NA	ND	0.39 J
Benzo(k)fluoranthene	0.8	3.9 D,J,B	0.21 D,J,B	0.2 D,J,B	0.22	ND	1.2 D,J	0.17 D,J	NA	NA	NA	ND	0.22 J
Biphenyl	--	ND	ND	ND	0.036 J	ND	ND	ND	NA	NA	NA	ND	ND
Carbazole	--	0.62 D,J,B	ND	ND	0.11 J	ND	0.44 D,J	ND	NA	NA	NA	ND	ND
Chrysene	1	6 D, B	0.31 D,J,B	0.26 D,J,B	0.73	0.8 D,J	2.5 D	0.36 D,J	NA	NA	NA	ND	0.44 J
Dibenzo(a,h)anthracene	0.33	1.2 D,J	0.11 D,J	0.086 D,J	0.095 J	ND	0.4 D,J	0.097 D,J	NA	NA	NA	ND	ND
Dibenzofuran	--	0.3 D,J	ND	ND	0.07 J	ND	0.25 D,J	ND	NA	NA	NA	ND	ND
Fluoranthene	100	9.3 D, B	0.5 D,J,B	0.38 D,J,B	1.2	ND	3.9 D	0.47 D,J	NA	NA	NA	0.53 D,J	0.67 J
Fluorene	30	0.51 D,J	ND	ND	0.084 J	ND	0.42 D,J	ND	NA	NA	NA	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	5 D, B	0.3 D,J,B	0.28 D,J,B	ND	0.73 D,J	1.3 D,J	0.3 D,J	NA	NA	NA	ND	0.35 J
Naphthalene	12	0.48 D,J	ND	ND	0.078 J	ND	0.39 D,J	ND	NA	NA	NA	ND	0.14 J
Phenanthrene	100	4.8 D, B	0.36 D,J,B	0.24 D,J,B	0.95	0.48 D,J	2.9 D	0.28 D,J	NA	NA	NA	ND	0.35 J
Pyrene	100	8.4 D, B	0.53 D,J,B	0.37 D,J,B	1	ND	3.4 D	0.43 D,J	NA	NA	NA	ND	0.59 J
PCBs - mg/Kg													
Aroclor 1254	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor 1260	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals - mg/Kg													
Aluminum	--	9050	9570	2910	8480	1080	5420 J	16000 J	NA	NA	NA	7620	19800 J
Arsenic	13	8.2 J	6.9 J	5.5 J	9.4	7.8	9.1	8.5	NA	NA	NA	9.1	7.2
Barium	350	277 J	710 J	32.4 J	242	65	125 J	87.6 J	NA	NA	NA	85.7	178 J
Beryllium	7.2	0.556	0.62	ND	1.23	0.224	0.329	0.653	NA	NA	NA	0.509	0.614
Cadmium	2.5	0.509	1	1.37	0.285	0.242	5.61	3.26	NA	NA	NA	ND	0.489
Calcium	--	21400	24200	16500	47500	36800	16400	27100	NA	NA	NA	8030	14600
Chromium	30	409 J	173 J	1060 J	240 J	140 J	3790	325	174 J	241 J	3670 J	126 J	1070 J
Chromium (Hexavalent)	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	51.6	9.99	57	28.4	7.46	226	22	NA	NA	NA	13.3	28.3
Copper	50	53	131	462	124	46.4	309 J	82.7 J	NA	NA	NA	143	160 J
Iron	--	30700	25400	21800	25300	7800	75000 D	16100	NA	NA	NA	98900 D	21100
Lead	63	34.9	166	69	52.6	23	119	167	NA	NA	NA	67.1	48.5
Magnesium	--	13600	7130	8620	17400	18800	7130 J	28000 J	NA	NA	NA	4320	42800 J
Manganese	1600	8790 D	9390 D	989 B	1370	2470 D	2010	1000	NA	NA	NA	1930	3510 D
Nickel	30	1440 J	77 J	2310 J	497 J	111 J	1890	231	NA	NA	NA	312 J	1330 J
Potassium	--	1340	1240	337	1660	241	590 J	1770 J	NA	NA	NA	901	934 J
Silver	2	ND	1.13	ND	ND	ND	0.754	ND	NA	NA	NA	ND	ND
Sodium	--	371	ND	ND	343	ND	ND	230	NA	NA	NA	415	ND
Thallium	--	ND	ND	ND	ND	ND	7.3	ND	NA	NA	NA	9.9	ND
Vanadium	--	28.6 J	19.9 J	56.5 J	24.2 J	5.78 J	223 J	20.7 J	NA	NA	NA	17.7 J	27.3 J
Zinc	109	600	296	149	316 J	406 J	360 J	351 J	NA	NA	NA	189 J	130 J
Mercury	0.18	0.0435	1.59 D	0.0426	0.0261	0.0488	0.169	0.0463 J	NA	NA	NA	0.0828	0.04 J

