REMEDIAL INVESTIGATION REPORT

Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York 14611

Site Code # 828122
WA # D006130-24

PREPARED BY:

HRP ASSOCIATES, INC.
dBA HRP ENGINEERING P.C.
1 FAIRCHILD SQUARE SUITE 110
CLIFTON PARK, NY 12065

Patrick Rodman
Senior Project Geologist

Cailyn E. Locci
Project Manager

Nancy Garry, PE
Contract Manager

Submitted: February 2013

TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS

Section **Page**

Figures

TABLE OF CONTENTS

Table of Tables

List of Appendices

Remedial Investigation Report

Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York

(Site Code # 828122)
(WA # D006130-24)

CERTIFICATION

I, Nancy E. Garry, certify that I am currently a Qualified Environmental Professional as defined at 6 Part NYCRR Part 375 and that this report, Remedial Investigation Report, was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER -10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

_____
Nancy Garry
Contract Manager

Remedial Investigation Report

Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York

1.0 INTRODUCTION

This report presents the results of the Remedial Investigation (RI) completed by HRP Associates, Inc. dBA as HRP Engineering, P.C. (HRP), during the period of June 2011 through February 2013 in connection with the investigation of the Barthelmes Manufacturing site at 15 Cairn Street in the City of Rochester, Monroe County, New York (Site No. 828122), referred to herein as the Site (Figure 1). The RI was completed for the New York State Department of Environmental Conservation (NYSDEC). This report is subject to the limitations in Appendix A.

Interpretations presented within this report are based primarily on the investigations described herein. Previous investigations completed by others at the site have been reviewed by HRP. Applicable data from these reports have been included in sections of this report.

1.1 Report Organization

The text of this report is divided into seven sections. Immediately following the text are the references, tables, figures and appendices. A brief summary of each report section is provided below.

Section 1.0 **Introduction:** The purpose of the RI report; the report organization; the Site background including Site description, Site history, summary of previous relevant studies, and the objectives of the scope of work are discussed.

Section 2.0 **Study Area Investigation:** Summarizes field activities associated with the site characterization, including surficial and subsurface soil investigations, groundwater investigations, and surface water sampling, and geological investigations.

Section 3.0 **Physical Characteristics of the Site:** Includes results of field activities to determine physical characteristics, including surface features, geology, soils, hydrogeology, demography and land use.

Section 4.0 **Nature and Extent of Contamination:** Presents the results of site characterization, both natural and chemical components and contaminants in the following media: soil (subsurface and surface), and groundwater.

Section 5.0 **Interim Remedial Measures:** A summary is presented of source areas removed by Interim Remedial Measures.

Section 6.0 **Contaminant Fate and Transport:** An evaluation of potential migration pathways and contaminant persistence and/or migration is presented.

Section 7.0 **Exposure Assessment:** Presents the results of a general human health and environmental impact assessment completed at the Site. The assessment includes an estimation of exposure point concentrations and a comparison of this data with established and published standards and guidance values (SGV) including: New York State Standards as well as Federal requirements.

Section 8.0 **Conclusions and Data Limitations:** Summarizes the results and findings of the RI.

1.2 Purpose

The purpose of this Engineering Services Standby Contract work assignment (WA) was to complete a Remedial Investigation and Feasibility Study (RIFS) to characterize onsite media potentially impacted by historic activities at the Barthelmes Manufacturing Site (Figure 2). This report describes tasks associated with the onsite remedial investigation. A Feasibility Study (FS) for this work assignment will be submitted separately. The primary objectives of the RI Scope of Work (SOW) were to:

- Investigate the Barthelmes Manufacturing Site to determine if there is surface and/or subsurface contamination remaining at the site. Previous investigations onsite have revealed contamination in the soil, groundwater and soil vapor above NYSDEC and New York State Department of Health (NYSDOH) standards, criteria, and guidance values (SCGs);
- Delineate the vertical and horizontal extent of potentially contaminated soil and groundwater. Investigate any indentified areas of concern (AOCs) associated with the Barthelmes Manufacturing Site and determine if they have resulted in surface or subsurface contamination and evaluate the extent of contamination;
- Obtain soil, groundwater, surface water, and geologic data from the Barthelmes Manufacturing Site, and compare to previous data generated by other consultants. The specific information that should be verified includes: soil types (or fill), depth to groundwater, groundwater flow direction, subsurface geology, subsurface characteristics, nature and extent of contamination, etc.; and
- Develop a Remedial Investigation and Feasibility Study (RI/FS) report from the data generated from the Remedial Investigation and recommendations for further remedial options as part of the FS report.

1.3 Background

1.3.1 Site Description and History

Barthelmes Manufacturing Site

The Barthelmes Manufacturing Site is located at 15 Cairn Street, City of Rochester, Monroe County, New York (Figure 1). The surrounding properties consist of a mix of industrial and commercial use properties. The Site and surrounding area slope gently toward the north.

The Site is improved by a mostly one-story industrial building, approximately 60,000-ft^2 in size, primarily concrete block and stone construction. The northeast corner of the building contains a second-story that is used for office space. Paved parking areas are located to the north and south of the site building with two paved entrances from Cairn Street.

The site consists of 3 tax parcels totaling approximately 9.2 acres at 15 Cairn Street, Rochester, NY. The largest parcel is approximately 6.97 acres and contains the manufacturing building. The other two parcels total approximately 2.2 acres and contain the entry road and facility parking lot. . The two smaller parcels (1 acre and 1.22 acres) are zoned commercial and the larger (6.97 acre) parcel is zoned industrial. The surrounding properties consist of a mix of industrial and commercial use properties.

The Site has been occupied by Barthelmes Manufacturing, a metal fabrication facility, since approximately 1921. Barthelmes Manufacturing processes include stamping, machining, arc and spot welding, powder and spray painting, metal finishing, and assembly. The building has a partial second floor on the east side of the building for offices, and the remainder of the building has an approximately twenty (20) foot high factory ceiling. A former vapor degreaser room is located in the south-central portion of the building. During the June 2011 visit and subsequent site visits, manufacturing operations were primarily conducted in the southern portion of the building where laser sheet metal cutting equipment is operated.

The Barthelmes Manufacturing Site has been used for industrial purposes since around 1900. The 1911 Sanborn Map shows the site was used by the American Fruit Products Company (AFPC) and their canning factory and vinegar works. At that time, the site was improved with two buildings, a foundation for a building under construction, and vinegar storage cellars. Barthelmes currently operates out of the southern-most AFPC building and has operated out of this building since approximately 1921.

Around 1985, a fire engulfed the shipping area and south side of the building. The fire was reportedly started in the degreaser area and the Rochester Fire Department responded. Water used to put out the fire reportedly entered the trichloroethylene (TCE) vapor degreaser tank and displaced the TCE directly onto the floor and likely into the space beneath the degreaser tank itself. This event is considered to have contributed directly to the migration of contaminants to the subsurface.

The Barthelmes Manufacturing Site and surrounding area is located in an area zoned industrial in the City of Rochester, New York. At present, the areas surrounding the property include:

North: Premier Metals Recycling Facility.

West: Pfaudler, Inc. to the west of abandoned railroad line.

South: Vacant land formerly used as a Hess terminal.

East: Cairn Street, followed by Ontario Recycling.

1.3.2 Previous Investigations

The following provides a summary of previous environmental investigations regarding the Barthelmes Manufacturing Site. All previous reports are located in Appendix E.

Phase II Environmental Site Assessment at 15 Cairn Street, Rochester, New York, completed by LaBella Associates October 2001

In October 2001, LaBella Associates of Rochester, NY completed a *Phase II Environmental Site Assessment* for the Barthelmes Manufacturing Site at 15 Cairn Street in Rochester, NY. This report was prepared for Harter, Secrest, and Emery, LLP of Rochester, NY. LaBella Associates identified three onsite recognized environmental conditions (RECs): the former TCE vapor degreaser tank, the onsite surface water impoundment, and the former drum storage area. Thirteen (13) groundwater monitoring wells were installed, ten of which were installed into shallow overburden groundwater and three of which were installed into shallow bedrock. Samples from eight (8) of the wells showed levels of trichloroethene (TCE) exceeding NYS groundwater standards ranging from 257 ug/L in monitoring well MW-2 to 15,600 ug/L in monitoring well MW-5. Groundwater flow direction was established as being from north to the south. In addition, a total of 32 soil borings were advanced, one sediment sample was collected from the stormwater infiltration basin, one basement sump water sample was collected, and a composite wastewater sample was collected. Soil borings were analyzed for VOCs, SVOCs, and metals. Elevated levels of TCE exceeding NYS soil cleanup criteria were detected in soil borings in the drum storage area. Three soil samples contained TCE at concentrations exceeding Part 375 SCOs for the Protection of Groundwater (0.47 mg/kg for TCE) in B-7 (0'-4') at 10.3 mg/kg, SB-23 (0'-2') at 2.45 mg/kg, and SB-25 (4'-6') at 0.889 mg/kg. Exceedences of Part 375 Unrestricted SCOs were also detected in B-7 (0'-4') for SVOCs and Metals. No exceedences of SVOCs or Metals were detected in other locations.

TCE was also detected in the wastewater and basement sump water sample. The data suggested that the drum storage area and degreaser area are the primary sources of groundwater contamination.

The investigation included indoor air sampling on May 21, 2001 near the former degreaser area. One passive organic vapor monitoring badge (OVM) was collected and submitted under Chain of Custody procedures for TCE, DCE, and vinyl chloride. No TCE, DCE, or vinyl chloride was detected in the passive OVM badge.

The conclusions listed in the report are as follows:

- Submit report to the NYSDEC and meet with NYSDEC to enroll the site in the NYSDEC voluntary cleanup program.
- Develop reasonable site-specific cleanup objectives based on risk-based criteria.
- Develop conceptual remedial plans to achieve site-specific cleanup objectives.
- Develop a final remedial strategy for the Site that incorporates the NYSDEC's input.
- Implement remedial programs at the site.

Site Characterization Report at 15 Cairn Street, Rochester, New York, completed by Leader Environmental Services October 2006

Following the 2001 Phase II Environmental Site Assessment, a Site Characterization was completed in October 2006 for the Site by Leader Environmental Services. Barthelmes completed the Site Characterization activities in partial fulfillment of their Brownfield Cleanup Agreement with the New York State DEC (NYSDEC). Barthelmes entered the Brownfield Cleanup Program in 2004. The work was completed following the procedures in the NYSDEC approved Work Plan dated February 2003.

The Work Plan was utilized by Leader to develop a scope of work for the Site Characterization which included the following items:

- Installation and sampling of three additional bedrock monitoring wells (RW-4, RW-5, and RW-6);
- Sampling of all onsite monitoring wells;
- Sampling of the storm water infiltration basin;
- Soil sampling beneath the paint room discharge vents;
- Delineation of sewer and process water discharge points from the plant; and
- Characterization and labeling of investigation derived waste.

Additional bedrock wells were installed in order to further delineate the vertical extent of groundwater contamination at the site. Vinyl chloride was detected above NYS TOGs criteria in RW-4. No other VOCs were detected in the newly installed wells. TCE was detected in the other onsite wells ranging from 180 ug/kg in MW-7 to 9,800 in MW-5.

Leader also collected four sediment samples from the stormwater infiltration basin that runs the length of the western side of the property. The samples were analyzed

for VOCs and Metals. One sample (P-3) exhibited Chromium in excess of current SCOs (247 mg/kg).

Five soil samples were collected from beneath the paint booth vents in the drum storage area and analyzed for VOCs and Metals. Methylene Chloride and TCE were detected but at concentrations below their respective SCOs. Methylene Chloride was detected in only one sample (TB-1; 2.8-4 feet bg) at a concentration of 87.6 ug/kg. TCE was detected in three of five samples ranging from 12.2 ug/kg (TB-2; 0-1 feet bg) to 51.5 ug/kg (TB-4; 1.6-2.3 feet bg). Barium was detected in two samples (SS-1; 0-6 inches bg and TB-2; 0-1 feet bg) at concentrations of 557 mg/kg and 11,100 mg/kg, respectively and above the Unrestricted SCO of 350 mg/kg. Chromium was detected in all five samples at concentrations ranging from 54.7 mg/kg to 273 mg/kg and above the Unrestricted SCO of 30mg/kg, and Zinc was detected in one sample (TB-2; 0-1 feet bg) at a concentration of 486 mg/kg and exceeding the Unrestricted SCO of 109 mg/kg.

Leader also completed an evaluation of the plant's sewer and process water discharges including the tumbler, rinse tanks, welding operations, floor drains, and the collection pits on the west side of the building. In summary, the plant's sanitary wastewater is directed to the Monroe County sewer system. Leader determined that the collection pits on the building's west side discharge to the surface impoundment along the west side of the property (the location of the above referenced sediment sampling). The discharge point of the floor drains was not confirmed. Leader concluded that the site soil, storm water swale sediment, and ground water have been impacted by contaminants. According to the Leader investigation, TCE and its breakdown products are the primary contaminants of concern, but SVOCs and metals were also detected in surface soil, subsurface soil, and storm water swale sediments.

Vapor Intrusion Study of Barthelmes Manufacturing Company, Inc., 15 Cairn Street, Rochester, New York, completed by Leader Professional Services January 2007

In January 2007, Leader Professional Services completed a Vapor Intrusion Assessment at the Barthelmes Manufacturing Site. Barthelmes was required to complete this study by the NYSDEC and the New York State Department of Health (NYSDOH) as part of the Brownfield Cleanup Program. The purpose of the assessment was to evaluate the potential for worker exposure to vapors originating from VOC soil and groundwater contamination known to exist beneath the site building.

As part of the study, Leader also completed an inventory of products used in the site's manufacturing area, a review of building construction and ventilation features, and sub-slab, and indoor and outdoor ambient air samples.

As part of the vapor intrusion evaluation, a total of eleven (11) samples were collected. The indoor air samples were collected using a Summa canister placed on a platform elevated 3 to 5 feet above the ground surface. An outdoor ambient air sample was collected at a location upwind of the Barthelmes Manufacturing building. Six (6) sub-slab samples were collected through the concrete floor slab.

TCE was detected in all six (6) of the sub-slab vapor samples ranging from 23 ug/cubic meter to 64,000 ug/cubic meter and in one indoor air sample at 33 ug/cubic meter. TCE breakdown products such as DCE were also detected exclusively in the sub-slab samples. The presence of TCE in the indoor air is likely caused by the infiltration of vapors from groundwater collecting in the former basement or the soil beneath the plating rinse tanks. Leader recommended that mitigation was not necessary since the indoor air samples did not exceed OSHA action levels, and that mitigation of the TCE vapor issue be addressed as part of the overall site cleanup program.

2.0 STUDY AREA INVESTIGATIONS

Study area investigations were completed to evaluate the surface and subsurface environmental conditions and to provide data pertaining to the nature and extent of contamination. A description of the study area investigations conducted during this Remedial Investigation is presented in this Section. In addition, Interim Remedial Measures (IRMs) were conducted to remove contamination source areas that were identified during the course of the RI as well as during previous investigations. A description of the IRMs conducted is presented in this section.

This Remedial Investigation (RI) report was completed in accordance with the scope of work described in the letter issued to HRP Engineering from the NYSDEC, "Work Assignment Issuance/Notice to Proceed, NYSDEC Site Code: 828122", dated May 20, 2011. The scope of work for the Site was prepared by the NYSDEC, Division of Environmental Remediation. Deviations, based on field conditions, are noted in Section 2.1.7. The investigation tasks described in the work plan utilized the NYSDEC's DER-10 (DER-10), Technical Guidance for Site Investigation and Remediation, dated May 3, 2010. The Remedial Investigation Work Plan was approved by the NYSDEC in August 2011. The scope of work incorporated the following site specific components:

- Field Activity Plan (FAP);
- Quality Assurance Project Plan (QAPP);
- Health and Safety Plan (HASP); and
- Community Air Monitoring Plan (CAMP).

Field work for this RI was conducted in several mobilizations to the site and included the following tasks:

- Initial site inspection (June 2, 2011);
- Preliminary groundwater sampling event of thirteen (13) existing wells (July 11, 2011);
- Geophysical Survey (September 2, 2011);
- Installation of thirty-five (35) soil borings and the collection and submittal for analysis of select soil samples (September 12-16, 2011 and June 11 - 12, 2012);
- Installation of eight (8) overburden groundwater monitoring wells (October 17 - 21, 2011);
- Development of eight (8) groundwater monitoring wells (October 18 - 21, 2011);
- Groundwater sampling of twenty-five (25) monitoring wells and submittal for analysis (October 25 - 26, 2011);
- Installation of four (4) bedrock groundwater monitoring wells (December 12 - 16, 2011);
- Development and sampling of four (4) bedrock groundwater monitoring wells (December 19 - 20, 2011);
- Excavation of nine (9) test pits and associated soil sampling (December 19, 2011);
- Soil, surface water, and surficial soil sampling (June 13 - 14, 2012 and October 26, 2012); and

- Groundwater sampling of twenty-two (22) monitoring wells and submittal for analysis (September 20-21, 2012).

Three Interim Remedial Measures (IRMs) were completed during this RI to address Chlorinated VOCs (CVOCs) present in site soils at concentrations that exceed the Part 375 Protection of Groundwater SCOs. The IRMs occurred in the former drum storage area, former vapor degreaser area, and outside disposal area. Each of these areas are being managed as one operable unit. Specifically, operable units OU-01A, OU-01B, and OU-01C apply to the former drum storage area, the former vapor degreaser area, and the outside disposal area, respectively. Field work activities associated with the IRMs included the following tasks:

- Investigation of Drum Storage Area (September 2011);
- Test pit installations and identification of second source area referred to as the outside disposal area (December 2011);
- Field oversight of IRM excavation activities and assistance in the selection of thirty-eight (38) post-excavation soil samples in former drum storage and outside disposal source areas (January 2012);
- Additional soil borings and collection of soil samples in the outside disposal area (June 2012); and
- Field oversight of IRM excavation activities in former vapor degreaser area, including soil excavation and offsite disposal, the collected of nine (9) post excavation samples and concrete restoration (February 2013).

2.1 Field Activities Associated with the Remedial Investigation

To determine the nature and extent of the onsite contaminants, HRP installed test pits, soil borings and permanent groundwater monitoring wells as presented in the RI/FS Field Activity Plan. Groundwater, soil (subsurface and surface), and surface water samples were collected from these locations and submitted to a NYSDOH certified laboratory for analysis. Sampling procedures are discussed throughout Section 2.1. The analytical results for each medium are discussed in Section 4.0. The Data Usability Summary Reports (DUSR) are included in Appendix B.

2.1.1 Surface Features: Natural and Manmade Features

As previously discussed, the Site is improved by a two-story building, approximately 60,000-ft^2 (15 Cairn Street), primarily concrete block and stone with a slab on grade concrete floor, and paved parking areas located north and south of the site. A former basement was filled in, reportedly within the past few years. A stormwater infiltration basin for stormwater management is located along the property's western boundary, and a shallow drainage swale is located along the western side of the building. In addition, a small soil pile was located at the southwest corner of the site (+/- 100 cubic yards) that was removed in January 2012 as part of an IRM.

2.1.2 Geophysical Survey Investigation

Ground Penetrating Radar (GPR) Survey Investigation

In order to document the discharge points of collection pits, floor drains, and trench drains, as well as evaluate the potential existence of USTs associated with historical operations, HRP completed a ground penetrating radar (GPR) survey at the site on September 2, 2011. GPR is a non-destructive and non-intrusive geophysical exploration technique that uses radar waves to detect subsurface metallic objects. A GSSI Subsurface Interface Radar System 3, coupled with a 500 MHz antenna was used to provide an instant graphic printout during the survey. Survey lines were established in the field and measured from fixed points so that reconstruction of the survey grid can be done at a later date, if necessary. In some cases, GPR technology has also been known to detect tank graves in areas of removed storage tanks. The site was surveyed including areas near the collection pits and near the surface water impoundment on the west side of the property.

HRP reviewed the GPR survey data to provide preliminary information with regard to the status and location of potential underground tanks or other underground structures. In areas where anomalies were identified during the GPR survey, the approximate location was marked using stakes, paint, or flagging. The anomaly's centerline axis endpoints and depth was documented and the anomaly's location was entered into a portable GPS unit.

The collected information was used for executing the remaining RI and/or IRM tasks, in particular with advancing soil borings near floor drains and the excavation of test pits on the west side of the building. The GPR Survey Report is located in Appendix D.

2.1.3 Meteorological Observations

Throughout HRP's onsite subsurface investigation, visual and general weather conditions (i.e. ambient temperature readings) were noted and recorded in field logs. Additional meteorological observations were conducted as part of the Community Air Monitoring Program.

2.1.4 Stormwater Infiltration Basin Assessment

A stormwater infiltration basin for stormwater management with a fenced eastern perimeter is located on the western side of the property. To assess the potential for migration of contaminants from the building to the stormwater infiltration basin via collection pits and discharge pipes, two surface-water samples (SW-1 and SW-2) and four soil samples (SED-1 to SED-4) were collected on June 13, 2012. Soil samples were collected from the center of the onsite basin in a linear distribution (center and both ends of impoundment). An additional eleven (11) soil samples were collected at the original SED-2 location and to the east and west of this location on October 26, 2012. A dedicated, sterile, polyethylene tube was used to collect each surface water and soil sample.

Soil samples were examined in the field for physical evidence of contamination (i.e., odor, staining). HRP personnel maintained a detailed log of each sample, and recorded all pertinent field information on the logs, including mineralogy and

grain size utilizing the Udden-Wentworth Scale (1922). The soil sample logs are available in Appendix C.

Each surface water sample and soil sample were collected and analyzed in accordance with the field activities plan (FAP). However, the additional eleven (11) samples collected in October 2012 were limited to the following analysis: RCRA 8 Metals via USEPA Method 6010B and 7471A, Total Organic Carbon, and VOCs via USEPA Method 8260B. Sample locations are depicted on Figure 13.

2.1.5 Geological Investigations

On September 12 through 16, 2011 and June 12 and 13, 2012, HRP observed the installation of thirty-five (35) soil borings using a Geoprobe 6620DT, track-mounted drill rig. All boring installations were conducted by SJB Services, Inc. (SJB) of Amherst, New York, a New York Licensed driller. Soil boring and monitoring well construction logs are provided in Appendix C and soil boring locations are illustrated on Figures 3 and 4. Information on the soil boring logs includes borehole location, drilling information, sample intervals, percent recovery, and sample description information. Information on monitoring well construction logs includes total well depth, screened interval, sand pack interval, bentonite seal interval, and well completion information.

HRP observations show that the overburden composition was variable across the site, however, generally consisted of compact fine to medium sand with some silt and gravel. An intermittent glacial till layer was observed above bedrock in some locations. Fill materials were observed in the former drum storage area including cinders, glass, and other manmade objects to a depth of ten (10) feet below grade. Bedrock was encountered from 18 to 25 feet below grade during this investigation.

According to the Surficial Geology Map of New York - Finger Lakes Sheet (1989), the material underlying the Site is classified as lacustrine silt and clay at the intersection of kame moraine and glacial till deposits. A kame moraine is variable textured sand deposited at the ice edge during glacial retreat. Lacustrine silt and clay is laminated silt and clay deposited at the edge of pro-glacial lakes. Glacial till is a poorly sorted, variable textured clay and silt matrix deposited beneath glacial ice. The bedrock beneath the site is comprised of the Silurian Age Lockport Formation, which is comprised primarily of grey dolomite. HRP's field observations were consistent with the known geology of the area with the exception of fill materials observed in the former drum storage area.

2.1.6 Soil and Vadose Zone Investigations

Surface Soil Sampling

Six (6) surface soil samples, SS-01 through SS-06, were collected from the site on June 14, 2012. Sample locations were chosen under direction of the NYSDEC in locations considered to be unaffected by current and historic site operations and from locations that are considered to be topographically up gradient and upwind of onsite contaminant sources. In addition, the background samples were not located near railroad tracks, parking lots, recreation areas, or other areas containing potentially

elevated contaminant concentrations (Figure 3). During surface soil sampling activities the following methodologies were employed.

- Using a pre-cleaned stainless steel scoop or trowel, the grass layer was removed over the soil.
- A stainless steel hand auger was advanced into the soil approximately 3 to 6 inches below the vegetative cover and the soil was removed in one piece.
- Each soil sample was placed into a separate sample jars.
- A Teflon-lined cap was secured onto each of the sample jars and the jars were appropriately labeled.
- The samples were placed on ice in a cooler.
- Observations were recorded in field book.
- Equipment was decontaminated after each use and between sample intervals and locations.
- Sampling locations were repaired with native soil.

Surface sample locations are depicted on Figure 3 and are summarized below.

Soil Boring ID	Sample Depths	Location	Analysis
SS-1	1'-2'	Across exterior of the site	Pesticides (via USEPA 8081A) and Polychlorinated Biphenyls (via USEPA Method 8082)
SS-2	1'-2'		
SS-3	1'-2'		
SS-4	1'-2'		
SS-5	1'-2'		TAL Metals (via USEPA Method 6010B)
SS-6	1'-2'		TAL Metals (via USEPA Method 6010B)

Soil Boring Installation and Sampling

To evaluate the nature and extent of site contamination in subsurface soil, HRP and SJB mobilized to the site September 12 through 16, 2011 and advanced a total of seventeen (17) soil borings (HRP-SB-1 through HRP-SB-17 on Figure 4). Soil samples were also collected from overburden monitoring wells installed October 17-21, 2011. In addition, eighteen (18) additional soil borings were advanced on June 12 and 13, 2012 to further characterize soil contamination detected in the former degreaser area and in the parking lot east of the outside disposal area (OU-01C).

During soil boring installation activities, continuous soil samples were collected from the ground surface to a depth of approximately twenty-feet below ground surface at two-foot intervals using a 2" diameter split-barrel sampler. The samples were collected by the attending HRP geologist, placed in laboratory-provided 4-ounce clear tephlon sealed glass jars, labeled, and preserved on ice in a cooler. Each sample was then inspected in the split spoon barrel sampler for physical evidence of

contamination (i.e. odor, staining). In addition, a small portion (1-2 oz.) was also placed in a polyethylene bag, allowed to attain ambient temperature, and then subjected to a headspace analysis via a field calibrated photoionization detector (PID) equipped with a 11.7 eV bulb. All soil samples were collected in accordance with the approved FAP. It should be noted that one soil boring (HRP-SB-12), was converted to permanent, flush-mounted monitoring well (MW-11) as discussed in Methods of Installation - Overburden Wells.

Based on the results of the field screening and observations a total of sixty-eight (68) subsurface soil samples and four duplicate samples were collected for laboratory analysis. The soil samples that were collected and analyzed are listed below. Each sample was sent to TestAmerica Laboratory, of Amherst, New York, a NYSDOH ELAP approved laboratory. All samples were analyzed for VOCs via USEPA method 8260 and select samples were analyzed for TAL metals via USEPA method 6010B.

Boring locations were determined by HRP and the NYSDEC, and were specified in the approved FAP. Soil boring locations are depicted on Figures 3 and 4 and are summarized below. Soil boring logs are provided in Appendix C.

Soil Boring ID	Sample Depths	Location Justification
HRP-SB-1	18'-19'	Building exterior - east collection pit
HRP-SB-2	27'-28'	Building exterior - northwest corner
HRP-SB-3	21'-23'	Building exterior - collection pit adjacent to the southwest corner
HRP-SB-4	19'-20'	Building exterior - south loading dock area
HRP-SB-5	2'-4'*; 17'-18'	Building interior-floor drains
HRP-SB-6	2'-4'*; 19'-20'	
HRP-SB-7	2'-4'*; 18'-20'	Building interior- loading dock area
HRP-SB-8	2'-4'*; 5'-7'; 10'-11'	Building interior- degreaser area
HRP-SB-9	2'-4'*; 6'-8'; 20-22'	
HRP-SB-10	2'-4'*; 5'-7'*; 9'-11'; 16'-18'	
HRP-SB-11	2'-4'*; 5'-7'*; 16'-18*'	
HRP-SB-12	2'-4'*; 5'-7'; 18'-20'	
HRP-SB-13	0.5'-2'*; 6'-8'; 14'-16'	
HRP-SB-14	2'-4'*; 6'-8'; 18'-20'	
HRP-SB-15	2'-4'*; 5'-7'	Building exterior- drum storage area (see Section 2.1.8)
HRP-SB-16	2'-4'; 18-20'	
HRP-SB-17	1'-3'; 14'-16'*; 21'-23'	
HRP-SB-18	6'-6.5'; 9'-10'; 11'-12'	Building interior- degreaser area
HRP-SB-19	6'-7'; 11'-12'; 12'-13'; 15'-16'	Building interior-degreaser area
HRP-SB-20	3'-4'; 11'-12'; 14'-15'	Building interior- degreaser area
HRP-SB-21	6.5-7'; 9'-10'; 11'-12'	Building interior- degreaser area

Soil Boring ID	Sample Depths	Location Justification
HRP-SB-22	6'-7'; 10'-11'	Building interior- degreaser area
MW-12	22'-23'*	Building exterior- north side of building
MW-13	17'-19'*	Building exterior- east side of building near loading dock.
MW-14	26'-27'*	Building exterior- southeast corner outside the exterior drum storage area
MW-15	1'-3'*; 7'-8'; 18'-19'; 24'-25'	Building exterior- southwest corner outside exterior drums storage area
MW-16	2'-3'*; 6'-7'*; 13'-14'; 17'-18'	Building exterior- southwest corner of building
MW-17	10'-11'*; 16'-17'*	
MW-18	10'-11'*	Building exterior- west side of property near surface water impoundment
MW-19	20'-21'*	Building exterior- west side of building

***** Selected samples analyzed for TAL Metals via USEPA Method 6010B are noted with an asterisk.

Test Pit Installation and Sampling

In order to further evaluate subsurface soil conditions across the site and to assess conditions near underground utilities, HRP installed nine (9) test pits (TP-1 through TP-9) on December 19, 2011. Four of the test pit locations were determined based on the location of buried wastewater discharge piping identified via geophysical survey. Test pits were excavated to an average depth of 6 to 8 feet below ground surface (bgs) to expose the piping. Five additional test pits were excavated near the soil pile formerly located at the southwest corner of the site building (outside disposal area) and are further discussed in Section 5. Each of the test pits were rectangular in shape and were large enough to permit detailed examinations of the soil and piping in-situ. Groundwater was not encountered in any of the test pit excavations. Test pit locations are illustrated on Figure 3 and summarized below. Test Pit Data Sheets can be found in Appendix C.

Soil samples from the test pits were examined in the field for physical evidence of contamination (i.e., odor, staining). HRP personnel maintained a detailed log of each test pit, and recorded all pertinent field information on the logs, including test pit designation, date, location, depth, and geologic descriptions utilizing the Udden-Wentworth Classification System. The soil samples were placed into sealable (i.e., Ziploc®) bags, labeled, and the headspace screened for volatile organic compounds via a photoionization detector (PID) equipped with an 11.7 eV bulb. The soil samples exhibiting the highest PID reading from each test pit were collected for analysis. If no physical or olfactory evidence of contamination was noted, the sample beneath the piping invert was collected for analysis. All samples were collected in accordance with the approved FAP. Each sample was sent to TestAmerica Laboratory, of Amherst, New York, a NYSDOH ELAP approved laboratory. All samples were

analyzed for VOCs via USEPA method 8260 and select samples were analyzed for TAL metals via USEPA method 6010B.

Sample ID	Sample Interval	Depth	Location Justification
TP-1	4'-5'*; 5.5'-6'*;	6.5'	Pipe invert locations
TP-2	No sample collected	5'	Seeking pipe invert,
TP-3	2'-3'*; 4.5'-5'*;	5.5'	Pipe invert locations
TP-4	4.5'-5'*	6'	Pipe invert locations
TP-5	6'-6.5'	7'	Evaluate historic soil pile
TP-6	3'-3.5'	4'	
TP-7	No sample collected	3'	
TP-8	No sample collected	3'	
TP-9	3'-3.5	4'	

***** Selected samples analyzed for TAL Metals via USEPA Method 6010B are noted with an asterisk.

Groundwater Investigations

Groundwater Monitoring: Well Installation, Development, Sampling

To evaluate the condition of onsite groundwater, HRP and Nothnagle Drilling, Inc. mobilized to the site October 17 through 21, 2011 to install eight (8) overburden wells (MW-12 through MW-19) and December 12 through 16, 2011 to install four (4) bedrock monitoring wells. As previously discussed, one overburden monitoring well (MW-11) was installed inside the building on September 14, 2011 during the soil boring investigation. In addition, thirteen (13) monitoring wells existed onsite prior to this Remedial Investigation (MW-3 and MW-4 could not be located). Therefore, a total of 23 wells currently exist onsite (MW-5 and MW-16 were removed during IRM excavations in January 2012).

Subsequent to the advancement of soil borings, the boreholes were converted to permanent, flush-mounted groundwater monitoring wells via hollow stem auger. Monitoring well locations were selected by HRP and approved by the NYSDEC. The final installation locations of the wells were slightly modified based on field conditions from the proposed locations and type of well discussed in the approved FAP.

Groundwater Well ID	Location Justification
MW-11	Upgradient of degreaser area inside building.
MW-12	North side of site building to evaluate upgradient conditions.
MW-13	East side of site building near loading dock to evaluate eastern plume boundary.
MW-14	Downgradient of the exterior drum storage area.
MW-15	Downgradient of the exterior drum storage area.
MW-16	Southwest corner of site building, downgradient of building.

MW-17	West side of property, to evaluate western plume boundary
MW-18	
MW-19	West side of site building
HRP-BR-1	North side of site building to evaluate upgradient conditions.
HRP-BR-2	Downgradient of the exterior drum storage area and site building.
HRP-BR-3	
HRP-BR-4	West side of site building to evaluate western plume boundary.

Methods of Installation - Overburden Wells

Overburden monitoring wells were installed at the site within unconsolidated material in order to allow for the monitoring of groundwater elevation and acquisition of groundwater samples for laboratory testing. Nine (9) two-inch diameter, PVC monitoring wells were installed in the shallow saturated zone within the surface. The overburden monitoring wells were installed in accordance with the FAP.

Methods of Installation - Bedrock Wells

After evaluating overburden groundwater flow directions and groundwater chemistry data, four (4) bedrock monitoring wells were installed. The bedrock monitoring wells were installed in accordance with the FAP.

Methods of Groundwater Development

The nine (9) overburden groundwater monitoring wells were developed on October 24th and 25th, 2011 and the four bedrock wells were developed on December 19, 2011. HRP developed the wells utilizing a whale pump with a flow regulator, and Teflon lined polyethylene tubing in accordance with the FAP. The volume of water, depth to bottom of the well, and other visual observations were recorded in a field notebook. Well development logs can be found in Appendix C.

Methods of Groundwater Sampling

To evaluate groundwater quality beneath the site, groundwater samples were collected from each of the thirteen (13) existing onsite monitoring wells on July 11, 2011 as a preliminary sampling event. Groundwater samples from the existing groundwater monitoring wells along with the nine (9) newly installed monitoring wells were collected during a second sampling event on October 24 and 25, 2011. A third sampling event conducted on December 21, 2011 included the newly installed bedrock wells. A fourth sampling event was completed on September 20 and 21, 2012 and included a combination of existing wells and the monitoring wells installed as part of the RI. The wells were purged and sampled in accordance with the FAP. Groundwater samples were collected from each well including a duplicate and MS/MSD sample during the second sampling event.

Each sample was sent to Test America Laboratory of Amherst, NY, a NYSDOH ELAP approved laboratory, for analysis of VOCs via USEPA Method 8260B. Samples from

the preliminary July 2011 sampling event and selected samples from the October 2011 sampling event were also analyzed for TAL Metals via USEPA Method 6010B and 7470A. In addition, one sample (MW-7) from the July event was sampled for Routine Petroleum Products via Method 310.13 and three samples (MW-12, MW-13, and RW-5) from the September 2012 event were analyzed for an expanded parameter list which included Semi-Volatile Organic Compounds via USEPA Method 8270C, TCL Metals via USEPA Method 6010B, Pesticides via USEPA Method 8081A, and Polychlorinated Biphenyls via USEPA Method 8082, and Total Cyanide.

Monitoring Well Survey

The coordinates and the elevation of each onsite monitoring well was surveyed by Shumaker Consulting Engineering and Land Surveying, P.C. (Shumaker) of Utica, New York. The site survey was conducted in order to properly locate all sampling points and groundwater wells. The field survey included establishing project horizontal and vertical control and the collection of planimetric and topographic data. Horizontal coordinate values were based on the North American Datum (NAD) of 1983. Vertical coordinate (elevation) values were based on the North American Vertical Datum (NAVD) of 1988. Shumaker was onsite October 24, 2011 and October 25, 2012 to collect data for the survey. The survey data with measured groundwater levels are included as Table 16.

2.1.7 Ecological Investigations

As part of the original scope of work HRP was tasked with completing a Fish and Wildlife Impact Analysis (FWIA) through Step II. HRP submitted a request for public records through the Freedom of Information Law (FOIL) to the New York Natural Heritage Program for information pertaining to local flora and fauna. Specifically, HRP requested the following information within a 1.0-mile radius from the site: (1) a map and description of NYSDEC Significant Habitats, (2) habitats supporting endangered, threatened, or rare species, or species of special concern, (3) wild, scenic, or recreational rivers, and (4) significant coastal zone areas. In addition, HRP requested the following information within a 0.5-mile radius from the site: a map and description of major vegetative communities including wetlands, aquatic habitats, NYSDEC Significant Habitats, and areas of special concern.

The New York Heritage Program responded to the FOIL request in a letter, dated October 31, 2012, with an enclosed report of rare or state-listed animals and plants, significant natural communities, and other significant habitats. The letter stated that the search distance for Inactive Hazardous Waste Remedial Investigation / Feasibility Studies was a 2.0-mile radius. The report identified five endangered species within a 2.0-mile radius of the subject site; however, all of the reports are historical records from the 1800's to early 1900's and are believed to exist based on changes of land use and industrial development in the area.

The information contained in this report is considered sensitive and should not be released to the public without permission from the NYSDEC's New York Natural Heritage Program. The information provided by the New York Natural Heritage Program is included in Appendix F.

2.1.8 Deviations from Work Plan

HRP deviated from the Work Plan only with approval from the NYSDEC and the NYSDOH. The following deviations occurred during the investigations:

- Changes to the location and number of monitoring wells were made due to lack of access to certain areas and ongoing work onsite and conflicts with underground utilities or substructures;
- Existing wells RW-1, MW-3 and MW-4 were not located and therefore not sampled;
- The NYSDEC and the NYSDOH determined that a soil vapor intrusion evaluation was not required; and
- As described below, three interim remedial measures (IRMs) were completed during the RI to address CVOCs present in site soils at concentrations that exceed the Protection of Groundwater SCOs.

It is HRP's opinion that these deviations have not affected our ability to identify and determine the degree and extent of contamination at the subject property.

2.2 Field Activities Associated with the IRMs

The site is currently being managed as one operable unit. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate, or mitigate a release, threat of a release, or exposure pathway resulting from site contamination. Operable Unit 1 (OU-1) applies to the entire site and three Interim Remedial Measures (IRMs) were completed and identified as operable units OU-01A, OU-01B, and OU-01C which specifically apply to a former drum storage area, a former vapor degreaser area, and an outside disposal area, respectively.

Three IRMs were completed during this RI to address Chlorinated Volatile Organic Compounds (CVOCs) present in site soils at concentrations that exceed the Part 375 Protection of Groundwater SCOs. In January and September 2012 and February 2013, contaminated soil was excavated and disposed of off-site from three identified source areas as part of the IRMs. The three identified source areas included the former drum storage area (OU-01A), former vapor degreaser area (OU-01B), and the outside disposal area (OU-01C) at the southwest corner of the site (see Figure 2). The contamination in the drum storage area and former vapor degreaser area was identified during the previous environmental investigations and the contamination in the outside disposal area was identified during the monitoring well installation activities and test pit excavations activities conducted during this RI.

The former drum storage area (OU-01A) and outside disposal area (OU-01C) IRM excavation activities were conducted by Groundwater and Environmental Services (GES) of Cheektowaga, NY under a NYSDEC callout contract, GES oversaw the soil excavation services and off-site transportation and disposal of the contaminated soils. HRP oversaw the activities GES conducted and provided input on sampling locations. As part of the IRM activities, GES screened soils with a PID, recorded their observations and collected a total of thirty-eight (38) post-excavation confirmatory soil samples in both source areas (January 2012). HRP collected an additional nineteen

(19) subsurface soil samples (June 2012) to further delineate the contaminated soils in the outside disposal area (see Figure 3).

In addition, HRP provided oversight for the IRM of the former vapor degreaser area (OU-01B). The IRM was completed, in accordance with the NYSDEC approved *Interim Remedial Measure (IRM) Excavation Workplan*, dated January 17, 2013. Field activities associated with the IRM included the installation of structural supports within the area of the excavation work and the excavation and off-site disposal of contaminated soils, brick and slag (see Figure 4) within the former vapor degreaser area that exceed the Protection of Groundwater Subpart Part 375 SCOs for CVOCs, including TCE and cis-1,2- DEC. In a separate excavation located approximately 10 feet south of the former vapor degreaser excavation, HRP also removed soils that exceed the Industrial SCOs for Arsenic (in the area of SB-9). As part of the IRM activities, HRP screened soils with a PID, recorded their observations and collected a total of nine (9) post-excavation confirmatory soil samples from both excavation areas. Concrete restoration of the interior floors was also completed as part of this IRM (February 2013).

The soil samples collected by HRP during the IRM activities were completed in accordance with the approved FAP and were submitted to TestAmerica Laboratory, of Amherst, New York, a NYSDOH ELAP approved laboratory for analysis of VOC via EPA method 8260. A detailed summary of the IRM activities are included in Section 5 and IRM sample results are summarized in Section 4.

2.3 Technical Correspondence

No formal technical correspondence documenting field activities was identified between HRP and the NYSDEC. However, HRP and the NYSDEC project manager kept in constant coordination throughout the RI field work and other activities via email, telephone conversations and informal meetings. Any changes to the work plan and items encountered in the field were relayed to the NYSDEC project manager immediately for approval.

3.0 PHYSICAL CHARACTERISTICS OF THE SITE

The following section discusses the results of field activities to determine physical characteristics.

3.1 Results of Field Activities

3.1.1 Surface Features

The Barthelmes Manufacturing site is located at 15 Cairn Street, City of Rochester, Monroe County, New York (see Figure 1). The areas surrounding the building are improved with asphalt paved parking areas to the north and south of the building and two entrances from Cairn Street. The surrounding properties consist of industrial uses.

The building formerly contained two basements that were filled after a fire in 1985. Three (3) floor drains (north floor drain, east floor drain, and south floor drain) and two (2) sumps are located in the manufacturing areas. The drains and sumps discharge to a series of three collection pits on the west side of the building and the adjacent swale, which then discharge to a stormwater infiltration basin located on the west side of the property. In addition, a small sump was located outside the loading dock area on the east side of the building. The sump had a bare soil base with no piping connections.

A fenced storage area is located at the southeast corner of the building which was formerly used as a drum storage area. Scrap metal is currently stored in this area. In addition, a small soil pile was located at the southwest corner of the site (+/- 100 cubic yards) that was removed in January and September 2012 as part of an Interim Remedial Measure (IRM).

3.1.2 Surface Water Hydrology

A stormwater infiltration basin with a fenced eastern perimeter is located along the western side of the property. The basin receives stormwater discharge from the building via subsurface piping. There is no known discharge point of the stormwater infiltration basin No other surface water bodies were noted onsite.

3.1.3 Geology

Surficial Geology

The composition of the overburden was variable across the site, however, generally consisted of compact fine to medium sand with some silt and gravel above bedrock. An intermittent glacial till layer was observed from 10 feet below grade to above bedrock in some locations. Bedrock was encountered from 18 to 25 feet below grade during this investigation. Boring logs prepared during this investigation are presented in Appendix C.

According to the Surficial Geology Map of New York - Finger Lakes Sheet (1989), the material underlying the Site is classified as lacustrine silt and clay at the intersection of kame moraine and glacial till deposits. A kame moraine is variable textured sand deposited at the ice edge during glacial retreat. Lacustrine silt and clay is laminated silt and clay deposited at the edge of pro-glacial lakes. Glacial till is a poorly sorted, variable textured clay and silt matrix deposited beneath glacial ice. According to the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), soils at the Site and surrounding area are classified as urban land (Ub).

Bedrock Geology

The bedrock beneath the site is comprised of the Silurian Age Lockport Formation, which consists primarily of grey dolomite. Groundwater flow in this formation is typically influenced by vertical and horizontal fractures within the upper 50 feet of the formation. The bedrock groundwater is not used as a source of drinking water.