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 4d

Remaining On-Site Subsurface Soil Above Unrestricted SCOs

Remedial Investigation Test Pit Samples

3807 Highland Avenue Site

Niagara Falls, New York

PARAMETER[1]	Unrestricted SCOs[2]	TP-16S (0-1)	TP-16W (0-1)	TP-16E (0-1)	TP-17 (0-2)	TP-18 (0-2)	TP-20 (0-2)	TP-21 (0-2)	TP-22 (0-2)	TP-23 (0-2)	TP-24 (0-3)	TP-25 (3-5)	TP-26 (5-7)	TP-27 (4-6)	TP-28 (4-6)	TP-29 (0-2)
		Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09	Oct 09
Volatile Organic Compounds (VOCs) - mg/Kg																
1,2,4-Trimethylbenzene	3.6	NA	NA	NA	NA	NA	NA	NA	0.0013 J	NA	NA	NA	NA	NA	NA	NA
2-Butanone (MEK)	0.12	NA	NA	NA	NA	NA	NA	NA	0.0053 J	NA	NA	NA	NA	NA	NA	NA
Acetone	0.05	NA	NA	NA	NA	NA	NA	NA	0.082	NA	NA	NA	NA	NA	NA	NA
Benzene	0.06	NA	NA	NA	NA	NA	NA	NA	0.0013 J	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	--	NA	NA	NA	NA	NA	NA	NA	0.0016 J	NA	NA	NA	NA	NA	NA	NA
Cyclohexane	--	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	1	NA	NA	NA	NA	NA	NA	NA	0.0011 J	NA	NA	NA	NA	NA	NA	NA
Isopropylbenzene (Cumene)	--	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	0.05	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
n-Propylbenzene	3.9	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
p-Cymene (p-isopropyltoluene)	--	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	11	NA	NA	NA	NA	NA	NA	NA	ND	NA	NA	NA	NA	NA	NA	NA
Toluene	0.7	NA	NA	NA	NA	NA	NA	NA	0.0022 J	NA	NA	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (SVOCs) - mg/Kg																
2-Methylnaphthalene	--	NA	NA	NA	ND	ND	ND	0.077 D,J	ND	0.16 D,J	ND	ND	0.16 D,J	ND	0.25 D,J	0.14 D,J
Acenaphthene	20	NA	NA	NA	0.17 D,J	ND	ND	0.063 D,J	ND	0.43 D	ND	ND	0.35 D,J	ND	0.18 D,J	ND
Acenaphthylene	100	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	100	NA	NA	NA	0.31 D,J	0.057 D,J	ND	0.13 D,J	ND	0.79 D,J	ND	ND	ND	ND	0.51 D,J	ND
Benzo(a)anthracene	1	NA	NA	NA	1.2 D,J	0.27 D,J	0.77 D,J	0.45 D,J	0.18 D,J	3.1 D	0.54 D,J	0.68 D,J	1.9 D,J	0.19 D,J	1.4 D,J	0.49 D,J
Benzo(a)pyrene	1	NA	NA	NA	1.5 D,J	0.3 D,J	0.84 D,J	0.47 D,J	ND	4.3 D	0.61 D,J	0.9 D,J	2.8 D	0.21 D,J	1.7 D,J	0.55 D,J
Benzo(b)fluoranthene	1	NA	NA	NA	1.5 D,J	0.32 D,J	1 D,J	0.58 D,J	ND	4.7 D	0.55 D,J	1 D,J	3 D	0.32 D,J	2 D	0.78 D,J
Benzo(ghi)perylene	100	NA	NA	NA	1.5 D,J	0.29 D,J	0.62 D,J	0.31 D,J	ND	3.6 D	ND	0.76 D,J	2.1 D,J	0.17 D,J	1.4 D,J	0.51 D,J
Benzo(k)fluoranthene	0.8	NA	NA	NA	0.82 D,J	0.19 D,J	0.41 D,J	0.2 D,J	ND	1.8 D,J	0.47 D,J	0.37 D,J	1.2 D,J	0.11 D,J	0.74 D,J	0.27 D,J
Biphenyl	--	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbazole	--	NA	NA	NA	0.21 D,J	ND	ND	ND	ND	0.49 D,J	ND	ND	0.25 D,J	ND	0.23 D,J	ND
Chrysene	1	NA	NA	NA	1.3 D,J	0.31 D,J	0.98 D,J	0.52 D,J	0.12 D,J	3.3 D	0.57 D,J	0.7 D,J	2.1 D,J	0.24 D,J	1.5 D,J	0.55 D,J
Dibenzo(a,h)anthracene	0.33	NA	NA	NA	ND	ND	ND	ND	ND	0.84 D,J	ND	ND	0.52 D,J	ND	0.38 D,J	ND
Dibenzofuran	--	NA	NA	NA	ND	ND	ND	ND	ND	0.28 D,J	ND	ND	ND	ND	0.21 D,J	ND
Fluoranthene	100	NA	NA	NA	2.1 D,J	0.38 D,J	1.2 D,J	1.2 D	0.094 D,J	5.9 D	0.83 D,J	1.1 D,J	3.3 D	0.28 D,J	2.6 D	0.81 D,J
Fluorene	30	NA	NA	NA	ND	ND	ND	ND	ND	0.41 D,J	ND	ND	0.23 D,J	ND	0.27 D,J	ND
Indeno(1,2,3-cd)pyrene	0.5	NA	NA	NA	1.1 D,J	0.18 D,J	ND	0.26 D,J	ND	3.1 D	0.28 D,J	0.6 D,J	1.8 D,J	0.14 D,J	1.2 D,J	0.41 D,J
Naphthalene	12	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.31 D,J	ND
Phenanthrene	100	NA	NA	NA	1.5 D,J	0.21 D,J	0.51 D,J	0.74 D,J	0.15 D,J	4.1 D	0.51 D,J	0.72 D,J	1.7 D,J	0.21 D,J	2.1 D	0.6 D,J
Pyrene	100	NA	NA	NA	1.7 D,J	0.4 D,J	1.4 D,J	0.94 D	0.15 D,J	4.7 D	0.76 D,J	0.93 D,J	2.8 D	0.22 D,J	2 D	0.68 D,J
PCBs - mg/Kg																
Aroclor 1254	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.027 C	NA	NA	NA	NA	NA
Aroclor 1260	0.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.027 C	NA	NA	NA	NA	NA
Total Metals - mg/Kg																
Aluminum	--	NA	NA	NA	7830	1790	1010	1270 J	1130	9940	5270	11500	6240	7250	9910	6290
Arsenic	13	9.2	9.8	9.4	5.3	9.9	3.3	4.2	20.9 J	7.5	8.8	14.5	17	7.5	13.3	16.1
Barium	350	NA	NA	NA	42.7	216	22.2	28.9 J	18.2 J	109	94.7	95.2	51.9	52.8	128	88.9
Beryllium	7.2	NA	NA	NA	0.473	0.267	ND	ND	ND	0.579	0.349	0.573	0.392	0.349	1.27	0.425
Cadmium	2.5	NA	NA	NA	0.636	0.838	0.439	ND	0.851	0.756	1.26	1.47	1.24	0.731	0.84	0.559
Calcium	--	NA	NA	NA	101000 D	7650	37600	13100	4590	36600	60600 D	8450	15300	26200	21100	19000
Chromium	30	1190	462	527	51.3	714	57.8	432	446 J	103	3800	182	1050	565	407	336
Chromium (Hexavalent)	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	7.15	28.7	3.31	20.6	18.4 J	11.9	90.7	17.2	9.77	5.35	8.46	15.6
Copper	50	NA	NA	NA	26.7	293	44.4	80.2 J	561 J	76.5	183	57.5	103	84.2	105	207
Iron	--	NA	NA	NA	15800	108000 D	23500	41100	243000 D,J	20400	39200	20000	27700	23200	23700	81500
Lead	63	NA	NA	NA	79.1	117	35.1	54.6	160	129	95.2	156	892	454	415	481
Magnesium	--	NA	NA	NA	59300 D	4090	20300	5830 J	1550	14600	28400	9530	21900	25800	14600	11900
Manganese	1600	NA	NA	NA	640	3200 D	503	669	1820 J	1130	1860	758	1030	1120	1280	1620
Nickel	30	1100	2460	800	41.8	542	44	394	176	114	2730 D	218	492	101	116	193
Potassium	--	NA	NA	NA	1060	184	256	207 J	228	1400	799	1640	2720	770	1690	1030
Silver	2	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	--	NA	NA	NA	542	ND	ND	ND	ND	522	211	ND	358	ND	199	ND
Thallium	--	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4
Vanadium	--	NA	NA	NA	21.5	27.7	5.11	14.1 J	19.6 J	30.7	54.9	33.7	615	9.48	13.2	21.7
Zinc	109	NA	NA	NA	326	226	99.3	132 J	46.2 J	251	288	284	615	362	338	330
Mercury	0.18	NA	NA	NA	0.0504	0.0368	ND	ND	0.0281	0.14	0.0499	0.0834	0.0474	ND	0.0551	0.0636

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)