3.1.4 Hydrogeology

Groundwater in Soil Borings

During the installation of onsite overburden monitoring wells, groundwater was encountered at depths on average ranging from 5-feet to 9-feet below grade (bg).

Groundwater in Monitoring Wells

Groundwater was observed in the onsite overburden wells at depths ranging from 3.06 to 13.42-feet bg and elevations ranging from 531.29 to 533.5, and in bedrock wells depths ranging from 6.86 to 24.40 feet bg and elevations ranging from 518.54 to 532.51 during the groundwater sampling events. On average, the shallowest water levels were observed in the October 2011 sampling event and the deepest water levels were observed during the September 2012 sampling event.

The groundwater was observed with no odor, no sheen, and no free product with the exception of a minor sheen observed during purging of MW-7 in July 2011. The sheen was not observed during the other sampling events.

HRP conducted synoptic groundwater level measurements of onsite wells on October 25, 2011, December 19, 2011, and September 20, 2012. The groundwater levels recorded during the events are included with survey data in Table 16.

Based on the results of the synoptic water level measurements, groundwater, flow in the overburden wells was generally to the south-southwest. Bedrock groundwater also flows to the south-southwest. Groundwater flow diagrams are presented in Figures 5 through 8 for the overburden wells and Figures 9 through 12 for the bedrock wells. It should be noted that the groundwater contours illustrated in Figure 9 and 10 include bedrock monitoring wells installed by others that were constructed differently than the bedrock wells that were installed by HRP and as such presumed groundwater flow direction on these maps may have been affected.

3.1.5 Investigation Derived Waste

During the installation of the overburden wells, investigation derived waste (IDW) was generated, which consisted of drill cuttings. The IDW was placed into 55-gallon drums and stored on the west side of the site. During the length of the remedial investigation, approximately twenty (20) drums of IDW were generated. The drill cuttings were disposed of off-site during implementation of the IRM in September 2012. The empty drums were then properly removed from the site by TREC Environmental of Rochester, NY for recycling.

3.1.6 Ecology

The Fish and Wildlife Impact Analysis (FWIA) is included in Section 2.1.7.

4.0 NATURE AND EXTENT OF CONTAMINATION

In order to identify the nature and extent of contamination and potential impacts to the site, HRP collected and submitted soil, surface water, and groundwater samples to a certified laboratory for analysis. The samples were analyzed for one or more of the following: Volatile Organic Compounds (VOCs) via USEPA 8260B, Semi-Volatile Organic Compounds (SVOCs) via USEPA Method 8270, TAL Metals via USEPA Method 6010B and 7071A, Pesticides via USEPA 8081A, Polychlorinated Biphenyls (PCBs) via USEPA Method 8082, and Total Cyanide.

TestAmerica Laboratories (TestAmerica) of Amherst, New York provided the analytical laboratory services for the soil, groundwater, and surface water analysis. Nancy Potak of Greensboro, VT provided data validation services for this project. Data qualifiers and their definitions, as defined by Nancy Potak are included in Appendix B. The presentation of results, within this text, does not include data qualifiers. However, the data qualifiers are shown on the Tables included with this report. Detected chemical compounds in the various media sampled as part of the RI and the analytical results are presented in Tables 1 through 15.

Compounds detected in the various media tested during this RI were compared to the following New York State Standards, Criteria, and Guidance (SCGs):

- Groundwater: NYSDEC Division of Water Technical and Operational Guidance Series (TOGS 1.1.1); Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations dated October 1993; Revised June 1998; ERRATA Sheet dated January 1999; and Addendum dated April 2000 (NYSDEC Class GA).

- Soils: NYSDEC Regulation, 6 NYCRR Subpart 375-6 "Remedial Program Soil Cleanup Objectives" which applies to the development and implementation of the remedial programs for soil and other media set forth in subparts 375-2 through 375-4 [Inactive Hazardous Waste Disposal Site Remedial Program, Brownfield Cleanup Program, and Environmental Restoration Program] and includes the soil cleanup objective tables developed pursuant to ECL 27-1415(6).

4.1 Results of Remedial Investigation

This section presents the results of remedial investigation, both natural chemical components and contaminants detected in the media sampled.

4.1.1 Sources

Based on the results of the previous subsurface investigations as well as the results of this RI, the primary contaminants of concern at the site are trichloroethylene (TCE), and TCE breakdown products detected in the soil, groundwater and soil vapor at levels exceeding NYSDEC standards, criteria, and guidance (SCGs). In addition, low levels of metals were also detected in soil and groundwater samples at levels exceeding NYSDEC SCGs.

The findings of the previous investigation and the results of this RI indicate the primary source areas of TCE contamination include the former vapor degreaser which historically contained TCE (located within the central portion of the building), the former drum storage area (located on the southeastern portion of the property) and the location of the outside disposal area and former stockpile (located on the southwestern area of the property) (See Figure 2).

4.1.2 Subsurface Soils

Subsurface Sample Submittal

In total, HRP collected sixty-eight (68) subsurface soil samples and four duplicate samples in September, October, and December 2011 and June 2012. The subsurface soil samples were collected during soil boring installations, monitoring well installations and during the IRM activities. All eighty-seven (87) samples were analyzed for TCL VOCs via USEPA 8260B and selected samples were analyzed for TAL Metals via USEPA Method 6010B and 7471A.

VOCs- Subsurface Soils

A total of twenty-three (23) VOCs were detected in the subsurface soil samples collected. Only two of the VOCs detected, Trichloroethylene (TCE) and its breakdown product cis-1,2 Dichloroethylene (cis-1,2 DCE) were detected at concentrations exceeding the Unrestricted Soil Cleanup Objective (SCOs) and Protection of Groundwater SCOs. TCE was detected in two (2) soil borings (SB-11 and SB-19) in the area of the former vapor degreaser at concentrations ranging from 0.6 to 8.6 milligrams per kilogram (mg/kg) and at depths ranging from 5 to 13 feet below ground surface (bgs). Cis-1,2 DCE was detected in two soil borings (SB-19 and SB-21) also in the area of the former vapor degreaser at concentrations ranging from 1.0 to 1.2 mg/kg and at depths ranging from 6.5 to 13 feet bgs. The detected concentrations of TCE and cis-1,2 DCE in the former degreaser area slightly exceed the Unrestricted SCOs and Protection of Groundwater SCOs (0.47 mg/kg and 0.25 mg/kg, respectively) and are well below the Industrial SCOs (400 mg/kg and 1,000 mg/kg, respectively).

The former vapor degreaser was removed in order to access, excavate and remove contaminated soils adjacent to (SB-11 and SB-19 discussed above) and beneath the degreaser as part of IRM activities. In order to keep structural features (i.e. support columns) located in the vapor degreaser area intact and undisturbed, soils that exceed the Protection of Groundwater SCOs within the excavation area were left in place. In sample PE-2 (6.5'-7.5' bgs), cis 1,2 DCE was detected at a concentration of 0.57 mg/kg which exceeds the Protection of Groundwater SCO (0.25 mg/kg).

In addition, TCE was detected at a concentration (6.6 mg/kg) exceeding the Unrestricted SCOs and Protection of Groundwater SCOs (0.47 mg/kg) in MW-16 at a depth of 2 to 3 ft bgs. MW-16 was located within the outside disposal area near the southwest corner of the building. It should be noted that contaminated soils in

this area were excavated and disposed of off-site as part of the IRM activities in January 2012. In addition, monitoring well MW-16 was removed during the IRM activities in order to access the soils surrounding it.

No VOCs were detected above Unrestricted SCOs or Protection of Groundwater SCOs for the subsurface soil samples HRP collected during the IRM activities in the outside disposal area in June 2012.

VOC results for subsurface soils are summarized in Tables 1, 3, 8, and 15 and exceedances are illustrated on Figure 4.

Metals- Subsurface Soils

A total of twenty-three (23) metals were detected in the subsurface soil samples collected. Of the metals detected only nine (9) metals exceed various SCOs. The majority of the metal exceedances were detected within soils collected in the area of the former vapor degreaser (SB-8, SB-9, SB-11, SB-12), at shallow depths ranging from 2 to 4 ft bgs. The majority of the exceedances and highest concentrations were detected within boring SB-11. Within SB-11, Antimony (14.3 mg/kg) and Silver (9.9 mg/kg) exceed Unrestricted SCOs (13 mg/kg and 2 mg/kg, respectively), Cadmium (8.2 mg/kg) and Chromium (248 mg/kg) exceed Restricted Residential SCOs (4.3 mg/kg and 180 mg/kg, respectively), Lead (3,200 mg/kg) and Nickel (472 mg/kg) exceed Commercial SCOs (1,000 mg/kg and 310 mg/kg, respectively) and Copper (43,100 mg/kg) and Zinc (36,800 mg/kg) exceed Industrial SCOs (both 10,000 mg/kg). Other metal exceedances detected in the former vapor degreaser area include Arsenic (17.8 mg/kg) in SB-9, which exceed Industrial SCOs (16 mg/kg), and Zinc (ranging from 114 to 134 mg/kg) in SB-9 and SB-12 which exceed Unrestricted SCOs (0.18 mg/kg). Metals exceeding Unrestricted SCOs detected in shallow soils (2 to 4 ft bgs) outside of the former degreaser area include Manganese (1,720 mg/kg) in SB-5, and Copper (183 mg/kg) and Zinc (301 mg/kg) in SB-15. The Unrestricted SCOs for Manganese, Copper and Zinc are 1,600 mg/kg, 50 mg/kg and 109 mg/kg, respectively.

As part of the February 2013 IRM activities, soils that exceed Industrial SCOs for Arsenic (SB-9, discussed above) were also excavated and disposed of off-site. Confirmatory soil samples from this excavation indicate soils remain in place that exceed the Unrestricted SCOs for Zinc (109 mg/kg). Zinc concentrations ranged from 275 mg/kg to 369 mg/kg at sample locations PE-1 5'-6' and PE-5 6'-7'. It should be noted that no remaining onsite soils excced the Industrial SCOs for metals

In addition, metals exceeding the Unrestricted SCOs were detected in MW-16 at shallow depths between 2 and 4 ft bgs. The exceeding metals include Copper (54.8 mg/kg), Lead (254 mg/kg), Zinc (159 mg/kg) and Mercury (0.27 mg/kg). MW-16 was located within the outside disposal area. It should be noted that the contaminated soils in this area were excavated and disposed of off-site as part of the IRM activities in January 2012. In addition, monitoring well MW-16 was removed during the IRM activities in order to access the contaminated soils surrounding it.

Metal results for subsurface soils are summarized in Tables 2, 4, and 15 and exceedances are illustrated on Figure 4.

Subsurface Soils-Test Pits

Subsurface Sample Submittal-Test Pits

HRP collected eight (8) subsurface soil samples in December 2011 during test pit excavations. All eight (8) samples were analyzed for TCL VOCs via USEPA 8260B and selected samples were analyzed for TAL Metals via USEPA Method 6010B and 7471A.

VOCs - Test Pits

A total of five (5) VOCs were detected within the subsurface test pit soil samples collected, including TCE, Tetrachloroethylene (PCE), cis-1,2-DCE, Toluene, and Methylene Chloride. None of the detected VOCs concentrations collected from the test pits at exceed the Unrestricted SCOs or Protection of Groundwater SCOs. .

VOC results for subsurface soils collected from the test pits are summarized in Table 5 and test pit locations are illustrated on Figure 3.

Metals-Test Pits

A total of twenty-two (22) metals were detected in the test pit subsurface soil samples collected during the RI. With the exception of Chromium and Zinc, detected in subsurface soil from test pit TP-3 at a depth of 4.5 to 5 ft bgs, no metals were detected in test pit soil samples at concentrations exceeding the Unrestricted SCOs. Specifically, Chromium (159 mg/kg) and Zinc (207 mg/kg) were detected at concentrations above the Unrestricted SCOs of 30 mg/kg for Chromium and 109 mg/kg for Zinc. Chromium also exceeded Residential SCOs (36 mg/kg) in TP-3. No compounds detected exceed Restricted-Residential, Commercial, or Industrial SCOs.

Metal results for subsurface soils collected from the test pits are summarized in Table 6 and test pit locations are illustrated on Figure 3.

4.1.3 Surface Soil

Surface Sample Submittal

Six (6) surface samples were collected and analyzed, four of the samples were analyzed for Pesticides and PCBs (SS-1 through SS-4), and two of the samples (SS-5 and SS-6) were collected and analyzed for TAL Metals via USEPA Method 6010B and 7471A.

Pesticides and PCBs- Surface Soils

No PCBs were detected in the surface soil samples collected. Two pesticides, Dieldrin and Edrin Ketone, were detected in SS-1 (west side of building) and Endrin Ketone was detected in SS-3 (east side of building). The Endrin Ketone detected in SS-3 did not exceed Unrestricted SCOs. The Dieldrin (0.018 mg/kg) detected at in SS-1 exceed the Unrestricted SCO (0.005 mg/kg).

Pesticide and PCBs results for surface soil samples collected are summarized in Table 7. Surface soil sample locations are presented on Figure 3.

Metals- Surface Soils

A total of twenty-one (21) metals were detected in each of the two surface soil samples (SS-5 and SS-6). No metals were detected in surface soil samples at concentrations exceeding the Unrestricted SCOs.

Metal results for surface soil samples collected are summarized in Table 7. Surface soil sample locations are presented on Figure 3.

4.1.4 Groundwater-July 2011-Sampling Round

Groundwater (GW) – July 2011 - sample submittal

During this RI, four rounds of groundwater samples were collected and submitted for analysis from the onsite monitoring wells. This section discusses the July 2011 groundwater sampling event.

Fourteen (14) groundwater samples were collected between July 11 and 12, 2011, from the existing (13) thirteen overburden and bedrock groundwater monitoring wells and one production well. The groundwater samples were analyzed for TCL VOCs via USEPA 8260B, TAL Metals via USEPA Method 6010B and MW-7 was also analyzed for Routine Petroleum Products via Method 310.13.

VOCs- Groundwater (July 2011)

A total of fifteen (15) VOCs were detected within the fourteen (14) groundwater samples collected in July 2011. Of the VOCs detected, one or more chlorinated VOCs (CVOCs), which exceed their respective groundwater SCGs, were detected within each well sampled. The exceeding CVOCs detected include, and are not limited to PCE ranging from 5.6 (MW-7) to 20 ug/kg (MW-1) in the overburden wells and 61 ug/kg (RW-3) in the bedrock wells; TCE ranging from 13 ug/kg (MW-7) to 10,000 ug/kg (MW-5) in the overburden wells and 73 ug/kg (RW-6) to 800 ug/kg (RW-5) in the bedrock wells; cis-1,2 DCE ranging from 11 ug/kg (MW-2) to 6,300 ug/kg (MW-1) in the overburden wells and 38 ug/kg (RW-4) to 83 ug/kg (RW-2) in the bedrock wells; and Vinyl chloride ranging from 2.3 (MW-10) to 64 ug/kg (MW-9) in the overburden wells and 2.4 (RW-2) to 89 ug/kg (RW-4) in the bedrock wells. The groundwater SCG is 5 ug/kg for PCE, TCE and cis-1,2 DCE, and 2 ug/kg for Vinyl Chloride.

Of the overburden wells sampled, in general the highest concentrations of total CVOCs were detected in MW-5, located within the drum storage area, and in MW-1, located in the former vapor degreaser area. Of the bedrock wells, in general the highest concentrations of total CVOCs were detected in RW-2 located along the southern property boundary and down gradient of the site building and drum storage area, and RW-5 located along the southern property boundary.

The VOC results for the groundwater samples are summarized in Table 10. Sample locations, exceedences, and groundwater contours are illustrated on Figure 5 and Figure 9.

Metals- Groundwater (July 2011)

A total of nineteen (19) metals were detected within the fourteen (14) groundwater samples collected in July 2011. Concentrations of Iron, Magnesium, Manganese, and Sodium were detected above the groundwater SCGs in eleven (11) of the wells sampled; however, these metals are normally naturally occurring and not related to disposal at the site. Other metals that exceed the groundwater SCGs include Cadmium, detected in RW-2 (0.0055 mg/l) which exceeds the groundwater SCG of 0.005 mg/l, and Arsenic detected in MW-10 (0.034 mg/l) which exceeds the groundwater SCG of 0.025 mg/l. All other metals detected in the July 2011 sampling event were below the groundwater SCGs.

The metal results for the groundwater samples are summarized in Table 11. Sample locations, exceedences, and groundwater contours are illustrated on Figure 5 and Figure 9.

Routine Petroleum Products- Groundwater (July 2011)

A minor sheen was observed on the groundwater sample collected during purging of MW-7 in July 2011. Therefore, additional analysis of petroleum related products was completed. The results indicate that the following constituents were detected within MW-7: Fuel Oil #2 and Kerosene. The following constituents were not detected within MW-7: Fuel Oil #4 and #6, Gasoline, Motor Oil, Unknown Hydrocarbons. The source of the petroleum constituents detected is unknown. It should be noted the sheen was only observed in MW-7 during the July 2011 sampling event and was not detected with the water level meter capable of detecting free product at a thickness greater than 0.01 inch.

The petroleum results for the groundwater sample MW-7 is summarized in Table 13. Sample locations are illustrated on Figure 3 and Figure 5.

4.1.5 Groundwater-October 2011 Sampling Round

Groundwater –October 2011 - Sample Submittal

This section discusses the second round of groundwater sampling from the onsite monitoring wells that was conducted in October 2011.

Twenty-two (22) groundwater samples were collected between October 25 and 26, 2011, from the existing groundwater monitoring wells and the additional overburden monitoring wells installed by HRP during October 2011. All the groundwater samples were analyzed for TCL VOCs via USEPA 8260B and RCRA Metals via USEPA Method 6010B. The majority of the metals detected through the TAL Metals analysis in July 2011 sampling event were naturally occurring. Therefore, the metals evaluated in October 2011 were limited to the 8 RCRA Metals.

VOCs- Groundwater (October 2011)

A total of sixteen (16) VOCs were detected within the twenty-two (22) groundwater samples collected in October 2011. Of the VOCs detected, one or more chlorinated VOCs (CVOCs), which exceed their respective groundwater SCGs, were detected within each well sampled with the exception of MW-17 and MW-18 (located on western side of property). The exceeding CVOCs detected include, and are not limited to PCE ranging from 5.4 ug/kg (MW-1) to 30 ug/kg (MW-13) in the overburden wells and 62 ug/kg (RW-3) in the bedrock wells; TCE ranging from 5.2 ug/kg (MW-7) to 8,500 ug/kg (MW-5) in the overburden wells and 54 ug/kg (RW-6) to 410 ug/kg (RW-5) in the bedrock wells; cis-1,2 DCE ranging from 6.5 ug/kg (MW-14) to 2,300 ug/kg (MW-6) in the overburden wells and 36 ug/kg (RW-4) to 55 ug/kg (RW-6) in the bedrock wells; Vinyl chloride ranging from 66 ug/kg (MW-9) to 230 ug/kg (MW-6) in the overburden wells and 2.3 ug/kg (RW-2) to 89 ug/kg (RW-4) in the bedrock wells; and 1,1,2-Trichlorotrifluoroethane (Freon 113) ranging from 8.7 ug/kg (MW-14) to 11 ug/kg (MW-13) in the overburden wells and 7.6 ug/kg (RW-6) to 39 ug/kg (RW-3) in the bedrock wells. The groundwater SCG is 5 ug/kg for PCE, TCE, cis-1,2 DCE, and Freon 113 and 2 ug/kg for Vinyl Chloride.

Of the overburden wells sampled, in general the highest concentrations of total CVOCs were detected in MW-5 located within the drum storage area, MW-6 located southeast of the former degreaser area, and MW-16 located in the outside disposal area. Of the bedrock wells, in general the highest concentrations of total CVOCs were detected in RW-2 located along the southern property boundary and down gradient of the site building and drum storage area. It should be noted that the contaminated soils in the drum storage area and outside disposal area were excavated and disposed of off-site as part of the IRM activities in January 2012. In addition, monitoring wells MW-5 and MW-16 was removed during the IRM activities in order to access the contaminated soils surrounding it.

The VOC results for the groundwater samples are summarized in Table 10. Sample locations, exceedences, and groundwater contours are illustrated on Figure 6 and Figure 10.

Metals- Groundwater (October 2011)

A total of five (5) metals were detected within the twenty-two (22) groundwater samples collected in October 2011. Of the five metals detected, Arsenic (0.09 mg/l), Chromium (0.083 mg/l) and Lead (0.043 mg/l) detected in MW-10 exceed the groundwater SCGs (0.025 mg/l, 0.05 mg/l and 0.025 mg/l, respectively) and Cadmium (0.011 mg/l) detected in RW-2 exceeds the groundwater SCG (0.005 mg/l). All other metals detected in the October 2011 sampling event were below the groundwater SCGs.

The metal results for the groundwater samples are summarized in Table 11. Sample locations, exceedences, and groundwater contours are illustrated on Figure 6 and Figure 10.

4.1.6 Groundwater-December 2011 Sampling Round

Groundwater –December 2011 - Sample Submittal

This section discusses the third round of groundwater sampling from the onsite monitoring wells that was conducted in December 2011.

Four (4) groundwater samples were collected during the December 20, 2011 sampling event from bedrock monitoring wells installed by HRP earlier in December 2011. The groundwater samples were analyzed for TCL VOCs via USEPA 8260B.

VOCs- Groundwater (December 2011)

A total of fifteen (15) VOCs were detected within the four (4) groundwater samples collected in December 2011. Of the VOCs detected, one or more chlorinated VOCs (CVOCs), which exceed their respective groundwater SCGs, were detected within each bedrock well sampled. The exceeding CVOCs detected include, and are not limited to PCE ranging from 11 ug/kg (HRP-BR-3) to 19 ug/kg (HRP-BR-2); TCE ranging from 52 ug/kg (HRP-BR-4) to 1,200 ug/kg (HRP-BR-3); cis-1,2 DCE ranging from 9.5 ug/kg (HRP-BR-1) to 560 ug/kg (HRP-BR-3); Vinyl chloride ranging from 3.8 ug/kg (HRP-BR-1) to 18 ug/kg (HRP-BR-4); and Freon 113 ranging from 5.9 ug/kg (HRP-BR-3) to 9.2 ug/kg (HRP-BR-4). The groundwater SCG is 5 ug/kg for PCE, TCE, cis-1,2 DCE, and Freon 113 and 2 ug/kg for Vinyl Chloride.

Of the bedrock wells sampled, the highest concentrations of CVOCs were detected in HRP-BR-3, located south of the outside disposal area. It should be noted that the soil contaminated with TCE and TCE breakdown products at concentrations above the Protection of Groundwater was removed from the outside disposal area and disposed of off-site as part of the IRM activities in January 2012.

The VOC results for the groundwater samples are summarized in Table 10. Sample locations, exceedences, and groundwater contours are illustrated on Figure 7 and Figure 11.

4.1.7 Groundwater-September 2012 Sampling Round

Groundwater –September 2012 - Sample Submittal

This section discusses the fourth round of groundwater sampling from the onsite monitoring wells that was conducted in September 2012.

Twenty-two (22) groundwater samples were collected between September 20 and 21, 2012, from wells selected by the NYSDEC and HRP. All the groundwater samples were analyzed for TCL VOCs via USEPA 8260B. In addition, three samples (MW-12, MW-13, and RW-5) were analyzed for an expanded parameter list which included SVOCs via USEPA Method 8270C, TAL Metals via USEPA Method 6010B, Pesticides via USEPA Method 8081A, and PCBs via USEPA Method 8082, and Total Cyanide.

VOCs- Groundwater (September 2012)

A total of fifteen (15) VOCs were detected within the twenty-two (22) groundwater samples collected in September 2012. Of the VOCs detected, one or more chlorinated VOCs (CVOCs), which exceed their respective groundwater SCGs, were detected within each well sampled with the exception of MW-12 (located on the northern side of the property) and MW-19 (located on western side of property). The exceeding CVOCs detected include, and are not limited to PCE ranging from 5.5 ug/kg (MW-1) to 21 ug/kg (MW-13) in the overburden wells and 26 ug/kg (HRP-BR-2) to 44 ug/kg (RW-3) in the bedrock wells; TCE ranging from 5.6 ug/kg (MW-7) to 2,200 ug/kg (MW-15) in the overburden wells and 77 ug/kg (HRP-BR-3) to 380 ug/kg (RW-2) in the bedrock wells; cis-1,2 DCE ranging from 6.6 ug/kg (MW-13) to 3,100 ug/kg (MW-6) in the overburden wells and 14 ug/kg (HRP-BE-1) to 510 ug/kg (HRP-BR-3) in the bedrock wells; Vinyl chloride ranging from ND (9 out of 14 wells) to 2,400 ug/kg (MW-6) in the overburden wells and ND (RW-5) to 9.6 ug/kg (RW-2) in the bedrock wells; and Freon 113 ranging from 6.6 ug/kg (RW-2) to 32 ug/kg (RW-3) in the bedrock wells (Freon 113 concentrations did not exceed groundwater SCGs in the overburden wells. The groundwater SCG is 5 ug/kg for PCE, TCE, cis-1,2 DCE, and Freon 113 and 2 ug/kg for Vinyl Chloride.

Of the overburden wells sampled, in general the highest concentrations of total CVOCs were detected in MW-6 located southeast of the former degreaser area and in MW-15 located south and down-gradient of the drum storage area. Of the bedrock wells, in general the highest concentrations of total CVOCs were detected in HRP-BR-3 located south and adjacent to the outside disposal area and in RW-2 located along the southern property boundary and down gradient of the site building and drum storage area. It should be noted that the soil contaminated with TCE and TCE breakdown products at concentrations above the Protection of Groundwater was removed from the outside disposal area and disposed of off-site as part of the IRM activities in January 2012.

The VOC results for the groundwater samples are summarized in Table 10. Sample locations, exceedences, and groundwater contours are illustrated on Figure 8 and Figure 12.

SVOCs, Pesticides, PCBs- Groundwater (September 2012)

No Pesticides, PCB's, or SVOCs were detected and seven (7) metals were detected in the three groundwater samples collected in September 2012. Concentrations above the groundwater SCGs were detected in MW-12 only and include Arsenic (0.068 mg/l), Barium (1 mg/l), Chromium (0.18 mg/l), and Lead (0.1 mg/l). The groundwater SCG is 0.025 mg/l for Arsenic and Lead, 1 mg/l for Barium, and 0.05 for Chromium. MW-12 is located at the north side of the building and upgradient of the three areas of concern.

The results for the additional parameters are summarized in Table 12.

4.1.8 Stormwater Infiltration Basin Sampling

Surface Water and Soil - (June 2012) - Sample Submittal

Two surface water samples (SW-1 and SW-2) and four soil samples (SED-1 to SED-4) were collected from the stormwater infiltration basin on June 13, 2012. The surface water samples were analyzed for VOCs via USEPA Method 8260B, PCBs via USEPA Method 8082, Pesticides via USEPA Method 8081A, and RCRA Metals via USEPA Methods 6010B and 7470A. Two of the soil samples were analyzed for VOCs via USEPA Method 8260B, PCBs via USEPA Method 8082, Pesticides via USEPA Method 8081A, and RCRA Metals via USEPA Methods 6010B and 7470A, and the other two were analyzed for VOCs and Metals only.

An additional eleven (11) soil samples were collected on October 26, 2012 and were analyzed for VOCs via USEPA Method 8260B, RCRA 8 Metals via USEPA Method 601B and 7471A, and Total Organic Carbon.

Stormwater Basin Surface Water Results

No VOCs, PCBs or pesticides were detected above the groundwater SCGs for the surface water samples collected. However, two metals were detected above the Groundwater SCGs. Chromium was detected from 0.18 mg/l (SW-1) to 0.053 mg/l (SW-2) which exceeds the Groundwater SCGs of 0.05 mg/l. In addition, Lead was detected at a concentration of 0.045 mg/l in SW-1 which exceeds the Groundwater SCGs of 0.025 mg/l.

The results for the surface water samples are summarized in Table 14. Sample locations and exceedences are illustrated on Figures 3 and 13.

Stormwater Basin Soil Sample Results

One VOC, acetone, was detected above Unrestricted SCOs (0.05 mg/kg) in three locations: SED-2C, SED-2A, and SED-3 (ranging from 0.056 mg/kg to 0.21 mg/kg) at depths from 0 to 2 feet below grade. These concentrations are well below Commercial and Industrial SCOs. No other VOCs were detected above Unrestricted SCOs. One Pesticide, 4,4 DDT was detected above Unrestricted SCOs (3.3 ug.kg) in two locations, SED-1 and SED-3 (ranging from 42 ug/kg to 52

ug/kg) at a depth of 0 to 1 foot below grade Metals including barium, cadmium, chromium, copper, lead, zinc, and mercury were detected in soil collected from the stormwater infiltration basin at concentrations exceeding the Unrestricted SCOs but below Industrial SCOs. Chromium and Barium were the only metals detected in soil at concentrations above the Commercial SCOs of 1,500 mg/kg and 400 mg/kg, respectively in three locations at depths from 0 to 2 feet below grade: SED-2, SED-2C, and SED-2-2D. Specifically, chromium and barium were each detected in these soil samples ranging from 3,050 mg/kg to 5,830 mg/kg and 588 mg/kg to 805 mg/kg, respectively. It should be noted that the chromium and barium detections above the Commercial SCOs were in a localized area near an outfall located along the northeast corner of the basin. The stormwater basin does not contain a surface water inlet or outlet, only periodically contains surface water, and is approximately 0.2 acres in size.

The results for the soil samples are summarized in Table 9. Sample locations and exceedences are illustrated on Figures 3 and 13.

4.1.9 Data Usability Summary Reports

The analytical results were reviewed by Nancy Potak of Greensboro, VT for overall usability. The DUSR Report (Appendix B) found no rejections of data. Data was qualified for various reasons; however, overall the data is acceptable for the intended purpose.

5.0 INTERIM REMEDIAL MEASURES

The site is currently being managed as one operable unit. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate, or mitigate a release, threat of a release, or exposure pathway resulting from site contamination. Operable Unit 1 (OU-1) applies to the entire site and three Interim Remedial Measures (IRMs) were completed and identified as operable units OU-01A, OU-01B, and OU-01C specifically apply to a former drum storage area, a former vapor degreaser area, and an outside disposal area, respectively.

Three Interim Remedial Measures (IRMs) were completed during this RI to address Chlorinated VOCs (CVOCs), specifically TCE and its breakdown products, present in site soils at concentrations that exceed the Part 375 Protection of Groundwater SCOs. In January and September 2012 and February 2013, contaminated soil was excavated and disposed of off-site from three identified source areas as part of the IRMs. The three identified source areas included the former drum storage area (OU-01A), the former degreaser area (OU-01B), and the outside disposal area (OU-01C) at the southwest corner of the site (see Figure 2). The CVOC contamination in the drum storage area was identified during the previous environmental investigations and the CVOC contamination in the outside disposal area was identified during the monitoring well installation activities and test pit excavations activities conducted during this RI. Contamination detected within the subsurface soils of these areas of concern indicates contamination likely migrated in the groundwater from these source areas to immediately surrounding areas. In each of the three areas, TCE and TCE breakdown products were detected in the soil at concentrations above the Protection of Groundwater SCOs.

The IRM excavation activities for the former drum storage area (OU-01A) and outside disposal area (OU-01C) were conducted by Groundwater and Environmental Services (GES) of Cheektowaga, NY under a NYSDEC callout contract. From January 9th to 26th, 2012, GES oversaw the soil excavation services and off-site transportation and disposal of approximately 2,471 tons of contaminated soils from both source areas. HRP oversaw the activities GES conducted and provided input on sampling locations. GES subcontracted to TREC Environmental for implementing the soil excavation services and off-site transport and disposal. All soils were disposed of at the Waste Management Mill Seat Landfill in Bergen, New York. The soil samples collected during the IRM activities were completed in accordance with HRP's approved FAP, GES's approved IRM Work Plan and were submitted to TestAmerica Laboratory, of Amherst, New York, a NYSDOH ELAP approved laboratory.

Representatives from HRP, GES, TREC and the NYSDEC mobilized to the site on January 9th and began excavation activities near decommissioned well MW-5 within the former drum storage area (OU-01A). All excavated soil was screened by GES using a PID and observations were recorded by GES. Soils were excavated to an average depth of 10 to 12 feet within the drum storage area. GES collected a total of twenty seven (27) confirmatory soil samples from the sidewalls and base of the excavation. Excavation continued in the drum storage area until January 17th when confirmatory soil sample results were received and reviewed. The results of the GES confirmatory soil samples indicated CVOC concentrations within remaining soils within the drum storage area did not exceed the Protection of Groundwater SCOs.

On January 17th, representatives from HRP, GES, and TREC mobilized to the outside disposal area (OU-01C) and began excavating the historic surficial soil pile for proper offsite disposal. Excavation continued to the north and west within the location of the historic soil pile prior to expanding the excavation vertically. Soils were excavated to an average depth of six (6) feet below grade within the outside disposal area (OU-01C), with eastern areas of the excavation reaching nine (9) feet below grade. Excavation continued until January 26th when it became apparent that the eastern extent of contamination went beyond unpaved areas and excavating soils to the east would undermine aboveground structures (i.e. fencing and asphalt parking areas). GES collected a total of ten (10) post-excavation confirmatory soil samples for VOCs. The GES confirmatory soil sample results indicated that TCE and breakdown compounds, which exceed Unrestricted SCOs, remained in the soils along the eastern and southeastern corner of the excavation in three locations: PE Base 2 (8-9' bg) reported TCE at 5.4 mg/kg, the sample from the southeast corner from 5'-7' bg reported TCE at 96 mg/kg, and the east sidewall (EW-2) from 3'-5' bg reported TCE at 490 mg/kg, which also exceeded Industrial SCOs. Therefore, in June 2012 HRP installed borings east and southeast of the excavation boundaries, and collected nineteen (19) soil samples to further define the contamination in the outside disposal area. The samples were analyzed for VOCs. No VOCs were detected above Unrestricted SOCs or Protection of Groundwater SCOs within the soil samples, indicating that the soil contamination had been fully delineated horizontally and that the majority of the contaminated soils had been removed by the IRM excavation activities in the outside disposal area. The results of the HRP samples collected in June 2012 are summarized in Section 4. The NYSDEC and GES re-mobilized to the site in September 2012 and excavated an additional 243 tons of contaminated soil from near the base and eastern sidewall and collected an additional two (2) confirmatory soil samples. The results of the GES confirmatory soil samples indicated CVOC concentrations within remaining soils did not exceed the Protection of Groundwater SCOs.

A total of 1,143 tons of contaminated soils were removed from the drum storage area (OU-01A) and 1,328 tons of contaminated soils were removed from the outside disposal area (OU-1C) as part of the IRM activities. It should be noted that prior to excavation activities monitoring wells MW-5 and MW-16 were decommission by GES by grouting in-place, however during excavation activities these wells were ultimately removed. It should also be noted that during backfilling activities GES installed a demarcation barrier in each excavation to delineate soil left in place from the material used as backfill. In addition, prior to backfilling, GES installed a horizontal injection well within each excavation area for later in-situ applications to address any residual groundwater contamination. Specific IRM activities conducted by GES are detailed in GES's *Interim Remedial Measure Construction Completion Report* dated February 2013..

HRP provided oversight for the IRM of the former vapor degreaser area (OU-01B) from January 23, 2013 to February 22, 2013. The IRM was completed, in accordance with the NYSDEC approved *Interim Remedial Measure (IRM) Excavation Workplan*, dated January 17, 2013. Field activities associated with the IRM included the installation of structural supports within the area of the excavation work, and the excavation and off-site disposal of contaminated soils, brick and slag (see Figure 4) within the former vapor degreaser area that exceed the Protection of Groundwater Subpart Part 375 SCOs for CVOCs, including TCE and cis-1,2-DCE. In a separate excavation located approximately 10 feet south of the former vapor degreaser excavation, HRP also removed soils that exceed the Industrial SCOs for Arsenic (in the area of SB-9).

The construction of a temporary structural support system was completed from January 23-25, 2013 to provide engineering support for structural features (i.e. support columns) within and adjacent to the excavation area. On January 28, 2013 representatives from HRP and Op-Tech mobilized to the site and began concrete slab floor removal in order to access and remove the vapor degreaser. Excavation of the vapor degreaser began the same day and excavation continued to the south prior to expanding the excavation vertically and removing the concrete structures associated with the former vapor degreaser. The excavation was approximately 20 ft by 20 ft in size and soils were excavated to an average depth of eight (8) feet below grade with eastern and western areas of the excavation reaching five (5) feet below grade to bench the excavation for structural support. Groundwater was encountered intermittently at seven (7) to eight (8) feet below grade. Bedrock was not encountered during the excavation. Photo-ionization detector (PID) readings of the soils that were removed from the excavation ranged from 200 ppmv to 2,500 ppmv, and decreased with depth and lateral distance from the former vapor degreaser. All excavated materials were stockpiled onsite for proper disposal. Approximately 120 tons of contaminated soils, slag and brick in this area were excavated and disposed of off-site at the Waste Management Mill Seat Landfill in Bergen, New York

In total, 8 post excavation confirmatory soil samples were collected from the side walls and bottom of the vapor degreaser excavation and submitted to TestAmerica for analysis. All post excavation soil samples collected from the former degreaser area were below the Protection of Groundwater SCOs with the exception of one location. In order to keep structural features (i.e. support columns) located in the vapor degreaser area intact and undisturbed, soils that exceed the Protection of Groundwater SCOs within the excavation area were left in place. In sample PE-2 (6.5'-7.5' bgs), cis-1,2-DCE was detected at a concentration of 0.57 mg/kg which exceeds the Protection of Groundwater SCO (0.25 mg/kg).

In addition to the post excavation samples, two samples (PE-3 and PS-1) were collected from the contaminated soil that had been removed from the excavation to provide a baseline as to the levels of soil contamination within the area of the former vapor degreaser prior to the remedial activities. Soil sample results from the representative contaminated material contained TCE that exceed the Protection of Groundwater SCOs (0.47 mg/kg) and Industrial SCOs (400 mg/kg) ranging from 1.9 mg/kg to 4,100 mg/kg. Other VOCs detected, including 1,1 DCE, acetone, cis-1,2 DCE, ethylbenzene, Xylene, methylene chloride, Tetrachloroethylene (PCE), and Toluene also exceed the Protection of Groundwater SCOs. It should be noted that these soils were excavated and disposed of off-site.

On February 5, 2013, an additional area approximately 10 feet south of the former vapor degreaser excavation was also excavated to remove soil exceeding Industrial SCOs for Arsenic (in the area of SB-9). It should be noted that this was a separate excavation from the former degreaser excavation. This excavation was approximately 4 ft by 4 ft in size and soils were excavated to an average depth five (5) ft below grade. Contaminated soils in this area were excavated and disposed of off-site as part of IRM activities and a post-excavation soil sample from the base of this excavation showed Arsenic concentrations below Unrestricted SCOs. Two locations, PE-1 5'-6' (275 mg/kg) and PE-5 6'-7' (389 mg/kg) remain within this excavation where Zinc exceed the Unrestricted SCOs (109

mg/kg). No excedences of Industrial SCOs for metals remain in onsite soils. Specific IRM activities conducted by HRP are detailed in HRP's *Interim Remedial Measure Construction Completion Report* dated February 2013.

6.0 CONTAMINANT FATE AND TRANSPORT

This section discusses the mechanisms that may affect migration of contaminants at the Site and Study Area, and the chemical behavioral characteristics of the compounds detected, including persistence of these chemical substances. This information is compared with the Site specific data and observations to assist in assessing the extent of migration that has occurred.

6.1 Potential Routes of Migration

6.1.1 Soil Vapor

A Vapor Intrusion Study was prepared by Leader Professional Services in January 2007 for the NYSDEC Brownfield's Cleanup Program to determine if volatilized contamination from groundwater migrated in soil vapor above the groundwater table.

Elevated levels of VOCs, including non-chlorinated and chlorinated compounds PCE, TCE, and Vinyl chloride were detected in the indoor air and sub-slab soil vapor samples collected in 2007 and demonstrate that site-related contamination is present in the sub-slab vapor and indoor air of the building.

6.1.2 Groundwater

HRP collected and analyzed groundwater samples from the twenty-six monitoring wells during four sampling events. Based on the analytical results, there were six (6) VOCs detected during each round of groundwater sampling which exceeded the Groundwater SCGs from twenty-three (23) out of the twenty-six (26) wells. In addition, site-related metals (i.e. arsenic, chromium, and lead) were detected above Groundwater SCGs at MW-10 and cadmium was detected above Groundwater SCGs at RW-2. Several naturally occurring metals (iron, magnesium, manganese, and sodium) were detected throughout the site at concentrations above Groundwater SCGs.

Primary route of contaminant migration within the site is via groundwater. During the 2001 Phase II and 2006 Site Characterization report, TCE was detected in the soil and groundwater onsite at levels that exceed standards. However, when comparing historical results to the results of the current investigation it appears that the TCE has undergone significant degradation since 2001. Based on the known history of the site and previous investigations, there appear to be three primary source areas onsite where chlorinated solvents were discharged onsite: the interior vapor degreaser area (OU-01B), the exterior former drums storage area (OU-01A), and an outside disposal area (OU-01C) located at the southwestern corner of the site. Each of these areas, the drum storage, outside disposal area, and former vapor degreaser area, were remediated via excavation of contaminated soil during the IRMs in January 2012, September 2012, and February 2013, respectively as discussed in Section 5.0. Due to the historical high levels of TCE in the onsite groundwater and TCE being detected in onsite monitoring wells it has been determined that there is a potential for groundwater contamination to migrate from the site to the surrounding properties and potentially impact additional receptors.

Refer to Section 1.2.3 - Previous Investigations for a description of historical soil and groundwater analytical results.

6.1.3 Soil

The onsite investigation areas consist of paved asphalt, sidewalks, concrete floors, and some small landscaped areas. In addition, each of the three primary source areas where chlorinated solvents were discharged onsite have been removed during the 2012 and 2013 IRMs completed. Therefore, due to the impervious nature of the site and low detections of VOCs and Metals above NYSDEC SCOs in the remaining soil, there is little to no potential for the subsurface soil contaminants to migrate off-site in the unsaturated zone.

6.2 Contaminant Persistence

In general, chemical compounds within a given chemical class will behave similarly in the environment. However, significant differences in behavior of chemical compounds may be observed within a chemical class. Their behavior is dependent on their physical and chemical properties as well as environmental conditions, such as the presence of bacteria, pH variations, and oxidation potential (Eh) conditions. Certain metals were detected above applicable SCGs values in the soil and groundwater samples, are expected to be persistent onsite because of their chemical nature.

Trichloroethene (TCE) (CAS No. 79-01-6), one of the main contaminants of concern onsite, is a volatile organic compound that has a high vapor pressure (69.0 mm Hg at 25º C), is sparingly soluble (1,100 mg/L), and has a specific gravity of 1.464. When released to the air, it has a 5 to 7 day residence time and degrades to phosgene, dichloroacetyl chloride, and formyl chloride. Releases to the subsurface will result in either evaporation or percolation into the subsurface. TCE is not expected to bind with soil particles or bioaccumulate. Since it is heavier than water and has a low solubility value, TCE can form a dense nonaqueous phase liquid, or DNAPL at high concentrations. This class of chemicals will tend to sink through the water column (both surface and ground) until they encounter a barrier that is sufficiently impermeable to stop them. In soils they often will leave residual concentrations in pore spaces where the capillary pressure is strong enough to keep them from flowing. Once stopped, they and any residual concentrations will become a dissolved phase source. TCE has a relatively high Henry's Constant and will form a vapor plume in the vadose zone above a dissolved phase plume, which can be tracked using soil gas measurement techniques.

TCE degrades under both aerobic and anerobic conditions into a series of compounds known as “daughter compounds” or degradation products. Degradation products include 1,1-dichloroethane, cis-1,2-dichloroethene (cis-1,2-DCE), Vinyl Chloride, and Ethene. The presence of certain degradation products can indicate the conditions under which degradation takes place (i.e. Vinyl Chloride produced from cis-1,2 DCE under reducing conditions). The presence of elevated levels of cis-1,2-DCE and Vinyl Chloride indicates that the TCE onsite is being degraded under current conditions. Each of the three primary source areas where chlorinated solvents were detected have been removed during the 2012 and 2013 IRMs activities

completed. Therefore, contaminant persistence in the drum removal area, the outside disposal area, the former vapor degreaser and immediately surrounding areas will be minimal going forward.

6.3 Contaminant Migration

6.3.1 Factors Affecting Contaminant Migration

Possible factors affecting contaminant migration in soil vapor and groundwater includes future development or alteration of the onsite and offsite properties and the potential for vapors to migrate to the sub-slab area.

7.0 EXPOSURE ASSESSMENT

A qualitative baseline exposure assessment was completed based on the information presented in Sections 1.0 through 6.0.

7.1 Qualitative Public Exposure Assessment

This Section discusses the exposure assessment, an evaluation of Site occurrence and a comparison to State criteria related to potential impacts to human health. It should be noted that several conservative assumptions were used in completing this assessment; and, thus, the risks identified are expected to be "worst case scenarios".

7.1.1 Exposure Assessment

This exposure assessment discusses potential migration routes by which chemicals in the environment may be able to reach human receptors. This discussion is based on current and hypothetical future site conditions at the Site and investigation area, which is assumed to remain the same to the current conditions.

A complete exposure pathway must exist for an exposure to occur to the population from chemicals at the Site. A complete exposure pathway includes the following:

1. a source and mechanism of chemical release;
2. a transport medium;
3. a point of potential human contact with the contaminated medium;
4. an exposure route at the contact point; and
5. receptor population.

The Sections below focus primarily on identifying potential points of human contact with contaminated media and exposure pathways identified for the Site and investigation area.

Overburden and Bedrock Groundwater

Exposure to overburden and bedrock groundwater, if used as a drinking water supply, includes ingestion, dermal contact and inhalation of vapors.

At the time of investigation, the Site vicinity utilized municipal water for drinking water only. Therefore, a possible potential threat would occur during future renovations, demolitions, redevelopment or utility repair within the site, which may require excavation and dewatering, and workers may be exposed to groundwater. A second possible exposure could occur while visitors or trespassers were to come onsite during future construction activities and were exposed to the groundwater. The likelihood for these exposure scenarios to occur is considered low.

Surface Water

While surface water is present on the subject Site at the surface water impoundment on the western side of the property, exposure to surface water is unlikely since the surface water impoundment is in a remote portion of the site and has a fenced

eastern perimeter. It should also be noted that basin does not have an inlet or outlet. In addition, with the exception of two metals (Chromium and Lead) No VOCs, PCBs or Pesticides were detected above Groundwater SCGs. The overall likelihood for exposure to surface water is considered minimal at the subject Site.

Potential Exposure to Soil Vapors

When volatile organics are detected within soil gas, soils and/or groundwater it creates a potential exposure to building occupants when vapors accumulate beneath structures or have impacted indoor air quality within a structure.

The Site is currently developed and previous investigations indicate that site related contamination is present in the sub-slab vapor and indoor air of the building. The potential for exposures exists for onsite workers and site visitors.

Subsurface and Surface Soils

Potential routes of exposure to subsurface and surface soils include dermal contact, ingestion and inhalation of soil particulates. Exposure through dermal contact and ingestion is minimal due to the presence of the existing buildings, asphalt roads, and concrete sidewalks, as well as grass covered undeveloped areas across the Site. Exposure through inhalation is also considered low since no intrusive activities occur onsite that disturbs soils and generates inhalable dust. At present, the exposure to subsurface soils is presently minimal since the Site is developed, and soils are covered.

During possible future construction activities, specifically disturbance of soils, the potential for exposures to soils would increase for onsite workers, utility workers, trespassers and visitors. During development periods, construction fencing should be installed for safety reasons. This scenario would keep trespassers out and exposure to soils would be minimal to low.

8.0 CONCLUSIONS

The purpose of this remedial investigation is to identify and define the nature and extent of hazardous substances onsite. Based on the history of the site, the results of the previous investigations and this investigation, the primary contaminants of concern include chlorinated VOCs (i.e. TCE, PCE, cis-1,2-DCE, and Vinyl Chloride) as well as site-related metals (i.e. arsenic, chromium, copper, lead, and zinc). These contaminants of concern were detected within soils and groundwater over their applicable SCGs. During the investigation, three primary source areas were identified onsite where these contaminants of concern were released: the interior former vapor degreaser area, the exterior former drum storage area, and an outside disposal area located at the southwestern corner of the site.

Groundwater

Based on site investigation findings, the nature and extent of onsite contamination has been determined to include trichloroethylene (TCE) and its breakdown products in the groundwater that exceed their applicable Groundwater SCGs throughout the central and southern areas of the site. When comparing historical results to the results of the current investigation it appears that the TCE has undergone significant degradation since 2001. However, the presence of the elevated levels of CVOCs in the groundwater is a contributing factor to the contamination that is present in the sub-slab vapor and indoor air of the building as well as the subsurface soils. The Site utilizes municipal water for drinking water only and therefore direct exposure to the contamination within the groundwater is minimal.

Soils

Based on HRP's findings, the nature and extent of onsite contamination has been fully defined and the primary contaminants of concern in subsurface soils include CVOCs and metals that exceed Unrestricted and Protection of Groundwater SCOs. Each of the three primary source areas where chlorinated solvents were detected have been removed during the 2012 and 2013 IRM soil excavation activities completed. Therefore, contaminant persistence in the former degreaser area, former drum storage area, the outside disposal area, and areas downgradient will be minimal going forward. The remaining CVOC contamination within the subsurface soils is limited to a focused area of the former degreaser between the depths of 7 feet bg and 8 feet bg and is located near structural features within the building and as such, not feasible for removal. The elevated levels of breakdown products such as cis-1,2-DCE and Vinyl Chloride also indicates that the TCE within the soils is being degraded under current conditions. Direct exposure to the subsurface soils is minimal due to presence of the existing building, asphalt roads, concrete sidewalks and landscaped areas. Expose would increase would increase during future construction activities, specifically disturbance of soils.

Stormwater Infiltration Basin

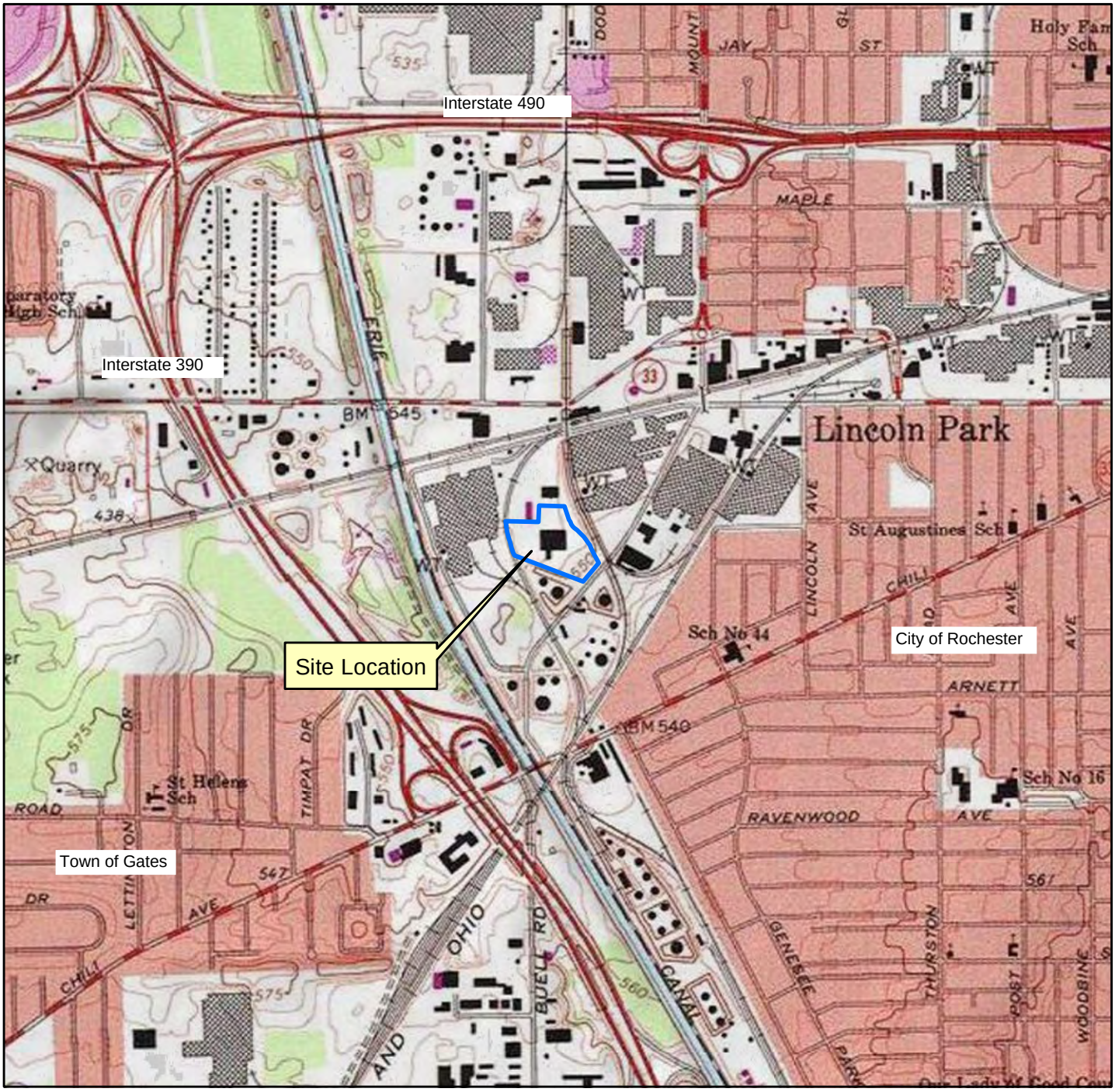
Based on HRP's findings, metals including barium, cadmium, chromium, copper, lead, zinc, and mercury were detected in soil collected from the stormwater infiltration basin at concentrations exceeding the Unrestricted SCOs but below Industrial SCOs. Chromium and Barium were the only metals detected in soil at concentrations above the Commercial SCOs. It should be noted that the chromium and barium detections above the Commercial SCOs were in a localized area near an outfall located along the northeast corner of the basin. The stormwater basin does not contain a surface water inlet or outlet, only periodically contains surface water, and is approximately 0.2 acres in size. At present, the exposure to subsurface soils is presently minimal since the eastern portion of the impoundment has a fenced perimeter, and access is limited.

Soil Vapor

Based on analytical results of the soil vapor from a previous investigation, site related contamination is present in the sub-slab vapor and indoor air of the building. The potential for exposures exists for onsite workers and site visitors.

IRMs

Three source areas, the former drum storage area, outside disposal area, and former vapor degreaser area, were remediated via excavation of contaminated soil during IRM activities in January and September 2012 and February 2013. Confirmatory soil samples collected by GES confirmed the remaining soils in the former drum storage area, outside disposal area do not exceed Unrestricted SCOs or Protection of Groundwater SCOs. This indicates that the soil contamination has been fully delineated horizontally and vertically and that the contaminated soils have been successfully removed by the IRM excavation activities in the former drum storage and outside disposal area. Confirmatory soil samples from within the former degreaser area confirmed that the remaining soils do not exceed the Protection of Groundwater SCOs for VOCs with the exception of two locations. The remaining CVOC contamination within the subsurface soils is limited to the area of the former degreaser between the depths of 7 feet bg and 8 feet bg and is located near structural features (i.e. support columns) within the building and as such, not feasible for removal. In addition the confirmatory soil samples confirmed that the remaining soils do not exceed the Industrial Use SCOs for Metals. As previously stated, the contaminant persistence in the former vapor degreaser area, former drum storage area, the outside disposal area, and areas downgradient will be minimal going forward.



0 1,000 2,000 4,000 6,000 8,000 Feet

1 inch = 2,000 feet

N

Figure 1
Site Location Map
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Scale 1" = 2,000'

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

Path: S:\Data\NNEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Site Location.mxd

N

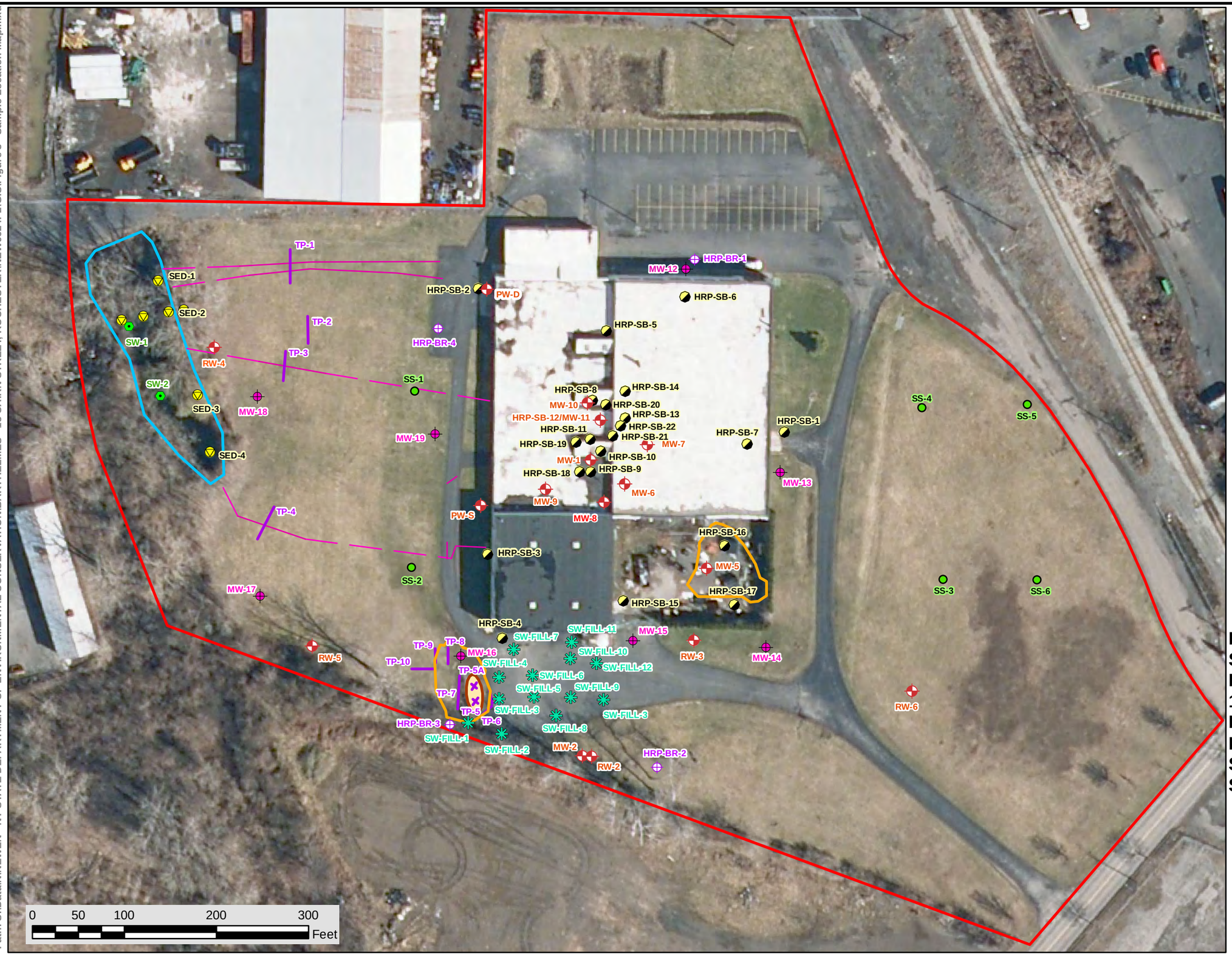
Legend

- Property Boundary
- Southwest Fill Area of Concern
- Former Degreaser Area of Concern
- Drum Storage Area of Concern
- Stormwater Infiltration Basin

Figure 2
Site Plan
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Site ID: 828122
Scale 1" = 100'

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA, TX and PA
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

Path: S:\Data\NNEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Site Plan - Revised JAN 2013.mxd



Legend

- Southwest Fill Samples
- HRP Bedrock Well
- Surficial Soil Sample
- Surface Water Sample
- Surface Soil Samples
- Overburden Monitoring Well
- Monitoring well
- Test Boring
- Test Pit
- IRM Excavation (approx.)
- Stormwater Infiltration Basin
- Property Boundary
- Discharge Piping (approx.)

Figure 3
Sample Location map
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Site ID: 828122
Scale 1" = 100'

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA, TX and PA
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

Path: S:\Data\NINEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\BARTHELMES - 15 CAIRN STREET, ROCHESTER\NEW9624P2\GIS\Figure 3 - Sample Location Map.mxd

LEGEND

- –HRP SOIL BORING
- –MONITORING WELL
- –BEDROCK MONITORING WELL
- –EXCEEDS 375–6 SCO – PROTECTION OF PUBLIC HEALTH INDUSTRIAL
- –EXCEEDS 375–6 SCO – PROTECTION OF PUBLIC HEALTH – UNRESTRICTED (SOIL IN PPM)

NOTE:
MW–16, MW–5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.

HRP-SB-5 2'-4' (9/13/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
MANGANESE	1,720	1,600	10,000

HRP-SB-8 2'-4' (9/14/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
ZINC	134	109	10,000

HRP-SB-12 2'-4' (9/14/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
ZINC	114	109	10,000

HRP-SB-11 2'-4' (9/14/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
ARSENIC	14.3	13	16
CADMIUM	8.2	2.5	60
CHROMIUM, TOTAL	248	30	800
COPPER	43,100	50	10,000
LEAD	3,200	63	3,900
NICKEL	472	30	10,000
SILVER	9.9	2	6,800
ZINC	36,800	109	10,000

HRP-SB-11 5'-7' (9/14/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
TRICHLOROETHYLENE	8.6 J H	.470	400

HRP-SB-21 6.5'-7' (6/12/2012)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
CIS-1,2-DICHLOROETHYLENE	1.0	.250	1,000

HRP-SB-19 12'-13' (6/12/2012)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
CIS-1,2-DICHLOROETHYLENE	1.2	.250	1,000
TRICHLOROETHYLENE	.600	.470	400

HRP-SB-9 2'-4' (9/14/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
ARSENIC	17.8	13	16

MW-16 2'-3' (10/20/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
TRICHLOROETHYLENE	6.6	.470	400
COPPER	54.8	50	10,000
LEAD	254	63	3,900
ZINC	159	109	10,000
MERCURY	0.27	0.18	5.7

HRP-SB-15 2'-4' (9/16/2011)		375-6 SCO PROTECTION OF PUBLIC HEALTH UNRESTRICTED	375-6 SCO PROTECTION OF PUBLIC HEALTH INDUSTRIAL
COPPER	183	50	10,000
ZINC	301	109	10,000

TRENCH DRAIN IN FRONT OF DOOR
COLLECTION PIT–1
HRP–SB–2
DEEP WELL
UNDERGROUND PIPES TO POND
HRP–BR–4
RW–4
MW–18
MW–19
COLLECTION PIT–2 AND DISCHARGE PIPE TO POND
HRP–SB–8
MW–10
HRP–SB–20
HRP–SB–12/ MW–11
HRP–SB–11
HRP–SB–19
HRP–SB–18
HRP–SB–10
MW–1
HRP–SB–13
HRP–SB–22
HRP–SB–21
MW–7
HRP–SB–14
APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK
DEGREASE ROOM
MW–6
HRP–SB–9
MW–8
MW–9
DRYWELL/FLOOR DRAIN
HRP–SB–5
MW–12
HRP–BR–1
HRP–SB–6
COLLECTION PIT–4
1 STRY. BLOCK BLDG.
HRP–SB–7
LOADING DOCK (TYP.)
HRP–SB–1
COLLECTION PIT–6
MW–13
SHALLOW WELL
HRP–SB–3
COLLECTION PIT–3
TRENCH DRAIN
1 STRY. BLOCK BLDG.
HRP–SB–16
MW–5
HRP–SB–17
HRP–SB–15
COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR
OUTLINE OF FENCE FOR DRUM STORAGE AREA
MW–17
RW–5
MW–16
HRP–SB–4
MW–15
RW–3
MW–14

N

FIGURE 4
SOIL SAMPLE EXCEEDANCES
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

MAP REFERENCE:
MAP DERIVED FROM ON–SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA, TX and PA
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

FIGURE 5 – JULY 2011
SHALLOW OVERBURDEN GROUNDWATER CONTOURS & EXCEEDANCES
BARTHELMES MFG. SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

MW-10 (7/12/2011)		NYSDEC CLASS GA CRITERIA
ACETONE	1100	50
CIS-1,2-DICHLOROETHYLENE	72	5
TRICHLOROETHYLENE	76	5
VINYL CHLORIDE	2.3	2

MW-9 (7/12/2011)		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	240	5
TRICHLOROETHYLENE	130	5
VINYL CHLORIDE	64	2

MW-8 (7/12/2011)		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	16	5
TETRACHLOROETHYLENE	6.5	5
TRICHLOROETHYLENE	250	5

MW-7 (7/12/2011)		NYSDEC CLASS GA CRITERIA
TETRACHLOROETHYLENE	5.6	5
TRICHLOROETHYLENE	13	5
IRON	1.4	0.3
MANGANESE	0.43	0.3
SODIUM, TOTAL	53.7	20

MW-6 (7/12/2011)		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	940	5
TETRACHLOROETHYLENE	10	5
TRICHLOROETHYLENE	720	5
VINYL CHLORIDE	21	2

MW-1 (7/12/2011)		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROETHANE	1.2	1
1,1-DICHLOROETHYLENE	23	5
CIS-1,2-DICHLOROETHYLENE	6300	5
TETRACHLOROETHYLENE	20	5
TRICHLOROETHYLENE	3700	5

MW-5 (7/12/2011)		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROETHANE	2.2	1
CIS-1,2-DICHLOROETHYLENE	230	5
TRICHLOROETHYLENE	10000	5

MW-2 (7/12/2011)		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	11	5
TRICHLOROETHYLENE	1700	5

TRENCH DRAIN IN FRONT OF DOOR
COLLECTION PIT-1
COLLECTION PIT-4
COLLECTION PIT-5
COLLECTION PIT-6
COLLECTION PIT-2 AND DISCHARGE PIPE TO POND
COLLECTION PIT-3
MW-12
HRP-BR-1
HRP-SB-2
DEEP WELL
DRYWELL/FLOOR DRAIN
HRP-SB-6
HRP-SB-5
HRP-BR-4
1 STRY. BLOCK BLDG.
UNDERGROUND PIPES TO POND
RW-4
Stormwater Infiltration Basin
MW-18
MW-19
HRP-SB-8
MW-10 (532.77)
HRP-SB-14
HRP-SB-12/MW-11
HRP-SB-13
HRP-SB-11
HRP-SB-10
FLOOR DRAIN FOR TUMBLER WASTE
(532.41) MW-1
HRP-SB-9
(532.36) MW-9
SHALLOW WELL
MW-8 (532.41)
DEGREASE ROOM
APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK
MW-6 (532.54)
MW-7 (532.52)
HRP-SB-7
LOADING DOCK (TYP.)
MW-13
HRP-SB-1
HRP-SB-16
HRP-SB-17
MW-5 (532.72)
OUTLINE OF FENCE FOR DRUM STORAGE AREA
HRP-SB-15
COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR
HRP-SB-3
TRENCH DRAIN
MW-17
HRP-SB-4
MW-15
RW-3
MW-14
RW-5
MW-16
HRP-BR-3
MW-2 (532.44)
RW-2
HRP-BR-2
UNCONFIRMED CONNECTION
532.75
532.70
532.65
532.40
532.45
532.50
532.55
532.60
532.65
532.70

N

LEGEND

- HRP SOIL BORING (SEPT 2011)
- MONITORING WELL
- BEDROCK MONITORING WELL
- 532.40 – GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- EXCEEDS NYSDEC CLASS GA CRITERIA

RW-6

TOTAL CVOCs CONCENTRATIONS IN GROUNDWATER

>100 ppb	>5,000 ppb
>500 ppb	>6,000 ppb
>1,000 ppb	>7,000 ppb
>2,000 ppb	>8,000 ppb
>3,000 ppb	>9,000 ppb
>4,000 ppb	>10,000 ppb

NOTE:
MW-16, MW-5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.

MAP REFERENCE:
MAP DERIVED FROM ON-SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

TOTAL CVOCs CONCENTRATIONS IN GROUNDWATER

N

>5 ppb
>50 ppb
>100 ppb
>500 ppb
>1,000 ppb
>2,000 ppb
>3,000 ppb
>4,000 ppb
>5,000 ppb
>6,000 ppb
>7,000 ppb
>8,000 ppb

MW-19		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	34	5

MW-10		NYSDEC CLASS GA CRITERIA
ACETONE	240 J	5
ARSENIC	0.09	0.025
CHROMIUM	0.083	0.05
LEAD	0.043	0.025

MW-11		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	95	5
TRICHLOROETHYLENE	400	5

MW-7		NYSDEC CLASS GA CRITERIA
TETRACHLOROETHYLENE	5.7	5
TRICHLOROETHYLENE	5.2	5

MW-9		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	260	5
TRICHLOROETHYLENE	310	5
VINYL CHLORIDE	66	2

MW-13		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	8.6	5
TETRACHLOROETHYLENE	30	5
TRICHLOROETHYLENE	14	5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	11	5

MW-1		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	110	5
TETRACHLOROETHYLENE	5.4	5
TRICHLOROETHYLENE	250	5

MW-8		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	8.7	5
TETRACHLOROETHYLENE	7.7	5
TRICHLOROETHYLENE	200	5

MW-6		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	2,300	5
TETRACHLOROETHYLENE	9.0	5
TRICHLOROETHYLENE	630	5
VINYL CHLORIDE	230	2

MW-5		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	180	5
TRICHLOROETHYLENE	8,500	5
1,1,2-TRICHLOROETHANE	2.6	1

MW-15		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	11	5
TRICHLOROETHYLENE	940	5

MW-14		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	6.5	5
TRICHLOROETHYLENE	6.1	5
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	8.7	5

MW-16		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	270 E	5
TRICHLOROETHYLENE	1,400 E	5

MW-2		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	320 E	5

TRENCH DRAIN IN FRONT OF DOOR
COLLECTION PIT-1
COLLECTION PIT-4
COLLECTION PIT-5
COLLECTION PIT-6
(533.71) MW-12
[ND] HRP-BR-1
HRP-SB-6
533.6
HRP-SB-2
DEEP WELL
DRYWELL/FLOOR DRAIN
HRP-SB-5
HRP-BR-4
533.4
533.2
533.0
532.8
532.6
532.4
532.2
532.0
UNDERGROUND PIPES TO POND
RW-4
Stormwater Infiltration Basin
COLLECTION PIT-2 AND DISCHARGE PIPE TO POND
[ND] MW-18 (533.50)
1 STRY. BLOCK BLDG.
HRP-SB-8
MW-10 (533.12)
HRP-SB-14
HRP-SB-12/MW-11 (532.79)
HRP-SB-13
HRP-SB-11
HRP-SB-10
HRP-SB-7
HRP-SB-1
MW-19 (532.70)
MW-7 (532.66)
LOADING DOCK (TYP.)
MW-13 (532.90)
FLOOR DRAIN FOR TUMBLER WASTE
(532.57) MW-1
HRP-SB-9
(532.52) MW-9
DEGREASE ROOM
MW-6 (532.60)
APPROXIMATE LOCATION OF SOURCE OF VAPOR DEGREASER SOLVENT
SHALLOW WELL
MW-8 (532.57)
UNCONFIRMED CONNECTION
HRP-SB-16
HRP-SB-3
1 STRY. BLOCK BLDG.
OUTLINE OF FENCE FOR DRUM STORAGE AREA
MW-5 (532.59)
COLLECTION PIT-3
TRENCH DRAIN
COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR
HRP-SB-15
HRP-SB-17
[ND] MW-17 (533.33)
HRP-SB-4
MW-15 (532.37)
RW-3
MW-14 (532.50)
RW-5
MW-16 (532.35)
RW-6
HRP-BR-3
MW-2 (531.97)
RW-2
HRP-BR-2

LEGEND

- HRP SOIL BORING (SEPT 2011)
- MONITORING WELL
- BEDROCK MONITORING WELL
- TCE ISOPLETHS
- 532.4 – GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- EXCEEDS NYSDEC CLASS GA CRITERIA

NOTE:
MW-16, MW-5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.

MAP REFERENCE:
MAP DERIVED FROM ON-SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

FIGURE 6
OCTOBER 2011
SHALLOW OVERBURDEN GROUNDWATER CONTOURS AND EXCEEDANCES
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

N

TRENCH DRAIN IN FRONT OF DOOR

COLLECTION PIT-1

(533.71)
MW-12

HRP-BR-1

COLLECTION PIT-4

533.6

HRP-SB-6

HRP-SB-2

DEEP WELL

DRYWELL/FLOOR DRAIN

533.4

COLLECTION PIT-5

HRP-BR-4

HRP-SB-5

1 STRY. BLOCK BLDG.

533.2

Stormwater Infiltration Basin

RW-4

UNDERGROUND PIPES TO POND

COLLECTION PIT-2 AND DISCHARGE PIPE TO POND

533.0

HRP-SB-8

HRP-SB-14

MW-10

HRP-SB-12/MW-11 (532.79)

MW-18
(533.50)

532.8 (533.12)

HRP-SB-13

COLLECTION PIT-6

HRP-SB-11

HRP-SB-10

MW-19
(532.70)

MW-7
(532.57)

HRP-SB-7

HRP-SB-1

FLOOR DRAIN FOR TUMBLER WASTE

LOADING DOCK (TYP.)

APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK

MW-13
(532.90)

532.6

(532.48) MW-1

HRP-SB-9

DEGREASE ROOM

MW-6 (532.57)

UNCONFIRMED CONNECTION

(532.41) MW-9

SHALLOW WELL

MW-8
(532.46)

532.4

1 STRY. BLOCK BLDG.

HRP-SB-16

HRP-SB-3

OUTLINE OF FENCE FOR DRUM STORAGE AREA

MW-5
(532.63)

COLLECTION PIT-3

TRENCH DRAIN

COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR

HRP-SB-15

HRP-SB-17

MW-17
(533.33)

HRP-SB-4

MW-15
(532.37)

RW-3

MW-14
(532.50)

RW-5

MW-16
(532.35)

RW-6

HRP-BR-3

532.2

MW-2
(532.13)

RW-2

HRP-BR-2

LEGEND

- HRP SOIL BORING (SEPT 2011)
- MONITORING WELL
- BEDROCK MONITORING WELL
- 532.4 – GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

NOTE:
MW-16, MW-5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.

MAP REFERENCE:
MAP DERIVED FROM ON-SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

FIGURE 7
DECEMBER 2011
SHALLOW OVERBURDEN GROUNDWATER CONTOURS
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

N

MW-11		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	170	5
TRICHLOROETHYLENE	930	5

MW-9		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	16	5
TRICHLOROETHYLENE	84	5
VINYL CHLORIDE	5.7	2

MW-8		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	230	5
TETRACHLOROETHYLENE	5.6	5
TRICHLOROETHYLENE	360	5
VINYL CHLORIDE	11	2

MW-7		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	5.6	5

MW-13		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	6.6	5
TETRACHLOROETHYLENE	21	5
TRICHLOROETHYLENE	13	5
1,1,2-TRICHLOROTRIFLUOROETHANE	9.7	5

MW-1		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	34	5
TETRACHLOROETHYLENE	5.5	5
TRICHLOROETHYLENE	150	5

MW-6		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	3,100	5
TRICHLOROETHYLENE	130	5
VINYL CHLORIDE	2,400	2

MW-15		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	100	5
TRICHLOROETHYLENE	2,200 E	5

MW-14		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	22	5
TETRACHLOROETHYLENE	5.3	5
TRICHLOROETHYLENE	19	5
1,1,2-TRICHLOROTRIFLUOROETHANE	22	5

MW-2		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	190	5

TRENCH DRAIN IN FRONT OF DOOR
COLLECTION PIT–1
(532.11) MW–12
HRP–BR–1
COLLECTION PIT–4
HRP–SB–2
DEEP WELL
DRYWELL/FLOOR DRAIN
HRP–SB–6
HRP–BR–4
HRP–SB–5
COLLECTION PIT–5
1 STRY. BLOCK BLDG.
Stormwater Infiltration Basin
RW–4
UNDERGROUND PIPES TO POND
COLLECTION PIT–2 AND DISCHARGE PIPE TO POND
HRP–SB–8
MW–10
HRP–SB–14
HRP–SB–12/MW–11 (531.53)
HRP–SB–13
MW–18 [NS]
MW–19 [ND] (531.00)
HRP–SB–11
HRP–SB–10
FLOOR DRAIN FOR TUMBLER WASTE
(531.44) MW–1
MW–7 (531.56)
HRP–SB–7
COLLECTION PIT–6
HRP–SB–1
LOADING DOCK (TYP.)
MW–13 (531.96)
APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK
HRP–SB–9
DEGREASE ROOM
MW–6 (531.56)
PW–S
(531.29) MW–9
MW–8 (531.44)
UNCONFIRMED CONNECTION
1 STRY. BLOCK BLDG.
HRP–SB–16
HRP–SB–3
OUTLINE OF FENCE FOR DRUM STORAGE AREA
MW–5
COLLECTION PIT–3
TRENCH DRAIN
COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR
HRP–SB–15
HRP–SB–17
HRP–SB–4
MW–15 (531.35)
RW–3
MW–14 (531.63)
MW–16
RW–6
HRP–BR–3
RW–2
MW–2 (532.01)
HRP–BR–2

LEGEND

- –HRP SOIL BORING (SEPT 2011)
- –MONITORING WELL
- –BEDROCK MONITORING WELL
- MW–17 [NS]
- –EXCEEDS NYSDEC CLASS GA CRITERIA
- RW–5

TOTAL CVOCs CONCENTRATIONS IN GROUNDWATER

>5 ppb	>2,000 ppb
>50 ppb	>3,000 ppb
>100 ppb	>4,000 ppb
>500 ppb	>5,000 ppb
>1,000 ppb	[NS] NOT SAMPLED

NOTES:

- MW–16, MW–5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.
- GROUNDWATER CONTOURS NOT COLLECTED FROM ALL WELLS, THEREFORE CONTOURS WERE NOT MAPPED

MAP REFERENCE:
MAP DERIVED FROM ON–SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

FIGURE 8
SEPTEMBER 2012
SHALLOW OVERBURDEN GROUNDWATER EXCEEDANCES
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

FIGURE 9
JULY 2011
BEDROCK GROUNDWATER CONTOURS AND EXCEEDANCES
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

N

RW-4		NYSDEC CLASS A CRITERIA
IRON	**3.1**	3
1,1-DICHLROETHANE	**7.1**	5
CIS-1,2-DICHLOROETHYLENE	**38**	5
VINYL CHLORIDE	**89**	2

RW-5		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	**800**	5
IRON	**0.60**	0.3

RW-2		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE (FREON 13)	**18**	5
CIS-1,2-DICHLOROETHYLENE	**83**	5
TRICHLOROETHYLENE	**430**	5
VINYL CHLORIDE	**2.4**	2
CADMUM	**0.0055**	0.005
IRON	**0.74**	0.3
MAGNESIUM	**39.9**	35
MANGANESE	**3**	0.3
SODIUM, TOTAL	**70.4**	20

RW-3		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE (FREON 13)	**32**	5
CIS-1,2-DICHLOROETHYLENE	**49**	5
TETRACHLOROETHYLENE	**62**	5
VINYL CHLORIDE	**82**	2
MAGNESIUM	**35.5**	35
MANGANESE	**1.1**	0.3
SODIUM, TOTAL	**71**	20

RW-2		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE (FREON 13)	**14**	5
CIS-1,2-DICHLOROETHYLENE	**74**	5
TRICHLOROETHYLENE	**73**	5
VINYL CHLORIDE	**4.7**	2
TETRACHLOROETHYLENE	**6.4**	0.005
IRON	**1.3**	0.3
MAGNESIUM	**43**	35
SODIUM, TOTAL	**114**	20

TRENCH DRAIN IN FRONT OF DOOR
COLLECTION PIT-1
COLLECTION PIT-4
COLLECTION PIT-5
COLLECTION PIT-6
MW-12
HRP-SB-2
DEEP WELL
DRYWELL/FLOOR DRAIN
HRP-SB-6
HRP-SB-5
1 STRY. BLOCK BLDG.
UNDERGROUND PIPES TO POND
RW-4 (525.51)
Stormwater Infiltration Basin
COLLECTION PIT-2 AND DISCHARGE PIPE TO POND
MW-18
HRP-SB-8
MW-10
HRP-SB-14
HRP-SB-12/MW-11
HRP-SB-13
HRP-SB-11
HRP-SB-10
FLOOR DRAIN FOR TUMBLER WASTE
MW-7
HRP-SB-7
HRP-SB-1
LOADING DOCK (TYP.)
APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK
MW-19
MW-1
HRP-SB-9
MW-9
DEGREASE ROOM
MW-8
MW-6
MW-13
UNCONFIRMED CONNECTION
SHALLOW WELL
HRP-SB-16
MW-5
HRP-SB-3
1 STRY. BLOCK BLDG.
COLLECTION PIT-3
TRENCH DRAIN
COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR
HRP-SB-15
HRP-SB-17
MW-17
HRP-SB-4
MW-15
RW-3 (526.49)
MW-14
OUTLINE OF FENCE FOR DRUM STORAGE AREA
RW-5 (531.83)
MW-16
MW-2
RW-2 (527.03)
RW-6 (532.51)

526.0 526.5 527.0 527.5 528.0 528.5 529.0 529.5 530.0 530.5 531.0 531.5 532.0

LEGEND

- HRP SOIL BORING (SEPT 2011)
- MONITORING WELL
- 530.0 – GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- EXCEEDS NYSDEC CLASS GA CRITERIA

NOTES:
- MW-16, MW-5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.
- CONTOURS INCLUDE PREVIOUSLY INSTALLED BEDROCK WELLS THAT WERE POORLY CONSTRUCTED, PRESUMED GROUNDWATER FLOW DIRECTION ILLUSTRATED ON THIS FIGURE MAY BE AFFECTED.

MAP REFERENCE:
MAP DERIVED FROM ON-SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

N

TRENCH DRAIN IN FRONT OF DOOR

RW-4		NYSDEC CLASS A CRITERIA
1,1-DICHLOROETHANE	**7.0**	5
CIS-1,2-DICHLOROETHYLENE	**36**	5
VINYL CHLORIDE	**89**	2

COLLECTION PIT-1
MW-12
COLLECTION PIT-4
UNDERGROUND PIPES TO POND
HRP-SB-2
DEEP WELL
DRYWELL/FLOOR DRAIN
HRP-SB-6
HRP-SB-5
COLLECTION PIT-5
1 STRY. BLOCK BLDG.
Stormwater Infiltration Basin
RW-4 (525.73)
526.0
526.5
527.0
527.5
528.0
528.5
529.0
529.5
530.0
530.5
531.0
531.5
COLLECTION PIT-2 AND DISCHARGE PIPE TO POND
MW-18
MW-19
HRP-SB-8
MW-10
HRP-SB-14
HRP-SB-12/MW-11
HRP-SB-13
HRP-SB-11
HRP-SB-10
FLOOR DRAIN FOR TUMBLER WASTE
MW-1
HRP-SB-9
MW-9
DEGREASE ROOM
MW-8
MW-7
HRP-SB-7
APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK
MW-6
COLLECTION PIT-6
HRP-SB-1
LOADING DOCK (TYP.)
MW-13
UNCONFIRMED CONNECTION
SHALLOW WELL
HRP-SB-3
COLLECTION PIT-3
TRENCH DRAIN
1 STRY. BLOCK BLDG.
HRP-SB-16
MW-5
HRP-SB-17
HRP-SB-15
COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR
HRP-SB-4
MW-15
RW-3 (526.71)
MW-14
OUTLINE OF FENCE FOR DRUM STORAGE AREA
RW-6 (532.06)
MW-17
RW-5 (531.96)
MW-16
MW-2
RW-2 (527.08)

RW-5		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	**410**	5

RW-2		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	**51**	5
TRICHLOROETHYLENE	**270**	5
VINYL CHLORIDE	**2.3**	2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	**21**	5

RW-3		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	**48**	5
TETRACHLOROETHYLENE	**62**	5
TRICHLOROETHYLENE	**63**	5
VINYL CHLORIDE	**2.6**	2
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	**39**	5

RW-6		NYSDEC CLASS A CRITERIA
TRICHLOROETHYLENE	**54**	5
VINYL CHLORIDE	**3.8**	2
1,1,2-TRICHLORO-1,2,2-TRILUOROETHANE	**7.6**	5
DICHLORODIFLUOROMETHANE	**55**	5

LEGEND

- –HRP SOIL BORING (SEPT 2011)
- –MONITORING WELL
- 532.4 –GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- –GROUNDWATER FLOW DIRECTION
- –EXCEEDS NYSDEC CLASS GA CRITERIA

NOTE:
- MW-16, MW-5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.
- CONTOURS INCLUDE PREVIOUSLY INSTALLED BEDROCK WELLS THAT WERE POORLY CONSTRUCTED, PRESUMED GROUNDWATER FLOW DIRECTION ILLUSTRATED ON THIS FIGURE MAY HAVE BEEN AFFECTED.

MAP REFERENCE:
MAP DERIVED FROM ON-SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

FIGURE 10
OCTOBER 2011
BEDROCK GROUNDWATER CONTOURS AND EXCEEDANCES
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

HRP-BR-4		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE (FREON 113)	**9.2**	5
1,1-DICHLOROETHANE	**10**	5
CIS-1,2-DICHLOROETHYLENE	**66**	5
TRICHLOROETHYLENE	**52**	5
VINYL CHLORIDE	**18**	2

HRP-BR-1		NYSDEC CLASS GA CRITERIA
BENZENE	**1.1**	1
CIS-1,2-DICHLOROETHYLENE	**9.5**	5
VINYL CHLORIDE	**3.8**	5

TRENCH DRAIN IN FRONT OF DOOR

COLLECTION PIT-1

HRP-BR-1 (519.86)

MW-12

COLLECTION PIT-4

UNDERGROUND PIPES TO POND

HRP-SB-2

DEEP WELL

DRYWELL/FLOOR DRAIN

HRP-SB-6

COLLECTION PIT-5

HRP-BR-4 (523.31)

523.0

522.5

522.0

521.5

521.0

HRP-SB-5

1 STRY. BLOCK BLDG.

Stormwater Infiltration Basin

RW-4

COLLECTION PIT-2 AND DISCHARGE PIPE TO POND

HRP-SB-8

MW-10

HRP-SB-14

HRP-SB-12/MW-11

HRP-SB-13

COLLECTION PIT-6

HRP-SB-1

MW-18

HRP-SB-11

HRP-SB-10

MW-7

HRP-SB-7

LOADING DOCK (TYP.)

MW-19

FLOOR DRAIN FOR TUMBLER WASTE

APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK

MW-1

HRP-SB-9

DEGREASE ROOM

MW-8

MW-13

MW-9

520.5

UNCONFIRMED CONNECTION

SHALLOW WELL

COLLECTION PIT-3

1 STRY. BLOCK BLDG.

HRP-SB-16

HRP-SB-3

MW-5

TRENCH DRAIN DISCHARGING TO AN OUTDOOR RAISED CATCH BASIN PUMPING TO THE POND

HRP-SB-15

HRP-SB-17

MW-17

COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR

HRP-SB-4

MW-15

RW-3

MW-14

RW-5

MW-16

519.5

519.0

OUTLINE OF FENCE FOR DRUM STORAGE AREA

520.5

RW-6

(518.54)

HRP-BR-3

HRP-BR-3		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE (FREON 113)	**5.9**	1
CIS-1,2-DICHLOROETHYLENE	**560**	5
TETRACHLOROETHYLENE	**11**	5
TRICHLOROETHYLENE	**1,200**	5
VINYL CHLORIDE	**5.6**	2

MW-2

RW-2

HRP-BR-2 (520.08)

HRP-BR-2		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE (FREON 113)	**8.3**	5
CIS-1,2-DICHLOROETHYLENE	**38**	5
TETRACHLOROETHYLENE	**19**	5
TRICHLOROETHYLENE	**54**	5

N

LEGEND

- –HRP SOIL BORING (SEPT 2011)
- –MONITORING WELL
- –BEDROCK MONITORING WELL
- 531.5 –GROUNDWATER CONTOURS (DASHED WHERE INFERRED)
- –GROUNDWATER FLOW DIRECTION

MAP REFERENCE:
MAP DERIVED FROM ON–SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

FIGURE 11
DECEMBER 2011
BEDROCK GROUNDWATER CONTOURS
AND EXCEEDANCES
BARTHELMES MANUFACTURING
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

N

TRENCH DRAIN IN FRONT OF DOOR

PW-D		NYSDEC CLASS GA CRITERIA
CHLOROFORM	19	7

HRP-BR-1		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	14	5
TRICHLOROETHYLENE	2.3	5
VINYL CHLORIDE	4.8	2

COLLECTION PIT-1

MW-12

HRP-BR-1 (521.99)

COLLECTION PIT-4

RW-4		NYSDEC CLASS GA CRITERIA
VINYL CHLORIDE	1.4	2

HRP-SB-2

PW-D

DRYWELL/FLOOR DRAIN

HRP-SB-6

(525.04)
HRP-BR-4

524.5

524.0

523.5

523.0

522.5

HRP-SB-5

1 STRY. BLOCK BLDG.

COLLECTION PIT-5

Stormwater Infiltration Basin

RW-4

UNDERGROUND PIPES TO POND

COLLECTION PIT-2 AND DISCHARGE PIPE TO POND

HRP-SB-8

MW-10

HRP-SB-14

HRP-SB-12/MW-11

HRP-SB-13

MW-18

HRP-BR-4		NYSDEC CLASS GA CRITERIA
1,1-DICHLOROETHANE	5.1	5
CIS-1,2-DICHLOROETHYLENE	50	5
VINYL CHLORIDE	8.7	2

COLLECTION PIT-6

HRP-SB-1

HRP-SB-11

HRP-SB-10

MW-19

MW-7

HRP-SB-7

LOADING DOCK (TYP.)