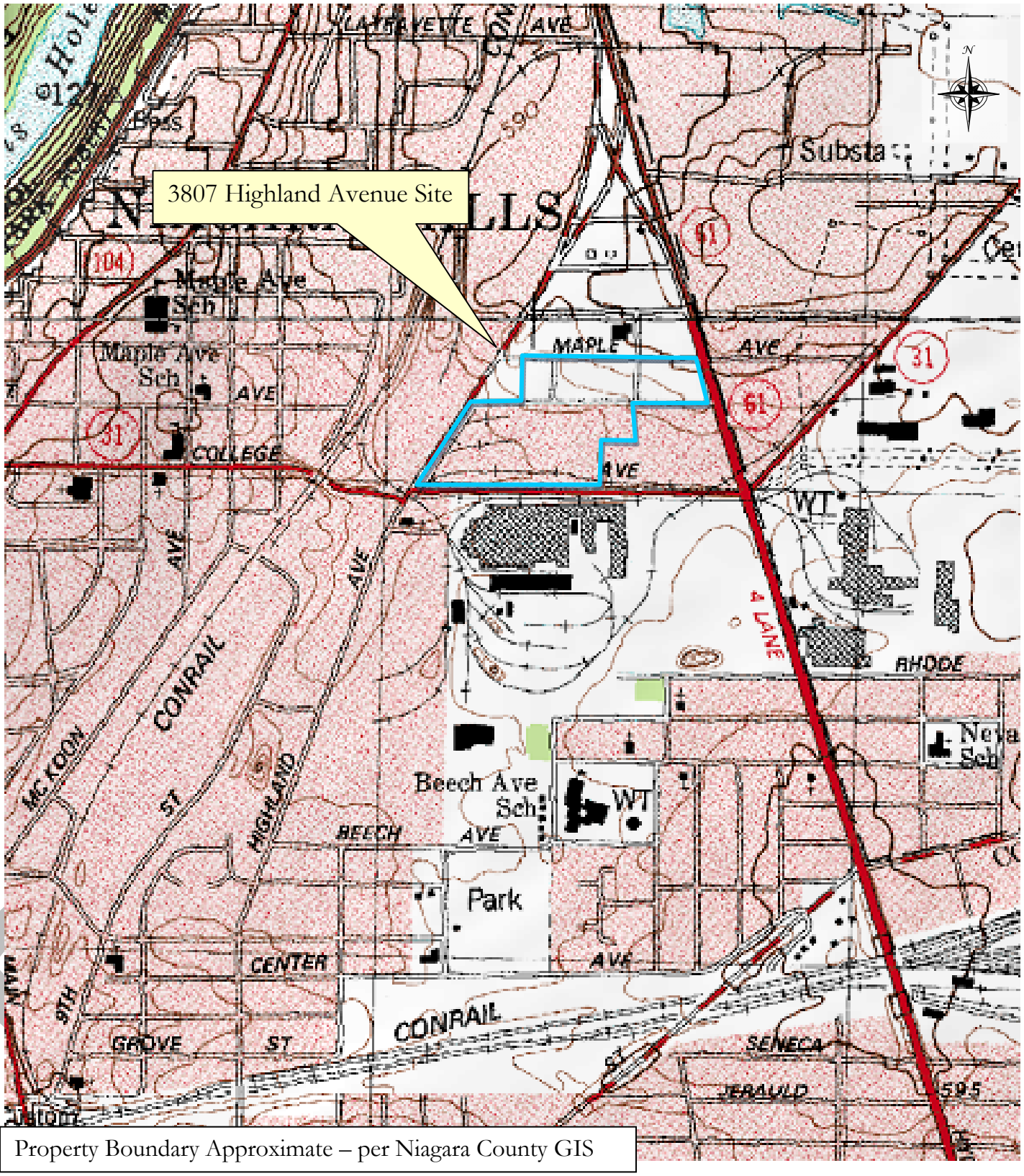
Definitions:

ND = Parameter not detected above laboratory detection limit.
NA = Sample not analyzed for parameter.
"--" = No SCO available.
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.
C = Calibration verification recovery was below the method control limit.
D = Compounds were identified in an analysis at the secondary dilution factor.
= Result exceeds 6NYCRR Part 375 Unrestricted SCOs.

FIGURES

DRAFT

FIGURE 1



Property Boundary Approximate – per Niagara County GIS

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

PROJECT NO.: 0170-001-300

DATE: APRIL 2010

DRAFTED BY: NTM

SITE LOCATION AND VICINITY MAP

3807 HIGHLAND AVENUE SITE

NIAGARA FALLS, NEW YORK

PREPARED FOR

GLOBE METALLURGICAL, INC & SOLSIL, INC.

BCP PROPERTY BOUNDARY

NOT TO SCALE

BENCHMARK
ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

PROJECT NO.: 0170-001-300

DATE: APRIL 2010

DRAFTED BY: NTM

SITE PLAN (AERIAL)

3807 HIGHLAND AVENUE SITE

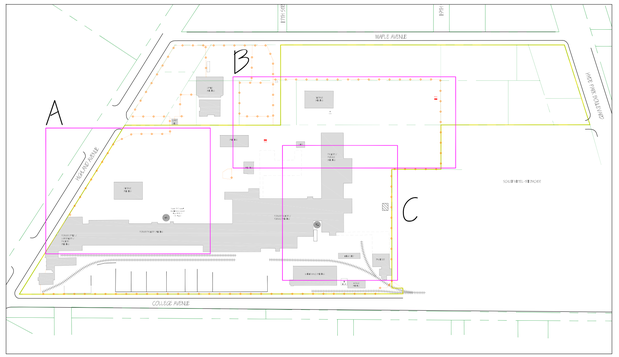
NIAGARA FALLS, NEW YORK

PREPARED FOR

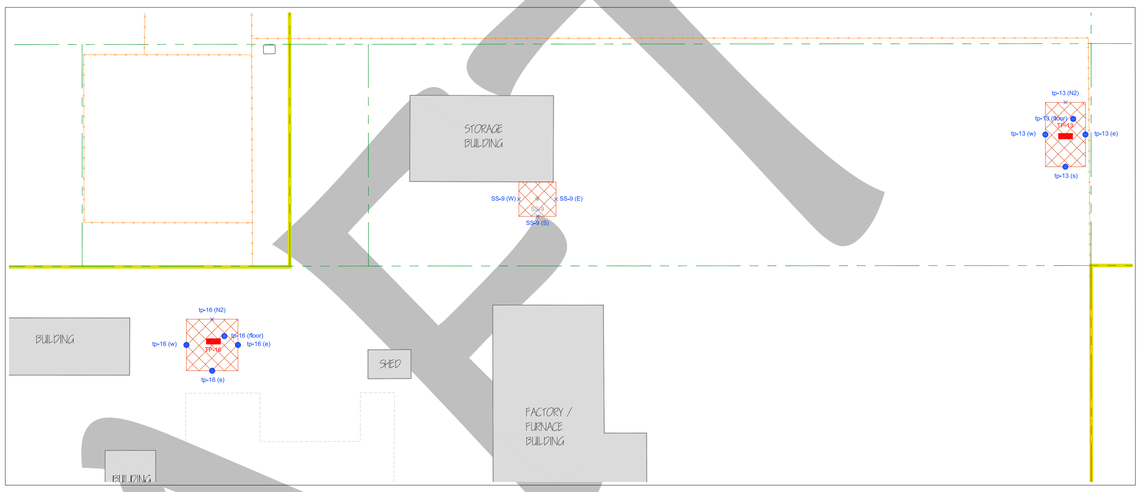
GLOBE METALLURGICAL, INC. & SOLSIL, INC.