MW-13

FLOOR DRAIN FOR TUMBLER WASTE

APPROXIMATE LOCATION OF FORMER VAPOR DEGREASER TANK

MW-1

HRP-SB-9

MW-6

DEGREASE ROOM

MW-9

MW-8

PW-S		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	720	5
TRANS-1,2-DICHLOROETHYLENE	22	5
TRICHLOROETHYLENE	1,100	5
VINYL CHLORIDE	20	2

UNCONFIRMED CONNECTION

PW-S

RW-3		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE	32	5
CIS-1,2-DICHLOROETHYLENE	50	5
TETRACHLOROETHYLENE	44	5
TRICHLOROETHYLENE	73	5
VINYL CHLORIDE	2.9	2

1 STRY. BLOCK BLDG.

OUTLINE OF FENCE FOR DRUM STORAGE AREA

HRP-SB-16

HRP-SB-3

MW-5

522.0

HRP-SB-17

COLLECTION PIT-3

TRENCH DRAIN

COLLECTION PIT AND TRENCH DRAIN IN FRONT OF DOOR

HRP-SB-15

MW-17

HRP-SB-4

MW-15

RW-3

MW-14

RW-6

LEGEND

- HRP SOIL BORING (SEPT 2011)
- MONITORING WELL
- BEDROCK MONITORING WELL
- EXCEEDS NYSDEC CLASS GA CRITERIA

RW-5

MW-16

521.5

521.0

RW-5		NYSDEC CLASS GA CRITERIA
TRICHLOROETHYLENE	1.4	2

RW-2		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE	6.6	5
CIS-1,2-DICHLOROETHYLENE	180	5
TRANS-1,2-DICHLOROETHYLENE	6.2	5
TRICHLOROETHYLENE	380	5
VINYL CHLORIDE	9.6	2

HRP-BR-3

(520.06)

520.5

HRP-BR-3		NYSDEC CLASS GA CRITERIA
CIS-1,2-DICHLOROETHYLENE	510	5
TRANS-1,2-DICHLOROETHYLENE	11	5
TRICHLOROETHYLENE	350	5
VINYL CHLORIDE	8.1	2

MW-2

RW-2

HRP-BR-2		NYSDEC CLASS GA CRITERIA
1,1,2-TRICHLOROTRIFLUOROETHANE	20	5
CIS-1,2-DICHLOROETHYLENE	66	5
TETRACHLOROETHYLENE	26	5
TRICHLOROETHYLENE	77	5

HRP-BR-2

(521.86)

NOTE:
MW-16, MW-5 AND SURROUNDING SOIL WERE REMOVED DURING JANUARY 2012 IRM EXCAVATION.

MAP REFERENCE:
MAP DERIVED FROM ON-SITE INSPECTION AND DRAWING ENTITLED "FACILITY DISCHARGES" BY LEADER PROFESSIONAL SERVICES OF PITTSFORD, NY; PROJECT 555.001; DATED 10/06; FILE NAME SITE PLAN; FIGURE 17.

FIGURE 12
SEPTEMBER 2012
BEDROCK GROUNDWATER CONTOURS AND EXCEEDANCES
BARTHELMES MANUFACTURING SITE
15 CAIRN STREET
ROCHESTER, NEW YORK
HRP # NEW9624.P2
SITE ID: 828122
NOT TO SCALE

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA and TX
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

SED-2C				5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial
Depth (ft.)	0-0.5'	1'-2'	2'-3'			
Acetone		0.110	0.170	0.05	100	500
Barium	588	358		350	400	400
Cadmium		7.1		2.5	4.3	9.3
Chromium, Total	1140	3,100	999	30	180	1,500
Chromium, VI	2.1	2.8		1	110	400
Copper	118	166	80.1	50	270	270
Lead	65.6	65.6		63	400	1000
Zinc	484 B	1,160 B	345 B	109	10,000	10,000
Mercury	0.21	0.19		0.18	0.81	2.8

SED-1		5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Restricted Residential
Depth	0-1'		
Chromium, Total	389	30	180
Copper	51.5	50	270
Zinc	143	109	10,000
4,4' DDT	42 J	3.3	7,900

SED-2		5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial
Depth (ft.)	0-1'			
Barium	794	350	400	400
Cadmium	6.9	2.5	4.3	9.3
Chromium, Total	5,830	30	180	1,500
Copper	253	50	270	270
Lead	102	63	400	1000
Zinc	1,160	109	10,000	10,000

SED-2A			5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential
Depth (ft.)	1'-2'	2'-3'			
Acetone	0.056		0.05	100	100
Chromium, Total	247	72.4	30	36	180

SED-2D				5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial
Depth (ft.)	0-0.5'	1'-2'	2'-3'				
Barium	805			350	350	400	400
Cadmium	2.9			2.5	2.5	4.3	9.3
Chromium, Total	3,050	295	102	30	36	180	1,500
Copper	246			50	270	270	270
Lead	112			63	400	400	1000
Zinc	1,020 B	166		109	2,200	10,000	10,000
Mercury	0.31			0.18	0.81	0.81	2.8

SED-2B			5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential
Depth (ft.)	0-0.5'	1.5-2.5			
Chromium, Total	209	36	30	36	180
Zinc	116 B		109	2,200	10,000

SED-3		5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential
Depth (ft.)	0-1'		
Acetone	0.210 J	0.05	100
Chromium, Total	151	30	36
4,4' DDT	52 J	3.3	1,700

SED-4
No Exceedances

TP-1, TP-2, TP-3, TP-4, SED-1, SED-2/2A, SED-B, SED-C, SED-D, SED-3, SED-4, SW-1, SW-2, RW-4, RW-5, MW-17, MW-18, MW-19, SS-1, SS-2, PW-D, PW-S, HRP-SB-2, HRP-SB-3, HRP-SB-4, HRP-BR-4, MW-9, MW-10, MW-16, TP-8, TP-9, TP-10, HRP-SB-12/

0 25 50 100 150 Feet

N

Legend

- HRP Bedrock Well
- Surficial Soil Sample
- Surface Water Sample
- Soil Sample
- Exceeds Public Health Restricted Residential
- Exceeds Public Health Residential
- Exceeds Public Health Industrial
- Exceeds Public Health Commercial
- Exceeds Public Health Unrestricted
- IRM Excavation (approx.)
- Overburden Monitoring Well
- Monitoring well
- Test Boring
- Test Pit
- Piping (approx.)
- Soil Pile
- Stormwater Infiltration Basin

Figure 13
Surface Exceedances
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York
HRP # NEW9624.P2
Site ID: 828112
Scale 1" = 50'

HRP Associates, Inc.
Environmental/Civil Engineering & Hydrogeology
Creating the Right Solutions Together
Offices in CT, SC, NY, FL, MA, TX and PA
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
Ph:(518)877-7101 Fax:(518)877-8561
www.hrpassociates.com

Path: \\HRP_FS1\Temporary\DML\Barthelmes Figures\Figure 13 - Surface Exceedances.mxd

Table 1 - Soil Samples from Soil Borings - Analyzed for VOCs
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
9/12/2011 - 9/16/2011 and 6/12/12
(Only detected constituents are listed)

Soil Sample ID Depth (ft.) Date Collected		HRP-SB-1 18'-19' 9/12/11	HRP-SB-2 27'-28' 9/12/11	HRP-SB-3 21'-23' 9/12/11	HRP-SB-4 19'-20' 9/12/11	HRP-SB-5 2'-4' 9/13/11	HRP-SB-5 17'-18' 9/13/11	HRP-SB-6 2'-4' 9/13/11	HRP-SB-6 19'-20' 9/13/11	HRP-SB-7 2'-4' 9/13/11	HRP-SB-7 18'-20' 9/13/11	HRP-SB-8 2'-4' 9/14/11	HRP-SB-8 5'-7' 9/14/11	HRP-SB-8 10'-11' 9/14/11	HRP-SB-9 2'-4' 9/14/11	HRP-SB-9 6'-8' 9/14/11	HRP-SB-9 20'-22' 9/14/11	HRP-SB-10 2'-4' 9/14/11	HRP-SB-10 5'-7' 9/14/11	375-6 SCO - Protection of Groundwater	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
VOCs 8260 B (mg/kg)	**CAS #**																								
1,1- Dichloroethene	75-35-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.330	0.330	100	100	500	1,000
Acetone	67-64-1	**0.005 J**	**0.0097 J**	ND	ND	ND	**0.0012 J**	ND	**0.0054 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	0.05	100	100	500	1,000
cis-1,2-Dichloroethylene	156-59-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.017 H**	0.25	0.25	59	100	500	1,000
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1	30	41	390	780
Methylene chloride	75-09-2	**0.004 J**	**0.004 J**	**0.0037 J**	**0.004 J**	**0.003 J**	**0.0035 J**	**0.0038 J**	**0.0037 J**	**0.004 J**	**0.004 J**	ND	ND	ND	ND	ND	ND	ND	ND	0.05	0.05	51	100	500	1,000
Methyl acetate	79-20-9	ND	ND	ND	ND	ND	ND	ND	**8.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE	NE	NE	NE	NE
Tetrachloroethylene	127-18-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	1.3	6	19	150	300
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0022 J H**	**0.0017 J H**	**0.0015 J H**	ND	**0.0018 J H**	**0.0015 J H**	ND	ND	0.7	0.7	100	100	500	1,000
trans-1,2-Dichloroethylen	156-60-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.19	0.19	100	100	500	1,000
Trichloroethylene	79-01-6	**0.003 J**	**0.013**	**0.0066**	**0.006**	**0.003 J**	**0.0044 J**	**0.0031 J**	ND	ND	ND	**0.004 J H**	ND	ND	ND	ND	ND	**0.0048 J H**	**0.110 H**	0.47	0.47	10	21	200	400
Xylene-Total		ND	ND	ND	ND	ND	ND	**0.0025 J B**	**0.0017 J B**	**0.0015 J B**	**0.0011 J**	ND	ND	ND	ND	ND	ND	ND	ND	1.6	0.26	100	100	500	1,000

Soil Sample ID Depth (ft.) Date Collected		HRP-SB-10 9'-11' 9/14/11	HRP-SB-10 16'-18' 9/14/11	HRP-SB-11 2'-4' 9/14/11	HRP-SB-11 5'-7' 9/14/11	HRP-SB-11 16'-18' 9/14/11	HRP-SB-12 2'-4' 9/14/11	HRP-SB-12 5'-7' 9/14/11	HRP-SB-12 18'-20' 9/14/11	HRP-SB-13 0.5'-2' 9/15/11	HRP-SB-13 6'-8' 9/15/11	HRP-SB-13 14'-16' 9/15/11	HRP-SB-14 2'-4' 9/15/11	HRP-SB-14 6'-8' 9/15/11	HRP-SB-14 18'-20' 9/15/11	HRP-SB-15 2'-4' 9/16/11	HRP-SB-15 5'-7' 9/16/11	HRP-SB-16 2'-4' 9/16/11	HRP-SB-16 18'-20' 9/16/11	375-6 SCO - Protection of Groundwater	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
VOCs 8260 B (mg/kg)	**CAS #**																								
1,1- Dichloroethene	75-35-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.330	0.330	100	100	500	1,000
Acetone	67-64-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.110 H**	ND	ND	ND	0.05	0.05	100	100	500	1,000
cis-1,2-Dichloroethylene	156-59-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.25	0.25	59	100	500	1,000
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1	30	41	390	780
Methylene chloride	75-09-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05	0.05	51	100	500	1,000
Methyl acetate	79-20-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NE	NE	NE	NE	NE	NE
Tetrachloroethylene	127-18-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0049 J H**	ND	ND	ND	ND	ND	1.3	1.3	6	19	150	300
Toluene	108-88-3	**0.0018 J H**	ND	ND	**0.0014 J H**	**0.0020 J H**	**0.0009 J H**	ND	ND	ND	ND	ND	ND	ND	ND	**0.0036 J H**	ND	ND	ND	0.7	0.7	100	100	500	1,000
trans-1,2-Dichloroethylen	156-60-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.088 H**	ND	**0.0031 J H**	ND	0.19	0.19	100	100	500	1,000
Trichloroethylene	79-01-6	ND	ND	ND	**8.60 J H**	**0.0016 J H**	**0.15 J H**	ND	ND	ND	ND	ND	**0.004 J H**	ND	**0.0016 J H**	ND	ND	ND	ND	0.47	0.47	10	21	200	400
Xylene-Total		ND	ND	ND	**0.0014 J H**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	0.26	100	100	500	1,000

Soil Sample ID Depth (ft.) Date Collected		HRP-SB-17 1'-3' 9/16/11	HRP-SB-17 14'-16' 9/16/11	HRP-SB-17 21'-23' 9/16/11	HRP-SB-18 6'-6.5' 6/12/12	HRP-SB-18 9'-10' 6/12/12	HRP-SB-18 11'-12' 6/12/12	HRP-SB-19 6'-7' 6/12/12	HRP-SB-19 12'-13' 6/12/12	HRP-SB-19 15'-16' 6/12/12	HRP-SB-20 3'-4' 6/12/12	HRP-SB-20 11'-12' 6/12/12	HRP-SB-20 14'-15' 6/12/12	HRP-SB-21 6.5'-7' 6/12/12	HRP-SB-21 9'-10' 6/12/12	HRP-SB-21 11'-12' 6/12/12	HRP-SB-22 6'-7' 6/12/12	HRP-SB-22 10'-11' 6/12/12		375-6 SCO - Protection of Groundwater	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
VOCs 8260 B (mg/kg)	**CAS #**																								
1,1- Dichloroethene	75-35-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0019 J**	ND	ND	ND	ND		0.330	0.330	100	100	500	1,000
Acetone	67-64-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.023 J**	ND	**0.0051 J**	**0.034**	ND	ND	ND		0.05	0.05	100	100	500	1,000
cis-1,2-Dichloroethylene	156-59-2	ND	ND	ND	ND	**0.0071**	**0.0044 J**	**0.018**	**1.20**	**0.011**	ND	ND	**0.012**	**1.0**	**0.036**	**0.0078**	ND	**0.011**		0.25	0.25	59	100	500	1,000
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.001 J**	ND	ND	ND	**0.00066 J**		1	1	30	41	390	780
Methylene chloride	75-09-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		0.05	0.05	51	100	500	1,000
Methyl acetate	79-20-9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		NE	NE	NE	NE	NE	NE
Tetrachloroethylene	127-18-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.044**	**0.0052 J**	ND	ND	ND	ND	ND	ND		1.3	1.3	6	19	150	300
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0032 J**	**0.00051 J**	ND	ND	**0.00062 J**		0.7	0.7	100	100	500	1,000
trans-1,2-Dichloroethylen	156-60-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		0.19	0.19	100	100	500	1,000
Trichloroethylene	79-01-6	**0.086 H**	**0.0021 J H**	ND	**0.0015 J**	**0.0074**	**0.0023 J**	**0.048**	**0.6**	**0.019**	**0.19**	ND	**0.0084**	**0.022**	**0.0024 J**	**0.0038 J**	**0.0098**	**0.0061**		0.47	0.47	10	21	200	400
Xylene-Total		ND	ND	ND	ND	ND	ND	**0.0010 J**	ND	**0.0020 J**	ND	ND	**0.0016 J**	**0.0074 J**	**0.00092 J**	ND	ND	**0.0027**		1.6	0.26	100	100	500	1,000

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Protection of Groundwater Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Established
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
VOCs	Volatile Organic Compounds
BGS	Below Ground Surface
J	Result is an estimated concentration
H	Sample analyzed out of hold time

Sample locations removed during January 2013 IRM excavation

Table 2 - Soil Samples from Soil Borings - Analyzed for Metals
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
9/12/2011 - 9/16/2011
(Only detected constituents are listed)

Soil Sample ID Depth (ft.) Date Collected		HRP-SB-5 2'-4' 9/13/2011	HRP-SB-6 2'-4' 9/13/2011	HRP-SB-7 2'-4' 9/13/2011	HRP-SB-8 2'-4 9/14/2011	HRP-SB-9 2'-4' 9/14/2011	HRP-SB-10 2'-4' 9/14/2011	HRP-SB-10 5'-7' 9/14/2011	HRP-SB-11 2'-4' 9/14/2011	HRP-SB-11 5'-7' 9/14/2011	HRP-SB-11 16'-18' 9/14/2011	HRP-SB-12 2'-4' 9/14/2011	HRP-SB-13 0.5'-2' 9/15/11 13:10	HRP-SB-14 2'-4' 9/15/11 0:00	HRP-SB-15 2'-4' 9/16/2011	HRP-SB-17 14'-16' 9/16/2011	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
Metals 6010B and 7471A (mg/kg)	**CAS #**																				
Aluminum, Total	7429-90-5	**9,410**	**5,600**	**6,870**	**5,820**	**4,820**	**5,040**	**2,690**	**63,300**	**3,320**	**2,850**	**1,820**	**5,420**	**6,530**	**6,140**	**4,670**	**NE**	**NE**	**NE**	**NE**	**NE**
Antimony	7440-36-0	**0.84**	ND	ND	ND	**1.6**	ND	ND	**21.6**	ND	ND	ND	ND	ND	**0.83**	ND	**NE**	**NE**	**NE**	**NE**	**NE**
Arsenic	7440-38-2	**4.5**	**2.6**	**1.9**	**2.6**	**17.8**	**2.4**	**1.9**	**14.3**	**3.7**	**1.8**	**1.5**	**1.7**	**2.9**	**5.1**	**2.4**	**13**	**16**	**16**	**16**	**16**
Barium	7440-39-3	**77.8**	**33.8**	**69.1**	**76**	**29.5**	**43.1**	**17.2**	**106**	**27.8**	**26**	**9.2**	**29.4**	**47.6**	**87.4**	**47.9**	**350**	**350**	**400**	**400**	**10,000**
Beryllium	7440-41-7	**0.49**	**0.23**	**0.24**	**0.32**	**0.23**	**0.26**	**0.13**	**0.26**	**0.19**	**0.15**	**0.079**	**0.21**	**0.29**	**0.34**	**0.21**	**7.2**	**14**	**72**	**590**	**2,700**
Cadmium	7440-43-9	**0.12**	**0.14**	**0.085**	**0.91**	**0.046**	**0.14**	**0.081**	**8.2**	**0.38**	**0.083**	**0.35**	**0.12**	**0.16**	**1.1**	**0.099**	**2.5**	**2.5**	**4.3**	**9.3**	**60**
Calcium	7440-70-2	**1,910**	**1,290**	**1,090**	**9,160**	**39,800**	**3,950**	**27,300**	**13,600**	**58,100**	**45,000**	**17,700**	**1,310**	**2,400**	**21,500**	**34,000**	**NE**	**NE**	**NE**	**NE**	**NE**
Chromium, Total	7440-47-3	**12.1**	**5**	**10.3**	**13.8**	**17**	**8.6**	**4.3**	**248**	**6**	**4.3**	**10.5**	**4.6**	9.5	**16.2**	**7.6**	**30**	**36**	**180**	**1,500**	**6,800**
Cobalt	7440-48-4	**8.1**	**3.3**	**3.5**	**2**	**5.2**	**2.7**	**3.2**	**18.4**	**4.4**	**3.3**	**1.3**	**2.8**	**4.1**	**7**	**4.5**	**NE**	**NE**	**NE**	**NE**	**NE**
Copper	7440-50-8	**17**	**6.5**	**2.6**	**14.7**	**32**	**5.1**	**7.2**	**43,100**	**34.5**	**9.4**	**6.7**	**4.2**	**11.2**	**183**	**8.8**	**50**	**270**	**270**	**270**	**10,000**
Iron	7439-89-6	**17,300**	**7,660**	**11,200**	**5,900**	**28,500**	**7,890**	**6,290**	**9,300**	**9,140**	**6,790**	**7,340**	**6,510**	**9,970**	**17,500**	**9,970**	**NE**	**NE**	**NE**	**NE**	**NE**
Lead	7439-92-1	**6.3**	**6.4**	**5.8**	**10.7**	**6.9**	**5.7**	**1.8**	**3,200**	**5.1**	**1.9**	**1.6**	**5**	**6.4**	**55.6**	**2.9**	**63**	**400**	**400**	**1000**	**3,900**
Magnesium	7439-95-4	**2,730**	**1,260**	**1,490**	**1,370**	**9,140**	**1,970**	**5,780**	**1,730**	**15,600**	**7,210**	**3,080**	**1,080**	**1,920**	**5,310**	**7,810**	**NE**	**NE**	**NE**	**NE**	**NE**
Manganese	7439-96-5	**1,720**	**311**	**150**	**317**	**489**	**150**	**241**	**652**	**308**	**324**	**177**	**230**	**434**	**678**	**278**	**1,600**	**2,000**	**2,000**	**10,000**	**10,000**
Nickel	7440-02-0	**17**	**6**	**7.1**	**6**	**16.9**	**5.4**	**6.4**	**472**	**24.9**	**6.7**	**4**	**6**	**9.3**	**25.8**	**10**	**30**	**140**	**310**	**310**	**10,000**
Potassium, Total	7440-09-7	**925**	**391**	**311**	**308**	**590**	**353**	**543**	**794**	**821**	**583**	**423**	**419**	**580**	**916**	**900**	**NE**	**NE**	**NE**	**NE**	**NE**
Selenium	7782-49-2	ND	ND	ND	**1.9**	ND	ND	ND	**1.3**	ND	ND	ND	ND	ND	ND	ND	**3.9**	**36**	**180**	**1,500**	**6,800**
Silver	7440-22-4	ND	ND	ND	ND	ND	ND	ND	**9.9**	ND	ND	ND	ND	ND	ND	ND	**2**	**36**	**180**	**1,500**	**6,800**
Sodium, Total	7440-23-5	**171**	**134**	**125**	**340**	**84.6**	**196**	**145**	**397**	**294**	**135**	**177**	**163**	**419**	**102**	**114**	**NE**	**NE**	**NE**	**NE**	**NE**
Thallium	7440-28-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**NE**	**NE**	**NE**	**NE**	**NE**
Vanadium	7440-62-2	**16.1**	**8.7**	**18.8**	**10.8**	**18.3**	**10.9**	**7**	**9.6**	**8.4**	**6.9**	**5.8**	**7.9**	**11.5**	**12.8**	**12.1**	**NE**	**NE**	**NE**	**NE**	**NE**
Zinc	7440-66-6	**30.7**	**22.6**	**20.4**	**134**	**32.9**	**21.5**	**18**	**36,800**	**25.2**	**17.6**	**114**	**16.6**	**30.3**	**301**	**22**	**109**	**2,200**	**10,000**	**10,000**	**10,000**
Mercury	7439-97-6	**0.034**	**0.13**	**0.029**	**0.17**	ND	0.031	ND	**0.088**	ND	ND	ND	**0.019**	**0.031**	**0.057**	ND	**0.18**	**0.81**	**0.81**	**2.8**	**5.7**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Trivalent Chromium Standard Used
	Sample locations removed during January 2013 IRM excavation

Table 3 - Soil Samples from Monitoring Well Installation - Analyzed for VOCs
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
10/17/2011 - 10/21/2011
(Only detected constituents are listed)

Soil Sample ID		MW-12	MW-13	MW-14	MW-15	MW-15	MW-15	MW-15	MW-16	MW-16	MW-16	MW-16	MW-17	MW-17	MW-18	MW-19	375-6 SCO - Protection of Groundwater	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
Depth (ft.)		22'-23'	17'-19'	26'-27'	1'-3'	7'-8'	18'-19'	24'-25'	2'-3'	6'-7'	13'-14'	17'-18'	10'-11'	16'-17'	10'-11'	20'-21'						
Date Collected		10/19/2011	10/17/2011	10/20/2011	10/19/2011	10/19/2011	10/19/2011	10/19/2011	10/20/2011	10/20/2011	10/20/2011	10/20/2011	10/18/2011	10/18/2011	10/18/2011	10/21/2011						
VOCs 8260 B (mg/kg)	**CAS #**																					
1,1-Dichloroethane	75-34-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27	0.27	19	26	240	480
1,1-Dichloroethylene	75-35-4	ND	ND	ND	ND	ND	ND	ND	**0.00099**	ND	ND	ND	ND	ND	ND	ND	0.33	0.33	100	100	500	1,000
1,2-Dichlorobenzene	95-50-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1.1	100	100	500	1,000
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	0.02	2.3	3.1	30	60
2-Butanone (MEK)	78-93-3	**0.004**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0022**	0.12	0.12	100	100	500	1,000
Acetone	67-64-1	**0.0086**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0059**	ND	**0.0087**	0.05	0.05	100	100	500	1,000
Benzene	71-43-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.06	0.06	2.9	4.8	44	89
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1.1	100	100	500	1,000
Chloroform	67-66-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.00051**	**0.00042**	0.37	0.37	10	49	350	700
cis-1,2-Dichloroethylene	156-59-2	ND	ND	ND	ND	ND	**0.0039**	**0.0028**	**0.23**	ND	**0.0031**	**0.012**	ND	ND	ND	ND	0.25	0.25	59	100	500	1,000
Cyclohexane	110-82-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0011**	NE	NE	NE	NE	NE	NE
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1	30	41	390	780
m-,p-,o-Xylene	1330-20-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0012**	0.26	0.26	100	100	500	1,000
Methylcyclohexane	108-87-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0018**	NE	NE	NE	NE	NE	NE
Methylene chloride	75-09-2	**0.006**	ND	**0.0039**	**0.0046**	**0.0032**	**0.0061**	**0.0033**	ND	ND	ND	**0.0034**	ND	**0.0038**	ND	ND	0.05	0.05	51	100	500	1,000
Methyltertbutyl ether	1634-04-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.93	0.93	62	100	500	1,000
Tetrachloroethylene	127-18-4	ND	ND	**0.0015**	ND	ND	**0.0012**	ND	**0.00086**	ND	ND	ND	ND	ND	ND	ND	1.3	1.3	5.5	19	150	300
Toluene	108-88-3	ND	ND	ND	**0.00044**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0011**	0.7	0.7	100	100	500	1,000
trans-1,2-Dichloroethylene	156-60-5	ND	ND	ND	ND	ND	ND	ND	**0.0015**	ND	ND	ND	ND	ND	ND	ND	0.19	0.19	100	100	500	1,000
Trichloroethylene	79-01-6	**0.0014**	ND	**0.0025**	**0.0031**	ND	**0.15**	ND	**6.60**	**0.0095**	**0.042**	**0.054**	ND	**0.110**	ND	**0.081**	0.47	0.47	10	21	200	400
Vinyl chloride	75-01-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.02	0.02	0.21	0.9	13	27

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Estabilned
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
VOCs	Volatile Organic Compounds
BGS	Below Ground Surface
	Sample locations removed during January 2012 IRM excavation

Table 4 - Soil Samples from Monitoring Well Installation - Analyzed for Metals
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
10/17/2011-10/21/2011
(Only detected constituents are listed)

Soil Sample ID		MW-12	MW-13	MW-14	MW-15	MW-15	MW-16	MW-17	MW-18	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health -Industrial
Depth (ft.)		22'-23'	17'-19'	26'-27'	1'-3'	24'-25'	2'-3'	10'-11'	10'-11'					
Date Collected		10/19/2011	10/17/2011	10/20/2011	10/19/2011	10/19/2011	10/20/2011	10/18/2011	10/18/2011					
Metals 6010B and 7471A (mg/kg)	**CAS #**													
Aluminum, Total	7429-90-5	**2,950**	**2,630**	**2,620**	**4,930**	**3,130**	**6,890**	**2,630**	**2,760**	**NE**	**NE**	**NE**	**NE**	**NE**
Antimony	7440-36-0	ND	ND	ND	ND	**0.76**	**3.1**	ND	ND	**NE**	**NE**	**NE**	**NE**	**NE**
Arsenic	7440-38-2	**1.3**	**1.1**	**1.1**	**2.1**	**1.4**	**6.2**	**0.74**	**1.3**	**13**	**16**	**16**	**16**	**16**
Barium	7440-39-3	**17.4**	**18.7**	**20**	**25.8**	**34.2**	**124**	**12.8**	**7.5**	**350**	**350**	**400**	**400**	**10,000**
Beryllium	7440-41-7	**0.13**	**0.14**	**0.14**	**0.25**	**0.16**	**0.47**	**0.14**	**0.17**	**7.2**	**14**	**72**	**590**	**2,700**
Cadmium	7440-43-9	ND	ND	ND	**0.031**	ND	**0.19**	ND	ND	**2.5**	**2.5**	**4.3**	**9.3**	**60**
Calcium	7440-70-2	**27,800**	**24,700**	**28,600**	**1,700**	**37,300**	**10,600**	**27,300**	**38,700**	**NE**	**NE**	**NE**	**NE**	**NE**
Chromium, Total	7440-47-3	**4.8**	**3.8**	**3.8**	**5.5**	**5**	**12.6**	**4.3**	**4**	**30**	**36**	**180**	**1,500**	**6,800**
Cobalt	7440-48-4	**2.9**	**2.4**	**2**	**3**	**2.9**	**6.7**	**1.5**	**2.3**	**NE**	**NE**	**NE**	**NE**	**NE**
Copper	7440-50-8	**5**	**5.3**	**6.9**	**10.5**	**8.5**	**54.8**	**4.4**	**11.6**	**50**	**270**	**270**	**270**	**10,000**
Iron	7439-89-6	**7,920**	**6,060**	**5,690**	**8,550**	**7,500**	**20,200**	**4,220**	**6,690**	**NE**	**NE**	**NE**	**NE**	**NE**
Lead	7439-92-1	**1.6**	**1.7**	**1.5**	**3**	**2.2**	**254**	**2.3**	**2.6**	**63**	**400**	**400**	**1000**	**3,900**
Magnesium	7439-95-4	**5,610**	**4,020**	**4,900**	**1,370**	**7,190**	**3,860**	**7,240**	**8,080**	**NE**	**NE**	**NE**	**NE**	**NE**
Manganese	7439-96-5	**227**	**192**	**187**	**274**	**274**	**395**	**132**	**205**	**1,600**	**2,000**	**2,000**	**10,000**	**10,000**
Nickel	7440-02-0	**5.9**	**4.9**	**4.6**	**6.5**	**6.6**	**14.3**	**3.8**	**5.6**	**30**	**140**	**310**	**310**	**10,000**
Potassium, Total	7440-09-7	**672**	**580**	**650**	**748**	**625**	**1,080**	**634**	**731**	**NE**	**NE**	**NE**	**NE**	**NE**
Selenium	7782-49-2	ND	ND	ND	ND	ND	ND	ND	ND	**3.9**	**36**	**180**	**1,500**	**6,800**
Silver	7440-22-4	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**36**	**180**	**1,500**	**6,800**
Sodium, Total	7440-23-5	**161**	**74.1**	**100**	**61.3**	**113**	**161**	**85.6**	**94.4**	**NE**	**NE**	**NE**	**NE**	**NE**
Thallium	7440-28-0	ND	ND	ND	ND	ND	ND	ND	ND	**NE**	**NE**	**NE**	**NE**	**NE**
Vanadium	7440-62-2	**10.4**	**6.8**	**5.8**	**9.8**	**8.2**	**16.7**	**5.7**	**5.9**	**NE**	**NE**	**NE**	**NE**	**NE**
Zinc	7440-66-6	**13.1**	**17**	**16.4**	**20.4**	**18.7**	**159**	**11.2**	**13.8**	**109**	**2,200**	**10,000**	**10,000**	**10,000**
Mercury	7439-97-6	ND	ND	ND	ND	ND	**0.27**	ND	ND	**0.18**	**0.81**	**0.81**	**2.8**	**5.7**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Trivalent Chromium Standard Used
	Sample location removed during January 2012 IRM excavation

Table 5 - Soil Samples from Test Pits- Analyzed for VOCs
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
December 19, 2011
(Only detected constituents are listed)

Soil Sample ID		TP-1	TP-1	TP-3	TP-3	TP-4	TP-5	TP-6	TP-9	375-6 SCO - Protection of Groundwater	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
Depth (ft.)		4'-5'	5.5'-6'	2'-3'	4.5'-5'	4.5'-5'	6'-6.5'	3'-3.5'	3'-3.5'						
Date Collected		12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011						
VOCs 8260 B (mg/kg)	**CAS #**														
cis-1,2-Dichloroethylene	156-59-2	ND	ND	ND	**0.0079**	ND	ND	ND	ND	**0.25**	**0.25**	**59**	**100**	**500**	**1,000**
Tetrachloroethylene	127-18-4	ND	**0.001**	ND	**0.0016**	**0.0017**	ND	ND	**0.0017**	**1.3**	**1.3**	**5.5**	**19**	**150**	**300**
Toluene	108-88-3	ND	**0.00049**	ND	ND	ND	ND	ND	ND	**0.7**	**0.7**	**100**	**100**	**500**	**1,000**
Trichloroethylene	79-01-6	ND	ND	ND	**0.0026**	**0.0017**	**0.013**	**0.0018**	ND	**0.47**	**0.47**	**10**	**21**	**200**	**400**
Methylene chloride	75-09-2	**0.0034**	**0.0038**	**0.0027**	**0.0042**	**0.0036**	**0.004**	**0.0048**	**0.005**	**0.05**	**0.05**	**51**	**100**	**500**	**1,000**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Protection of Groundwater Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
VOCs	Volatile Organic Compounds
BGS	Below Ground Surface

Table 6 - Soil Samples from Test Pits - Analyzed for Metals
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
December 19, 2011
(Only detected constituents are listed)

Soil Sample ID		TP-1	TP-1	TP-3	TP-3	TP-4	TP-5	TP-6	TP-9	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health -Industrial
Depth (ft.)		4'-5'	5.5'-6'	2'-3'	4.5'-5'	4.5'-5'	6'-6.5'	3'-3.5'	3'-3.5'					
Date Collected		12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/2011	12/19/11					
Metals 6010B and 7471A (mg/kg)	**CAS #**													
Aluminum, Total	7429-90-5	**4,260**	**3,610**	**6,770**	**6,190**	**4,990**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Antimony	7440-36-0	ND	ND	ND	**0.93**	ND	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Arsenic	7440-38-2	**0.61**	**0.46**	**3**	ND	**1.2**	NA	NA	NA	**13**	**16**	**16**	**16**	**16**
Barium	7440-39-3	**28.6**	**20.4**	**58.8**	**52.9**	**37.1**	NA	NA	NA	**350**	**350**	**400**	**400**	**10,000**
Beryllium	7440-41-7	**0.19**	**0.14**	**0.32**	**0.25**	**0.22**	NA	NA	NA	**7.2**	**14**	**72**	**590**	**2,700**
Cadmium	7440-43-9	**0.1**	**0.064**	**0.15**	**0.62**	**0.14**	NA	NA	NA	**2.5**	**2.5**	**4.3**	**9.3**	**60**
Calcium	7440-70-2	**1130**	**989**	**2,250**	**2,810**	**4,440**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Chromium, Total	7440-47-3	**4.9**	**3.5**	**14.5**	**159**	**13.7**	NA	NA	NA	**30**	**36**	**180**	**1,500**	**6,800**
Cobalt	7440-48-4	**2**	**1.7**	**4.9**	**3.8**	**2.8**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Copper	7440-50-8	**3.2**	**4.6**	**13.7**	**22.7**	**10.2**	NA	NA	NA	**50**	**270**	**270**	**270**	**10,000**
Iron	7439-89-6	**3,990**	**3,500**	**10,300**	**8,370**	**6,210**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Lead	7439-92-1	**5.7**	**3.3**	**10.6**	**15**	**9.7**	NA	NA	NA	**63**	**400**	**400**	**1000**	**3,900**
Magnesium	7439-95-4	**1,280**	**1,200**	**2,000**	**993**	**3,200**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Manganese	7439-96-5	**37.9**	**33.2**	**324**	**106**	**92.5**	NA	NA	NA	**1,600**	**2,000**	**2,000**	**10,000**	**10,000**
Nickel	7440-02-0	**4.3**	**3.9**	**10**	**5.8**	**6.6**	NA	NA	NA	**30**	**140**	**310**	**310**	**10,000**
Potassium, Total	7440-09-7	**545**	**666**	**732**	**459**	**772**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Selenium	7782-49-2	ND	ND	ND	**1.3**	ND	NA	NA	NA	**3.9**	**36**	**180**	**1,500**	**6,800**
Silver	7440-22-4	ND	ND	ND	ND	ND	NA	NA	NA	**2**	**36**	**180**	**1,500**	**6,800**
Sodium, Total	7440-23-5	**47.7**	**49.5**	**64.1**	**62.9**	**63.2**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Thallium	7440-28-0	ND	ND	ND	ND	ND	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Vanadium	7440-62-2	**5.5**	**4.4**	**13.1**	**9.5**	**8.4**	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Zinc	7440-66-6	**33.3**	**12.3**	**55.4**	**207**	**46.5**	NA	NA	NA	**109**	**2,200**	**10,000**	**10,000**	**10,000**
Mercury	7439-97-6	**0.019**	**0.013**	**0.038**	**0.041**	**0.032**	NA	NA	NA	**0.18**	**0.81**	**0.81**	**2.8**	**5.7**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Trivalent Chromium Standard Used

Table 7 - Surficial Soil Samples
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
June 14, 2012
(Only detected constituents are listed)

Soil Sample ID		SS-1	SS-2	SS-3	SS-4	SS-5	SS-6	5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	5-6 SCO - Protection of Public Health Indudtrial
Depth (ft.)		0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5					
Date Collected		6/14/12	6/14/12	6/14/12	6/14/12	6/14/12	6/14/12					
Metals 6010B and 7471A (mg/kg)	**CAS #**											
Aluminum, Total	7429-90-5	NA	NA	NA	NA	**3040**	**4050**	**NE**	**NE**	**NE**	**NE**	**NE**
Arsenic	7440-38-2	NA	NA	NA	NA	**2.1 J**	**2.9**	**13**	**16**	**16**	**16**	**16**
Barium	7440-39-3	NA	NA	NA	NA	**21.2**	**29.7**	**350**	**350**	**400**	**400**	**10,000**
Beryllium	7440-41-7	NA	NA	NA	NA	**0.14 J**	**0.19 J**	**7.2**	**14**	**72**	**590**	**2,700**
Cadmium	7440-43-9	NA	NA	NA	NA	**0.12 J**	**0.19 J**	**2.5**	**2.5**	**4.3**	**9.3**	**60**
Calcium	7440-70-2	NA	NA	NA	NA	**1610 B**	**7140 B**	**NE**	**NE**	**NE**	**NE**	**NE**
Chromium, Total	7440-47-3	NA	NA	NA	NA	**4.9**	**7.0**	**30**	**36**	**180**	**1,500**	**6,800**
Cobalt	7440-48-4	NA	NA	NA	NA	**3.1**	**4.0**	**NE**	**NE**	**NE**	**NE**	**NE**
Copper	7440-50-8	NA	NA	NA	NA	**7.8**	**11.6**	**50**	**270**	**270**	**270**	**10,000**
Iron	7439-89-6	NA	NA	NA	NA	**6570 B**	**8320 B**	**NE**	**NE**	**NE**	**NE**	**NE**
Lead	7439-92-1	NA	NA	NA	NA	**10.7**	**20.8**	**63**	**400**	**400**	**1000**	**3,900**
Magnesium	7439-95-4	NA	NA	NA	NA	**1140**	**2940**	**NE**	**NE**	**NE**	**NE**	**NE**
Manganese	7439-96-5	NA	NA	NA	NA	**220 B**	**279 B**	**1,600**	**2,000**	**2,000**	**10,000**	**10,000**
Nickel	7440-02-0	NA	NA	NA	NA	**6.4**	**8.5**	**30**	**140**	**310**	**310**	**10,000**
Potassium, Total	7440-09-7	NA	NA	NA	NA	**462**	**572**	**NE**	**NE**	**NE**	**NE**	**NE**
Selenium	7782-49-2	NA	NA	NA	NA	ND	**0.67 J**	**3.9**	**36**	**180**	**1,500**	**6,800**
Silver	7440-22-4	NA	NA	NA	NA	ND	**0.47 J**	**2**	**36**	**180**	**1,500**	**6,800**
Sodium, Total	7440-23-5	NA	NA	NA	NA	**50.6 J B**	**58.7 J B**	**NE**	**NE**	**NE**	**NE**	**NE**
Vanadium	7440-62-2	NA	NA	NA	NA	**8.0**	**10.4**	**NE**	**NE**	**NE**	**NE**	**NE**
Zinc	7440-66-6	NA	NA	NA	NA	**27.5**	**44.6 B**	**109**	**2,200**	**10,000**	**10,000**	**10,000**
Mercury	7439-97-6	NA	NA	NA	NA	**0.0095 J**	**0.025**	**0.18**	**0.81**	**0.81**	**2.8**	**5.7**
Pesticides 8081A (mg/kg)												
Dieldrin		**0.018 J**	ND	ND	ND	NA	NA	**0.005**	**0.039**	**0.2**	**1.4**	**2.8**
Endrin ketone		**0.018 J**	ND	**0.012 J**	ND	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
PCBs 8082A (mg/kg)												
Total PCBs		ND	ND	ND	ND	NA	NA	**0.1**	**1**	**1**	**1**	**25**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Trivalent Chromium Standard Used
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and the sample

Table 8 - Soil Samples from Southwest Fill Area - Analyzed for VOCs
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
June 11, 2012
(Only detected constituents are listed)

Soil Sample ID Depth (ft.) Date Collected		SW Fill SB-1 6'-8' 6/11/2012	SW Fill SB-1 10'-11' 6/11/12	SW Fill SB-2 7'-8' 6/11/2012	SW Fill SB-2 15'-16' 6/11/2012	SW Fill SB-3 7'-8' 6/11/2012	SW Fill SB-3 12'-13' 6/11/2012	SW Fill SB-4 7'-8' 6/11/12	SW Fill SB-4 12'-13' 6/11/12	SW Fill SB-5 8'-9' 6/11/12	SW Fill SB-5 11'-12' 6/11/12	SW Fill SB-7 3'-4' 6/11/12	SW Fill SB-7 9'-10' 6/11/12	SW Fill SB-8 5'-7' 6/11/12	SW Fill SB-11 3'-4' 6/11/12	SW Fill SB-11 8'-9' 6/11/12	SW Fill SB-12 3'-4' 6/11/12	SW Fill SB-12 6'-7' 6/11/12	SW Fill SB-13 3'-4' 6/11/12	SW Fill SB-13 6'-7' 6/11/12	375-6 SCO - Protection of Groundwater	375-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	375-6 SCO - Protection of Public Health - Industrial
VOCs 8260 B (mg/kg)	**CAS #**																									
cis-1,2-Dichloroethylene	156-59-2	**0.0092**	**0.0090**	ND	16	ND	ND	**0.016**	**0.034**	ND	ND	**0.015**	**0.012**	ND	ND	ND	ND	ND	ND	ND	**0.25**	**0.25**	**59**	**100**	**500**	**1,000**
m-,p-,o-Xylene	1330-20-7	ND	ND	ND	ND	ND	ND	**0.0014 J**	ND	ND	ND	ND	ND	ND	ND	**0.0013 J**	**0.0013 J**	**0.0018 J**	**0.0013 J**	ND	**0.26**	**0.26**	**100**	**100**	**500**	**1,000**
Tetrachloroethylene	127-18-4	ND	**0.0011**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.3**	**1.3**	**5.5**	**19**	**150**	**300**
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0012 J**	**0.7**	**0.7**	**100**	**100**	**500**	**1,000**
Trichloroethylene	79-01-6	**0.0040 J**	**0.140**	**0.0056**	**0.041**	ND	ND	**0.034**	**0.084**	ND	ND	**0.056**	**0.200**	**0.0063**	**0.019**	**0.076**	**0.0046 J**	**0.016**	**0.0035 J**	**0.0024 J**	**0.47**	**0.47**	**10**	**21**	**200**	**400**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Protection of Groundwater Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
VOCs	Volatile Organic Compounds
BGS	Below Ground Surface
J	Result is an estimated concentration

Table 9 - Soil Samples from Stormwater Infiltration Basin
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
6/13/2012 and 10/26/2012
(Only detected constituents are listed)

Soil Sample ID		SED-1	SED-2	SED-3	SED-4	SED-2A	SED-2A	SED-2B	SED-2B	SED-2B	SED-2C	SED-2C	SED-2C	SED-2D	SED-2D	SED-2D	5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	5-6 SCO - Protection of Public Health Indudtrial
Depth (ft.)		0-1'	0-1'	0-1'	0-1'	1'-2'	2'-3'	0-0.5'	1.5-2.5	2-3	0-0.5'	1'-2'	2'-3'	0-0.5'	1'-2'	2'-3'					
Date Collected		6/13/12	6/13/12	6/13/12	6/13/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12	10/26/12					
VOCs 8260B(mg/kg)	**CAS #**																				
Acetone	67-64-1	ND	**0.014 J**	**0.210 J**	**0.011 J**	**0.056**	**0.019 J**	NA	NA	NA	NA	**0.110**	**0.170**	NA	**0.019 J**	**0.012 J**	**0.05**	**100**	**100**	**500**	**1,000**
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	**0.0019 J**	ND	NA	ND	ND	**1**	**30**	**41**	**390**	**780**
2-Butanone (MEK)	78-93-3	ND	ND	**0.050 J**	ND	**0.011 J**	**0.0047 J**	NA	NA	NA	NA	**0.0026 J**	ND	NA	**0.0047 J**	**0.0029 J**	**0.12**	**100**	**100**	**500**	**1,000**
Toluene	108-88-3	ND	ND	**0.092**	**0.022**	**0.0012 J**	ND	NA	NA	NA	NA	ND	ND	NA	ND	ND	**0.7**	**100**	**100**	**500**	**1,000**
Total Xylene		ND	**0.002**	ND	ND	ND	ND	NA	NA	NA	NA	**0.032 J**	ND	NA	ND	ND	**0.26**	**100**	**100**	**500**	**1,000**
Metals 6010B and 7471A (mg/kg)	**CAS #**																				
Aluminum, Total	7429-90-5	**3,870**	**12,300**	**4,580**	**2,190**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Antimony	7440-36-0	**0.89 J**	**14.6J**	**1.5 J**	ND	ND	ND	ND	ND	ND	ND	**15.3**	**4.3 J**	ND	ND	ND	**NE**	**NE**	**NE**	**NE**	**NE**
Arsenic	7440-38-2	ND	**5.5 J**	**1.4 J**	**0.52 J**	**1.20 J**	**0.80 J**	ND	**0.80 J**	**0.80 J**	**3.5**	**1.7 J**	**2.7**	**4.3 J**	**3.9**	**1.9**	**13**	**16**	**16**	**16**	**16**
Barium	7440-39-3	**58.2**	**794**	**108**	**27.5**	**48.9**	**45.8**	**34.5**	**19**	**10.3**	**588**	**358**	**184**	**805**	**116**	**25.4**	**350**	**350**	**400**	**400**	**10,000**
Beryllium	7440-41-7	**0.20 J**	**0.40**	**0.18 J**	**0.12 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.2**	**14**	**72**	**590**	**2,700**
Cadmium	7440-43-9	**0.51 J**	**6.9**	**0.68**	**0.14 J**	**0.43**	**0.47**	**0.26 J**	**0.11 J**	**0.13 J**	**1.3**	**7.1**	**1.7**	**2.9**	**0.85**	**0.24**	**2.5**	**2.5**	**4.3**	**9.3**	**60**
Calcium	7440-70-2	**1,320**	**6,680**	**5,830**	**1,140**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Chromium, Total	7440-47-3	**340**	**5,830**	**151**	**10.9**	**247**	**72.4**	**209**	**36**	**20.3**	**1140**	**3,100**	**906**	**3,050**	**295**	**102**	**30**	**36**	**180**	**1,500**	**6,800**
Chromium, VI		**0.47 J**	NA	ND	NA	ND	NA	ND	NA	NA	**2.1**	**2.8**	**0.64 J**	ND	NA	NA	**1**	**22**	**110**	**400**	**800**
Cobalt	7440-48-4	**1.8**	**4.1**	**2.4**	**0.96**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Copper	7440-50-8	**51.5**	**253**	**34.5**	**6.3**	**17.8**	**12.5**	**12.3**	**12.3**	**19.5**	**118**	**166**	**80.1**	**246**	**48.5**	**14**	**50**	**270**	**270**	**270**	**10,000**
Iron	7439-89-6	**3,810**	**8,920**	**3,540**	**2,280**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Lead	7439-92-1	**31**	**102**	**18.7**	**3.5**	**8**	**5.3**	**6.7**	**3.3**	**1.8**	**65.6**	**65.6**	**30.5**	**112**	**17.7**	**4.5**	**63**	**400**	**400**	**1000**	**3,900**
Magnesium	7439-95-4	**988**	**1,890**	**1,360**	**607**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Manganese	7439-96-5	**29.7**	**97.9**	**35.4**	**17.8**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**1,600**	**2,000**	**2,000**	**10,000**	**10,000**
Nickel	7440-02-0	**8.5**	**15.0**	**8.1 J**	**2.5 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**30**	**140**	**310**	**310**	**10,000**
Potassium, Total	7440-09-7	**400**	**904**	**805**	**312**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Selenium	7782-49-2	ND	**2.2 J**	ND	ND	**0.91 J**	ND	ND	ND	ND	ND	**2.0 J**	**0.53**	**3.2 J**	NA	NA	**3.9**	**36**	**180**	**1,500**	**6,800**
Silver	7440-22-4	ND	**0.86 J**	ND	ND	ND	NA	ND	ND	ND	ND	**0.76**	**0.29 J**	**1.1 J**	ND	ND	**2**	**36**	**180**	**180**	**180**
Sodium, Total	7440-23-5	**62.4 J**	**188 J**	**144 J**	**59.0 J**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Thallium	7440-28-0	ND	**1.2 J**	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Vanadium	7440-62-2	**2.3**	**27.5**	**5.5**	**3.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Zinc	7440-66-6	**143**	**1,160**	**92.5**	**40.1**	**97.8 B**	**94.6 B**	**116 B**	**26.6 B**	**21.1 B**	**484 B**	**1,160 B**	**345 B**	**1,020 B**	**166**	**44.2**	**109**	**2,200**	**10,000**	**10,000**	**10,000**
Mercury	7439-97-6	**0.050**	**0.15**	**0.080**	**0.018 J**	ND	**0.013 J**	**0.011 J**	ND	ND	**0.21**	**0.19**	**0.088**	**0.31**	**0.031**	**0.025 J**	**0.18**	**0.81**	**0.81**	**2.8**	**5.7**
Total Organic Carbon (mg/kg)																					
via Lloyd Kahn		**NA**	**NA**	**NA**	**NA**	**2,070**	**4,980 H**	ND	**2,150 H**	**1,880 H**	**42,800**	**70,100 H**	**160,000 H**	**35,600**	NA	NA	**NE**	**NE**	**NE**	**NE**	**NE**
Pesticides 8081A (ug/kg)	**CAS #**																				
4,4' DDT	50-29-3	**42 J**	ND	**52 J**	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.3**	**1,700**	**7,900**	**47,000**	**94,000**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Established
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
H	exceeds holding time
B	Compound was detected in blank and sample

Table 10 - Groundwater Samples - Analyzed for VOCs
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
7/11/2011 - 9/21/2012
(Only detected constituents are listed)

Groundwater Sample ID		MW-1	MW-1	MW-1	MW-2	MW-2	MW-2	MW-5	MW-5	MW-6	MW-6	MW-6	MW-7	MW-7	MW-7	MW-8	MW-8	MW-8	MW-9	MW-9	MW-9	MW-10	MW-10	NYSDEC Class GA Criteria
Date Collected		7/12/2011	10/26/2011	9/21/2012	7/11/2011	10/25/2011	9/21/2012	7/12/2011	10/26/2011	7/12/2011	10/26/2011	9/21/2012	7/12/2011	10/26/2011	9/21/2012	7/12/2011	10/26/2011	9/21/2012	7/12/2011	10/26/2011	9/21/2012	7/12/2011	10/26/2011	
VOCs 8260 B (ug/L)	**CAS #**																							
1,1,1-Trichloroethane	71-55-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,1,2-Trichloroethane	79-00-5	**1.2**	ND	ND	ND	ND	ND	**2.2**	**2.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
1,1,2-Trichlorotrifluoroethane (freon 113)	76-13-1	**0.47 J**	ND	ND	ND	ND	ND	ND	ND	**3.7**	**2.3**	ND	**1.6**	**0.97 J**	ND	ND	**3.4**	**1.8J**	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	75-34-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.52J**	ND	5
1,1-Dichloroethylene	75-35-4	**23**	**0.53 J**	ND	ND	ND	ND	ND	ND	**1.8**	**3**	ND	ND	ND	ND	ND	ND	ND	**2.4**	**4.5**	ND	ND	ND	5
1,2-Dichlorobenzene	95-50-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6
1,4-Dichlorobenzene	106-46-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	3
Acetone	67-64-1	ND	ND	ND	ND	ND	ND	ND	ND	**8.3 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1,100**	**240 J**	50
Benzene	71-43-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
Bromodichloromethane	75-27-4	ND	ND	ND	ND	ND	ND	**0.42 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	50
Carbon disulfide	75-15-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.57 J**	ND	60
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Chloroethane	75-00-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2.7**	**5.0**	ND	ND	ND	5
Chloroform	67-66-3	**0.69 J**	ND	ND	ND	ND	ND	**4**	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7
cis-1,2-Dichloroethylene	156-59-2	**6,300**	**110**	**34**	**11**	**1.2**	ND	**230**	**180**	**940**	**2,300**	**3,100**	**1.7**	ND	ND	**16**	**8.7**	**230**	**240**	**260**	**16**	**72**	ND	5
Dichlorodifluoromethane	75-71-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Methyltertbutyl ether	1634-04-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
Tetrachloroethylene	127-18-4	**20**	**5.4**	**5.5**	**2**	**0.41 J**	ND	**2.8**	**2.7**	**10**	**9**	ND	**5.6**	**5.7**	**2.8**	**6.5**	**7.7**	**5.6**	**0.68 J**	**1.1**	ND	ND	ND	5
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethylene	156-60-5	**4.7**	**1**	ND	ND	ND	ND	**5**	**2.5**	ND	**2.1**	**2.1**	ND	ND	ND	ND	ND	ND	**0.9 J**	**1.1**	ND	ND	ND	5
Trichloroethylene	79-01-6	**3,700**	**250**	**150**	**1,700**	**320 E**	**190**	**10,000**	**8,500**	**720**	**630**	**130**	**13**	**5.2**	**5.6**	**250**	**200**	**360**	**130**	**310**	**84**	**76**	ND	5
Vinyl chloride	75-01-4	**1.2**	ND	ND	ND	ND	ND	ND	ND	**21**	**230**	**2,400**	ND	ND	ND	ND	ND	**11**	**64**	**66**	**5.7**	**2.3**	ND	2

Groundwater Sample ID		MW-11	MW-11	MW-12	MW-12	MW-13	MW-13	MW-14	MW-14	MW-15	MW-15	MW-16	MW-17	MW-18	MW-19	MW-19	PW-S	PW-S	PW-D	NYSDEC Class GA Criteria
Date Collected		10/26/2011	9/21/2012	10/25/2011	9/20/2012	10/25/2011	9/21/2012	10/25/2011	9/20/2012	10/25/2011	9/20/2012	10/25/2011	10/25/2011	10/25/2011	10/25/2011	9/21/2012	7/12/2011	9/21/2012	9/20/2012	
VOCs 8260 B (ug/L)	**CAS #**																			
1,1,1-Trichloroethane	71-55-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,1,2-Trichloroethane	79-00-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.46 J**	ND	ND	1
1,1,2-Trichlorotrifluoroethane (freon 113)	76-13-1	ND	ND	ND	ND	**11**	**9.7**	**8.7**	**22**	ND	ND	ND	ND	ND	ND	ND	**4.4**	ND	ND	5
1,1-Dichloroethane	75-34-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,1-Dichloroethylene	75-35-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.7**	ND	ND	ND	ND	**9.7**	**2.7**	ND	5
1,2-Dichlorobenzene	95-50-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6
1,4-Dichlorobenzene	106-46-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.2**	ND	ND	3
Acetone	67-64-1	ND	ND	ND	ND	**3.2 J**	ND	ND	ND	ND	ND	ND	ND	ND	**9.3 J**	ND	ND	ND	ND	50
Benzene	71-43-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
Bromodichloromethane	75-27-4	ND	ND	ND	ND	**0.53 J**	ND	ND	ND	ND	ND	ND	ND	ND	**0.42 J**	ND	ND	**9.9**	ND	50
Carbon disulfide	75-15-0	ND	ND	ND	ND	ND	ND	**1.5**	ND	**0.59 J**	ND	ND	ND	ND	**0.89 J**	ND	ND	ND	ND	60
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Chloroethane	75-00-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Chloroform	67-66-3	ND	ND	ND	ND	**1.5**	ND	**1.6**	ND	**1**	ND	**0.54 J**	ND	ND	**4.2**	ND	ND	ND	**19**	7
cis-1,2-Dichloroethylene	156-59-2	**95**	**170**	**1**	**2.0**	**8.6**	**6.6**	**6.5**	**22**	**11**	**100**	**270 E**	ND	**2.3**	**0.98 J**	**1.7**	**1,300**	**720**	ND	5
Dichlorodifluoromethane	75-71-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**7**	5
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Methyltertbutyl ether	1634-04-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10
Tetrachloroethylene	127-18-4	**1.1**	ND	ND	ND	**30**	**21**	**1.4**	**5.3**	**2.4**	ND	**0.52 J**	ND	**1.4**	ND	ND	**5.7**	ND	ND	5
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.77 J**	ND	ND	ND	ND	5
trans-1,2-Dichloroethylene	156-60-5	**1.2**	**ND**	ND	ND	ND	ND	ND	ND	ND	ND	**1.7**	ND	ND	ND	ND	**6.9**	**22**	ND	5
Trichloroethylene	79-01-6	**400**	**930**	ND	ND	**14**	**13**	**6.1**	**19**	**940**	**2,200E**	**1,400 E**	**2.2**	**1**	**34**	**4.1**	**3,200**	**1,100**	ND	5
Vinyl chloride	75-01-4	ND	ND	ND	**1.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**12**	**20**	ND	2

Groundwater Sample ID		RW-2	RW-2	RW-2	RW-3	RW-3	RW-3	RW-4	RW-4	RW-4	RW-5	RW-5	RW-5	RW-6	RW-6	HRP-BR-1	HRP-BR-1	HRP-BR-2	HRP-BR-2	HRP-BR-3	HRP-BR-3	HRP-BR-4	HRP-BR-4	NYSDEC Class GA Criteria
Date Collected		7/11/2011	10/25/2011	9/21/2012	7/11/2011	10/25/2011	9/20/2012	7/12/2011	10/25/2011	9/20/2012	7/12/2011	10/25/2011	9/20/2012	7/11/2011	10/25/2011	12/20/2011	9/20/2012	12/20/2011	9/20/2012	12/20/2011	9/20/2012	12/20/2011	9/20/2012	
VOCs 8260 B (ug/L)	**CAS #**																							
1,1,1-Trichloroethane	71-55-6	ND	**0.87 J**	ND	**0.84 J**	ND	ND	ND	ND	ND	ND	ND	ND	**0.86 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,1,2-Trichloroethane	79-00-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
1,1,2-Trichlorotrifluoroethane (freon 113)	76-13-1	**18**	**21**	**6.6**	**32**	**39**	**32**	ND	ND	ND	ND	ND	ND	**14**	**7.6**	**0.73 J**	**0.52J**	**8.3**	**20**	**5.9**	ND	**9.2**	ND	5
1,1-Dichloroethane	75-34-3	ND	ND	ND	ND	ND	ND	**7.1**	**7**	ND	ND	ND	ND	ND	**2.3**	**3.4**	**2.5**	ND	ND	ND	**2.9 J**	**10**	**5.1**	5
1,1-Dichloroethylene	75-35-4	**0.66 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	**0.96 J**	ND	ND	ND	ND	**2.2**	ND	ND	**0.3 J**	5
1,2-Dichlorobenzene	95-50-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6
1,4-Dichlorobenzene	106-46-7	ND	ND	ND	ND	ND	ND	ND	ND	**2.1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3
Acetone	67-64-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3.6 J**	ND	**3 J**	ND	ND	ND	ND	ND	50
Benzene	71-43-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.1**	**0.7 J**	ND	ND	ND	ND	ND	ND	1
Bromodichloromethane	75-27-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.41 J**	ND	50
Carbon disulfide	75-15-0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.58 JB**	**0.72 J**	**0.55 JB**	**ND**	**0.5 JB**	ND	**0.54 JB**	ND	60
Chlorobenzene	108-90-7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Chloroethane	75-00-3	ND	ND	ND	ND	ND	ND	ND	**0.93 J**	**0.93 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Chloroform	67-66-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.93**	ND	7
cis-1,2-Dichloroethylene	156-59-2	**83**	**51**	**180**	**49**	**48**	**50**	**38**	**36**	ND	**3.7**	**2.5**	ND	**74**	**55**	**9.5**	**14**	**38**	**66**	**560**	**510**	**66**	**50**	5
Dichlorodifluoromethane	75-71-8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.5**	ND	ND	**0.82 J**	ND	ND	ND	ND	**1.6**	ND	5
Ethylbenzene	100-41-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
Methyltertbutyl ether	1634-04-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1.4**	ND	ND	ND	ND	ND	**0.67 J**	ND	10
Tetrachloroethylene	127-18-4	ND	ND	ND	**61**	**62**	**44**	ND	ND	ND	ND	ND	ND	ND	**3.4**	ND	ND	**19**	**26**	**11**	**3.9 J**	**1.6**	ND	5
Toluene	108-88-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
trans-1,2-Dichloroethylene	156-60-5	**3**	**1.9**	**6.2**	**1.4**	**1.4**	**1.3**	**1.7**	**1.5**	ND	ND	ND	ND	ND	**1.1**	**3.5**	**2.2**	ND	**1.2**	**5**	**11**	**2.9**	**1.2**	5
Trichloroethylene	79-01-6	**430**	**270**	**380**	**82**	**63**	**73**	**1.9**	**1.3**	ND	**800**	**410**	**110**	**73**	**54**	**2.9**	**2.3**	**54**	**77**	**1,200**	**350**	**52**	**0.71 J**	5
Vinyl chloride	75-01-4	**2.4**	**2.3**	**9.6**	**1.9**	**2.6**	**2.9**	**89**	**89**	**1.4**	ND	ND	ND	**4.7**	**3.8**	**3.8**	**4.8**	ND	**1.6**	**5.6**	**8.1**	**18**	**8.7**	2

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
	Well removed during January 2012 IRM activities
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
MW	Monitor Well
PW	Production Well
RW	Bedrock Well
BR	Bedrock Well
ND	Not Detected
NA	Not Analyzed
NE	Not Established
ug/l	micrograms per liter
VOCs	Volatile Organic Compounds
J	Result is Less Than the Reporting Limit But Greater Than of Equal to the Medthod Detction Limit and the Concentration is an Approximate Value
E	Result Exceeded Calibration Range
B	Compound was Found in the Blank and Sample

Table 11 - Groundwater Samples - Analyzed for Metals
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
7/11/2011 - 12/20/2011
(Only detected constituents are listed)

Groundwater Sample ID		MW-1	MW-1	MW-2	MW-2	MW-5	MW-5	MW-6	MW-6	MW-7	MW-7	MW-8	MW-8	MW-9	MW-9	MW-10	MW-10	MW-11	MW-12	MW-13	NYSDEC Class GA Criteria
Date Collected		7/12/2011	10/26/2011	7/11/2011	10/25/2011	7/12/2011	10/26/2011	7/12/2011	10/26/2011	7/12/2011	10/26/2011	7/12/2011	10/26/2011	7/12/2011	10/26/2011	7/12/2011	10/26/2011	10/26/2011	10/25/2011	10/25/2011	
Metals 6010B and 7471A (mg/L)	**CAS #**																				
Arsenic	7440-38-2	**0.0076**	ND	ND	ND	**0.013**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.034**	**0.09**	ND	**0.024**	ND	**0.025**
Barium	7440-39-3	**0.18**	**0.15**	**0.19**	**0.16**	**0.22**	**0.076**	**0.2**	**0.17**	**0.14**	**0.15**	**0.21**	**0.21**	**0.2**	**0.23**	**0.064**	**0.058**	**0.015**	**0.38**	**0.081**	**1**
Cadmium	7440-43-9	ND	ND	**0.00035**	ND	**0.0015**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0011**	ND	ND	ND	**0.005**
Chromium, Total	7440-47-3	**0.0014**	**0.00087**	**0.001**	**0.0061**	**0.11**	**0.0064**	**0.0031**	ND	**0.0017**	**0.0017**	**0.0011**	**0.0038**	**0.022**	**0.017**	**0.03**	**0.083**	**0.0019**	**0.00092**	**0.0013**	**0.05**
Lead	7439-92-1	ND	ND	ND	**0.0036**	**0.16**	**0.01**	**0.003**	ND	ND	ND	ND	ND	**0.005**	**0.0043**	**0.012**	**0.043**	ND	ND	ND	**0.025**
Mercury	7439-97-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0007**
Selenium	7782-49-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.01**
Silver	7440-22-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.05**
Chromium, Hexavalent	18540-29-9	ND	NA	ND	NA	ND	NA	**0.0065**	NA	ND	NA	ND	NA	ND	NA	ND	NA	NA	NA	NA	**0.05**
Aluminum, Total	7429-90-5	**0.2**	NA	ND	NA	**25.4**	NA	**1.8**	NA	**1.1**	NA	**0.31**	NA	**7.4**	NA	**8.7**	NA	NA	NA	NA	**NE**
Antimony	7440-36-0	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	NA	NA	NA	**0.003**
Beryllium	7440-41-7	ND	NA	ND	NA	**0.0015**	NA	ND	NA	ND	NA	ND	NA	**0.00051**	NA	**0.00048**	NA	NA	NA	NA	**0.003**
Calcium	7440-70-2	**188**	NA	**167**	NA	**312**	NA	**144**	NA	**151**	NA	**156**	NA	**157**	NA	**150**	NA	NA	NA	NA	**NE**
Cobalt	7440-48-4	**0.0016**	NA	ND	NA	**0.02**	NA	**0.0025**	NA	**0.00097**	NA	**0.00069**	NA	**0.023**	NA	**0.0079**	NA	NA	NA	NA	**NE**
Copper	7440-50-8	**0.0045**	NA	**0.0031**	NA	**0.35**	NA	**0.0066**	NA	**0.0045**	NA	**0.0023**	NA	**0.0099**	NA	**0.039**	NA	NA	NA	NA	**0.2**
Iron	7439-89-6	**0.35**	NA	**0.17**	NA	**46**	NA	**2.8**	NA	**1.4**	NA	**0.45**	NA	**8.3**	NA	**8.6**	NA	NA	NA	NA	**0.3**
Magnesium	7439-95-4	**40.4**	NA	**36**	NA	**120**	NA	**29**	NA	**32.5**	NA	**44**	NA	**43.1**	NA	**31.3**	NA	NA	NA	NA	**35**
Manganese	7439-96-5	**0.98**	NA	**0.011**	NA	**2.9**	NA	**0.98**	NA	**0.43**	NA	**1.4**	NA	**0.29**	NA	**0.94**	NA	NA	NA	NA	**0.3**
Nickel	7440-02-0	**0.0082**	NA	ND	NA	**0.11**	NA	**0.0035**	NA	**0.0016**	NA	**0.0016**	NA	**0.0067**	NA	**0.021**	NA	NA	NA	NA	**0.1**
Potassium, Total	7440-09-7	**9.2**	NA	**3.1**	NA	**36.3**	NA	**11.9**	NA	**6.2**	NA	**14**	NA	**4.4**	NA	**89.7**	NA	NA	NA	NA	**NE**
Sodium, Total	7440-23-5	**158**	NA	**63.4**	NA	**31.1**	NA	**194**	NA	**53.7**	NA	**114**	NA	**27.8**	NA	**249**	NA	NA	NA	NA	**20**
Thallium	7440-28-0	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	NA	NA	NA	**0.0005**
Vanadium	7440-62-2	**0.0012**	NA	ND	NA	**0.058**	NA	**0.0046**	NA	**0.0024**	NA	**0.0024**	NA	**0.014**	NA	**0.0083**	NA	NA	NA	NA	**NE**
Zinc	7440-66-6	**0.0061**	NA	**0.0087**	NA	**0.57**	NA	**0.015**	NA	**0.0094**	NA	**0.0075**	NA	**0.025**	NA	**0.22**	NA	NA	NA	NA	**2**

Groundwater Sample ID		MW-14	MW-15	MW-16	MW-17	MW-18	MW-19	PW-S	RW-2	RW-2	RW-3	RW-3	RW-4	RW-4	RW-5	RW-5	RW-6	RW-6	SW-1	NYSDEC Class GA Criteria
Date Collected		10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011	7/12/2011	7/11/2011	10/25/2011	7/11/2011	10/25/2011	7/12/2011	10/25/2011	7/12/2011	10/25/2011	7/11/2011	10/25/2011	7/12/2011	
Metals 6010B and 7471A (mg/L)	**CAS #**																			
Arsenic	7440-38-2	ND	ND	ND	ND	**0.012**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.025**
Barium	7440-39-3	**0.057**	**0.064**	**0.072**	**0.097**	**0.012**	**0.065**	**0.14**	**0.15**	**0.11**	**0.11**	**0.11**	**0.21**	**0.24**	**0.15**	**0.11**	**0.062**	**0.04**	**0.093**	**1**
Cadmium	7440-43-9	**0.00033**	ND	ND	ND	ND	**0.0004**	ND	**0.0055**	**0.011**	**0.00055**	ND	ND	**0.00039**	ND	**0.0018**	**0.00056**	ND	ND	**0.005**
Chromium, Total	7440-47-3	**0.0012**	**0.0023**	**0.0014**	ND	**0.0011**	**0.0014**	ND	**0.0012**	ND	**0.0016**	ND	**0.0012**	**0.0015**	**0.0021**	**0.0015**	**0.0011**	**0.00088**	**0.039**	**0.05**
Lead	7439-92-1	**0.0038**	**0.0031**	ND	ND	ND	**0.0037**	ND	ND	ND	ND	ND	ND	ND	**0.0033**	ND	ND	ND	ND	**0.025**
Mercury	7439-97-6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.0007**
Selenium	7782-49-2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.01**
Silver	7440-22-4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.05**
Chromium, Hexavalent	18540-29-9	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	**0.05**
Aluminum, Total	7429-90-5	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	NA	**0.49**	NA	**0.094**	NA	**0.35**	**NE**
Antimony	7440-36-0	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	**0.003**
Beryllium	7440-41-7	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	**0.003**
Calcium	7440-70-2	NA	NA	NA	NA	NA	NA	**140**	**141**	NA	**141**	NA	**81**	NA	**111**	NA	**157**	NA	**30.8**	**NE**
Cobalt	7440-48-4	NA	NA	NA	NA	NA	NA	**0.0014**	**0.0048**	NA	**0.0023**	NA	ND	NA	ND	NA	**0.017**	NA	ND	**NE**
Copper	7440-50-8	NA	NA	NA	NA	NA	NA	**0.0018**	**0.0043**	NA	**0.005**	NA	ND	NA	**0.0021**	NA	**0.0023**	NA	**0.0039**	**0.2**
Iron	7439-89-6	NA	NA	NA	NA	NA	NA	**0.41**	**0.74**	NA	**0.15**	NA	**3.1**	NA	**0.6**	NA	**1.3**	NA	**0.43**	**0.3**
Magnesium	7439-95-4	NA	NA	NA	NA	NA	NA	**35.4**	**39.9**	NA	**35.5**	NA	**15.5**	NA	**20.7**	NA	**43**	NA	**7.6**	**35**
Manganese	7439-96-5	NA	NA	NA	NA	NA	NA	**0.76**	**3**	NA	**1.1**	NA	**0.29**	NA	**0.11**	NA	**0.13**	NA	**0.029**	**0.3**
Nickel	7440-02-0	NA	NA	NA	NA	NA	NA	**0.0046**	**0.007**	NA	**0.004**	NA	ND	NA	**0.0013**	NA	**0.0081**	NA	**0.0015**	**0.1**
Potassium, Total	7440-09-7	NA	NA	NA	NA	NA	NA	**5.8**	**4.1**	NA	**4.9**	NA	**3.2**	NA	**2.4**	NA	**5.2**	NA	**2.5**	**NE**
Sodium, Total	7440-23-5	NA	NA	NA	NA	NA	NA	**78.6**	**70.4**	NA	**71**	NA	**11.5**	NA	**19.9**	NA	**114**	NA	**12.1**	**20**
Thallium	7440-28-0	NA	NA	NA	NA	NA	NA	ND	ND	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	**0.0005**
Vanadium	7440-62-2	NA	NA	NA	NA	NA	NA	ND	**0.002**	NA	ND	NA	ND	NA	ND	NA	ND	NA	ND	**NE**
Zinc	7440-66-6	NA	NA	NA	NA	NA	NA	**0.0088**	**0.55**	NA	**0.0059**	NA	**0.0023**	NA	**0.017**	NA	**0.0039**	NA	**0.027**	**2**

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
MW	Monitor Well
PW	Production Well
RW	Bedrock Well
SW	Shallow Well
BR	Bedrock Well
ND	Not Detected
NA	Not Analyzed
NE	Not Established
mg/l	milligrams per liter

Well removed during January 2012 IRM activities

Table 12 - Groundwater Samples - Analyzed for Metals, SVOCs, Pesticides, and Miscellaneous Constituents
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
September 20, 2012
(Only detected constituents are listed)

Groundwater Sample ID / Date Collected		MW-12 09/20/12	MW-13 09/20/12	RW-5 09/20/12	NYSDEC Class GA Criteria
Metals 6010B and 7471A (mg/L)	**CAS #**				
Arsenic	7440-38-2	**0.068**	ND	ND	**0.025**
Barium	7440-39-3	**1.2**	**0.16**	**0.14**	**1**
Cadmium	7440-43-9	**0.0021**	ND	**0.0038**	**0.005**
Chromium, Total	7440-47-3	**0.18**	**0.0039**	**0.0012**	**0.05**
Lead	7439-92-1	**0.1**	**0.003**	ND	**0.025**
Mercury	7439-97-6	**0.00016**	ND	ND	**0.0007**
Selenium	7782-49-2	**0.0099**	ND	ND	**0.01**
SVOCs, Pesticides, PCBs, and Total Cyanide were not detected					

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
SVOCs	Semi-Volatile Organic Compounds
MW	Monitor Well
RW	Bedrock Well
ND	Not Detected
NA	Not Analyzed
NE	Not Established
mg/l	Milligrams per Liter
ug/l	Micrograms per Liter

Table 13 - Groundwater Samples - Analyzed for Miscellaneous Constituents
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
July 12, 2011
(Only detected constituents are listed)

Groundwater Sample ID / **Date Collected**		**FP-1 (MW-7)** / **7/12/2011**	**NYSDEC Class GA Criteria**
Misc. Constituents (ug/L)	**CAS #**		
Fuel Oil #2	68476-30-2	present	**NE**
Fuel Oil #4	68476-31-3	absent	**NE**
Fuel Oil #6	68553-00-4	absent	**NE**
Gasoline	8006-61-9	absent	**NE**
Kerosene	8008-20-6	present	**NE**
Motor Oil	Motor Oil	absent	**NE**
Unknown Hydrocarbons	PHC	absent	**NE**

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
MW	Monitor Well
NE	Not Established
ug/l	micrograms per liter

Table 14 - Surface Water Samples - Analyzed for Metals, VOCs, Pesticides, and Miscellaneous Constituents
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
September 20, 2012
(Only detected constituents are listed)

Sample ID Date Collected		SW-1 06/13/12	SW-2 06/13/12	NYSDEC Class GA Criteria
Metals 6010B and 7471A (mg/L)	**CAS #**			
Barium	7440-39-3	**0.11**	**0.094**	**1**
Cadmium	7440-43-9	**0.00078**	**0.00069**	**0.005**
Chromium, Total	7440-47-3	**0.18**	**0.053**	**0.05**
Lead	7439-92-1	**0.045**	**0.013**	**0.025**
VOCs 8260B (ug/L)	**CAS #**			
1,2-Dibromo-3-chloropropane	96-12-8	ND	ND	**0.04**
1,2-Dibromoethane (EDB) (ethylene dibromide)	106-93-4	ND	ND	**0.0006**
Acetone	67-64-1	**3.4**	ND	**50**
Bromodichloromethane	75-27-4	**0.58**	**0.42**	**50**
Chloroform	67-66-3	**1.5**	**1.4**	**7**
Toluene	108-88-3	**1.7**	ND	**5**
1,3-Dichloropropene (Total)		ND	ND	**0.4**
Pesticides and PCBs were not detected				

NYSDEC class GA criteria are from NYSDEC Technical and Operational Guidance Series (TOGS 1.1.1), Ambient water quality, class GA standards/guidance values from Table 1.

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
VOCs	Volatile Organic Compounds
SW	Surface Water
ND	Not Detected
NA	Not Analyzed
NE	Not Established
mg/l	Milligrams per Liter
ug/l	Micrograms per Liter

Table 15 - Post Excavation Soil Samples-Analyzed for Metals 6010B and VOCs 8260 B
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
1/28/2013-2/5/2013
375-6 SCO - Protection of Public Health - Unrestricted, Residential, Restricted Residential, Commercial, and Industrial
(Only detected constituents are listed)

Soil Sample ID Depth (ft.) Date Collected		PE- BASE 1 7'-8' 1/31/2013	PE- BASE 2 7'-8' 1/31/2013	PE-1 5-6 5'-6' 1/28/2013	PE-2 6.5-7.5 6.5-7.5 1/30/2013	PE-3 6.5-7.5 6.5-7.5 1/30/2013	PE-4 6-7 6'-7' 1/31/2013	PE-5 6-7 6'-7' 1/31/2013	PE-6 6-7 6'-7' 1/31/2013	PS-1 4'-5' 1/31/2013	West Wall PE 2'-4' 1/30/2013	X-2 Bottom 5'-5.5 02/05/13	375-6 SCO - Protection of Groundwater	5-6 SCO - Protection of Public Health Unrestricted	375-6 SCO - Protection of Public Health - Residential	375-6 SCO - Protection of Public Health - Restricted Residential	375-6 SCO - Protection of Public Health - Commercial	5-6 SCO - Protection of Public Health Indudtrial
Metals (mg/kg)	**CAS #**																	
Aluminum, Total	7429-90-5	3880	4210	3740	2790	3660	2790	2360	2270	5610	6030	NA	NE	NE	NE	NE	NE	NE
Arsenic	7440-38-2	4.6	2.5	2 J	0.73 J	1.7 J	1.1 J	2.4	1.2 J	4.6	2.7	2.5	16	13	16	16	16	16
Barium	7440-39-3	35.4	32.9	37.1	10.1	24.3	26.7	32	10.8	36.3	40.3	NA	820	350	350	400	400	10,000
Beryllium	7440-41-7	0.18 J	0.19 J	0.16 J	0.093 J	0.12 J	0.11 J	0.18 J	0.11 J	0.18 J	0.22 J	NA	47	7.2	14	72	590	2,700
Cadmium	7440-43-9	0.14 J	0.1 J	0.4	0.052 J	0.66	0.26	0.66	<0.033 U	1.4	0.1 J	NA	7.5	2.5	2.5	4.3	9.3	60
Calcium	7440-70-2	45000	57000	2950 B	22000 B	28600 B	28700	114000	1920	48700	3220 B	NA	NE	NE	NE	NE	NE	NE
Chromium, Total	7440-47-3	**13.6**	**7.2**	**32**	**4**	**33.6**	**20.9**	**9.2**	**16.2**	**120**	**9.5**	NA	NE	30	36	180	1,500	6,800
Cobalt	7440-48-4	3.4	3.5	2.7	3.1	2.8	2.8	3.2	1.1	4.2	2.6	NA	NE	NE	NE	NE	NE	NE
Copper	7440-50-8	12.2	9.8	15.8	3.8	**57.4**	6.2	48.6	4.2	**55.7**	6.2	NA	1,720	50	270	270	270	10,000
Iron	7439-89-6	8750	9000	8220 B	6120 B	6860 B	5660	8810	6130	17900	8000 B	NA	NE	NE	NE	NE	NE	NE
Lead	7439-92-1	5	5.6	3.4	1.3	7.5	2.2	6.6	3.2	19.1	8.4	NA	450	63	400	400	1000	3,900
Magnesium	7439-95-4	10300	12300	1070 B	5780 B	6180 B	7080	32800	894	11400	1550 B	NA	NE	NE	NE	NE	NE	NE
Manganese	7439-96-5	285 B	283 B	165 B	212 B	210 B	320 B	591 B	40.6 B	618 B	151 B	NA	2,000	1,600	2,000	2,000	10,000	10,000
Mercury	7439-97-6	<0.0093 U	<0.0084 U	<0.0085 U	<0.0094 U	<0.0089 U	<0.0097 U	<0.0088 U	<0.0089 U	<0.0086 U	0.038	NA	0.73	0.18	0.81	0.81	2.8	5.7
Nickel	7440-02-0	8.3	9.3	6.8	6.5	11.1	6.6	16.4	3.6 J	21.3	5.3 J	NA	130	30	140	310	310	10,000
Potassium, Total	7440-09-7	866	1050	582	506	746	620	1050	493	882	729	NA	NE	NE	NE	NE	NE	NE
Selenium	7782-49-2	<0.5 U	<0.48 U	<0.45 U	<0.43 U	<0.45 U	<0.45 U	<0.39 U	<0.43 U	0.57 J	0.57 J	NA	4	3.9	36	180	1,500	6,800
Sodium, Total	7440-23-5	240	210	116 J B	112 J B	294 B	168	199	131 J	840	156 J B	NA	NE	NE	NE	NE	NE	NE
Vanadium	7440-62-2	9.7	11	8.4	7.2	7.5	7.7	9.8	4.6	13.6	12.5	NA	NE	NE	NE	NE	NE	NE
Zinc	7440-66-6	58.7	19.8	**275 B**	14.2 B	**227 B**	71.9	**359**	18.2	**423**	26.6 B	NA	2,480	**109**	**2,200**	**10,000**	**10,000**	**10,000**
VOCs (mg/kg)																		
1,1,2,2-Tetrachloroethan	79-34-5	ND	ND	ND	ND	0.0059	ND	ND	ND	ND	ND	NA	NE	NE	NE	NE	NE	NE
1,1-Dichloroethylene	75-35-4	ND	ND	ND	ND	ND	ND	ND	ND	**1.30**	ND	NA	0.33	**0.33**	**100**	**100**	**500**	**1,000**
1,2-Dichloroethane	107-06-2	ND	ND	ND	ND	ND	ND	ND	ND	(<0.048) U	ND	NA	0.02	**0.02**	**2.3**	**3.1**	**30**	**60**
2-Butanone (MEK)	78-93-3	ND	ND	ND	ND	ND	ND	ND	ND	(<0.350) U	ND	NA	0.12	**0.12**	**100**	**100**	**500**	**1,000**
2-Hexanone (Methyl buty	591-78-6	ND	ND	ND	ND	0.0063 J	ND	ND	ND	ND	ND	NA	NE	NE	NE	NE	NE	NE
Acetone	67-64-1	ND	0.044	ND	ND	0.014 J	**0.065**	0.037 J	ND	**0.92**	ND	NA	0.05	**0.05**	**100**	**100**	**500**	**1,000**
cis-1,2-Dichloroethylene	156-59-2	0.049 J	0.045	0.0053	**0.570**	0.180	0.0077	0.0093 J	ND	**220 RE**	0.0023 J	NA	0.25	**0.25**	**59**	**100**	**500**	**1,000**
Ethylbenzene	100-41-4	ND	ND	ND	ND	0.0051	ND	ND	ND	**1.00**	ND	NA	1	**1**	**30**	**41**	**390**	**780**
Isopropylbenzene	98-82-8	ND	ND	ND	ND	0.007	ND	0.0044 J	ND	0.600	ND	NA	NE	NE	NE	NE	NE	NE
m-,p-,o-Xylene	1330-20-7	ND	ND	ND	ND	0.029	ND	ND	ND	**4.80**	ND	NA	0.26	**0.26**	**100**	**100**	**500**	**1,000**
Methylene chloride	75-09-2	ND	ND	ND	ND	ND	ND	ND	ND	**13 J B, RE**	ND	NA	0.05	**0.05**	**51**	**100**	**500**	**1,000**
Styrene	100-42-5	ND	ND	ND	ND	0.00039 J	ND	ND	ND	NE	ND	NA	NE	NE	NE	NE	NE	NE
Tetrachloroethylene	127-18-4	ND	ND	ND	ND	0.0036 J	ND	ND	ND	**7.50**	ND	NA	1.3	**1.3**	**5.5**	**19**	**150**	**300**
Toluene	108-88-3	ND	ND	ND	ND	0.0022 J	ND	ND	ND	**2.10**	ND	NA	0.7	**0.7**	**100**	**100**	**500**	**1,000**
trans-1,2-Dichloroethyler	156-60-5	ND	ND	ND	ND	ND	ND	ND	ND	0.140	ND	NA	0.19	**0.19**	**100**	**100**	**500**	**1,000**
Trichloroethylene	79-01-6	0.470	0.046	0.0056	0.170	**1.90 RE**	0.0042 J	0.430	0.0042 J	**4,100 RE**	0.0073	NA	0.47	**0.47**	**10**	**21**	**200**	**400**
Vinyl chloride	75-01-4	ND	ND	ND	ND	ND	ND	ND	ND	(<0.039) U	ND	NA	0.02	**0.02**	**0.21**	**0.9**	**13**	**27**

Bold	Sample is Above Non-Detect Value but Below Objective
	Sample exceeds Protection of Groundwater SCO
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Residential Objective
Bold	Sample Exceeds Restricted Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
NA	Not Analyzed
ND	Sample is Below Minimum Detection Limit at Laboratory
(<###)	Sample is Below Minimum Detection Limit at Laboratory, but above minimum SCOs
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Trivalent Chromium Standard Used
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and the sample
U	Analyte included in analysis, but not detected at or above the MDL
RE	Sample Diluted and Retested.
	Sample locations removed during January 2013 IRM excavation

Table 16 - Groundwater Elevations and Depths
Barthelmes Manufacturing Site
15 Cairn Street
Rochester, New York
7/11/2011 - 9/20/2012

Overburden Monitoring Wells	GW elevation 7/11/2011	Depth to water (ft. b.g.s.) 7/11/2011	GW elevation 10/25/2011	Depth to water (ft. b.g.s.) 10/25/2011	GW elevation 12/19/2011	Depth to water (ft. b.g.s.) 12/19/2011	GW elevation 9/20/2012	Depth to water (ft. b.g.s.) 9/20/2012	Elevation at Top PVC/casing	Elevation at Ground
MW-1	532.41	5.21	532.57	5.05	532.48	5.14	531.44	6.18	537.62	537.84
MW-2	532.44	12.99	531.97	13.46	532.13	13.30	532.01	13.42	545.43	545.61
MW-5	532.72	11.02	532.59	11.15	532.63	11.11	Well removed	Well removed	543.74	544.10
MW-6	532.54	5.07	532.60	5.00	532.57	5.03	531.56	6.05	537.61	537.82
MW-7	532.52	5.29	532.66	5.15	532.57	5.24	531.56	6.25	537.81	537.96
MW-8	532.41	6.03	532.57	5.87	532.46	5.98	531.44	7.00	538.44	538.56
MW-9	532.36	5.56	532.52	5.40	532.41	5.51	531.29	6.63	537.92	538.02
MW-10	532.77	4.52	533.12	4.17	NA	NA	Not sampled	Not sampled	537.29	537.52
MW-11	NA	NA	532.79	4.51	532.79	4.67	531.53	5.83	537.36	537.62
MW-12	NA	NA	533.71	6.06	533.71	6.63	532.11	7.41	539.52	539.86
MW-13	NA	NA	532.90	7.98	532.90	8.01	531.96	8.85	540.81	541.09
MW-14	NA	NA	532.50	12.18	532.50	12.13	531.63	13.02	544.65	544.96
MW-15	NA	NA	532.37	10.50	532.37	10.47	531.35	11.49	542.84	543.11
MW-16	NA	NA	532.35	7.58	532.35	7.65	Well removed	Well removed	539.80	540.24
MW-17	NA	NA	533.33	4.22	532.33	4.22	Not sampled	Not sampled	537.44	537.61
MW-18	NA	NA	533.50	3.06	533.50	3.24	Not sampled	Not sampled	536.50	536.82
MW-19	NA	NA	532.70	6.31	532.70	5.64	531.00	6.65	537.65	538.10
Bedrock Monitoring Wells										
RW-2	527.03	18.23	527.08	18.18	525.17	20.09	525.84	19.42	545.26	545.44
RW-3	526.49	16.88	526.71	16.66	524.52	18.55	525.53	17.84	543.37	543.65
RW-4	525.51	11.71	525.73	11.49	524.88	12.34	524.65	12.57	537.22	537.48
RW-5	531.83	6.99	531.96	6.86	531.87	6.95	530.52	8.30	538.82	538.94
RW-6	532.51	14.55	532.06	15.00	531.93	15.13	Not sampled	Not sampled	547.06	547.35
HRP BR-1	NA	NA	NA	NA	519.86	19.51	521.99	17.38	539.37	539.84
HRP BR-2	NA	NA	NA	NA	520.08	24.40	521.86	22.62	544.48	544.85
HRP BR-3	NA	NA	NA	NA	518.54	21.61	520.06	20.09	540.15	540.56
HRP BR-4	NA	NA	NA	NA	523.31	14.75	525.04	12.42	538.06	538.48

NA- Well had not been installed at the time of sampling event
*MW-3, MW-4, and RW-1 could not be located during site inspections

APPENDIX A

LIMITATIONS ON WORK PRODUCT

All work product and reports provided by HRP in connection with the performance of any phase of Environmental Site Assessments, and any services related to remedial and post-remedial action, including all work performed under HRP's Terms & Conditions and any follow-up work is subject to the following limitations.