FIGURE 2

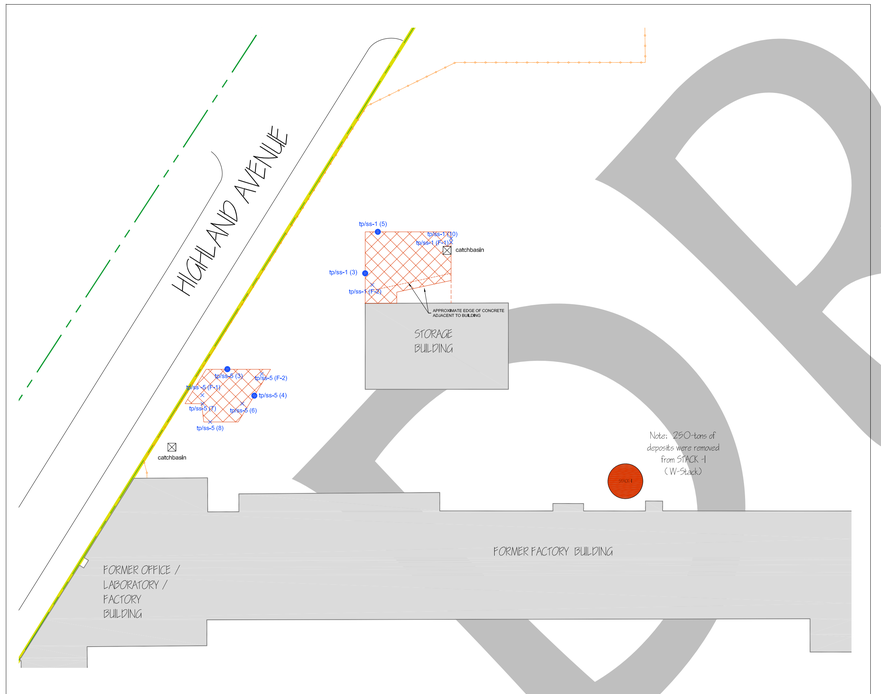
SITE PLAN (SCALE: 1" = 250')



B: CHROMIUM AREAS [TP-13 & TP-16] & FORMER ELECTRODE STORAGE AREA [SS-9] (SCALE: 1"=50')



A: ARSENIC AREAS [TP-1 & TP-5] & WEST STACK (SCALE: 1"=50')



LEGEND:

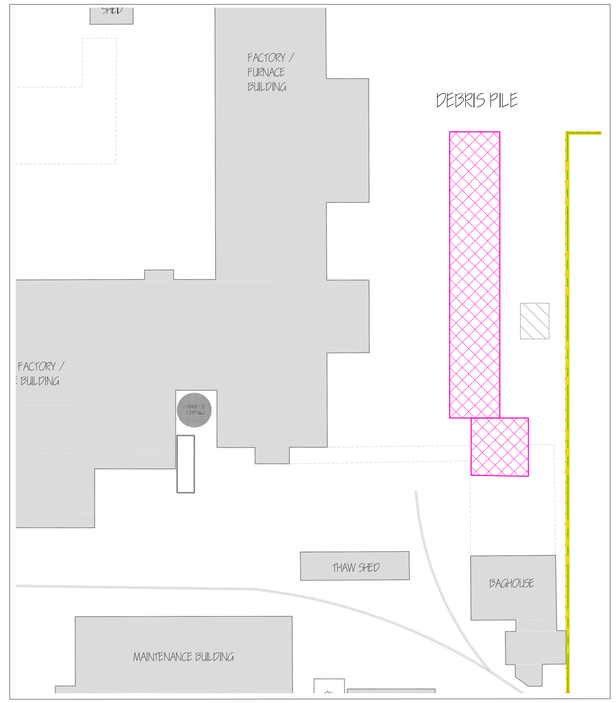
- PARCEL BOUNDARY
- GLOBE BCP BOUNDARY
- EXISTING BUILDINGS / STRUCTURES
- FENCE
- RAIL ROAD TRACKS (Inactive)
- ABOVEGROUND STORAGE TANK (AST)
- ELECTRICAL SUBSTATION
- DEBRIS PILE
- STACKS
- IRM EXCAVATION AREA
- tp/ss-1 (4) — DELINEATION INVESTIGATION SAMPLE LOCATION
- tp/ss-5 (8) — CONFIRMATORY SAMPLE LOCATION
- tp/ss-1 (F-2) — CONFIRMATORY FLOOR SAMPLE LOCATION
- TP-17 — APPROXIMATE TEST PIT LOCATIONS
- SS-5 — HISTORIC SURFACE SOIL SAMPLE LOCATION

N

50' 0' 50' 100'

SCALE: 1 INCH = 50 FEET
SCALE IN FEET
(approximate)

C: DEBRIS PILE AREA (SCALE: 1" = 50')



BENCHMARK
ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

JOB NO.: 0170-001-300

REVISIONS

NO.	BY	DATE	REMARKS

DRAWN BY: NTM
DATE: APRIL 2010
CHECKED BY: MAL
APPROVED BY: MAL

DISCLAIMER:
PROPERTY OF BENCHMARK EES, PLLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND COOPERATION AND IS SUBJECT AT ANY TIME TO RECALL BY BENCHMARK EES, PLLC. ALL INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM WITHOUT PRIOR WRITTEN PERMISSION FROM BENCHMARK EES, PLLC. ALL NECESSARY SUBCONTRACTORS & SUPPLIERS MUST OBTAIN THE WRITTEN CONSENT OF BENCHMARK EES, PLLC.