A. The observations described in the Project Report(s) are made under the stated conditions. The conclusions presented in the Report(s) are based solely upon the indicated services, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the Client.

B. In preparing Project Reports, HRP relies on certain representations made and in-formation provided by federal, state and local officials, the Client and other parties referenced in the Project Reports, and on information contained in the files of federal, state and/or local agencies made available to HRP, at the time of the Project. To the extent that such information and files are missing, incomplete or not provided to HRP, HRP is not responsible. Although there may be some degree of overlap in the information provided by these various sources, HRP does not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of the Project. If the Client determines that information provided or made available to HRP from any source is incorrect or inaccurate, the Client should promptly notify HRP, whereupon HRP will issue a corrected Project Report.

C. Observations are made of the site and of structures on the site as indicated within the Project Report(s). Where access to portions of the site or to structures on the site is unavailable or limited, HRP renders no opinion as to the presence of potential contamination by hazardous substances, wastes or petroleum and chemical products and wastes. In addition, HRP renders no opinion as to the presence of indirect evidence relating to potential contamination by hazardous substances, wastes or petroleum and chemical products or wastes where direct observation of the interior walls, floors, or ceilings of a structure on a site is obstructed by objects or coverings on or over these surfaces.

D. Unless otherwise specified in the Project Report(s), HRP does not perform testing or analyses to determine the presence or concentration of asbestos or poly-chlorinated biphenyls (PCBs), lead paint, urea formaldehyde foam insulation (UFFI), wetlands, regulatory compliance, cultural and historical risks, industrial hygiene, health & safety, ecological resources, endangered species, indoor air quality, high voltage power lines, or radon at the site or in the environment of the site. When HRP is contracted to perform asbestos or lead paint testing, planning or related services, HRP assumes no responsibility for the implementation or enforcement of the procedures, work practices, or other control methods recommended, required, or mentioned in the Project Report(s), unless HRP has been specifically contracted to implement or supervise such actions, in which case the associated contractual documents will define our scope and responsibilities.

E. The purpose of the Project Report(s) is to assess the physical characteristics of the subject site with respect to the potential presence in the site soil, ground water or surface water environment of contamination by hazardous substances, hazardous waste or petroleum and chemical products and wastes. HRP has not confirmed the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

F. If sampling is included in the scope of the Project, the conclusions and recommendations contained in the Project Report(s) are based in part upon the data obtained from a limited number of soil, ground water, or surface water samples obtained from widely spaced surface or subsurface explorations. The nature and extent of variations between these locations may not become evident until further exploration. If variations or other latent conditions then appear evident, it will be necessary to re-evaluate the conclusions and recommendations of the Project Report(s).

G. If water level readings are made in test pits, borings, and/or observation wells; these observations are made at the times and under the conditions stated on the test pit or boring logs or in the Project Report(s). However, it must be noted that fluctuations in the level of ground water may occur due to variations in rainfall, passage of time and other factors. Should additional data become available in the future, these data may alter the basis of conclusions and recommendations presented in the Project Report(s).

H. If the conclusions and recommendations contained in the Project Report(s) are based, in part, upon various types of chemical analyses, then the conclusions and recommendations are contingent upon the validity of such data. The analyses are performed for specific parameters and additional chemical constituents not searched for during the current study may be present in soil, ground water, or surface water at the site. Where such analyses have been conducted by an out-side laboratory, HRP has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these tests. The data (if obtained) are reviewed and interpretations made in the Project Report(s). If indicated within the Project Report(s), some of these data may be preliminary "screening" level data and should be confirmed with quantitative analyses if more specific in-formation is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data may alter the basis of the conclusions and recommendations presented in the Project Report(s).

I. It is recommended that HRP be retained to provide further hydrogeologic and engineering services during the conduct of further exploration or the construction and/or implementation of any remedial measures recommended in HRP's Project Report(s). This is to allow HRP and the Client to observe consistency with the concepts and recommendations contained therein, and to allow the development of changes to the remedial program in the event that subsurface conditions or other conditions differ from those anticipated.

J. The services provided by HRP do not include legal advice. Legal counsel should be consulted regarding interpretation of relevant federal, state and local laws.

APPENDIX B

QA/QC EVALUATION RESULTS (DUSRs)

(see attached CD)

APPENDIX C

FIELD DATA (SOIL BORING LOGS, GROUNDWATER SAMPLING SHEETS, WELL LOGS, etc.)

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-1**
Job Number: 828122	**Date: 9/12/11**
Drilling Company: SJB Services	**Time: 10:35**
Location: east side loading dock dry well	
GPS Coordinates **N:** 43.146202564	**W:** 77.664647078

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	dry	Brown m-f SAND, some gravel	0
2	3	1	dry	Brown m-f SAND, some gravel, fill	0
3	3.5	1.5	dry	Fill, cinders	0
3.5	4	.5	dry	Brown f SAND	0
4	5.5	1	dry	Brown m-f SAND, trace gravel	0
5.5	6	1	dry	Dark brown silty SAND, trace clay	0
6	8	1.5	moist	Brown m-f to m-c SAND	0
8	9	1	wet	Brown c SAND, some gravel	0
9	11	1	wet	Brown f SAND, trace silt	0
11	12	1	wet	Grey f SAND, rock fragments	0
12	15	2	wet	Grey f SAND and SILT	0
15	16	1	moist	Grey f SAND and SILT	0
16	18	2	wet	Grey f SAND and SILT	0
18	19	.5	dry	Grey f SAND and SILT w/ fractured dolomite in tip – EOB – refusal at 19’	0

	Soil Samples Collected:	**Time**
	HRP-SB-1 18’-19’	11:05

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-2**
Job Number: 828122	**Date: 9/12/11**
Drilling Company: SJB Services	**Time: 11:27**
Location: Northern collection pit - west side of site	
GPS Coordinates **N:** 43.14651148	**W:** 77.665549443

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Brown m-f SAND, topsoil	0
0.5	3	2.5	dry	Brown m-f SAND, cinders fill	0
3	4	1	dry	Brown/ grey f SAND	0
4	5	1	dry	Dark grey SILT, fill, cinders	0
5	6	1	moist	Grey f SAND	0
6	7.5	1.5	dry	Black organic SILT	0
7.5	8	0.5	moist	Grey c SAND	0
8	9	1	wet	Black/ dark grey SILT	0
9	12	3	wet	Grey m-c SAND, trace gravel	0
12	15	3	wet	Grey c SAND	0
15	16	1	wet	Grey f SAND	0
16	18	2	wet	Grey f SAND and SILT	0
18	19	1	wet	Grey c SAND	0
19	20	1	wet	Grey f SAND, compact	0
20	24	4	wet	Grey f SAND, compact	0
24	28	4	wet	Brown/ grey compact f SAND	0
28	28.5	.5	wet	Rock in tip, EOB – refusal at 28.5’	0

		Soil Samples Collected:	**Time**
		HRP-SB-2 27’-28’	12:45

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-3**
Job Number: 828122	**Date: 9/12/11**
Drilling Company: SJB Services	**Time: 13:39**
Location: Southern collection pit - west side of site	
GPS Coordinates **N:** 43.145937769	**W:** 77.665522579

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	dry	Brown m-f SILT and GRAVEL, topsoil	0
2	4	2	moist	Brown m-f SAND and SILT, trace gravel	0
4	8	4	wet	Brown f SAND	0
8	12	NR	dry	Brown f SAND, compact	0
12	16	NR	moist	Brown f SAND, compact	0
16	20	NR	moist	Brown f SAND, compact	0
20	22.9	2	moist	Brown f SAND, compact, rock in tip, EOB – refusal at 22.9’	0

		Soil Samples Collected:	**Time**
		HRP-SB-3 21’-23’	14:55

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-4**
Job Number: 828122	**Date: 9/13/11**
Drilling Company: SJB Services	**Time: 8:25**
Location: Southern loading dock	
GPS Coordinates **N:** 43.145755122	**W:** 77.665478548

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	Asphalt with concrete sub base	0
1	4	2.5	dry	Brown f SAND and SILT, trace gravel	0
4	8	4	Wet at 6’	Brown f SAND and SILT	0
8	11.5	3.5	wet	Brown f SAND and SILT, trace gravel	0
11.5	12	0.5	dry	Light brown f SAND, compact	0
12	14	2	wet	Brown m-c SAND, compact	0
14	15	1	moist	Brown m SAND and SILT, rock fragments	0
15	15.5	0.5	moist	Brown f SAND, rock fragments	0
15.5	16	0.5	moist	Brown c SAND	0
16	18	2	wet	Brown m to m-f SAND	0
18	19.5	1.5	wet	Brown f SAND	0
19.5	20	0.5	moist	Red/ brown silty SAND, rock fragments	0
20	21	1	wet	Brown m-c SAND, trace gravel	0
21	23	2	wet	Brown m-c SAND and GRAVEL, rock fragments	0
23	25.2	1.5	wet	Brown f SAND, trace gravel – EOB refusal at 25.2’	0

		Soil Samples Collected:	**Time**
		HRP-SB-4 19’-20’	14:55

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-5**
Job Number: 828122	**Date: 9/13/11**
Drilling Company: SJB Services	**Time: 11:50**
Location: Northern interior floor drain	
GPS Coordinates **N:** 43.146420325	**W:** 77.665172311

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	4	2.5	moist	Brown f SAND and SILT, trace gravel	0
4	6	2	moist	Dark brown f SAND and SILT, trace gravel	0
6	7	1	moist	Black organic SILT, trace clay	0
7	8	1	dry	Grey/ brown m to m-c SAND	0
8	11	2	wet	Brown m-f SAND, compact	0
11	11.5	0.5	wet	Brown c SAND and GRAVEL	0
11.5	12	0.5	dry	Grey f SAND and SILT	0
12	13	0.5	wet	Brown m-c SAND	0
13	14	2	moist	Brown SILT and f SAND, trace gravel	0
14	16	1.5	Wet at 15’	Brown f SAND, compact, some silt, trace gravel	0
16	18	1.5	moist	Brown f SAND and SILT - EOB - refusal at 18’	0

	Soil Samples Collected:	**Time**
	HRP-SB-5 2’-4’	11:55
	HRP-SB-5 17’-18’	12:25

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-6**
Job Number: 828122	**Date: 9/13/11**
Drilling Company: SJB Services	**Time: 13:15**
Location: Near machine pit in NE portion of the building	
GPS Coordinates **N:** 43.146494408	**W:** 77.664940079

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	2.5	2	dry	GRAVEL and m SAND	0
2.5	4	1.5	moist	Brown f SAND	0
4	5	1	moist	Brown SILT, some f sand	0
5	6	1	dry	Dark brown to black SILT, trace clay	0
6	8	1.5	moist	Grey to brown m-c SAND	0
8	11	2.5	wet	Grey to brown m-f SAND and SILT	0
11	12	1	moist	Grey f SAND and SILT	0
12	14	2	wet	Brown f SAND, some silt	0
14	16	2	moist	Brown f SAND, compact	0
16	18	2	moist	Brown f SAND	0
18	19.5	1.5	moist	Brown m SAND	0
19.5	20	0.5	moist	SILT and rock fragments	0
20	21.5	NR	moist	No recovery - EOB - refusal at 21.5’	0

		Soil Samples Collected:	**Time**
		HRP-SB-6 2’-4’	13:21
		HRP-SB-6 19’-20’	14:15
		Duplicate 1	14:15

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-7**
Job Number: 828122	**Date: 9/13/11**
Drilling Company: SJB Services	**Time: 15:00**
Location: western side of loading dock	
GPS Coordinates **N:** 43.146176692	**W:** 77.664756656

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	0.5	dry	Concrete	0
1	4	3	dry	Brown f SAND, trace silt	0
4	5	1	moist	Brown f SAND	0
5	7	2	wet	Brown c to m-c SAND	0
7	8	1	moist	Brown f SAND and SILT	0
8	11	2	wet	Brown f SAND, trace silt	0
11	12	1	wet	Brown medium SAND and GRAVEL	0
12	16	2	moist	Brown c to m-c SAND, some gravel	0
16	20.3	4	moist	Brown f SAND – EOB -	0

		Soil Samples Collected:	**Time**
		HRP-SB-7 2’-4’	15:10
		HRP-SB-7 18’-20’	15:55

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-8**
Job Number: 828122	**Date: 9/14/11**
Drilling Company: SJB Services	**Time: 8:50**
Location: inside building - former degreaser area	
GPS Coordinates **N:** 43.146270952	**W:** 77.665212804

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	2	1	wet	Brown f SAND, trace gravel	0
2	3.5	1	moist	Dark brown f SAND, trace silt	0
3.5	4	2	wet	Black f SAND and SILT	0
4	6	2	moist	Brown and grey f SAND and SILT, trace clay	0
6	7	1	dry	Grey m-c SAND	0
7	8	1	wet	Brown m-c SAND and SILT	0
8	10	1	moist	Brown m-c SAND	0
10	11	1	wet	Brown c to c SAND, some gravel	0
11	12	1	dry	Brown TILL, some fine silt, sand, and clay	0
12	13	1	dry	Red/ brown f SAND, compact - EOB - refusal at 13’	0

		Soil Samples Collected:	**Time**
		HRP-SB-8 2’-4’	8:55
		HRP-SB-8 5’-7’	9:00
		HRP-SB-8 10’-11’	9:10

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-9**
Job Number: 828122	**Date: 9/14/11**
Drilling Company: SJB Services	**Time: 9:45**
Location: inside building - former degreaser area	
GPS Coordinates **N:** 43.146115181	**W:** 77.665218471

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	3	2	dry	Brown m-f SAND	0
3	4	1	dry	Dark brown medium SAND and GRAVEL	0
4	5	1	dry	Brown f SAND	0
5	6	1	wet	Brown f SAND, compact	0
6	7	1	wet	Brown m-c SAND, trace silt	0
7	8	1	moist	Brown m-c SAND, mild solvent odor	0
8	11	3	moist	Light brown m SAND	0
11	12	1	dry	Light brown m to m-c SAND	0
12	16	1	moist	Brown m SAND, trace silt	0
16	22.5	1	wet	Brown m-c SAND, rock fragments in tip – EOB – refusal at 22.5’	0

		Soil Samples Collected:	**Time**
		HRP-SB-9 2’-4’	9:55
		HRP-SB-9 6’-8’	9:00
		HRP-SB-9 20’-22’	9:10

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-10**
Job Number: 828122	**Date: 9/14/11**
Drilling Company: SJB Services	**Time: 11:35**
Location: inside building - former degreaser area	
GPS Coordinates **N:** 43.146160343	**W:** 77.66518778

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	1	0.5	dry	Red/ brown f SAND	0.7
1	4	2	dry	Brown f SAND, trace silt	0.9
4	5	1	wet	Brown f SAND	5
5	6	1	wet	Brown f SAND, trace gravel	18
6	7	1	wet	Brown m-f SAND	12
7	8	1	wet	Brown m-f SAND	5
8	12	4	wet	Brown f SAND	10
12	16	NR	wet	No recovery	0
16	20	4	moist	Brown f SAND	0

		Soil Samples Collected:	**Time**
		HRP-SB-10 2’-4’	11:50
		HRP-SB-10 5’-7’	11:55
		HRP-SB-10 9’-11’	12:10
			HRP-SB-10 16’-18’ 12:20

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-11**
Job Number: 828122	**Date: 9/14/11**
Drilling Company: SJB Services	**Time: 12:40**
Location: inside building - former degreaser area	
GPS Coordinates **N:** 43.146231359	**W:** 77.665116946

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	2	dry	Concrete	0
0.5	2	1.5	dry	Gravelly fill, green staining at tip	1.9
2	5	2	dry	Gravelly fill, green staining at tip	700
5	6	1	wet	Grey f SAND and SILT, trace gravel	1,100
6	6.5	1	dry	Brown f SAND, trace gravel	1,500
6.5	9	1	moist	Brown TILL, f sand and clay	700
9	10	1	wet	Brown f SAND	5
10	10.5	4	wet	Brown TILL	10
10.5	12	1	wet	Brown medium SAND	100
12	16	4	moist	Brown f SAND	6
16	19.5	2	wet	Brown medium SAND	0
19.5	20	0.5	wet	Rock fragments in tip	0

		Soil Samples Collected:	**Time**
		HRP-SB-11 2’-4’	12:50
		HRP-SB-11 5’-7’	12:55
		HRP-SB-11 16’-18’	13:20

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-13**
Job Number: 828122	**Date: 9/15/11**
Drilling Company: SJB Services	**Time: 13:05**
Location: inside building - former degreaser area	
GPS Coordinates **N:** 43.146289332	**W:** 77.665116753

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	2	1.5	dry	Brown f SAND	0
2	3	1	dry	Dark brown SILT, trace clay	0
3	4	1	dry	Grey f SAND, some silt	0
4	6	1	moist	Brown m to m-c SAND, trace gravel	1.0
6	8	2	moist	Brown silt, trace clay	0
8	11	3	wet	Brown f SAND	2.5
11	12	1	dry	Brown f SAND	1
12	16	4	moist	Red/ brown m to m-c SAND	0
16	19	NR	wet	No recovery rock fragments in tip – EOB – refusal at 19’	0

	Soil Samples Collected:	**Time**
	HRP-SB-13 0’-2’	13:10
	HRP-SB-13 6’-8’	13:15
	HRP-SB-13 14’-16’	14:00

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-14**
Job Number: 828122	**Date: 9/15/11**
Drilling Company: SJB Services	**Time: 14:15**
Location: inside building - former degreaser area	
GPS Coordinates **N:** 43.146289332	**W:** 77.665116753

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	0.5	0.5	dry	Concrete	0
0.5	1	0.5	moist	Brown m SAND and GRAVEL	0.5
1	3	1	dry	Brown f SAND, trace gravel	0
3	4	0.5	dry	Dark brown SILT	1.5
4	5	1	dry	Tan to brown m to m-c SAND	1.0
5	7	2	moist	Brown m SAND	0.3
7	8	3	wet	Brown m-f SAND, trace gravel	0
8	10	1.5	wet	Brown m-f SAND, some gravel	0
10	12	2	wet	Brown m-f SAND, trace gravel	0
12	16	2.5	wet	Brown f SAND and GRAVEL	0
16	18	2	wet	Brown f SAND and GRAVEL	0
18	19.2	1	wet	Brown m-c SAND and GRAVEL - EOB - refusal at 19.2’	0

	Soil Samples Collected:	**Time**
	HRP-SB-14 2’-4’	14:25
	HRP-SB-14 6’-8’	14:30
	HRP-SB-14 18’-20’	15:05

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-15**
Job Number: 828122	**Date: 9/16/11**
Drilling Company: SJB Services	**Time: 8:30**
Location: former drum storage area elevation 542.62	
GPS Coordinates **N:** 43.145836736	**W:** 77.665121429

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	4	2	dry	Grey f silty SAND, trace clay and gravel	3.8
4	6	1	moist	Dark brown SILT, trace clay	1.5
6	7.5	1.5	dry	Red/ tan SAND and GRAVEL Fill - EOB - refusal at 7.5’	0

	Soil Samples Collected:	**Time**
	HRP-SB-15 2’-4’	8:35
	HRP-SB-15 5’-7’	8:40

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-16**
Job Number: 828122	**Date: 9/16/11**
Drilling Company: SJB Services	**Time: 8:50**
Location: former drum storage area	
GPS Coordinates **N:** 43.1459563	**W:** 77.664823095

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	dry	SAND and GRAVEL FILL	0
2	3	1	dry	Dark brown f SAND, trace silt	0
3	4	1	dry	Tan f SAND	0
4	7	2	moist	Brown silty SAND, trace gravel	0
7	8	1	moist	Tan to brown f SAND	0
8	10	1.5	wet	Brown f SAND, trace silt	0
10	11.5	1.5	dry	Brown f SAND and SILT, trace clay and gravel	0
11.5	12	1.5	wet	Brown m SAND	0
12	15	2	wet	Brown f SAND, compact	0
15	16	2.5	wet	Brown c SAND	0
16	18	2	wet	Brown m SAND	0
18	20	2	moist	Brown m-f SAND	2.5
20	24	2	wet	Brown f SAND - EOB - refusal at 24’	0

		Soil Samples Collected:	**Time**
		HRP-SB-16 2’-4’	8:55
		HRP-SB-16 18’-20’	9:45

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-17**
Job Number: 828122	**Date: 9/16/11**
Drilling Company: SJB Services	**Time: 10:05**
Location: former drum storage area	
GPS Coordinates **N:** 43.145828959	**W:** 77.664795175

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	GRAVEL FILL	0
1	3	1.5	dry	Brown f SAND, some gravel, wood	2.5
3	4	1	dry	Brown silty SAND	0
4	7	2	dry	Brown SAND and GRAVEL	9
7	8	1	moist	Brown f SAND	3
8	10	2	moist	Brown f SAND, trace silt and gravel	3
10	12	2	wet	Brown f SAND	24
12	15	2	wet	Brown f SAND	10
15	16	2.5	wet	Brown f SAND, compact, slight green staining	2
16	20	4	moist	Brown m SAND	5
20	21	1	wet	Brown m SAND	0
21	23	2	wet	Brown m-c to c SAND, some gravel	0
23	24	1	wet	Brown f SAND, rock in tip - EOB - refusal at 24’	0

		Soil Samples Collected:	**Time**
		HRP-SB-17 1’-3’	10:15
		HRP-SB-17 14’-16’	10:40
		HRP-SB-17 21’-23’	11:05

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-18**
Job Number: 828122	**Date: 6/12/12**
Drilling Company: SJB Services	**Time: 9:47**
Location: inside building – south of former degreaser area	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	Concrete	0
1	2	1	dry	Red f SAND, some silt, tr. Clay, compact	0
2	3	.5	dry	Tan f SAND	0
3	4	1	dry	Brown clayey SILT, tr. Sand and gravel	0
4	5	1	dry	Brown clayey SILT, tr. Sand	0.2
5	6	1	moist	Brown f SAND	0.7
6	7	1	wet	Brown f SAND	0
7	10	1	wet	Brown f SAND	0.5
10	12	1	wet	Brown m to mc SAND	0

	Soil Samples Collected:	**Time**
	HRP-SB-18 6’-6.5’	9:50
	HRP-SB-18 9’-10’	9:55
	HRP-SB-18 11’-12’	10:00

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-19**
Job Number: 828122	**Date: 6/12/12**
Drilling Company: SJB Services	**Time: 9:47**
Location: inside building – former degreaser area	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	Concrete and brick	0
1	3	1	dry	Dark brown SILT, trace clay	2.0
3	4	.5	dry	Dark brown f to m SAND	0
4	5	1	dry	C SAND, some gravel	0
5	6	1	moist	Brown m-c SAND	1.0
6	8	1	moist	Brown CLAY and SILT, trace sand	0.7
8	9	1	wet	Brown c SAND and GRAVEL	0
9	10	1	wet	Brown silty SAND, tr. clay	1.5
10	11	1	dry	Brown f to m SAND, some silt layering	70
11	12	1	dry	Tan f SAND, strong solvent odor	130
12	13	1	moist	Tan f SAND, strong solvent odor	225
13	14	1	moist	Brown m-c SAND	55
14	16	2	Moist	Brown m-c SAND	25, 0 at bottom of boring

	Soil Samples Collected:	**Time**
	HRP-SB-19 6’-7’ and duplicate	10:00
	HRP-SB-19 11’-12’	10:25
	HRP-SB-19 12’-13’	11:03
	HRP-SB-19 15’-16’	11:05

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-20**
Job Number: 828122	**Date: 6/12/12**
Drilling Company: SJB Services	**Time: 11:15**
Location: inside building – former degreaser area	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	Concrete	0
1	3	1	dry	Brown silty SAND	1.0
3	3.5	.5	dry	Black SILT, tr. clay	0.8
3.5	4	1	wet	Grey m-c SAND	1.2
4	5	1	wet	Grey c SAND, tr. silt	0
5	7	1	moist	Grey c SAND	1.0
7	8	1	wet	Grey m-c SAND, some silt and clay at tip	0
8	10.5	1	wet	Grey c SAND	0.2
10.5	11	1	moist	Grey CLAY, soft	10
11	12	1	dry	Brown CLAY and SILT, tr. F sand, strong solvent odor	220
12	13	1	moist	Brown f SAND, strong solvent odor	120
13	15	1	wet	Brown m-c SAND, some gravel	8
15	16	1	Moist	Grey silty m-c SAND, some sand, tr. gravel	0

		Soil Samples Collected:	**Time**
		HRP-SB-20 3’-4’	11:20
		HRP-SB-20 11’-12’	11:25
		HRP-SB-20 14’-15’	11:30

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-21**
Job Number: 828122	**Date: 6/12/12**
Drilling Company: SJB Services	**Time: 12:00**
Location: inside building – former degreaser area	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	Concrete	0
1	4	1	dry	Brown f SAND	0
4	5	1	wet	Red C SAND	0
5	6	1	wet	Red m-c SAND	0
6	7	1	wet	Grey clayey SILT, some f sand, strong solvent odor	80
7	8	1	wet	Grey f compact SAND	55
8	9	1	wet	Grey f SAND	15
9	10	1	dry	Grey m-f SAND, strong solvent odor	65
10	11	1	dry	Grey f SAND	10
11	12	1	dry	Grey f SAND	0

	Soil Samples Collected:	**Time**
	HRP-SB-21 6.5’-7’	12:10
	HRP-SB-21 9’-10’	12:15
	HRP-SB-21 11’-12’	12:20

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: HRP-SB-22**
Job Number: 828122	**Date: 6/12/12**
Drilling Company: SJB Services	**Time: 13:21**
Location: inside building – outside former degreaser area	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	dry	Concrete	0
1	3	1	dry	Brown f SAND	0.9
3	3.5	1	wet	Dark brown SILT	4.1
3.5	4	1	wet	Grey f SAND	0.3
4	6	1	wet	Brown f SAND	0
6	7	1	moist	Brown silty CLAY, tr. Gravel, tr. Sand, compact	0
7	8	1	wet	Brown f SAND	0
8	11	1	dry	Brown m-f SAND	0

	Soil Samples Collected:	**Time**
	HRP-SB-22 6’-7’	13:30
	HRP-SB-22 10’-11’	13:40

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-1**
Job Number: 828122	**Date: 6/13/12**
Drilling Company: NA	**Time: 12:00**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	wet	Brown m-f SILT, some sand, roots	0
				Soil Samples Collected:	**Time**
				SED-1 0'-1'	12:10

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-2**
Job Number: 828122	**Date: 6/13/12**
Drilling Company: NA	**Time: 12:10**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	wet	Brown m-f SILT, some sand, roots	0
				Soil Samples Collected:	**Time**
				SED-2 0'-1'	12:18

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-3**
Job Number: 828122	**Date: 6/13/12**
Drilling Company: NA	**Time: 12:25**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	wet	Brown m-f SILT, some sand, roots	0
				Soil Samples Collected:	**Time**
				SED-3 0'-1'	12:30

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-4**
Job Number: 828122	**Date: 6/13/12**
Drilling Company: NA	**Time: 12:35**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	1	1	wet	Brown m-f SILT, some sand, roots	0
				Soil Samples Collected:	**Time**
				SED-4 0'-1'	12:41

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-2A**
Job Number: 828122	**Date: 10/26/12**
Drilling Company: NA	**Time: 10:00**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	wet	Brown m-f SILT, some sand and roots	0
2	3	1	wet	Brown m-f SAND, some gravel	0

		Soil Samples Collected:	**Time**
		SED-2A 1'-2'	10:10
		SED-2A 2'-3'	10:20

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-2B**
Job Number: 828122	**Date: 10/26/12**
Drilling Company: NA	**Time: 10:35**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	wet	Brown m-f SILT, some sand and roots	0
2	3	1	wet	Brown m-f SAND, some silt	0

		Soil Samples Collected:	**Time**
		SED-2B 0'-0.5'	10:40
		SED-2B 1.5'-2.5'	10:45
		SED-2B 2'-3'	10:50

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-2C**
Job Number: 828122	**Date: 10/26/12**
Drilling Company: NA	**Time: 10:55**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	wet	Brown m-f SILT, some sand and roots	0
2	3	1	wet	Brown m-f SAND, some silt	0

		Soil Samples Collected:	**Time**
		SED-2C 0'-0.5'	11:00
		SED-2C 1'-2'	11:05
		SED-2C 2'-3'	11:20

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Boring I.D.: SED-2D**
Job Number: 828122	**Date: 9/12/11**
Drilling Company: NA	**Time: 12:55**
Location: stormwater infiltration basin	
GPS Coordinates N:	**W:**

Sample Interval (ftbg)		**Recovery (ft)**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2	2	wet	Brown m-f SILT, some sand and roots	0
2	3	1	wet	Brown m-f SAND, some silt	0

		Soil Samples Collected:	**Time**
		SED-2D 0'-0.5'	13:00
		SED-2D 1'-2'	13:15
		SED-2D 2'-3'	13:25

	HRP Engineering, P.C. Monitoring Well Installation Log	**WELL NO:** MW-11/ SB-12 Inside building **PAGE** 1 **OF** 2 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 5'-20'
DATE COMPLETED: 9/14/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: SJB Services, Inc.	**SETTING:** 7'-20'
RIG TYPE: Geoprobe 6620 DT	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-5'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 1'-7'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-1'
REFERENCE POINT (RP): 537.36 TOC elevation	**STATIC WATER LEVEL:** 4.51
STICK-UP: No	**GPS COORDINATES: N:** 43.14622742
SURFACE COMPLETION: Flush-mounted	**W:** 77.665190224
REMARKS: soil samples collected from 2'-4', 5'-7', 18'-20', and Matrix Spike/ Matrix Spike Duplicate for VOC's via 8260	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	2			2	moist	Brown f SAND, trace gravel and silt	0
2	4			2	dry	Dark brown SILT, trace clay and sand	0.7
4	6			1	moist	Brown medium SAND	0
6	6.5			0.5	moist	Red medium SAND	0
6.5	8			1	wet	Brown to grey c SAND and GRAVEL, mild solvent odor	0
8	10			2	wet	Grey f SAND	0
10	12			2	wet	Grey f SAND and GRAVEL, trace silt	0
12	14			1	wet	Brown f SAND, trace silt	0
14	16			2	moist	Brown m-c SAND and GRAVEL, rock fragments	0
16	17			1	wet	Grey f SAND and GRAVEL	0

17	20			2	dry	Grey compact f SAND	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-12

PAGE 1 **OF** 2 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 9'-24'
DATE COMPLETED: 10/19/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 8'-24'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-9'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 5'-8'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-5'
REFERENCE POINT (RP): 539.87 TOC elevation	**STATIC WATER LEVEL:** 5.81
STICK-UP: No	**GPS COORDINATES: N:** 43.146554119
SURFACE COMPLETION: Flush-mounted	**W:** 77.664937611

REMARKS: soil sample collected from 22'-23' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	1			.5	dry	Asphalt/ sub base	0
1	3			1	dry	Tan f SAND and GRAVEL	0
3	4			1	wet	Dark brown f SAND and GRAVEL	0
4	6			1.5	moist	Tan f SAND, trace gravel	0
6	7			1	dry	Dark brown SILT	0
7	8			1	dry	Grey m-c SAND	0
8	12			3.5	wet	Grey m-c SAND, little gravel	0
12	12.5			.5	dry	Light brown f SAND	0
12.5	13			.5	moist	Black organic SILT	0
13	15			2.5	wet	Grey m-c SAND, some gravel, grey silty till at tip	0

PROJECT: Barthelmes Manufacturing Corp. | **JOB NUMBER:** New9624.P2

WELL NO.: MW-12

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
15	18			3	moist	Grey f SAND, little silt and gravel	0
18	19			1	wet	Grey f SAND	0
19	20			1	wet	Grey f SAND, little silt, trace gravel	0
20	22			2	wet	Grey f SAND	0
22	23			1	wet	Grey f SAND, some gravel	0
23	24			NR	wet	No recovery – EOB refusal at 24’	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-13

PAGE 1 **OF** 1 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 7'-22'
DATE COMPLETED: 10/17/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 5'-22'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-7'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 2.5'-5'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-2.5'
REFERENCE POINT (RP): 541.14 TOC elevation	**STATIC WATER LEVEL:** 7.91
STICK-UP: No	**GPS COORDINATES: N:** 43.146114864
SURFACE COMPLETION: Flush-mounted	**W:** 77.664659446

REMARKS: soil sample collected from 17'-19' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	2			2	dry	Brown sandy SILT	0
2	4			1.5	dry	Dark brown f SAND, some silt	0
4	8			3	dry	Brown medium SAND , trace silt	0
8	10			2	moist	Brown silty f SAND, some gravel	0
10	12			2	moist	Brown SILT, trace clay, sand, and gravel	0
12	14			2	wet	Brown m-c SAND, trace silt and gravel	0
14	16			2	dry	Brown compact SILT, trace sand and gravel	0
16	16.5			.5	wet	Light brown silty sand, trace gravel	0
16.5	19			2.5	wet	Brown compact f SAND	0
19	22			2	wet	Brown medium sand – EOB – refusal at 22'	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-14

PAGE 1 **OF** 1 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 7'-27.2'
DATE COMPLETED: 10/20/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 6'-27.2'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-7'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 4'-6'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-4'
REFERENCE POINT (RP): 544.65 TOC elevation	**STATIC WATER LEVEL:** 12.15
STICK-UP: No	**GPS COORDINATES: N:** 43.14573692
SURFACE COMPLETION: Flush-mounted	**W:** 77.664701153

REMARKS: soil sample collected from 26'-27' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	2			2	dry	Dark brown silty SAND	0
2	5			2	moist	Brown silty sand, trace gravel	0
5	8			0		No recovery	0
8	10			2	dry	Brown f SAND	0
10	12			1	moist	Brown f SAND, some silt	0
12	14			2	wet	Brown m-c SAND	0
14	18			3	wet	Brown medium sand	0
18	22			4	wet	Brown coarse SAND	0
22	24			1.5	wet	Brown compact f SAND, trace silt	0
24	27.2			2	wet	Brown m-c to m-f SAND, trace silt and gravel – EOB – refusal at 27.2'	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-15

PAGE 1 **OF** 2 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 10'-25'
DATE COMPLETED: 10/19/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 8'-25'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-10'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 5'-8'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-5'
REFERENCE POINT (RP): 542.84 TOC elevation	**STATIC WATER LEVEL:** 10.47
STICK-UP: No	**GPS COORDINATES: N:** 43.145751204
SURFACE COMPLETION: Flush-mounted	**W:** 77.665092846

REMARKS: soil samples collected from 1'-3', 7'-8', 18'-19', 24'-25' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	1.5			.5	dry	Asphalt/ sub base	0
1.5	3.5			2	dry	Red/ brown f SAND, some gravel	0.5
3.5	4			.5	wet	Dark brown f silty SAND , trace gravel	0
4	6			1.5	moist	Brown m-c SAND, trace gravel	0
6	8			1	Wet at 7.5'	Brown f SAND	1.0
8	12			2.5	wet	Brown f SAND, some silt	0.3
12	13			1	wet	Brown f SAND, trace gravel	0
13	15			2	wet	Brown m-f to m-c SAND, trace gravel	0
15	19			4	wet	Brown fine SAND, trace gravel	7.0
19	23			1	wet	Brown f SAND, gravel in tip	1.2

PROJECT: Barthelmes Manufacturing Corp.	**JOB NUMBER:** New9624.P2
WELL NO.: MW-15	**PAGE 2 OF 2**

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
23	24			.5	moist	Brown c SAND and GRAVEL	0
24	25			.5	wet	Brown medium SAND	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-16

Removed during January 2012 IRM excavation

PAGE 1 **OF** 1 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 4.4'-19.4'
DATE COMPLETED: 10/20/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 4'-19.4'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-4.4'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 2'-4'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-2'
REFERENCE POINT (RP): 539.8 TOC elevation	**STATIC WATER LEVEL:** 7.45
STICK-UP: No	**GPS COORDINATES: N:** 43.145717914
SURFACE COMPLETION: Flush-mounted	**W:** 77.665601335

REMARKS: soil samples collected from 2'-3', 6'-7', 13'-14', and 17'-18' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	3			1.5	dry	Dark brown silt and fill	4
3	4			1	dry	Fill, cinders, brick, mild solvent odor	7
4	8			3	Wet at 7'	Brown fine SAND	5
8	13			4	wet	Brown f SAND	.2
13	14			1	dry	Sandy glacial TILL	0
14	18			4	wet	Brown medium SAND	2
18	19.4			1	wet	Brown medium sand – EOB – refusal at 19.4'	.5

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-17

PAGE 1 **OF** 1 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 7.9'-17.9'
DATE COMPLETED: 10/18/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 5.9'-17.9'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-7.9'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 3'-5.9'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-3'
REFERENCE POINT (RP): 537.44 TOC elevation	**STATIC WATER LEVEL:** 4.11
STICK-UP: No	**GPS COORDINATES: N:** 43.145847469
SURFACE COMPLETION: Flush-mounted	**W:** 77.666192784

REMARKS: soil samples collected from 10'-11', and 16'-17' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	3			2	dry	Brown f SAND, trace silt	0
3	4			1	dry	Grey f SAND, trace silt	0
4	8			3.5	dry	Brown to grey fine SAND, some silt	0
8	12			4	Wet at 10'	Grey/ Brown m-c SAND, trace gravel	0
12	15			1.5	wet	Brown f silty SAND	0
15	16			1.5	wet	Brown f silty SAND	0
16	17.9			1.5	moist	Grey/ brown till, rock in tip – EOB – refusal at 17.9'	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-18

PAGE 1 **OF** 1 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 7.5'-17.5'
DATE COMPLETED: 10/18/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 5.5'-17.5'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-7.5'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 3.5'-5.5'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-3.5'
REFERENCE POINT (RP): 536.5 TOC elevation	**STATIC WATER LEVEL:** 3.0
STICK-UP: No	**GPS COORDINATES: N:** 43.146278605
SURFACE COMPLETION: Flush-mounted	**W:** 77.666201177
REMARKS: soil sample collected from 10'-11' for VOC's via 8260	
ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million	

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	1			1	dry	Brown silty SAND	0
1	3			1.5	dry	Brown m-f SAND, trace silt	0
3	6			3	dry	Dark brown m-f SAND, some silt	0
6	11			2	moist	Tan m-c SAND, trace gravel	0
11	12			1	wet	Grey/ brown compact f SAND, trace silt and gravel	0
12	13			1	wet	Brown compact m to m-c SAND	0
13	15			1	wet	Brown compact m-f SAND	0
15	16			1	moist	Grey silty TILL, trace gravel	0
16	17.5			1	wet	Brown compact f SAND and GRAVEL	0

HRP Engineering, P.C.
Monitoring Well Installation Log

WELL NO: MW-19

PAGE 1 **OF** 1 **PAGES**

PROJECT: Barthlemes Manufacturing Corp.	**SCREEN SIZE & TYPE:** Sch 40 PVC
JOB NUMBER: New9624.P2	**SLOT NO.:** 0.010 **SETTING:** 6.2'-21.2'
DATE COMPLETED: 10/21/11	**SAND PACK SIZE & TYPE:** #2 sand
DRILLING COMPANY: Nothnagle Drilling	**SETTING:** 5.2'-21.2'
RIG TYPE: CME 75	**CASING SIZE & TYPE:** 2" diameter Sch 40 PVC
DRILLING METHOD: Hollow Stem Auger	**SETTING:** 0'-6.2'
HAMMER WEIGHT/DROP: N/A	**SEAL TYPE:** bentonite
SAMPLING METHOD: Macrocore	**SETTING:** 3'-5.2'
OBSERVER: Pat Rodman	**BACKFILL TYPE:** grout 0'-3'
REFERENCE POINT (RP): 537.65 TOC elevation	**STATIC WATER LEVEL:** 4.95
STICK-UP: No	**GPS COORDINATES: N:** 43.146197172
SURFACE COMPLETION: Flush-mounted	**W:** 77.6656778

REMARKS: soil sample collected from 20'-21' for VOC's via 8260

ABBREVIATIONS: SS = split spoon W = wash C = cuttings G = grab ST = shelby tube REC = recovery PPM = parts per million

DEPTH (FEET)		SAMPLE TYPE	BLOW COUNT	REC. (FEET)	MOISTURE	DESCRIPTION	PID READING (PPM)
FROM	TO						
0	1			1	dry	Brown silty SAND	0
1	3			2	dry	Brown silty SAND and GRAVEL	0
3	4			1	moist	Dark brown m-c SAND, trace gravel	0
4	7			1.5	moist	Brown compact medium SAND, trace gravel	0
7	8			1	wet	Brown silty TILL, some fine sand	0
8	10			2	wet	Brown loose f SAND	0
10	12			1	wet	Brown compact f SAND, trace silt	0
12	15			2	wet	Brown f SAND, trace silt	0
15	19			2	wet	Brown f SAND, trace silt	0
19	21.2			2	wet	Grey m-c SAND and GRAVEL, EOB – refusal at 21.2'	0

MONITORING WELL CONSTRUCTION LOG

HRP Engineering, P.C.
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
(518) 877-7101

PROJECT: Barthelmes Manufacturing Corp.
WA #: 828122
LOCATION: 15 Cairn Street, Rochester, NY

DRILLING CO.: Nothnagle Drilling
DRILLED BY: Neal Short
INSPECTED BY: Pat Rodman

BORING NO. HRP-BR-1
PAGE 1 OF 1
DATE STARTED: 12/14/2011
DATE FINISHED: 12/15/2011
SURFACE ELEVATION: 539.84
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
33'	19.51'

CASING
TYPE: Steel
SIZE I.D.: 4 inch

SAMPLER

DEPTH (FT.)	SAMPLING DEPTH (FT.) *FROM - TO*	SAMPLE DATA ID	RECOV. INCHES	BLOWS PER 6 INCHES	WELL DATA	STRATA CHANGE (FT.)	LITHOLOGY *(DESCRIPTION OF MATERIALS)*	FIELD TEST DATA PID - 10.2 eV (ppm)
								0.0
								0.0
								0.0
								0.0
10'								0.0
								0.0
								0.0
								0.0
								0.0
20'								0.0
								0.0
								0.0
								0.0
								0.0
30'								0.0
								0.0
								0.0
								0.0
								0.0
40'								0.0

WELL CONSTRUCTION DATA:

Well bottom set at _40_____' bgs
Borehole diameter__3.75_____"
Well Screen Interval _____' to _____' bgs (_____screen legth)
Well Screen Slot Size _____ Mateiral_____Diameter _____"
Sand Filter Pack Interval _____to _____ bgs
Sand Size_____ Quantity_____(bags, lbs, gallons)
Well Riser Interaval _____' to _____' bgs (_____riser length)
Well Riser Diameter_____Material_____
Bentonite Seal Above Fitler Pack _____to _____' bgs
Backfill Interval _____to _____' bgs
Backfill Material_____
Bentonite Top/Ground Surface Seal _____to _____' bgs
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
_____

GENERAL REMARKS:

1) ~__50___ gallons of water was purged from following installation on __12/15_____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring__MW-12_____was logged & sampled at this location on _____with by geoprobe

KEY:

Well	Filter Sand
	Bentonite
	Grout
Strata	Native soil
	Bedrock

Indication of where groundwater begins
Roadbox
4" diameter steel casing
Open borehole

KEY TO BLOWS PER 6-INCHES:

Granular Soils *(Gravel & Sand)* Blows/ft	Density	Cohesive Soils *(Silt & Clay)* Blows/ft	Density
0-4	V. Loose	<2	V. Soft
4-10	Loose	2-4	Soft
10-30	M. Dense	4-8	M. Stiff
30-50	Dense	8-15	Stiff
>50	V. Dense	15-30	V. Stiff
		>50	Hard

PROPORTIONS OF SOIL:

And = 35 to 50%
Some = 20 to 35%
Little = 10 to 20%
Trace = 0 to 10%

MONITORING WELL CONSTRUCTION LOG

HRP Engineering, P.C.
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
(518) 877-7101

PROJECT: Barthelmes Manufacturing Corp.
WA #: 828122
LOCATION: 15 Cairn Street, Rochester, NY

DRILLING CO.: Nothnagle Drilling
DRILLED BY: Neal Short
INSPECTED BY: Pat Rodman

BORING NO. HRP-BR-2
PAGE 1 OF 1
DATE STARTED: 12/14/2011
DATE FINISHED: 12/15/2011
SURFACE ELEVATION: 544.85
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
33'	24.4'

CASING
TYPE: Steel
SIZE I.D.: 4 inch

SAMPLER

DEPTH (FT.)	SAMPLING DEPTH (FT.) *FROM - TO*	SAMPLE DATA ID	RECOV. INCHES	BLOWS PER 6 INCHES	WELL DATA	STRATA CHANGE (FT.)	LITHOLOGY *(DESCRIPTION OF MATERIALS)*	FIELD TEST DATA PID - 10.2 eV (ppm)
								0.0
								0.0
								0.0
								0.0
10'								0.0
								0.0
								0.0
								0.0
								0.0
20'								0.0
								0.0
								0.0
								0.0
								0.0
30'								0.0
								0.0
								0.0
								0.0
								0.0
40'								0.0

WELL CONSTRUCTION DATA:
Well bottom set at _43_____' bgs
Borehole diameter__3.75_____"
Well Screen Interval _____' to _____' bgs (_____screen legth)
Well Screen Slot Size _____ Mateiral_____Diameter _____"
Sand Filter Pack Interval _____to _____ bgs
Sand Size_____ Quantity_____(bags, lbs, gallons)
Well Riser Interaval _____' to _____' bgs (_____riser length)
Well Riser Diameter_____Material_____
Bentonite Seal Above Fitler Pack _____to _____' bgs
Backfill Interval _____to _____' bgs
Backfill Material_____
Bentonite Top/Ground Surface Seal _____to _____' bgs
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
_____

GENERAL REMARKS:
1) ~__80___ gallons of water was purged from following installation on __12/15_____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring__MW-12_____was logged & sampled at this location on _____with by geoprobe

KEY:

Well	Filter Sand
	Bentonite
	Grout
Strata	Native soil
	Bedrock

Indication of where groundwater begins
Roadbox
4" diameter steel casing
Open borehole

KEY TO BLOWS PER 6-INCHES:

Granular Soils *(Gravel & Sand)* Blows/ft	Density	Cohesive Soils *(Silt & Clay)* Blows/ft	Density
0-4	V. Loose	<2	V. Soft
4-10	Loose	2-4	Soft
10-30	M. Dense	4-8	M. Stiff
30-50	Dense	8-15	Stiff
>50	V. Dense	15-30	V. Stiff
		>50	Hard

PROPORTIONS OF SOIL:
And = 35 to 50%
Some = 20 to 35%
Little = 10 to 20%
Trace = 0 to 10%

MONITORING WELL CONSTRUCTION LOG

HRP Engineering, P.C.
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
(518) 877-7101

PROJECT: Barthelmes Manufacturing Corp.
WA #: 828122
LOCATION: 15 Cairn Street, Rochester, NY

DRILLING CO.: Nothnagle Drilling
DRILLED BY: Neal Short
INSPECTED BY: Pat Rodman

BORING NO. HRP-BR-3
PAGE 1 OF 1
DATE STARTED: 12/13/2011
DATE FINISHED: 12/15/2011
SURFACE ELEVATION: 540.56
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
32'	23'

CASING
TYPE: Steel
SIZE I.D.: 4 inch

SAMPLER

DEPTH (FT.)	SAMPLING DEPTH (FT.) FROM - TO	SAMPLE DATA ID	RECOV. INCHES	BLOWS PER 6 INCHES	WELL DATA	STRATA CHANGE (FT.)	LITHOLOGY (DESCRIPTION OF MATERIALS)	FIELD TEST DATA PID - 10.2 eV (ppm)
								0.0
								0.0
								0.0
								0.0
10'								0.0
								0.0
								0.0
								0.0
								0.0
20'								0.0
								0.0
								0.0
								0.0
								0.0
30'								0.0
								0.0
								0.0
								0.0
								0.0
40'								0.0

WELL CONSTRUCTION DATA:
Well bottom set at _40_____' bgs
Borehole diameter__3.75_____"
Well Screen Interval _____' to _____' bgs (_____screen legth)
Well Screen Slot Size _____ Mateiral_____Diameter _____"
Sand Filter Pack Interval _____to _____ bgs
Sand Size_____ Quantity_____(bags, lbs, gallons)
Well Riser Interaval _____' to _____' bgs (_____riser length)
Well Riser Diameter_____Material_____
Bentonite Seal Above Fitler Pack _____to _____' bgs
Backfill Interval _____to _____' bgs
Backfill Material_____
Bentonite Top/Ground Surface Seal _____to _____' bgs
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
_____

GENERAL REMARKS:
1) ~__80___ gallons of water was purged from following installation on __12/15_____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring__MW-12_____was logged & sampled at this location on _____with by geoprobe

KEY:

Well		Filter Sand
		Bentonite
		Grout
Strata		Native soil
		Bedrock

Indication of where groundwater begins
Roadbox
4" diameter steel casing
Open borehole

KEY TO BLOWS PER 6-INCHES:

Granular Soils (Gravel & Sand) Blows/ft	Density	Cohesive Soils (Silt & Clay) Blows/ft	Density
0-4	V. Loose	<2	V. Soft
4-10	Loose	2-4	Soft
10-30	M. Dense	4-8	M. Stiff
30-50	Dense	8-15	Stiff
>50	V. Dense	15-30	V. Stiff
		>50	Hard

PROPORTIONS OF SOIL:
And = 35 to 50%
Some = 20 to 35%
Little = 10 to 20%
Trace = 0 to 10%

MONITORING WELL CONSTRUCTION LOG

HRP Engineering, P.C.
1 Fairchild Square, Suite 110
Clifton Park, NY 12065
(518) 877-7101

PROJECT: Barthelmes Manufacturing Corp.
WA #: 828122
LOCATION: 15 Cairn Street, Rochester, NY

DRILLING CO.: Nothnagle Drilling
DRILLED BY: Neal Short
INSPECTED BY: Pat Rodman

BORING NO. HRP-BR-4
PAGE 1 OF 1
DATE STARTED: 12/12/2011
DATE FINISHED: 12/14/2011
SURFACE ELEVATION: 538.48
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
32'	14.75'

CASING
TYPE: Steel
SIZE I.D.: 4 inch

SAMPLER

DEPTH (FT.)	SAMPLING DEPTH (FT.) FROM - TO	SAMPLE DATA ID	RECOV. INCHES	BLOWS PER 6 INCHES	WELL DATA	STRATA CHANGE (FT.)	LITHOLOGY (DESCRIPTION OF MATERIALS)	FIELD TEST DATA PID - 10.2 eV (ppm)
								0.0
								0.0
								0.0
								0.0
10'								0.0
								0.0
								0.0
								0.0
								0.0
20'								0.0
								0.0
								0.0
								0.0
								0.0
30'								0.0
								0.0
								0.0
								0.0
								0.0
40'								0.0

WELL CONSTRUCTION DATA:
Well bottom set at _39_____' bgs
Borehole diameter__3.75_____"
Well Screen Interval _____' to _____' bgs (_____screen legth)
Well Screen Slot Size _____ Mateiral_____Diameter _____"
Sand Filter Pack Interval _____to _____ bgs
Sand Size_____ Quantity_____(bags, lbs, gallons)
Well Riser Interaval _____' to _____' bgs (_____riser length)
Well Riser Diameter_____Material_____
Bentonite Seal Above Fitler Pack _____to _____' bgs
Backfill Interval _____to _____' bgs
Backfill Material_____
Bentonite Top/Ground Surface Seal _____to _____' bgs
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
_____

GENERAL REMARKS:
1) ~__100___ gallons of water was purged from following installation on __12/15_____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring__MW-12_____was logged & sampled at this location on _____with by geoprobe

KEY:

Well	Filter Sand
	Bentonite
	Grout
Strata	Native soil
	Bedrock

Indication of where groundwater begins
Roadbox
4" diameter steel casing
Open borehole

KEY TO BLOWS PER 6-INCHES:

Granular Soils (Gravel & Sand) Blows/ft	Density	Cohesive Soils (Silt & Clay) Blows/ft	Density
0-4	V. Loose	<2	V. Soft
4-10	Loose	2-4	Soft
10-30	M. Dense	4-8	M. Stiff
30-50	Dense	8-15	Stiff
>50	V. Dense	15-30	V. Stiff
		>50	Hard

PROPORTIONS OF SOIL:
And = 35 to 50%
Some = 20 to 35%
Little = 10 to 20%
Trace = 0 to 10%

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-1**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/19/11	
Time: 10:25	
Contractor: Nature's Way	
Location: Northern discharge piping	

Sample Interval (ftbg)		Location	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	6		moist	Red brown m-f sand, discharge pipe encountered at 4' bg	0

Comments	**Soil Samples Collected:**	**Time**
Metal discharge pipe encountered at 4' bg, soil sample collected beneath pipe invert	4'-5' VOCs and Metals	11:00

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-2**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/19/11	
Time: 11:15	
Contractor: Nature's Way	
Location: Northern discharge piping	

Sample Interval (ftbg)		**Location**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	6		moist	Red brown m-f sand	0

Comments	**Soil Samples Collected:**	**Time**
No discharge pipe encountered	No samples collected	

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-3**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/19/11	
Time: 12:30	
Contractor: Nature's Way	
Location: Suspected discharge piping	

Sample Interval (ftbg)		**Location**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	6		moist	Red brown m-f sand, discharge pipes encountered at 1.5' bg and 4' bg	0

Comments	**Soil Samples Collected:**	**Time**
Two discharge pipes were encountered, at 1.5' bg and 4' bg. Soil samples were collected beneath the invert of each pipe	2'-3' for VOCs and Metals	1300
	4.5-5 for VOCs and Metals	1310

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-4**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/19/11	
Time: 13:20	
Contractor: Nature's Way	
Location: Suspected discharge piping	

Sample Interval (ftbg)		Location	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	6		moist	Red brown m-f sand, discharge pipe encountered at 4' bg	0

Comments	**Soil Samples Collected:**	**Time**
Discharge pipe encountered at 4' bg, soil sample collected from beneath pipe invert	4.5'-5' for VOCs and Metals	1340

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-5**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/19/11	
Time: 13:50	
Contractor: Nature's Way	
Location: Soil pile	

Sample Interval (ftbg)		Location	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	6.5		moist	Red brown m-f sand, concrete, debris, mild staining, strong chemical odor	100-300

Comments	Soil Samples Collected:	Time
	6'-6.5' for VOCs	1410

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-6**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/20/11	
Time: 13:20	
Contractor: Nature's Way	
Location: South side of soil pile	

Sample Interval (ftbg)		**Location**	**Moisture**	**Description (grain size, color, compaction, staining, odor)**	**PID (PPM)**
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	4		moist	Red brown m-f sand, concrete, debris	0

Comments	**Soil Samples Collected:**	**Time**
	3'-3.5' for VOCs	14:10

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-7**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/20/11	
Time: 13:20	
Contractor: Nature's Way	
Location: Soil pile	

Sample Interval (ftbg)		Location	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	4		moist	Red brown m-f sand, concrete, debris, mild staining, mild chemical odor	10-50

Comments	Soil Samples Collected:	Time
	No soil samples collected	

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-8**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/20/11	
Time: 13:20	
Contractor: Nature's Way	
Location: West of MW-16	

Sample Interval (ftbg)		Location	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	5		moist	Red brown m-f sand, concrete, debris, mild chemical odor	10-20

Comments	Soil Samples Collected:	Time
	No samples collected	

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: Barthelmes Manufacturing	**Test Pit I.D.: TP-9**
Job Number: NEW9624.P2	**Sketch Map:**
Date: 12/20/11	
Time: 13:20	
Contractor: Nature's Way	
Location: West of MW-16	

Sample Interval (ftbg)		Location	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	2		dry	Brown topsoil and roots	0
2	4		moist	Red brown m-f sand, no fill or debris	0

Comments	Soil Samples Collected:	Time
	3'-3.5' for VOCs	11:00

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-1

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 4.81

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 9

Comments: Pump on @ 10:33

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:36		~250	7.25	1360	18.2	1.84	20.08	4
10:39		~250	7.21	1350	6.9	0.72	20.06	-3
10:42		~250	7.20	1340	4.6	0.00	19.90	-10
10:45		~250	7.20	1340	1.5	0.00	19.81	-14
10:48		~250	7.20	1340	1.4	0.00	19.51	-14

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:42	10:45		~250	0.00	0.00	<5	0.00	0.45	4.00
10:45	10:48		~250	0.00	0.00	<5	0.00	1.51	0.00
10:42	10:48		~250	0.00	0.00	<5	0.00	2.00	4.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 10:50

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-2

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 13.46

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 19

Comments: Pump on @ 14:24

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
14:27		~250	7.47	844	39.1	0.00	15.75	-48
14:30		~250	7..47	807	17.1	0.00	15.56	-103
14:33		~250	7.46	804	13.2	0.31	15.50	-109
14:36		~250	7.46	804	13.1	0.00	15.55	-111
14:39		~250	7.46	804	13.0	0.00	15.49	-113

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
14:33	14:36		~250	0.00	0.00	0.76	0.00	-0.32	2.00
14:36	14:39		~250	0.00	0.00	0.76	0.00	0.39	2.00
14:33	14:39		~250	0.00	0.00	1.54	0.00	0.06	4.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 14:50

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. RW-2

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 18.18

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 25

Comments: Pump on @ 13:48

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
13:51		~250	7.51	960	30.7	0.00	15.39	58
13:54		~250	7.49	933	13.7	0.00	14.97	51
13:57		~250	7.49	925	21.6	0.00	15.09	53
14:00		~250	7.49	921	8.2	0.00	14.60	51
14:03		~250	7.49	919	8.4	0.00	14.58	51
14:06		~250	7.49	918.000	8.1	0.00	14.57	52

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
14:00	14:03		~250	0.00	0.22	-2.44	#DIV/0!	0.14	0.00
14:03	14:06		~250	0.00	0.11	3.57	#DIV/0!	0.07	-1.00
14:00	14:06		~250	0.00	0.33	1.23	#DIV/0!	0.21	-1.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 14:50 + Duplicate

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC
Project Locatior Barthelmes Manufacturing
Sampler(s): MEW/JKC

Sample Pump: Peristaltic
Tubing Type: LDPE/Silicon
Monitoring Equipment: Horiba U-22

Well I.D. RW-3
Well Diameter (inches): 2
Total Depth (ft btoc): NM
Depth to Water (ft btoc): 16.66

Screen Setting (ft btoc): _____ to _____
Tubing Intake (ft btoc): 25
Comments: Pump on @ 11:24

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:27		~250	7.44	802	28.6	3.53	14.82	94
11:30		~250	7.39	956	28.7	0.00	14.39	93
11:33		~250	7.39	970	27.1	0.00	14.20	92
11:36		~250	7.39	972	27.7	0.00	14.26	91
11:39		~250	7.39	972	27.1	0.00	14.25	90

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:33	11:36		~250	0.00	-0.21	-2.21	0.00	-0.42	1.00
11:36	11:39		~250	0.00	0.00	2.17	0.00	0.07	1.00
11:33	11:39		~250	0.00	-0.21	0.00	0.00	-0.35	2.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 11:40

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. RW-4

Well Diameter (inches): 2

Total Depth (ft btoc): 24

Depth to Water (ft btoc): 7.45

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 17

Comments: Pump on @ 11:51

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
11:54		~250	7.15	450	Sensor Broken	4.58	12.40	-163
12:03		~250	7.06	464	Sensor Broken	2.18	12.20	-187
12:07		~250	7.05	471	Sensor Broken	1.99	12.10	-191
12:11		~250	7.07	471	Sensor Broken	1.98	12.10	-196

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
12:03	12:07		~250	0.01	-1.51	0.00	8.72	0.82	4.00
12:07	12:11		~250	-0.02	0.00	0.00	0.50	0.00	5.00
12:11	12:11		~250	-0.01	-1.49	0.00	10.10	0.83	9.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 12:15

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. \MW-5

Well Diameter (inches): 1

Total Depth (ft btoc): 16.5

Depth to Water (ft btoc): 11

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 14

Comments: Pump on @ 9:02

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
9:05		~250	6.78	1760	229.0	5.06	13.80	52
9:09		~250	6.78	1800	141.0	4.42	14.20	62
9:13		~250	6.78	1840	91.4	4.01	14.80	68
9:17		~250	6.77	1830	56.4	3.16	14.70	69
9:21		~250	6.77	1810	31.6	2.33	14.70	69
9:25		~250	6.77	1800	28.1	1.52	14.60	72
9:29		~250	6.77	1790	27.7	1.21	14.60	73

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
9:21	9:25		~250	0.00	0.55	11.08	34.76	0.68	-3.00
9:25	9:29		~250	0.00	0.56	1.42	20.39	0.00	-1.00
9:21	9:29		~250	0.00	1.10	12.34	48.07	0.68	-4.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	N	Y	Y	Y

Sample Time: 9:33

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. RW-5

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 6.88

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 14

Comments: Pump on @ 15:14

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
15:17		~250	7.41	492	Sensor Broken	6.49	13.70	19
15:21		~250	7.29	501	Sensor Broken	4.11	13.30	20
15:25		~250	7.23	515	Sensor Broken	3.21	13.10	21
15:29		~250	7.17	534	Sensor Broken	2.82	12.90	21
15:33		~250	7.18	545	Sensor Broken	2.33	12.90	21

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
15:25	15:29		~250	0.06	-3.69	0.00	12.15	1.53	0.00
15:29	15:33		~250	-0.01	-2.06	0.00	17.38	0.00	0.00
15:25	15:33		~250	0.05	-5.83	0.00	27.41	1.53	0.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	N	N	Y	Y	Y

Sample Time: 15:37

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-6

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 4.79

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 9

Comments: Pump on @ 11:57

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
12:00		~250	7.33	1740	11.5	0.00	19.40	46
12:03		~250	7.32	1750	8.5	0.00	19.31	39
12:06		~250	7.33	1730	3.5	0.00	19.22	38
12:09		~250	7.34	1710	2.7	0.00	19.20	41

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
12:03	12:06		~250	-0.01	1.14	<10	0.00	0.47	1.00
12:06	12:09		~250	-0.01	1.16	<10	0.00	0.10	-3.00
12:03	12:09		~250	-0.02	2.29	<10	0.00	0.57	-2.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 12:10

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. RW-6

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 15.00

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 27

Comments: Pump on @ 10:24

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:27		~250	7.01	879	15.9	3.21	11.98	33
10:30		~250	7.29	1330	12.9	0.00	11.93	12
10:33		~250	7.31	1330	13.7	0.00	11.90	12
10:36		~250	7.35	1310	13.8	0.00	11.94	14
10:39	15.15	~250	7.35	1300	14.3	0.00	12.03	10

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:33	10:36		~250	-0.04	1.50	-0.73	0.00	-0.34	-2.00
10:36	10:39		~250	0.00	0.76	-3.62	0.00	-0.75	4.00
10:33	10:39	0.15	~250	-0.04	2.26	-4.38	0.00	2.26	2.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)		Y	Y	Y	Y	Y	Y	Y	Y

Sample Time: 10:40

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-7

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 5.00

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 11:42

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
11:45		~250	7.04	927	0.0	4.37	19.40	51
11:49		~250	6.89	1090	0.0	0.00	19.30	54
11:53		~250	6.90	1090	0.0	0.00	19.30	50
11:57		~250	6.88	1090	0.0	0.00	19.30	44
12:01		~250	6.88	1090	0.0	0.00	19.30	42

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
11:53	11:57		~250	0.02	0.00	0.00	0.00	0.00	6.00
11:57	12:01		~250	0.00	0.00	0.00	0.00	0.00	2.00
11:53	12:01		~250	0.02	0.00	0.00	0.00	2.26	8.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 12:05

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-8

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 5.64

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 11:18

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:21		~250	7.37	1590	54.9	0.00	19.90	3
11:24		~250	7.37	1650	153.0	0.00	19.90	-1
11:27		~250	7.37	1630	1.5	0.00	19.02	-2
11:30		~250	7.37	1630	1.7	0.00	19.02	-5
11:33		~250	7.37	1630	2.3	0.00	19.01	-6

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:27	11:30		~250	0.00	0.00	0.00	0.00	0.00	3.00
11:30	11:33		~250	0.00	0.00	0.00	0.00	0.05	1.00
11:27	11:33		~250	0.00	0.00	0.00	0.00	2.26	4.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 11:35

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-9

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 5.09

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 10:55

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
10:55		~250	6.90	1040	679.0	1.57	18.90	53
10:59		~250	6.88	1080	404.0	0.00	19.00	53
11:03		~250	6.88	1090	235.0	0.00	19.10	52
11:07		~250	6.87	1100	245.0	0.00	19.10	50
11:11		~250	6.87	1100	241.0	0.00	19.20	48

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
11:03	11:07		~250	0.01	-0.92	-4.26	0.00	0.00	2.00
11:07	11:11		~250	0.00	0.00	1.63	0.00	-0.52	2.00
11:03	11:11		~250	0.01	-0.92	-2.55	0.00	2.26	4.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 11:15

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-10

Well Diameter (inches): 1

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 5.09

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 10:00

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:05			Well ran dry, will allow for recharge and then samp					

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)									Y

Sample Time: 10:25

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/26/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-11

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 4.34

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 10:03

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:06		~250	7.47	999	43.9	2.61	20.05	-29
10:09		~250	6.97	2110	9.3	0.00	20.39	-36
10:12		~250	6.94	2070	3.3	0.00	20.50	-30
10:15		~250	6.94	2060	1.5	0.00	20.52	-27
10:18		~250	6.95	2050	0.7	0.00	20.55	-22

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:12	10:15		~250	0.00	0.48	<5	0.00	-0.10	-3.00
10:15	10:18		~250	-0.01	0.49	<5	0.00	-0.15	-5.00
10:12	10:18		~250	-0.01	0.97	<5	0.00	2.26	-8.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 10:20

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-12

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 6.10

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 11:07

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
11:11		~250	6.86	1870	9.8	5.68	15.60	-82
11:15		~250	6.85	1960	6.7	1.19	15.90	-95
11:19		~250	6.84	1960	9.8	0.39	15.80	-97
11:23		~250	6.84	1980	7.5	0.00	15.90	-100
11:27		~250	6.84	2000	6.7	0.00	15.80	-102

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (°C)	ORP (mv)
11:19	11:23		~250	0.00	-1.02	<10	<1	-0.63	3.00
11:23	11:27		~250	0.00	-1.01	<10	<1	0.63	2.00
11:19	11:27		~250	0.00	-2.04	<10	<1	2.26	5.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 11:29

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	°C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-13

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 7.98

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 15

Comments: Pump on @ 10:26

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:30		~250	6.69	700	>800	7.02	15.10	44
10:34		~250	7.05	687	>800	6.18	15.30	47
10:38		~250	7.13	702	16.3	4.94	15.00	45
10:42		~250	7.15	723	10.9	4.32	14.90	41
10:46		~250	7.17	735	8.6	3.15	14.90	35
10:50		~250	7.18	737	9.7	2.78	14.80	31

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:42	10:46		~250	-0.02	-1.66	<10	27.08	0.00	6.00
10:46	10:50		~250	-0.01	-0.27	<10	11.75	0.67	4.00
10:42	10:50		~250	-0.03	-1.94	<10	35.65	0.67	10.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	N	Y	Y

Sample Time: 10:52

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-14

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 12.18

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 17

Comments: Pump on @ 10:54

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
10:57		~250	7.51	694	7.5	5.54	13.94	75
11:00		~250	7.52	694	6.8	4.60	14.14	85
11:03		~250	7.54	694	12.6	4.12	14.22	89
11:06		~250	7.53	694	13.2	3.99	14.35	90
11:09	12.23	~250	7.53	694	12.6	4.07	13.37	91

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:06	11:09		~250	0.01	0.00	-4.76	3.16	-0.91	-1.00
11:09	0:00		~250	0.00	0.00	4.55	-2.01	6.83	-1.00
11:06	0:00	0.05	~250	0.01	0.00	0.00	1.21	5.98	-2.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 11:10

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-15

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 10.50

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 17

Comments: Pump on @ 11:51

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:54		~250	7.34	2080	24.1	5.39	16.20	95
11:57		~250	7.33	2110	23.7	3.67	16.32	111
12:00		~250	7.33	2110	24.7	3.66	16.30	112
12:03	10.61	~250	7.33	2110	25.8	3.40	16.39	114

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
11:57	12:00		~250	0.00	0.00	-4.22	0.27	0.12	-1.00
12:00	12:03		~250	0.00	0.00	-4.45	7.10	-0.55	-2.00
11:57	12:03	0.11	~250	0.00	0.00	-8.86	7.36	-0.43	-3.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 12:05

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-16

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 7.58

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 15

Comments: Pump on @ 14:54

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
14:57		~250	7.27	725	16.4	0.99	17.41	0
15:00		~250	7.26	741	34.6	0.00	17.54	27
15:03		~250	7.26	740	33.5	0.00	17.57	28
15:06	7.75	~250	7.25	742	33.8	0.00	17.67	36

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
15:00	15:03		~250	0.00	0.13	3.18	0.00	-0.17	-1.00
15:03	15:06		~250	0.01	-0.27	-0.90	0.00	-0.57	-8.00
15:00	15:06	0.17	~250	0.01	-0.13	2.31	0.00	-0.74	-9.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 15:10

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-17

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 4.17

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 15

Comments: Pump on @ 14:21

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
14:25		~250	7.12	598	17.4	5.99	14.70	-2
14:29		~250	6.96	591	22.1	4.50	14.50	-1
14:33		~250	6.98	589	5.4	3.96	14.50	-3
14:37		~250	6.98	593	5.6	1.31	14.60	-1
14:41	4.31	~250	6.97	595	5.8	0.92	14.60	-1

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
14:33	14:37		~250	0.00	-0.68	-3.70	66.92	-0.69	-2.00
14:37	14:41		~250	0.01	-0.34	-3.57	29.77	0.00	0.00
14:33	14:41	0.14	~250	0.01	-1.02	-7.41	76.77	-0.69	-2.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)			Y	Y	Y	Y	Y	Y	Y

Sample Time: 14:45

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-18

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 3.07

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 13:35

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
13:39		~250	6.88	411	0.0	5.19	14.40	-119
13:43		~250	6.81	405	0.0	2.05	14.50	-129
13:47		~250	6.83	393	0.0	1.45	14.60	-136
13:51		~250	6.85	387	0.0	0.90	14.56	-145
13:55		~250	6.86	384	0.0	0.48	14.60	-151
13:59	3.11	~250	6.85	385	0.0	0.42	14.60	-153

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
13:51	13:55		~250	-0.01	0.78	0.00	<1	-0.27	6.00
13:55	13:59		~250	0.01	-0.26	0.00	<4	0.00	2.00
13:51	13:59	0.04	~250	0.00	0.52	0.00	<1	-0.27	8.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)		Y	Y	Y	Y	Y	Y	Y	Y

Sample Time: 14:03

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

HRP ENGINEERING, P.C.

PAGE 1 OF 1

SAMPLE DATE: 10/25/11

TOTAL # WELLS: 22

LOW-FLOW SAMPLING LOG

Client Name: NYSDEC

Project Locatior Barthelmes Manufacturing

Sampler(s): MEW/JKC

Sample Pump: Peristaltic

Tubing Type: LDPE/Silicon

Monitoring Equipment: Horiba U-22

Well I.D. MW-19

Well Diameter (inches): 2

Total Depth (ft btoc): NM

Depth to Water (ft btoc): 6.31

Screen Setting (ft btoc): _____ to _____

Tubing Intake (ft btoc): 10

Comments: Pump on @ 15:27

Well Condition:

Time (hours)	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	Water Quality Monitoring Parameters					
			pH	Conductivity µs/cm	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
15:30		~250	7.35	1050	29.8	4.26	16.38	63
15:33		~250	7.35	1060	27.5	3.46	16.70	77
15:36		~250	7.31	1050	22.8	3.20	15.96	86
15:39		~250	7.31	1050	22.8	3.21	15.94	87
15:42	6.49	~250	7.32	1050	22.8	3.19	15.43	87

Stabilization of Parameters (stabilization achieved for three consecutive measurements)

Time FROM	Time TO	Depth to Water (ft btoc)	Evacuation Rate (ml/min)	pH	Conductivity (ms/cm)	Turbidity (NTU)	Dissolved oxygen (mg/l)	Temperature (^{o}C)	ORP (mv)
15:36	15:39		~250	0.00	0.00	0.00	-0.31	0.13	-1.00
15:39	15:42		~250	-0.01	0.00	0.00	0.62	3.20	0.00
15:36	15:42	0.18	~250	-0.01	0.00	0.00	0.31	3.32	-1.00
Recommended Stabilization		+/- 0.3	100-500	+/- 0.1	+/- 3%	+/- 10%	+/- 10%	+/- 3%	+/- 10
Stabilization: (Yes/No)		Y	Y	Y	Y	Y	Y	Y	Y

Sample Time: 15:45

Reviewed by: MEW

ft btoc	feet below top of casing	NTU	Nephelometric Turbidity Units	^{o}C	degrees Celsius
ml/min	milliliters per minute	mg/l	milligrams per liter	mv	millivolts
µs/cm	microseimons per centimeter				

APPENDIX D

GEOPHYSICAL SURVEY REPORT

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

PASSION
EXPERIENCE
RESULTS
luengineers.com

September 15, 2011

Patrick Rodman
HRP Associates, Inc.
1 Fairchild Square
Suite 110
Clifton Park, NY 12065

RE: Utility Survey Report
15 Cairn Street, Rochester, New York
Project # 50060-01

Dear Mr. Rodman,

Objective
The objective of this report was to confirm the location of cast iron piping and related appurtenances located beneath the floor of the 50,000 square foot building located at the referenced Site. In addition, underground piping on the exterior portion of the Site was also confirmed.

Scope of Work
This project includes the following tasks:

1. Evaluation of piping layout using pipe locator
A Schonstedt, Inc. pipe locator was used to energize and locate accessible buried metallic piping within the building interior and along the western exterior wall.

2. Follow-up verification using GPR
A Mala, Inc. ground penetrating radar (GPR) unit was used to attempt to identify piping not found during the initial evaluation. The GPR was used both within the interior and the exterior of the building. The location of the pipes on the exterior portion of the Site were identified using a global positioning system (GPS) unit.

Findings
The following anomalies and buried piping were identified at the site.

Interior

1) A pipe was found in an east-west orientation in the central portion of the Stock Part Storage Area. The pipe appeared to discharge into a concrete channel that discharged into the north collection pit along the western exterior wall of the building.
2) An interior catch basin was observed along the east wall of the Welding Room. One pipe in a north-south orientation was observed within the basin. A pipe in an east-west orientation was observed extending to the west from the central part of the basin.

A third pipe was observed in a north-south orientation extending from the east-west pipe to the north wall of the Welding Room and possibly connecting to a partial above ground PVC pipe, in an east-west orientation.

3) A floor drain was observed in the doorway of the Press Room. A pipe appeared to extend to the north. A second pipe was also noted that extended to the west, then south. The end location of these pipes was not determined. However, a 2.5 foot deep pipe was observed in an east-west orientation along the western portion of the building in line with the interior floor drain (see #6 below).
4) An additional pipe in a north-south orientation was observed to the west of the floor drain. An anomaly was observed in the northeast corner of the Welding Storage Area. The end location of this pipe was not determined.
5) Two metal pipes in a north-south orientation or metal anomaly were observed along the eastern wall of the Welding Storage area. The west pipe appears to be in line with #4 above. The end location of these pipes was not able to be determined.
6) A metal pipe was observed along the surface in the doorway of the Grinding Room. Two apparent floor drains were observed to the southeast of the pipe. A stand up pipe (i.e., possible fill port or vent) was observed in the northern portion of the doorway. Two Soil Vapor Extraction System vent pipes were also observed north of the doorway, along the northwest wall of the Grinding Room. An additional pipe was observed in an east-west direction in the main hallway between the Grinding Room and Brake Room to the west. This pipe appears to extend to the central collection pit along the western wall of the building.
7) A catch basin was observed along the northwestern portion of the former Degreaser Area. A pipe extending to the west was observed, but not able to be traced using the pipe locator or GPR equipment.
8) A catch basin was observed along the western wall of the main hallway associated with the tumbler. A pipe was observed on the southwestern portion of the catch basin, which was filled with grey water. The pipe was not able to be traced using the pipe locator or GPR equipment.
9) A pipe in a north-south orientation was observed extending from the Loading Dock Area to the Shear Room area. The end location of this pipe was not able to be determined.
10) A floor drain was observed along the wall in the southwest corner of the Shear Room. No pipes were able to be traced using the pipe locator or GPR equipment associated with this floor drain.
11) A floor drain was observed in the Paint Locker Room. No pipes were able to be traced using the pipe locator or GPR equipment associated with this floor drain.

<u>Exterior</u>

1) A pipe was observed along the western exterior wall of the building in a north-south orientation.
2) An apparent portion of a former rail spur was identified in a north-south orientation in the paved walkway, west of the building.
3) Two pipes were confirmed extending in an east-west orientation from the north collection pit. The north pipe was approximately 7 feet below ground surface (bgs) and the south pipe was approximately 6 feet bgs.

4) A deep production well was observed south of the north collection pit. Two pitless adapters and a metal gasket between were observed. The top pipe was in a southeast orientation toward a drain pipe. The bottom pipe was in a northeast orientation toward the collection pit.
5) A portion of a pipe or metal anomaly was observed approximately 3 feet bgs in the paved driveway west of the deep production well.
6) One pipe was observed in an east-west orientation extending from the center of the doorway in the Welding Area, in line with the floor drain in the doorway of the Press Room (see #3 above), approximately 2.5 feet bgs.
7) One pipe was confirmed extending in an east-west orientation from the northern portion of the central collection pit approximately 4 feet bgs. A cleanout was observed in line with the piping, in the central portion of the grassy area, west of the building.
8) An apparent portion of a pipe or metal anomaly in an east-west orientation was observed approximately 7 feet bgs, just south of the central collection pit pipe, on the western portion of the Site.
9) A portion of a pipe or metal anomaly was observed approximately 3 feet bgs, south of the overhead door in the Whistler Area.
10) One pipe was observed extending from the northern portion of the southern collection pit approximately 3 feet bgs close to the collection pit and approximately 6 feet bgs on the western portion of the Site.
11) A portion of a pipe or metal anomaly was observed in a southwest-northeast orientation, southwest of the southern collection pit in the paved driveway, approximately 3 feet bgs.
12) A portion of a pipe or metal anomaly was observed, south of the building, in a north-south orientation, approximately 1.5 feet bgs, just east of the Loading Dock Area.
13) A portion of a pipe or metal anomaly was observed east of #10 above, approximately 2 feet bgs, in a north-south orientation.
14) A pipe was observed in a southeast-northwest orientation between the collection pit located adjacent to the northeast corner of the building and the collection pit located east of the paved driveway.
15) A pipe was observed in a northwest-southeast orientation north of the building, between the building and telephone pole downwires, on the northwestern exterior portion of the building.

It should be noted that two collection pits were observed east of the Loading Dock Area. These pits were dry and filled in with soil and gravel at the time of the Utility Survey. No pipes were observed entering or exiting these collection pits.

If you have any questions or comments regarding the findings presented above, please contact Gregory L. Andrus at gregandrus@luengineers.com or Janet M. Bissi at jbissi@luengineers.com.

Sincerely,

Gregory L. Andrus, CHMM
Group Leader
Remediation Group

GLA: jmb

Enclosure(s): 1) Site Photographs

Site Photographs
15 Cairn Street, Rochester, NY

Photo No. 1. Catch basin along east wall of Welding Room.

Photo No. 2. Catch basin and piping along east wall of Welding Room, looking

Photo No. 3. Floor drain and piping in doorway of Press Room, looking west.

Photo No. 4. Piping/anomalies found in Welding Storage area, looking east.

Photo No. 5. Pipes in doorway of Grinding Room, looking west.

Photo No. 6. Pipes in doorway of Grinding Room and SVE system pipes north.

Photo No. 7. Catch basin in former Degreaser Area.

Photo No. 8. Catch basin for tumbler looking south.

Photo No. 9. Pipe from Shear Room to Loading Dock, looking south.

Photo No. 10. Floor drain by Paint Storage Area.

Photo No. 11. North-south pipe along the western exterior wall.

Photo No. 12. North collection pit looking west.

Photo No. 13. Production well interior.

Photo No. 14. Pipes east-west from Welding Area exterior door.

Photo No. 15. Pipes east-west from Welding Area exterior door.

Photo No. 16. Central collection pit and piping looking west.

Photo No. 17. Central collection pit, piping and cleanout looking east.

Photo No. 18. Pipes east-west from the overhead door in the Whistler Area.

Photo No. 19. South collection pit and piping looking west.

Photo No. 20. West exterior portion of the building.

Photo No. 21. South exterior pipes and portion of the building.

Photo No. 22. Northeast collection pit and piping to eastern collection pit.

Photo No. 23. Northeast collection pit and eastern exterior wall looking south.

Photo No. 24. Piping northwest-southeast from the northwest exterior of the

Photo No. 19. Northeast building exterior wall.

Photo No. 20. Northwest exterior wall.

Photo No. 21. Trench drain and Southeast collection pit, southeast corner of Loading Dock.

Photo No. 22. Northeast Loading Dck collection pit.

APPENDIX E

PREVIOUS REPORTS

Phase II
Environmental Site Assessment:
Site Characterization

Location:

Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

Prepared for:

Harter, Secrest, & Emery, LLP
1600 Bausch & Lomb Place
Rochester, New York 14604

LaBella Project No. 201045

October 2001

Table of Contents

I. Introduction

The purpose of this report is to detail the cumulative findings of recent sub-surface investigations at the above referenced Site. These activities were conducted by LaBella Associates, P.C. on behalf of Harter, Secrest, & Emery and Barthelmes Manufacturing. Haley and Aldrich of New York has also recently joined the project team in order to provide additional remedial experience and expertise to the project.

The Site consists of approximately 7.59 acres of land occupied by an approximately 61,000 square foot building. The Site is in an industrial area, surrounded by various other commercial properties. The adjacent properties are a junkyard to the north, a former major oil storage facility to the south, a railroad to the west, and Cairn Street to the east. Based on review of available historical information, including City of Rochester Building Information System Records, City of Rochester Plat Maps, and City of Rochester Sanborn Maps, and discussions with Mr. Arthur and Richard Wischmeyer, it appears that the Site has been occupied by Barthelmes Manufacturing since approximately 1921. Barthelmes Manufacturing Company, Inc., is a contract metal fabrication facility. Their processes include stamping, machining, arc and spot welding, powder and spray painting, metal finishing, and assembling. Prior to Barthelmes Manufacturing, other development in the vicinity of the Site appears to have included a glass company, American Fruit & Produce Company, and Nunn Brass Works, Inc.

The Site is listed as a RCRA Small Quantity Generator (EPA ID# NYD002215119). It is also listed under the Toxic Release Inventory Reporting System and the AIRS database, which tracks air pollution.

The findings of this report are based on the scopes of work and project objectives that were agreed upon by LaBella Associates, P.C., and Harter, Secrest & Emery.

In December 2000 environmental questions arose during legal negotiations that were being conducted on behalf of Barthelmes Manufacturing Company, Inc. These negotiations required an environmental assessment of the property at 15 Cairn Street to assess any environmental liabilities at the property.

Interviews with Mr. Arthur and Richard Wischmeyer in December 2000 indicated several areas where Recognized Environmental Conditions may have existed at the Site:

- Former TCE vapor degreasing tank;
- Storm water pond;
- Former drum storage area;
- North property line bordering junkyard;
- South property line bordering former Major Oil Storage Facility.

II. Objectives

The Scope of Work that was designed and implemented at the Site was developed to accomplish the following objectives:

- Identify apparent sub-surface conditions in the five areas where Recognized Environmental Conditions were identified;

- Roughly quantify costs associated with remedial measures for any areas of subsurface impairment;
- Establish the feasibility and estimated costs associated with remedial measures that may be necessary to correct areas of subsurface impairment at the Site.

III. Summary of Findings

Overburden Summary of Findings

Site characterization activities have been conducted at the Site including:

- The advancement and sampling of 32 geoprobe borings
- The installation and sampling of 10 overburden groundwater monitoring wells
- The collection of one pond sediment sample
- The collection of one basement sump water sample
- The collection of a combined wastewater sample

Analytical data generated from the laboratory analysis of soil and groundwater samples from these borings and groundwater monitoring wells indicate that shallow groundwater has been impacted with Trichloroethene (TCE). These levels of TCE exceed New York State Department of Environmental Conservation (NYSDEC) groundwater standards.

In addition, limited areas of impaired soil exist at the Site that contain levels of TCE above NYSDEC guidance values.

These areas of impaired soil are generally located in the former drum storage area. The area of groundwater impaired with chlorinated solvents appears to be located under the building at the Site, in the former drum storage area, and appears to migrate to the south.

The sediment sample analyzed from a storm water pond previously used for wastewater discharge did not contain elevated levels of TCE above method detection limits (9.93ug/l). This sample did contain elevated levels of Chromium (151mg/kg). However, the levels of chromium were below the levels that would cause the sediment sample to fail Toxicity Characteristics.

Groundwater that is pumped from the basement sump contains elevated levels of TCE (535 ug/l). This wastewater is discharged to the municipal sewer, along with sanitary and industrial wastewater from the plant. Analysis of this combined flow to the sewer indicates that the concentration of TCE (84.2 ug/l) being discharged from groundwater, from the facility on the sampling date of June 5, 2001, is well below the Monroe County Pure Waters (MCPW) allowable total Volatile Organic Compound level of 2.1 parts per million.

Bedrock Summary of Findings

Additional investigation of the shallow bedrock groundwater table has also been performed at the Site in order to fully characterize the impairment and to evaluate remedial measures. Bedrock Site characterization activities consisted of the following:

- The installation and sampling of three shallow bedrock monitoring wells;

- The sampling of two previously installed production wells at the Site.

This sampling has shown the presence of trichlorethene and cis-1,2-dichloroethene above NYSDEC Groundwater Standards in the shallow (south) production well. Additionally, there were levels of Trichloroethene above NYSDEC Groundwater Standards in the three bedrock-monitoring wells. The levels of cis-1,2-dichloroethene were above the NYSDEC Guidance Values in two of the bedrock monitoring wells. The deeper production well was below NYSDEC Guidance Values.

Using the Site Characterization, LaBella Associates will be able to develop feasibility and cost analyses for various remedial alternatives and propose a remediation plan to the NYSDEC.

IV. Summary of Geologic and Hydrogeologic Conditions

Site geologic features are based primarily on information obtained from the advancement of 32 geoprobe borings and three drill rig advanced borings at the Site.

Based on field observations overburden appears to be approximately twenty-three feet (RW#1) to thirty feet (RW#2) thick. Based on field observations and surveyed groundwater elevations, groundwater flow appears to be generally to the south/southwest.

- The bedrock in the area is Lockport Dolomite.
- The soils at the Site consist of loose to medium sands with gravel.
- Groundwater flow in the overburden is generally to the south/southwest.
- The horizontal gradient in the overburden aquifer appears to be approximately 0.003.

The velocity of groundwater flow in the overburden aquifer can be estimated using Darcy's Law:

$$V=KI/e$$

Where V equals the velocity of groundwater flow, K equals the hydraulic conductivity (permeability), I equals hydraulic gradient, and e equals the effective porosity. The effective porosity is the volume of pore space through which groundwater flow actually occurs. The lower the value of effective porosity, the higher the resulting groundwater velocity. The median range of effective porosity and permeability for similar aquifers typically is reported to be in the range of 25% to 50%. The hydraulic conductivity is estimated to be about 10^{-2} cm/sec, based on published values for similar aquifers.