SEAL

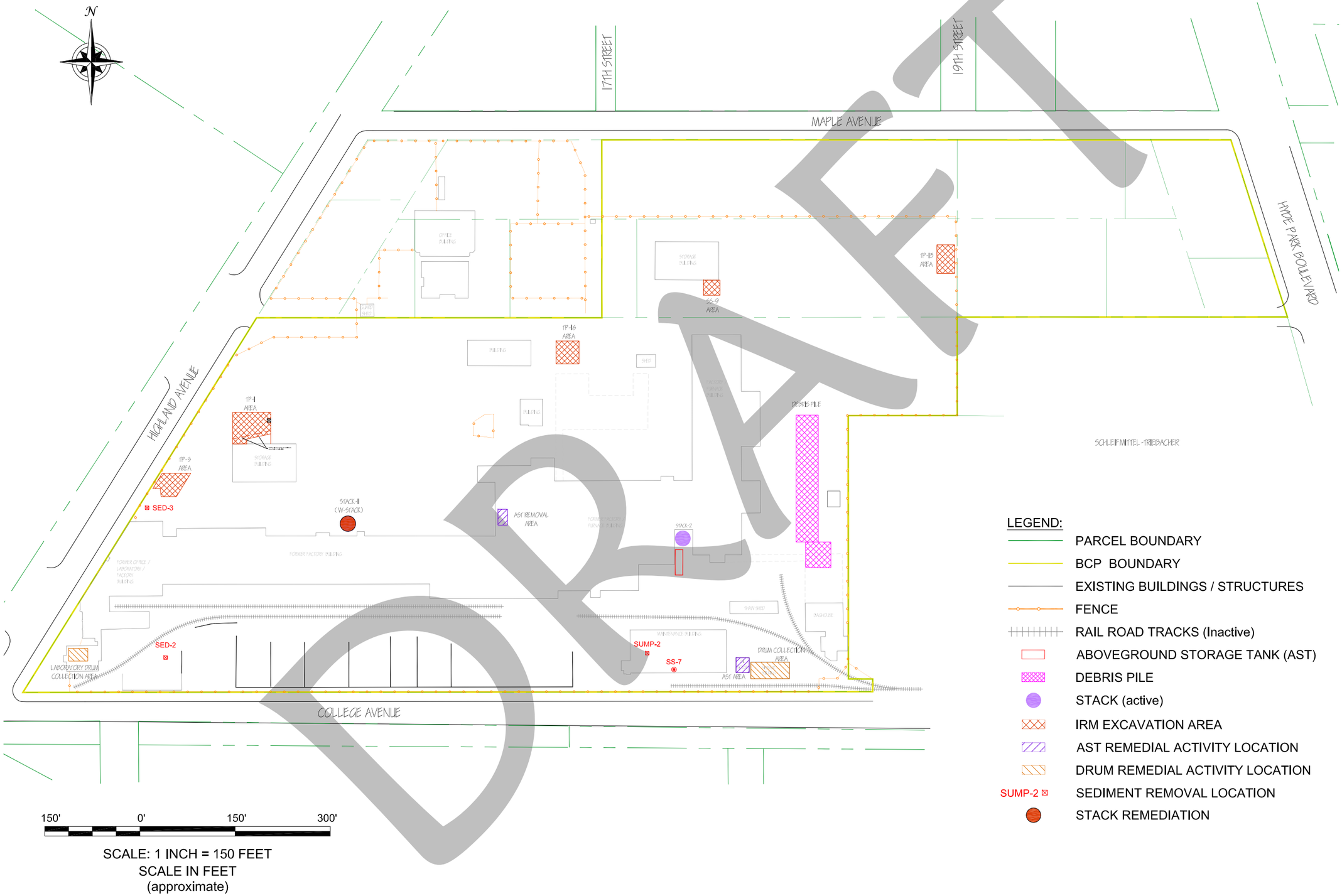
REMEDIAL EXCAVATION AREAS

3807 HIGHLAND AVENUE SITE
NIAGARA FALLS, NEW YORK

PREPARED FOR
GLOBE METALLURGICAL, INC & SOLSIL, INC.

FIGURE 3

DRAFT



SCALE: 1 INCH = 150 FEET
SCALE IN FEET
(approximate)

DATE: APRIL 2010
DRAFTED BY: NTM

DRAFT

BENCHMARK
ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

JOB NO.: 0170-001-300

REMEDIAL ACTIVITY LOCATIONS

FINAL ENGINEERING REPORT
3807 HIGHLAND AVENUE SITE
NIAGARA FALLS, NEW YORK
PREPARED FOR
GLOBE METALLURGICAL, INC. & SOLSIL, INC.

FIGURE 4

APPENDIX F

PROJECT PHOTO LOG

DRAFT

SITE PHOTOGRAPHS

Photo 1:

Photo 2:

Photo 3:

Photo 4:

Photo 1: Test pit investigation at TP-1 (Looking west)

Photo 2: Test pit investigation at TP-13 showing dark brown fill underlain with reddish brown silts and clays

Photo 3: Test pit investigation at TP-20 showing dark brown fill underlain with reddish brown silts and clays

Photo 4: Test pit investigation at TP-16 (Looking southwest)

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

DRAFT

3807 Highland Avenue Site **Niagara Falls, New York**	

SITE PHOTOGRAPHS

Photo 5:

Photo 6:

Photo 7:

Photo 8:

Photo 5: Soil boring investigation at SB-7 (Looking north northeast)

Photo 6: Soil boring investigation at SB-17 showing a typical core (ground surface starting at the top left and the end of boring at the bottom right)

Photo 7: Soil boring investigation at SB-8 (Looking east)

Photo 8: Soil boring investigation at SB-14 showing a typical core (ground surface starting at the top left and the end of boring at the bottom right)

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

SITE PHOTOGRAPHS

Photo 9:

Photo 10:

Photo 11:

Photo 12:

Photo 9: Soil boring investigation at SB-27A showing the boring being advanced at an angle (Looking west)

Photo 10: Groundwater monitoring well installation at SB-23/MW-5 (Looking northwest)

Photo 11: Catch basin sediment sampling showing the Ponar Dredge collecting a sample (catch basin near TP-1)

Photo 12: Catch basin sediment sampling near TP-1(Looking northwest)

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

DRAFT

SITE PHOTOGRAPHS

Photo 13:

Photo 14:

Photo 15:

Photo 16:

Photo 13: Debris pile located on the east side of the site (Looking southeast)

Photo 14: Same debris pile in photo 13 being loaded into dump trucks for disposal off-site (Looking southwest)

Photo 15: Storage building in the southeast corner of the site (Looking east)

Photo 16: Same storage building in photo 15 after drum removal and cleanup (Looking east)

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

3807 Highland Avenue Site **Niagara Falls, New York**	

SITE PHOTOGRAPHS

Photo 17:

Photo 18:

Photo 19:

Photo 20:

Photo 17: Oil House located in southeast corner of the site (Looking southwest)

Photo 18: Cleaning and vacuuming two 500 gallon ASTs located in Oil House (Looking southwest)

Photo 19: Cleaning and vacuuming Oil House floor (Looking southwest)

Photo 20: Oil House after cleaning and restocking lubricants (Looking southwest)

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

DRAFT

SITE PHOTOGRAPHS

Photo 21:

Photo 22:

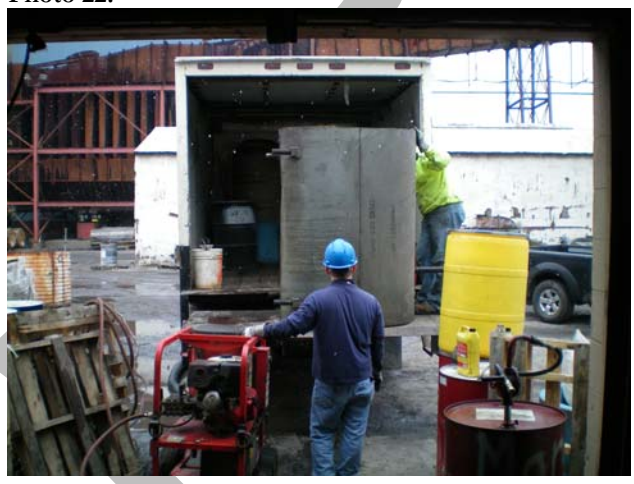


Photo 23:

Photo 24:

Photo 21: 275 gallon AST located in Oil House being cleaned and vacuumed (Looking south)

Photo 22: Removing the 275 gallon AST from site (Looking north)

Photo 23: Vacuuming floor sumps in Maintenance Building located in the southeast corner of the site (Looking west)

Photo 24: Cleaning and vacuuming floor sumps in Maintenance Building

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

DRAFT

SITE PHOTOGRAPHS

Photo 25:

Photo 26:

Photo 27:

Photo 28:

Photo 25: Western stack before remediation (Looking southeast)

Photo 26: Looking inside stack during removal of deposits(Looking southeast)

Photo 27: Backhoe removing stack deposits (Looking east)

Photo 28: Looking down through opening of the stack on the east side 56 feet above grade with backhoe removing deposits

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

DRAFT

SITE PHOTOGRAPHS

Photo 29:

Photo 30:

Photo 31:

Photo 32:

Photo 29: Backhoe with I-beam attached to the bucket, used to loosen deposits from the stack(Looking east)

Photo 30: Stack sidewall and floor after removing deposits form stack (Looking northwest)

Photo 31: Stack sidewall and floor after removing deposits form stack (Looking southeast)

Photo 32: Clean up around stack door (Looking east)

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

3807 Highland Avenue Site **Niagara Falls, New York**	

SITE PHOTOGRAPHS

Photo 33:

Photo 34:

Photo 35:

Photo 36:

Photo 33: Remedial excavation at TP-13 (Looking east)

Photo 34: Remedial excavation backfilled at TP-13 (Looking southeast)

Photo 35: Remedial excavation at SS-9 (Looking north)

Photo 36: Remedial excavation at SS-9 (Looking north)

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

SITE PHOTOGRAPHS

Photo 37:

Photo 38:

Photo 39:

Photo 40:

Photo 37: Remedial excavation at TP-16 (Looking northeast)

Photo 38: Remedial excavation at TP-16 (Looking south)

Photo 39: Remedial excavation backfilled at TP-16 (Looking west)

Photo 40: Remedial excavation backfilled at TP-16 (Looking southwest)

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

3807 Highland Avenue Site **Niagara Falls, New York**	

SITE PHOTOGRAPHS

Photo 41:

Photo 42:

Photo 43:

Photo 44:

Photo 41: Remedial excavation at TP/SS-1 (Looking east)

Photo 42: Remedial excavation backfilled at TP/SS-1 (Looking south)

Photo 43: Remedial excavation at TP/SS-5 (Looking south)

Photo 44: Remedial excavation backfilled at TP/SS-5 (Looking south)

DRAFT

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

3807 Highland Avenue Site **Niagara Falls, New York**	

APPENDIX L

FACT SHEETS

DRAFT

FACT SHEET

Environmental Investigation and Cleanup Work Completed at 3807 Highland Avenue (Globe and Solsil) Site in Niagara Falls

Brownfield Cleanup Program **Project No. C932145** **April 2010**

Introduction

The New York State Department of Environmental Conservation (DEC) is pleased to update you about the completion of cleanup activities at the 3807 Highland Avenue (Globe and Solsil) Site, located at 3807 Highland Avenue in Niagara Falls, Niagara County. Past industrial activities at the site contaminated the property with chemicals called polynuclear aromatic hydro-carbons (PAHs) and metals.

Globe and Sosil Site Location Map

A report, called the Remedial Investigation/Alternatives Analysis /Interim Remedial Measures (RI/AA/IRM) Report, details the results of the environmental investigation and cleanup activities at the Site. It is available for review at the locations identified in this fact sheet and on the DEC website (web address provided on opposite page).

Environmental work at the site was performed by Globe Metallurgical, Inc. (Globe) and Solsil, Inc. (Solsil) under New York's Brownfield Cleanup Program (BCP). The BCP provides incentives for private sector cleanup of brownfields. Brownfields typically are abandoned or underused industrial properties that are difficult to redevelop because contamination may be present. For more information about the BCP, visit DEC's Brownfield Cleanup Program web page at http://www.dec.ny.gov/chemical/8450.html.

Description of the Environmental Activities Detailed in the Report

The RI/AA/IRM Report documents the environmental investigation and cleanup activities at the Site as of March 2010. The RI activities included:

- Sampling, analyzing and evaluating soil, sediment, stack deposits, and groundwater data;
- Installing groundwater monitoring wells;
- Collecting sufficient data to determine what cleanup actions, if any, would be taken next; and
- Completing a site survey for environmental easement purposes. An environmental easement is a legal tool that places restrictions on how a property may be used for the protection of public health.

The 2009-2010 investigation confirmed that contaminants of concern at the Site consisted of semi-volatile organic compounds (SVOCs) and metals. In order to expedite cleanup activities and redevelopment of the Site, Globe and Solsil completed multiple Interim Remedial Measures (IRMs). An IRM is a cleanup action that may be conducted without extensive investigation in order to address an obvious environmental problem that might affect public health and the

environment. The IRM measures, discussed in the Report, included:

- Excavating and disposing non-hazardous impacted soils/fill;
- Removing and disposing impacted sediments;
- Removing and disposing historic stack deposits;
- Removing and disposing drums and other containers;
- Removing historic electronic component wastes;
- Cleaning and removing seven aboveground storage tanks (ASTs); and
- Placing and compacting clean backfill material in the excavation.

For more information about the investigation and cleanup activities, please consult the RI/AA/IRM Report.

What is the Next Step?

The RI/AA/IRM Report concludes that the IRMs successfully addressed contamination at the Site and that additional cleanup work is not necessary. NYSDEC will review the Report to confirm that the IRM successfully addressed contamination so that no further action is needed at the site. Globe/Solsil will then submit a Final Engineering Report (FER) that describes all completed cleanup activities. In addition, a Site Management Plan (SMP) will be developed that outlines the required activities needed to ensure the effectiveness of the remedy. Upon submission and approval of the required documents, NYSDEC anticipates issuing a Certificate of Completion in the summer of 2010.

NYSDEC will notify the public about future site developments through fact sheets similar to this one.

Background

The Globe and Solsil Site is located in a heavily industrialized area of Niagara Falls and is surrounded by current or former heavy industrial properties that may also be impacting the Site. It was used for heavy industrial manufacturing since at least 1913. Most recently, the Site was used to manufacture silicon and ferrosilicon metals. Operations at the Site ceased in 2003, but Globe reactivated a portion of the facility in October 2009.

Who Should I Call If I Have Questions About the Site?

Comments and questions are always welcome and should be directed as follows:

Project Related Questions
Mr. Michael Hinton
NYSDEC
270 Michigan Avenue
Buffalo, New York 14203
716-851-7220
region9@gw.dec.state.ny.us

Health Related Questions
Mr. Matthew Forcucci
New York State Department of Health
584 Delaware Avenue
Buffalo, New York 14202
716-847-4385
mjf13@health.state.ny.us

Locations for Viewing Public Documents

The public may view project documents at three locations, including:

Niagara Falls Public Library
1425 Main Street
Niagara Falls, New York 14304
Phone: (716) 283-8309

Doris Jones Family Resource Center
3001 9th Street
Niagara Falls, NY 14305
Phone: (716) 285-5374

NYSDEC Region 9 Office
270 Michigan Avenue
Buffalo, New York 14203
Phone: (716) 851-7220
(Please call for appointment)

Electronic (PDF) versions of project documents are also available at http://www.dec.ny.gov/chemical/50224.html.

DRAFT

FACT SHEET

Environmental Investigation Completed; Cleanup Work Underway at 3807 Highland Avenue (Globe and Solsil) Site in Niagara Falls

Brownfield Cleanup Program **Project No. C932145** **November 2009**

Introduction

The New York State Department of Environmental Conservation (DEC) is pleased to update you about cleanup activities underway at the 3807 Highland Avenue (Globe and Solsil) Site, located at 3807 Highland Avenue in Niagara Falls, Niagara County. Past industrial activities at the site contaminated the property mainly with chemicals called polynuclear aromatic hydro-carbons (PAHs) and heavy metals.

The field work portion of the environmental investigation work concluded at the end of October. The current owners of the site are finalizing plans to conduct a cleanup action called an interim remedial measure (IRM) to address obvious environmental concerns that were identified during the environmental investigation. An IRM can be conducted relatively quickly without extensive investigation to address a recognized problem that may be impacting human health and the environment.

Environmental work at the site is being conducted by Globe Metallurgical, Inc. (Globe) and Solsil, Inc. (Solsil) under New York's Brownfield Cleanup Program (BCP). The BCP provides incentives for private sector cleanup of brownfields. Brownfields typically are abandoned or underused industrial properties that are difficult to redevelop because contamination may be present. For more information about the BCP, visit DEC's Brownfield Cleanup Program web page at http://www.dec.ny.gov/chemical/8450.html.

What Did the Environmental Investigation Involve?

The environmental investigation, or remedial investigation (RI), included the following activities:

- Excavating test pits, drilling soil borings, and installing groundwater monitoring wells;
- Collecting surface and subsurface soil samples across the Site;
- Collecting samples from within a smoke stack and catch basins;
- Analyzing surface and subsurface soil, sediment, and groundwater to assess possible contamination; and
- Sampling contents of drums and other containers to identify wastes and disposal options.

What Will the IRM Involve?

The upcoming cleanup measures will include:

- Excavating impacted soils and sediments and disposing them at an offsite facility; and

DRAFT

- Removing underground storage tanks (if encountered), above ground storage tanks, drums and other containers, and disposing them at an offsite disposal facility.

Next Steps

Cleanup activities at the site will probably require about six months to complete. After the owners complete the cleanup activities, they will prepare a final "Remedial Investigation / Interim Remedial Measures Report" that describes the cleanup activities and certifies that cleanup requirements have been achieved. The report is expected to be available in Spring 2010. DEC may decide that additional cleanup measures are needed to address remaining contamination or that the IRM successfully addressed contamination so that no further action is needed at the site. The public will have an opportunity to comment before the decision is finalized. DEC will keep the public informed about project milestones through fact sheets similar to this one.

Background

The Globe and Solsil Site is located in a heavily industrialized area of Niagara Falls and is surrounded by current or former heavy industrial properties that may also be impacting the Site. It was used for heavy industrial manufacturing since at least 1913. Most recently, the Site was used to manufacture silicon and ferrosilicon metals. Operations at the Site ceased in 2003, but Globe reactivated a portion of the facility in October 2009. Solsil is anticipating redevelopment of their portion of the site in 2010.

Who Should I Call If I Have Questions About the Site?

Comments and questions are always welcome and should be directed as follows:

Project Related Questions
Mr. Michael Hinton
NYSDEC
270 Michigan Avenue
Buffalo, New York 14203
716-851-7220
region9@gw.dec.state.ny.us

Health Related Questions
Mr. Matthew Forcucci
New York State Department of Health
584 Delaware Avenue
Buffalo, New York 14202
716-847-4385

If you know someone who would like to be added to the project mailing list, have them contact the NYSDEC project manager above. We encourage you to share this fact sheet with neighbors and tenants, and/or post this fact sheet in a prominent area of your building for others to see.

Locations for Viewing Public Documents

The public may view project documents at two locations, including:

Niagara Falls Public Library
1425 Main Street
Niagara Falls, New York 14304
Phone: (716) 283-8309

NYSDEC Region 9 Office
270 Michigan Avenue
Buffalo, New York 14203
Phone: (716) 851-7220 (Please call for appointment)

Electronic versions of project documents are also available on DEC's Region 9 Remediation Project Information web page at http://www.dec.ny.gov/chemical/37554.html. Look for the Globe and Solsil entry under the Niagara County heading.

For More Information

For more information about PAHs, visit http://www.atsdr.cdc.gov/tfacts69.html.

DRAFT

New York State Department of Environmental Conservation

FACT SHEET

Brownfield Cleanup Program

3807 Highland Avenue Site **January 2009**
Site No. C932145
Niagara Falls, NY

Report on 3807 Highland Avenue Site Available for Public Comment

The New York State Department of Environmental Conservation (NYSDEC) requests public comments as it reviews the draft work plan to investigate and implement a cleanup action, called an Interim Remedial Measure (IRM), at the 3807 Highland Avenue site, located at 3807 Highland Avenue in Niagara Falls, Niagara County, New York. See the map on page 4 for the location of the site. The draft "Remedial Investigation (RI) / Alternative Analysis Report (AAR) / Interim Remedial Measures (IRM) Work Plan" was submitted by Globe Metallurgical, Inc. (Globe) under New York's Brownfield Cleanup Program (BCP).

NYSDEC previously received an application submitted by Globe to participate in the BCP. The application proposes that the site will be used for industrial and commercial purposes. This application is currently under review.

PUBLIC COMMENTS ABOUT THE RI/AAR/IRM WORK PLAN

NYSDEC is accepting written public comments about the draft RI/AAR/IRM Work Plan for 45 days, from **January 7, 2009** through **February 20, 2009**. The draft RI/AAR/IRM Work Plan is available for public review at the locations identified on page 3 of this fact sheet as well as the DEC website.

Written comments should be submitted to:

Mr. Michael Hinton
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203

HIGHLIGHTS OF THE PROPOSED RI

Brownfield Cleanup Program: New York's Brownfield Cleanup Program (BCP) encourages the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and redeveloped. These uses include recreation, housing and business.

A **brownfield** is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination.

For more information about the BCP, visit:
http://www.dec.ny.gov/chemical/8450.html

The remedial investigation has several goals:
1) define the nature and extent of contamination in soil, surface water, groundwater and any other impacted media;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and/or the environment; and
4) provide information to support the development of a Remedial Work Plan, if required, to address any contamination that remains after the IRM.

The investigation will be performed by Globe with oversight by NYSDEC and the New York State Department of Health (NYSDOH).

DRAFT

This RI will include the following activities:

- Installing test pits and soil borings, and installing groundwater monitoring wells on-site;
- Collecting surface samples across the Site;
- Collecting waste samples from within the smoke stack;
- Analyzing surface and subsurface soil, sediment and groundwater samples to assess soil, sediment and groundwater quality and collecting site-specific hydrogeological data;
- Sampling contents of drums and other containers for waste characterization and disposal purposes; and
- Determining the potential for soil contamination to release vapors into onsite and adjacent buildings.

HIGHLIGHTS OF THE PROPOSED INTERIM REMEDIAL MEASURES

In concurrence with RI activities, an IRM is planned to immediately address environmental concerns at the site. The planned approach to the IRM and related activities includes the following:

- Excavating and disposing stained surface soils, if encountered;
- Removing and disposing impacted sediments;
- Removing and disposing drums and other containers;
- Removing underground storage tanks (USTs), if encountered;
- Excavating and disposing petroleum-impacted subsurface soil/fill in the area of historic USTs, if encountered;
- Implementing a Soil/Fill Management Plan during redevelopment; and
- Placing a soil cover system, if required, to contain stack dust and waste material found in the onsite disposal and contaminated subsurface soil areas.

NEXT STEPS

NYSDEC will consider public comments as it reviews, revises if necessary, and approves the RI/AAR/IRM Work Plan. NYSDOH must concur in the approval of the Work Plan. The approved Work Plan will be available for public review at the locations listed below. After the Work Plan is approved, Globe may proceed with the remedial investigation and implementation of interim remedial measures at the site. It is estimated that the remedial investigation will take about two weeks and is anticipated to commence in February 2009. The IRM activities will also commence in February 2009 and be completed in Spring 2009. The applicant will develop an RI/AAR/IRM Report that summarizes the results of the site investigation and interim remedial measures. NYSDEC will keep the public informed during the investigation and remediation of the 3807 Highland Avenue site with fact sheets similar to this one.

BACKGROUND

Site Background and History

The Site is located in a heavily industrialized area of Niagara Falls and is surrounded by current or former heavy industrial sites. The Site is an approximately 20-acre portion of an existing 26-acre parcel. The Site is currently vacant and has not been in operation since 2003. The Site was used for heavy industrial

DRAFT

manufacturing since at least 1913; most recently the Site was used to manufacture silicon metal and ferrosilicon metal.

Environmental History

In September 2008, Globe's consultant performed an assessment of the subject property and identified several areas of concern. The site was used for heavy industrial purposes for approximately 100 years. Throughout its history, it was used as a railcar maintenance building; a machine shop; an electric shop; an oil house; a laboratory; a transformer room; a factory/furnace building; a waste battery storage area; an explosives area; an above-ground storage tank, underground-storage tank, and drum storage area; and a transformer and electrical sub-station. Activities at surrounding heavy industrial sites, including the Hazorb/Niagara Vest/Union Carbide site, may also have impacted the site. In addition, past studies identified a historic petroleum spill on the site and documented releases of hazardous material and/or petroleum products on several adjacent and nearby properties. The potential for further releases still exists.

Globe then conducted a preliminary site investigation in September 2008, which involved a soil boring investigation and collecting surface and sub-surface soil/fill samples for the subject site and the adjacent Sosil Inc. site (see map on page 4). Contaminants of concern detected during the preliminary investigation included polynuclear aromatic hydrocarbons (PAHs) and heavy metals. For more information on PAHs, see the Agency for Toxic Substances and Disease Registry webpage, http://www.atsdr.cdc.gov/tfacts69.html.

The BCP application was submitted to the NYSDEC and deemed complete on November 13, 2008.

LOCATIONS TO VIEW PROJECT DOCUMENTS

A local document repository has been established at the following location to help the public to review important project documents. These documents include the draft RI/AAR/IRM Work Plan and the application to participate in the BCP accepted by NYSDEC:

The document repositories identified below have been established to provide the public with convenient access to important project documents:

Niagara Falls Public Library
Earl W. Brydges Building
1425 Main Street
Niagara Falls, New York 14304
Attn: Betty Babanoury, Director
Phone: (716) 283-8309
Hours: M - W 10-8
Th - Sat. 10-5
Sun. (closed)

NYSDEC Region 9 Office
270 Michigan Avenue
Buffalo, New York 14203
Phone: (716) 851-7220
Hours: M-F 8:30am-4:45pm
(Please call for appointment)

You may also view the draft RI/AAR/IRM Work Plan by following the appropriate link in the information under the Globe Metallurgical entry on DEC's Region 9 - Environmental Remediation Project Information webpage:
http://www.dec.ny.gov/chemical/37554.html.

DRAFT

WHO TO CONTACT

Comments and questions are always welcome and should be directed as follows:

Project Related Questions

Mr. Michael Hinton
New York State Department of Environmental Conservation
270 Michigan Avenue
Buffalo, New York 14203
716-851-7220

Health Related Questions

Mr. Matthew Forcucci
New York State Department of Health
584 Delaware Avenue
Buffalo, New York 14202
716-847-4385

If you know someone who would like to be added to the project mailing list, have them contact the NYSDEC project manager above. We encourage you to share this fact sheet with neighbors and tenants, and/or post this fact sheet in a prominent area of your building for others to see.

Site Location

PUBLIC NOTICE

BROWNFIELD CLEANUP PROGRAM

Site Name: 3807 Highland Avenue Site
Site No.: C932145
Site Address: 3807 Highland Avenue, Niagara Falls, New York 14305
County: Niagara
Requestor: Globe Metallurgical, Inc.

The New York State Department of Environmental Conservation (NYSDEC) administers the Brownfield Cleanup Program (BCP) pursuant to State Environmental Conservation Law (ECL) §27-1400 et seq. The BCP was created to encourage the remediation and redevelopment of contaminated properties known as brownfields. The requestor (named above) has submitted a BCP application asking that this site be admitted into the BCP.

NYSDEC will accept public comments concerning the application. A copy of the application and other appropriate documents (application package) is available in the site document repository located at the address indicated below.

NYSDEC will review the application package and public comments received and then make a determination on the eligibility of the application.

Comments should be submitted by December 29, 2008 to:

New York State Department of Environmental Conservation
Division of Environmental Remediation - Region 9
270 Michigan Avenue
Buffalo, New York 14203
Attn: Michael Hinton

Repository address:
Niagara Falls Public Library
Earl W. Brydges Building
1425 Main Street
Niagara Falls, NY 14305