The rate of groundwater movement in the overburden aquifer is estimated to be in the range of less than 0.5 ft/day calculated assuming an effective porosity of 37.5% and a hydraulic conductivity of 10^{-2} cm/sec. Actual localized rates of groundwater movement will vary in response to local hydrogeologic conditions.

A groundwater contour map for the Site is included as Figure 3.

V. Investigation Methodology

Overburden Soil Borings and Monitoring Wells

Soil borings at the Site were advanced with a geoprobe direct push, sampling system. The use of direct push technology allows for rapid sampling, observation, and characterization of relatively shallow overburden soils. The geoprobe utilizes a four-foot macro-core sampler, with disposable polyethylene sleeves. Soil cores are retrieved in four-foot sections, and can be easily cut from the polyethylene sleeves for observation and sampling. The macro-core sampler was decontaminated between samples and borings using an alconox and water solution.

All soil cores were screened for evidence of impairment by a LaBella Associates Environmental Analyst. Field air monitoring readings of soil samples were conducted with a Mini-Rae 2000 Photoionization detector calibrated to a response factor of 1.00.

Soil samples were collected and placed directly into laboratory supplied, glass samples jars with a Teflon sealed lid. All samples were placed in coolers with chemical ice packs and transported under Chain of Custody procedures to Paradigm Laboratories, Inc, of Rochester, New York for analysis.

Monitoring wells were installed at ten of the boring locations at the Site. All monitoring wells utilized 1 inch well screen. The monitoring wells were set at depths varying from 19.5 feet to 16 feet, each with 10 feet of .010 inch slotted PVC screen intersecting the water table, connected to an appropriate length of PVC riser to complete the well installation. All wells were sand packed to 2 to 3 feet above the well screen, bentonite sealed to 1 foot below the ground surface, and grouted to the ground surface. Each well was finished with a locking cap and flush mount cover.

Each well received a dedicated PVC bailer. Prior to sampling each monitoring well was developed and purged by bailing at least 3 well volumes.

Samples were collected in laboratory supplied sample jars and vials. All samples were placed in coolers with chemical ice packs and transported under chain of custody procedures to Paradigm Laboratories, Inc. of Rochester, New York for analysis.

Four groundwater monitoring wells advanced on the exterior of the building were elevated and compared to an onsite specific elevation. In addition, one groundwater monitoring well (IB-1/MW-1) advanced on the interior of the building was surveyed to establish its relative elevation.

Boring logs and monitoring well construction diagrams are attached as Appendix 1.

Bedrock Monitoring Wells

The shallow bedrock monitoring wells were installed by a specialized rotary drilling contractor. The contractor utilized a Brainerd-Killman 81 truck mounted drill rig to advance 6 ¼" interior diameter hollow stem augers. Continuous overburden sampling was completed using split spoon samples in accordance with ASTM 1586. The drilling equipment was decontaminated prior to use and between borings used an alconox and water wash, followed by a water rinse.

The decontamination water, development water, and cuttings were containerized in 55-gallon drums and remained at the Site for further characterization and proper disposal. The contractor advanced the borings using hollow-stem augers with continuous soil sampling to the top of bedrock. The contractor then seated temporary steel casing to the top of bedrock as necessary to maintain the borehole and seal the overburden, as well as preventing the discharge of drilling fluids to the ground surface. The contractor then advanced 5 7/8" nominal rollerbit seven feet into the bedrock. Clean water was used as the drilling fluid. The drilling fluid was circulated for a sufficient period of time to clean the borehole of cuttings.

To complete the well, a ten foot length of 0.01" slotted PVC was installed, and connected to an appropriate length of PVC riser casing. The bottom of the screen was equipped with a cap. The annular space was gravel-packed with Morie #0 quartz sand to a depth of two feet above the top of the screen, and a two-foot seal of bentonite pellets was installed above the gravel pack. The temporary casing was then gradually withdrawn. The remaining annular space was tremmie-grouted to within one foot of the ground surface, using a cement and bentonite grout mixture. The monitoring wells were then sealed with a flush-mounted casing with a lockable inner cap.

These monitoring wells were also surveyed and elevated to determine groundwater flow parameters.

Boring logs and well construction diagrams are attached as Appendix 1.

VI. Fieldwork and Findings

VIa. Initial Subsurface Investigation

Introduction

Initial Site Investigation Activities were conducted at the Site on December 19, 2000 and January 19 and 24, 2001. During this time frame, a total of twelve geoprobe borings, one pond sediment sample, and five shallow groundwater monitoring wells were advanced at the Site to preliminarily characterize subsurface conditions at the Site.

Scope of Work

The workplan that was developed was designed to provide initial coverage of the Site in the areas most likely to have contributed to, or be affected by, a potential petroleum or chemical release at the Site. The Scope of Work is based on LaBella's discussions with Mr. Richard and Arthur Wischmeyer, Harter, Secrest, & Emery, and on information regarding current and historical Site processes. The initial work plan that was implemented at the Site is as follows:

1. LaBella Associates worked with Barthelmes Manufacturing to determine the areas of potential concern/migration pathways at the Site as they relate to Site objectives and issues. Part of this task also involved LaBella Associates conducting limited Phase I ESA related research for the facility to uncover additional issues at the Site that required investigation.

2. An Underground Facilities Protection Organization (UFPO) stakeout was conducted at the Site, to locate any subsurface utilities in the areas where the subsurface assessment and delineation took place.

3. LaBella Associates retained the services of a specialized contractor to implement a direct push "geoprobe" soil boring and sampling program at the Site. A total of three days of borings were conducted at the Site.

4. LaBella reviewed available information and the information provided by the utility stakeout to determine the appropriate locations for soil borings. A total of twelve borings were implemented at the following locations:

    - In the area of the drain lines that lead to the storm water pond.
    - In the area near the former TCE vapor degreaser.
    - In the area of the Site along the south property line closest to the former major oil storage facility.
    - In the area of the Site near the storm water pond, along the west and north property line where shallow ditches appear to lead onto the Site.
    - In the areas of the Site near drum storage, paint booth, and loading dock areas.
    - Along the northern property line closest to the current junkyard.

    In addition, one pond sediment sample was taken from the bottom of the pond, directly underneath the discharge pipe coming from the manufacturing facility.

5. Five 1-inch diameter monitoring wells were installed, based on evidence of impairment observed in the soil borings, these include the following locations:

    - One well in the vicinity of the former TCE vapor degreasing tank inside the plant (MW#1)
    - One well along the south property line near the former major oil storage facility (MW#2)
    - One well along the northwest property line in the vicinity of the storm water pond (MW#3)
    - Two wells in the former drum storage area (MW#4, 5)

Field Activities

Twelve borings were advanced at the Site. All of the borings were advanced to total depths ranging from 16 feet to 26 feet below grade. Based on field observations, groundwater monitoring wells were installed at the soil boring near the former TCE vapor degreasing tank (MW #1), soil boring #2 near the south property line (MW #2), soil boring #4 in the northwest corner of the property near the pond and the property line with the junkyard (MW #3), soil boring #5 (MW #4) and soil boring #7 (MW#5), both in the former drum storage area.

All soil cores were continuously assessed by a LaBella Associates Environmental Analyst for soil type and evidence of impairment.

Soils at the Site consisted primarily of medium to coarse sands with some clay and silts at the shallower depths and an occasional clay/silt lenses at greater depths.

The boring locations at the Site are illustrated in Figure 1. Copies of the boring logs are included in Appendix 1.

Initial Subsurface Analytical Results - Soils

Soil samples were sent under Chain of Custody proccdures to Paradigm Laboratories, Inc. of Rochester, New York for petroleum and solvent related VOC analysis by USEPA Method 8260 STARS and for Semi-VOC analysis by USEPA Method 8270 STARS Compounds only, as well as the 8 RCRA Metals by USEPA Method 6010.

The analytical results for those compounds detected above method detection limits from the soil samples for Volatile Organic Compound analysis (VOC), Semi-Volatile Organic Compound analysis (SVOC), and 8 RCRA Metals are summarized in Tables 1, 2 and 3, respectively. The individual constituents are compared to the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Soil Cleanup Objectives to Protect Groundwater Quality.

TABLE 1
Volatile Organic Compound Laboratory Analysis for Soil Samples
(USEPA Method 8260) (ug/kg)

Parameter	IB-1 (12'-14')	B-3 (8'-12')	B-4 (8'-12')	B-7 (0'-4')	B-7 (12'-14')	B-10 (8'-12')	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
Bromodichloromethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Bromomethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Bromoform	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Carbon Tetrachloride	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	600
Chloroethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	1,900
Chloromethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
2-Chlorotheyl Vinyl Ether	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Chloroform	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	300
Dibromochloromethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
1,1-Dichloroethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	200
1,2-Dichloroethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	100
1,1-Dichloroethene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	400

TABLE 1 (continued)
Volatile Organic Compound Laboratory Analysis for Soil Samples
(USEPA Method 8260) (ug/kg)

Parameter	BB-1 (12'-14')	B-3 (8'-12')	B-4 (8'-12')	B-7 (0'-4')	B-7 (12'-14')	B-10 (8'-12')	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
Cis-1,2-Dochloroethene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
trans-1,2-Dichloroethene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	300
1,2-Dichloropropane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
cis-1,3-Dichloropropene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
trans-1,3-Dichloropropene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Methylene chloride	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	100
1,1,2,2-Tetrachloroethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	600
Tetrachloroethene	ND<8.5	106	ND<11.2	ND<108	ND<7.96	ND<11.4	1,400
1,1,1-Trichloroethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	760
1,1,2-Trichloroethane	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Trichloroethene	ND<8.5	ND<10.0	ND<11.2	**10,300**	13.5	ND<11.4	700
Vinyl Chloride	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	120
Benzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	60
Chlorobenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	1,700
Ethylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	5,500
Toluene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	1,500
m,p-Xylene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	1,200
o-Xylene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	1,200
Sytrene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.96	ND<11.4	N/A
Acetone	ND<42.5	ND<50.0	ND<55.8	ND<539	ND<39.8	ND<57.1	110
Vinyl Acetate	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	N/A
2-Butanone	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	300
4-Methyl-2-pentanone	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	1,000
2-Hexanone (MEK)	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	N/A
Carbon Disulfide	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	2,700
Methyl tert-Butyl Ether	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	120
Isopropylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	4,740
n-Propylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	14,000
1,3,5-Trimethylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	3,330
tert-Butylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	N/A
1,2,4-Trimethylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	13,000
sec-Butylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	24,910
p-Isopropyltoluene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	10,570
n-Butylbenzene	ND<8.5	ND<10.0	ND<11.2	ND<108	ND<7.97	ND<11.4	17,620
Naphthalene	ND<21.2	ND<25.0	ND<27.9	ND<269	ND<19.9	ND<28.5	13,000

All sample results and guidance values in ug/kg = ppb
ND = Not Detected
N/A=Not Applicable
Bold denotes constituents above NYSDEC Guidance Values

All sediment results for Volatile Organic Compounds by USEPA Method 8260 were non-detect.

TABLE 2
Semi - Volatile Organic Compound Laboratory Analysis for Soil Samples
(USEPA Method 8270) (ug/kg)

Parameter	IB-1 (12'-14')	B-3 (8'-12')	B-4 (8'-12)	B-7 (0'-4')	B-7 (12'-14')	NYSDEC TAGM 4046 Soil Cleanup Objectives to Protect Groundwater Quality
Napthalene	ND<321	ND<354	ND<40 9	ND<71 1	ND<366	13,000
Acenaphthene	ND<321	ND<354	ND<40 9	1,160	558	90,000
Flourene	ND<321	ND<354	ND<40 9	1,250	624	350,000
Flouranthene	ND<321	ND<354	ND<40 9	14,800	3,580	1,900,000
Anthracene	ND<321	ND<354	ND<40 9	3,020	1,150	700,000
Phenanthrene	ND<321	ND<354	ND<40 9	11,200	4,150	220,000
Benzo (a) anthracene	ND<321	ND<354	ND<40 9	**8,760**	2,100	3,000
Chrysene	ND<321	ND<354	ND<40 9	**7,130**	**2,100**	400
Pyrene	ND<321	ND<354	ND<40 9	13,000	6,470	665,000
Benzo (b) flouranthene	ND<321	ND<354	ND<40 9	**10,800**	**1,610**	1,100
Benzo (k) flouranthene	ND<321	ND<354	ND<40 9	6,280	**3,360**	1,100
Benzo (g,h,i) perylene	ND<321	ND<354	ND<40 9	785	800	800,000
Benzo (a) pyrene	ND<321	ND<354	ND<40 9	6,480	1,370	11,000
Dibenz (a,h) anthracene	ND<321	ND<354	ND<40 9	898	ND<366	165,000,000
Indeno (1,2,3-cd) pyrene	ND<321	ND<354	ND<40 9	**3,470**	827	3,200

All sample results and guidance values in ug/kg = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Guidance Values

All sediment results for Semi-Volatile Organic Compounds by USEPA Method 8270 STARS Compounds Only, were non-detect.

TABLE 3
8 RCRA Metals Analysis for Soil Samples (mg/kg)

Parameter	B-1 (12'-14')	B-3 (8'-12')	B-7 (0'-4')	NYSDEC TAGM 4046 Eastern USA Background	NYSDEC TAGM 4046 Recommended Cleanup Objectives
Arsenic	1.78	0.958	6.47	3-12	7.5 or SB
Barium	13.4	18.6	**464**	15-600	300 or SB
Cadmium	<0.523	<0.499	**56.9**	0.1-1	1 or SB
Chromium	4.81	6.72	**299**	1.5-40	10 or SB
Lead	1.67	2.11	**366**	*200-500	SB
Mercury	<0.036	<0.0870	<0.0765	0.001-0.2	0.1
Selenium	0.0836	<0.499	<0.522	0.1-3.9	2 or SB
Silver	<1.04	<1.00	**6.59**	N/A	SB

* Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200-500 ppm

All sample results and guidance values are listed in mg/kg=ppm

N/A - Not Applicable

ND = Not Detected

Bold denotes constituents above NYSDEC Guidance Values

SB= Site Background

The results of the initial subsurface soil boring and sampling investigation indicated that slightly impaired soils were present next to the clean out for the drainage pipe that leads to the storm water pond; however, the concentration was below DEC soil cleanup guidelines. Elevated levels of VOC's, SVOC's and several metals were present within the former drum storage area and in the vicinity of the former TCE tank.

Initial Subsurface Investigation Analytical Results – Sediment

Because of historical discharges to the storm water pond, one sediment sample was obtained from the pond for analysis. This sample was obtained from the bottom of the pond, directly underneath the discharge pipe coming from the manufacturing facility.

This sample was analyzed for VOCs by USEPA Method 8260 plus STARS compounds, for Semi-VOCs by USEPA Method 8270 STARS Compounds Only, and for 8 RCRA Metals.

The analyses for VOCs and SVOCs were non-detect. The analysis for 8 RCRA metals did indicate the presence of chromium above published Eastern USA Background Levels.

TABLE 6
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Parameter	MW-1	MW-2	MW-3	MW-4	MW-5	NYSDEC Part 703 Groundwater Standards
Bromodichloromethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	50*
Bromomethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Bromoform	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	50*
Carbon Tetrachloride	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Chloroethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	50
Chloromethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	N/A
2-Chlorotheyl Vinyl Ether	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	N/A
Chloroform	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	7
Dibromochloromethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	50*
1,1-Dichloroethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,2-Dichloroethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,1-Dichloroethene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Cis-1,2-Dichloroethene	483	ND<2.0	ND<2.0	ND<200	ND<200	5
trans-1,2-Dichloroethene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,2-Dichloropropane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
cis-1,3-Dichloropropene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Cis 1,2-Dichcloropropene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5

TABLE 6 (continued)
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Parameter	MW-1	MW-2	MW-3	MW-4	MW-5	NYSDEC Part 703 Groundwater Standards
trans-1,3-Dichloropropene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Methylene chloride	ND<500	ND<5.0	ND<5.0	ND<500	ND<500	5
1,1,2,2-Tetrachloroethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Tetrachloroethene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,1,1-Trichloroethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,1,2-Trichloroethane	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Trichloroethene	**8,140**	**257**	ND<2.0	**2,980**	**15,600**	5
Vinyl Chloride	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	2
Benzene	ND<70	ND<0.700	ND<0.700	ND<70	ND<70	1
Chlorobenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Ethylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Toluene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
m,p-Xylene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
o-Xylene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Sytrene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	50
Acetone	ND<1,000	ND<10.0	ND<10.0	ND<1,000	ND<1,000	50*
Vinyl Acetate	ND<500	ND<5.0	ND<5.0	ND<500	ND<500	N/A
2-Butanone	ND<500	ND<5.0	ND<5.0	ND<500	ND<500	N/A
4-Methyl-2-pentanone	ND<500	ND<5.0	ND<5.0	ND<500	ND<500	N/A
2-Hexanone (MEK)	ND<500	ND<5.0	ND<5.0	ND<500	ND<500	N/A
Carbon Disulfide	ND<200	3.59	ND<2.0	ND<200	ND<200	10
Methyl tert-Butyl Ether	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Isopropylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
n-Propylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,3,5-Trimethylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
tert-Butylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
1,2,4-Trimethylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
sec-Butylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
p-Isopropyltoluene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
n-Butylbenzene	ND<200	ND<2.0	ND<2.0	ND<200	ND<200	5
Naphthalene	ND<500	ND<5.0	ND<5.0	ND<500	ND<500	10

All sample results and guidance values in ug/kg = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Standard
* denotes Guidance Value

All Groundwater results for Semi-Volatile Organic Compounds by USEPA Method 8270, STARS Compounds Only, were non-detect.

TABLE 7
8 RCRA Metals Analysis for Groundwater Samples (mg/L)

Parameter	MW-5	NYSDEC Part 703 Groundwater Standard
Arsenic	<0.005	0.025
Barium	0.281	1
Cadmium	<0.005	0.01
Chromium	0.047	0.05
Lead	0.065	0.025
Mercury	<0.0002	0.002
Selenium	<0.005	0.01
Silver	<0.01	0.05

Water elevation data gathered from the four monitoring wells that have been installed at the Site indicate that the flow of groundwater at the Site is to the south.

Based on the observations made during the soil boring and groundwater sampling study elevated levels of Trichloroethene in the soils were present in the surface soils in the drum storage area. Trichloroethene impaired groundwater was present under the building and in the south center portion of the Site. The monitoring well in the northwest corner of the site has not been impacted. Based on the analytical data, the highest levels of Trichloroethene in the groundwater were detected in the former drum storage area and in the vicinity of the former TCE Vapor Degreaser. Tetrachloroethene was found in soils at levels below DEC soil clean up guidelines next to the drainage pipe clean out.

Based on the observations at the time of the fieldwork and the analytical data, it was determined that groundwater impairment was present at the Site. Additional soil and groundwater investigation was necessary to determine the source of this impairment.

VIb. Interior Subsurface Investigation

Introduction

On April 17, 2001, five additional soil borings and monitoring wells were installed inside the building in the vicinity of the former TCE Vapor Degreaser to add further definition to the area of impairment.

Scope of Work

The work plan that was developed was designed to provide concentrated coverage of the interior portions of the Site in the areas most likely to have contributed to, or be affected by, a potential release of trichloroethylene and the associated compounds at the Site. The Scope of Work is based on LaBella's discussions with Harter, Secrest, & Emery, Mr. Richard and Arthur Wischmeyer, impairment and groundwater flow direction information gathered in the Initial Subsurface Investigation, and on information regarding current and historical Site processes.

Samples were collected in laboratory supplied sample jars and vials. All samples were placed in coolers with chemical ice packs and transported under chain of custody procedures to Paradigm Laboratories, Inc. of Rochester, New York for analysis.

Field Activities

Five borings were advanced in the interior of the structure located at the Site. All of the borings were advanced to total depths ranging from 15 feet to 18 feet below ground surface. Because soil impairment in the drum storage area did not seem to present the vertical profile to explain the levels of impairment in the groundwater, groundwater monitoring wells were installed at each of the five soil borings in the vicinity of the former TCE degreaser. The average depth to groundwater for these borings was approximately six feet below ground surface.

All soil cores were continuously assessed by a LaBella Associates Environmental Analyst for soil type and evidence of impairment.

Soils at the Site consisted primarily of medium to fine sands.

One soil boring (IB-2) exhibited elevated PID readings, staining, and odors. One soil sample was retained from this boring for laboratory analysis.

The boring locations at the Site are illustrated in Figure 1. Copies of the boring logs are included in Appendix 1.

Interior Subsurface Analytical Results - Soil

The soil sample was sent under Chain of Custody procedures to Paradigm Laboratories, Inc. of Rochester, New York for VOC analysis by USEPA Method 8260.

The analytical results for those compounds detected above method detection limits from the soil samples for Volatile Organic Compound analysis (VOC), are summarized in Table 8. The individual constituents are compared to the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Soil Cleanup Objectives to Protect Groundwater Quality.

TABLE 8
Volatile Organic Compound Laboratory Analysis for Soil Samples
(USEPA Method 8260) (ug/kg)

Parameter	IB-2 (5'-7')	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
Bromodichloromethane	ND<35.5	N/A
Bromomethane	ND<35.5	N/A
Bromoform	ND<35.5	N/A
Carbon Tetrachloride	ND<35.5	600

TABLE 8 (continued)
Volatile Organic Compound Laboratory Analysis for Soil Samples
(USEPA Method 8260) (ug/kg)

Parameter	IB-2 (5'-7')	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
Chloroethane	ND<35.5	1,900
Chloromethane	ND<35.5	N/A
2-Chlorotheyl Vinyl Ether	ND<35.5	N/A
Chloroform	ND<35.5	300
Dibromochloromethane	ND<35.5	N/A
1,1-Dichloroethane	ND<35.5	200
1,2-Dichloroethane	ND<35.5	100
1,1-Dichloroethene	ND<35.5	400
Cis-1,2-Dichloroethene	ND<35.5	N/A
trans-1,2-Dichloroethene	ND<35.5	N/A
1,2-Dichloropropane	ND<35.5	N/A
cis-1,3-Dichloropropene	ND<35.5	300
trans-1,3-Dichloropropene	ND<35.5	N/A
Methylene chloride	ND<88.7	100
1,1,2,2-Tetrachloroethane	ND<35.5	600
Tetrachloroethene	ND<35.5	1,400
1,1,1-Trichloroethane	ND<35.5	760
1,1,2-Trichloroethane	ND<35.5	N/A
Trichloroethene	ND<35.5	700
Vinyl Chloride	ND<35.5	120
Benzene	ND<35.5	60
Chlorobenzene	ND<35.5	1,700
Ethylbenzene	ND<35.5	5,500
Toluene	ND<35.5	1,500
m,p-Xylene	ND<35.5	1,200
o-Xylene	ND<35.5	1,200
Sytrene	ND<35.5	N/A
Acetone	ND<177	110
Vinyl Acetate	ND<88.7	N/A
2-Butanone	ND<88.7	300
4-Methyl-2-pentanone	ND<88.7	1,000
2-Hexanone (MEK)	ND<88.7	N/A
Carbon Disulfide	ND<88.7	2,700
Methyl tert-Butyl Ether	ND<35.5	120
Isopropylbenzene	ND<35.5	4,740
n-Propylbenzene	ND<35.5	14,000

TABLE 8 (continued)
Volatile Organic Compound Laboratory Analysis for Soil Samples
(USEPA Method 8260) (ug/kg)

Parameter	IB-2 (5'-7')	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
1,3,5-Trimethylbenzene	267	3,330
tert-Butylbenzene	ND<35.5	N/A
1,2,4-Trimethylbenzene	327	13,000
sec-Butylbenzene	ND<35.5	24,910
p-Isopropyltoluene	257	10,570
n-Butylbenzene	ND<35.5	17,620
Naphthalene	ND<88.7	13,000

All sample results and guidance values in ug/kg = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Guidance Values

The results of the soil boring and sampling study indicated that slightly impaired soils from lighter and gasoline type VOCs are present in the area of IB-2 below DEC soil cleanup objectives. No chlorinated solvents were detected in this soil sample.

Interior Subsurface Investigation Analytical Results - Groundwater

These monitoring wells were developed, purged, and sampled on April 21, 2001.

Groundwater samples were sent under Chain of Custody Procedures to Paradigm Laboratories, Inc. of Rochester, New York. The analytical results for those compounds detected above method detection limits from the groundwater samples for Volatile Organic Compound analysis (VOC) are summarized in Table 9. The individual constituents are compared to the NYSDEC Part 703 Groundwater Standards.

TABLE 9
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Parameter	MW-6	MW-7	MW-8	MW-9	MW-10	NYSDEC Part 703 Groundwater Standards
Bromodichloromethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	50*
Bromomethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Bromoform	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	50*
Carbon Tetrachloride	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Chloroethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	50
Chloromethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	N/A
2-Chlorotheyl Vinyl Ether	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	N/A

TABLE 9 (continued)
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Parameter	MW-6	MW-7	MW-8	MW-9	MW-10	NYSDEC Part 703 Groundwater Standards
Chloroform	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	7
Dibromochloromethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	50*
1,1-Dichloroethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
1,2-Dichloroethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
1,1-Dichloroethene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	N/A
Cis-1,2-Dichloroethene	**371**	**117**	**187**	**750**	**8,600**	5
trans-1,2-Dichloroethene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
1,2-Dichloropropane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
cis-1,3-Dichloropropene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
trans-1,3-Dichloropropene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Methylene chloride	ND<50.0	ND<25.0	ND<50.0	ND<250	ND<250	5
1,1,2,2-Tetrachloroethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Tetrachloroethene	ND<20.0	**59.8**	ND<20.0	ND<100	ND<100	5
1,1,1-Trichloroethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
1,1,2-Trichloroethane	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Trichloroethene	**2,390**	**801**	**1,990**	**4,400**	**223**	5
Vinyl Chloride	ND<20.0	ND<10.0	ND<20.0	ND<100	**5,770**	5
Benzene	ND<7.0	ND<3.50	ND<7.00	ND<35.0	ND<35.0	2
Chlorobenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	1
Ethylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Toluene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
m,p-Xylene	**27.5**	ND<10.0	ND<20.0	ND<100	ND<100	5
o-Xylene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Sytrene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	50
Acetone	**713**	ND<50.0	**101**	**622**	ND<500	50
Vinyl Acetate	ND<50.0	ND<25.0	ND<50.0	ND<250	ND<250	50*
2-Butanone	ND<50.0	ND<25.0	ND<50.0	ND<250	ND<250	N/A
4-Methyl-2-pentanone	ND<50.0	ND<25.0	ND<50.0	ND<250	ND<250	N/A
2-Hexanone (MEK)	ND<50.0	ND<25.0	ND<50.0	ND<250	ND<250	N/A
Carbon Disulfide	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	N/A
Methyl tert-Butyl Ether	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	10
Isopropylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
n-Propylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
1,3,5-Trimethylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
tert-Butylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
1,2,4-Trimethylbenzene	**25.6**	ND<10.0	ND<20.0	ND<100	ND<100	5
sec-Butylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
p-Isopropyltoluene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
n-Butylbenzene	ND<20.0	ND<10.0	ND<20.0	ND<100	ND<100	5
Naphthalene	ND<50.0	ND<25.0	ND<50.0	ND<250	ND<250	5

All sample results and guidance values in ug/L = ppb
ND = Not Detected, N/A = Not Applicable
Bold denotes constituents above NYSDEC Standard
* denotes Guidance Value

The five groundwater-monitoring wells were developed, purged and sampled on April 21, 2001.

Based on the observations at the time of the fieldwork and the analytical data, it was determined that significant groundwater impairment is present at the Site, however it appears that there are two separate sources of this impairment. The first source area appears to be the former drum storage area, while the second source area appears to be the former degreaser. The results of the groundwater monitoring study indicated levels of Trichloroethene and cis-1,2-Dichloroethene impairment under the building at the Site. In MW-6, there were also slightly elevated levels of m,p-xylene and 1,2,4-Trimethylbenzene. In MW-10, elevated levels of vinyl chloride were also detected.

The fact that MW-10 contained some of the highest levels of VOCs detected at the Site was considered a significant deviation of site trends, as MW-10 is located approximately 45 feet upgradient of the suspected source area at the former TCE vapor degreaser.

During discussions with Mr. Arthur and Richard Wischmeyer regarding this abnormal migration of TCE, it became apparent that a subsurface sump exists under the building structure in close proximity to MW-10. The presence of this sump creates a hydraulic gradient toward the sump disrupting the natural flow of groundwater to the southwest.

VIc. Industrial Wastewater and Groundwater Discharge Issues

Interior Sump Water Sample

Based on the results of the initial two stages of soil and groundwater investigation, the known groundwater impairment under the building, and the existence of a basement type sub-grade sump equipped with a sump pump at the facility, it was determined that a sample should be obtained from the sump as an additional data point, and to evaluate potential sanitary sewer discharge concentrations.

On May 21, 2001, a water sample was collected from the sump, which is located in the building under the floor of the production office area in what was formerly the boiler room. This sump prevents flooding of the office area.

The sample was collected in laboratory supplied sample jars and vials and placed in coolers with chemical ice packs and transported under Chain of Custody procedures to Paradigm Laboratories, Inc. of Rochester, New York for analysis. This sample was analyzed for VOCs by USEPA Method 8260.

The analytical results for those compounds detected above method detection limits from the sump water samples for Volatile Organic Compound analysis (VOC) are summarized in Table 10. The individual constituents are compared to the NYSDEC Part 703 Groundwater Standards.

TABLE 10
Volatile Organic Compound Laboratory Analysis for Sump Water Sample (USEPA Method 8260) (ug/L)

Parameter	Sump Water Sample	NYSDEC Part 703 Groundwater Standards
Bromodichloromethane	ND<10.0	50*
Bromomethane	ND<10.0	5
Bromoform	ND<10.0	50*
Carbon Tetrachloride	ND<10.0	5
Chloroethane	ND<10.0	50
Chloromethane	ND<10.0	N/A
2-Chlorotheyl Vinyl Ether	ND<10.0	N/A
Chloroform	ND<10.0	7
Dibromochloromethane	ND<10.0	50*
1,1-Dichloroethane	ND<10.0	5
1,2-Dichloroethane	ND<10.0	5
1,1-Dichloroethene	ND<10.0	N/A
Cis-1,2-Dichloroethene	**401**	5
trans-1,2-Dichloroethene	ND<10.0	5
1,2-Dichloropropane	ND<10.0	5
cis-1,3-Dichloropropene	ND<10.0	5
trans-1,3-Dichloropropene	ND<10.0	5
Methylene chloride	ND<25.0	5
1,1,2,2-Tetrachloroethane	ND<10.0	5
Tetrachloroethene	ND<10.0	5
1,1,1-Trichloroethane	ND<10.0	5
1,1,2-Trichloroethane	ND<10.0	5
Trichloroethene	**535**	5
Vinyl Chloride	ND<10.0	5
Benzene	ND<10.0	2
Chlorobenzene	ND<10.0	1
Ethylbenzene	ND<10.0	5
Toluene	ND<10.0	5
m,p-Xylene	ND<10.0	5
o-Xylene	ND<10.0	5
Sytrene	ND<10.0	5
Acetone	ND<50.0	5
Vinyl Acetate	ND<25.0	50*
2-Butanone	ND<25.0	N/A
4-Methyl-2-pentanone	ND<25.0	N/A
2-Hexanone (MEK)	ND<25.0	N/A
Carbon Disulfide	ND<25.0	N/A

All sample results and guidance values in ug/L = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Standards
* denotes Guidance Value

The results of the sump water sampling indicated elevated levels of Trichloroethene and cis-1,2-Dichloroethene were present in the sump water collected in the sump.

The sump discharges to the sanitary sewer along with wastewater from the industrial processes at the Site.

Sanitary Discharge Sample

In order to evaluate concentrations of TCE being discharged to the sanitary sewer system, a combined wastewater sample was obtained from the main sanitary sewer line leaving the building during normal operations and while the sump was running.

This sample was analyzed for VOCs. The analytical results of the sample are presented below:

TABLE 11
Volatile Organic Compound Laboratory Analysis for Sanitary Sewer Water Discharge Sample (USEPA Method 8260) (ug/L)

Parameter	Sanitary Sewer Discharge Water Sample	NYSDEC Part 703 Groundwater Standards
Bromodichloromethane	ND<2.0	50*
Bromomethane	ND<2.0	5
Bromoform	ND<2.0	50*
Carbon Tetrachloride	ND<2.0	5
Chloroethane	ND<2.0	50
Chloromethane	ND<2.0	N/A
2-Chlorotheyl Vinyl Ether	ND<2.0	N/A
Chloroform	ND<2.0	7
Dibromochloromethane	ND<2.0	50*
1,1-Dichloroethane	ND<2.0	5
1,2-Dichloroethane	ND<2.0	5
1,1-Dichloroethene	ND<2.0	N/A
Cis-1,2-Dichloroethene	ND<2.0	5
trans-1,2-Dichloroethene	ND<2.0	5
1,2-Dichloropropane	ND<2.0	5
cis-1,3-Dichloropropene	ND<2.0	5
trans-1,3-Dichloropropene	ND<2.0	5
Methylene chloride	ND<5.0	5
1,1,2,2-Tetrachloroethane	ND<2.0	5
Tetrachloroethene	ND<2.0	5
1,1,1-Trichloroethane	ND<2.0	5
1,1,2-Trichloroethane	ND<2.0	5
Trichloroethene	**84.2**	5
Vinyl Chloride	ND<2.0	5
Benzene	ND<2.0	2
Chlorobenzene	ND<2.0	1

TABLE 11 (continued)
Volatile Organic Compound Laboratory Analysis for Sanitary Sewer Water Discharge Sample
(USEPA Method 8260) (ug/L)

Parameter	Sanitary Sewer Discharge Water Sample	NYSDEC Part 703 Groundwater Standards
Ethylbenzene	ND<2.0	5
Toluene	ND<2.0	5
m,p-Xylene	ND<2.0	5
o-Xylene	ND<2.0	5
Sytrene	ND<2.0	5
Acetone	ND<10.0	50
Vinyl Acetate	ND<5.0	50*
2-Butanone	ND<5.0	N/A
4-Methyl-2-pentanone	ND<5.0	N/A
2-Hexanone (MEK)	ND<5.0	N/A
Carbon Disulfide	ND<5.0	N/A

All sample results and guidance values in ug/L = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Groundwater Standards
* denotes Guidance Value

The level of TCE in the sewer discharge sample is 84.2 ppb, which is 0.0842 ppm. The allowable level of total VOCs permitted for sewer discharge is 2.1 ppm, as stated in the Monroe County Pure Waters (MCPW) Sewer Use Law.

Barthelmes manufacturing with the assistance of the project team is in the process of obtaining a MCPW industrial wastewater discharge permit for the discharge of this water.

VId. Additional Definition of Former Drum Storage Area

Introduction

Based on the previous fieldwork, and conversations with Mr. Arthur and Richard Wischmeyer, it was suspected that one of the source areas for the impairment was located in or near the former drum storage area. As such, further investigation was needed in this vicinity to characterize a suspected source of the impairment. On June 4, 2001 fifteen additional soil borings well were installed in a grid pattern in the former drum storage area surrounding the area of known impairment.

Field Activities

Fifteen borings were advanced using a geoprobe in the former drum storage area. All of the borings were advanced to total depths ranging from 14 feet to 20 feet below ground surface. The average depth to groundwater for these borings was approximately eight feet below ground surface.

All soil cores were continuously assessed by a LaBella Associates Environmental Analyst for soil type and evidence of impairment.

Soils at the Site consisted primarily of medium to fine sands with some rock fragments, and fill.

The boring locations at the Site are illustrated in Figure 1. Copies of the boring logs are included in Appendix 1.

Analytical Results

TABLE 12
Photoionization Detector Readings for Drum Storage Area Borings (ppm)

Soil Boring	Depth 0'-2'	Depth 2'-4'	Depth 4'-6'	Depth 6'-8'	Depth 8'-10'	Depth 10'-12'	Depth 12'-14'	Depth 14'-16'
B-12	9.9	13.1	16.1	13.1	4.7	4.3	17.1	0.8
B-13	54.3	16.7	32.7	154*	24.1	8.3	3.4	3.4
B-14	0	0	0	0	0	0	0	0
B-15	51	82	134*	80	39	24	63	23
B-16	68	28	34	1056*	202	224	184	--
B-17	246*	10	2.6	3.1	0.2	0	0	0
B-18	2.1	3	80	14	13	10	17	102
B-19	22	2	0	0	0	0	0	7.1
B-20	3.9	22	34	15	33	7	9.3	3.4
B-21	2.1	1.7	8.3	--	6.7	5.4	1.5	3.3
B-22	84	11	4.6	--	3.9	0.4	3.3	0.3
B-23	473*	74	15	13.7	52	21	0	0
B-24	27	29	13	22	3.4	2.1	0	0
B-25	7	3	132*	--	16	7	0.3	0
B-26	0	0	0	0	0	0	0	0

--- denotes no field screen PID reading collected
* denotes sample retained and analyzed for Volatile Organic Compounds Method 8260

A total of six soil samples were retained from these borings and were sent under Chain of Custody procedures to Paradigm Laboratories, Inc. of Rochester, New York for VOC analysis by USEPA Method 8260.

The analytical results for those compounds detected above method detection limits from the soil samples for Volatile Organic Compound analysis (VOC), are summarized in Table 13. The individual constituents are compared to the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 Soil Cleanup Objectives to Protect Groundwater Quality.

TABLE 13
Volatile Organic Compound Laboratory Analysis for Soil Samples
(Former Storage Area)
(USEPA Method 8260) (ug/kg)

Parameter	SB-13 6'-8'	SB-15 4'-6'	SB-16 6'-8'	SB-17 0'-2'	SB-23 0'-2'	SB-25 4'-6'	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
Bromodichloromethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Bromomethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Bromoform	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Carbon Tetrachloride	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	600
Chloroethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	1,900
Chloromethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	
2-Chlorotheyl Vinyl Ether	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Chloroform	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	300
Dibromochloromethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
1,1-Dichloroethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	200
1,2-Dichloroethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	100
1,1-Dichloroethene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	400
Cis-1,2-Dichloroethene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
trans-1,2-Dichloroethene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
1,2-Dichloropropane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
cis-1,3-Dichloropropene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	300
trans-1,3-Dichloropropene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Methylene chloride	ND<24.1	ND<22.8	ND<19.6	ND<44.8	ND<216	ND<28.9	100
1,1,2,2-Tetrachloroethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	600
Tetrachloroethene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	1,400
1,1,1-Trichloroethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	760
1,1,2-Trichloroethane	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Trichloroethene	45.1	397	49.1	ND<17.9	**2,450**	**889**	700
Vinyl Chloride	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	120
Benzene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	60
Chlorobenzene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	1,700
Ethylbenzene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	5,500
Toluene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	1,500
m,p-Xylene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	1,200
o-Xylene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	1,200
Sytrene	ND<9.65	ND<9.12	ND<7.84	ND<17.9	ND<86.2	ND<11.6	N/A
Acetone	ND<48.3	ND<45.6	ND<39.2	ND<89.6	ND<431	ND<57.9	110

TABLE 13 (continued)
Volatile Organic Compound Laboratory Analysis for Soil Samples
(Former Storage Area)
(USEPA Method 8260) (ug/kg)

Parameter	SB-13 13 6'-8'	SB-15 15 4'-6'	SB-16 16 6'-8'	SB-17 17 0'-2'	SB-23 23 0'-2'	SB-25 25 4'-6'	NYSDEC TAGM 4046 Soil Cleanup Objective to Protect Groundwater Quality
Vinyl Acetate	ND<24.1	ND<22.8	ND<19.6	ND<44.8	ND<216	ND<28.9	N/A
2-Butanone	ND<24.1	ND<22.8	ND<19.6	ND<44.8	ND<216	ND<28.9	300
4-Methyl-2-pentanone	ND<24.1	ND<22.8	ND<19.6	ND<44.8	ND<216	ND<28.9	1,000
2-Hexanone (MEK)	ND<24.1	ND<22.8	ND<19.6	ND<44.8	ND<216	ND<28.9	N/A
Carbon Disulfide	ND<24.1	ND<22.8	ND<19.6	ND<44.8	ND<216	ND<28.9	2700

All sample results and guidance values in ug/kg = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Guidance Values

The results of the soil boring and sampling study indicated that impaired surface soils are present in the former drum storage area and seem to be localized around B-7/MW-5, SB-23, and SB-25. This area of impairment is depicted on Figure 2.

Based on the observations at the time of the fieldwork and the analytical data, it was determined that limited overburden soil impairment is present at the Site in the vicinity of B=7/MW-5, SB-23 and SB-25.

VIe. Indoor Air Quality Assessment

In order to determine if VOCs present in the shallow soil and groundwater under the concrete slab floor of the building could be negatively affecting the indoor air quality, one passive organic vapor-monitoring badge (OVM) was deployed at the Site on May 21, 2001 for a 458-minute (approximately 7.5 hour) period. This OVM was placed in the plant near the former degreaser area to measure any impacts to indoor air from the area where the greatest groundwater exceedances were present beneath the floor of the plant.

The OVM badge was collected and was submitted under Chain of Custody procedures for TCE, DCE and Vinyl Chloride analysis.

The results of analyses indicated that TCE, DCE, and Vinyl Chloride were not detected in the indoor air. Detection limits or the OVM were approximately 0.030 mg.

Analytical results or the indoor air quality sample are attached as Appendix 5.

VIf. Shallow Bedrock Groundwater Monitoring Wells

Introduction

On August 28 to August 31, 2001, three shallow bedrock borings and monitoring wells were installed at the Site to add further definition to the impairment. They were installed at the following locations:

- North of the building in the north parking lot at the Site (RW#1)
- Adjacent to MW-2 (south edge of property) (RW#2)
- Adjacent to SB-26 (South edge of former drum storage area) (RW#3)

These bedrock well locations are depicted on the attached Figures.

Scope of Work

The work plan that was developed was designed to provide general coverage of the bedrock at the Site in bordering the areas of known impairment, to determine the extent of the impairment. The Scope of Work is based on LaBella's discussions with Harter, Secrest, & Emery, Mr. Richard and Arthur Wischmeyer, Haley & Aldrich, information gathered in the Initial Subsurface Investigation, and on information regarding current and historical Site processes.

Samples were collected in laboratory supplied sample jars and vials. All samples were placed in coolers with chemical ice packs and transported under chain of custody procedures to Paradigm Laboratories, Inc. of Rochester, New York for analysis.

Field Activities

Three borings were advanced at the Site in the locations outlined above and shown on the figures. All of the borings were advanced to total depths ranging from thirty feet to thirty-seven feet below ground surface. Groundwater monitoring wells were installed at each of the three borings. The average depth to groundwater for these borings ranged from approximately 10.5 feet to 22.6 feet below ground surface (September, 2001).

All cores were continuously assessed by a LaBella Associates Environmental Analyst for soil and rock type and evidence of impairment.

Soils at the Site consisted primarily of medium to fine sands to a depth of approximately fourteen feet. From approximately fourteen feet to approximately eighteen feet soils consisted primarily of medium to fine sands with medium gravel. From a depth of approximately eighteen feet to a depth of approximately twenty-five feet, the soils consisted primarily of sand with fractured dolomite. The top of rock (dolomite) was encountered and depths ranging from twenty-three feet to thirty feet.

The shallow bedrock monitoring wells were installed by a specialized rotary drilling contractor. The contractor utilized a Brainerd-Killman 81 truck mounted drill rig to advance 6 ¼" interior diameter hollow stem augers. Continuous overburden sampling was completed using split spoon samples in accordance with ASTM 1586. The drilling equipment was decontaminated prior to use and between borings used an alconox and water wash, followed by a water rinse. All drilling decontamination water and drilling process water and fluids were recovered and drummed pending analysis and proper disposal.

To complete the well, a ten foot length of 0.01" slotted PVC was installed, and connected to an appropriate length of PVC riser casing. The bottom of the screen was equipped with a cap. The annular space was gravel-packed with Morie #0 quartz sand to a depth of two feet above the top of the screen, and a two-foot seal of bentonite pellets was installed above the gravel pack. The temporary casing was then gradually withdrawn. The remaining annular space was tremmie-grouted to within one foot of the ground surface, using a cement and bentonite grout mixture. The monitoring wells were then sealed with a flush-mounted casing with a lockable inner cap.

These monitoring wells were also surveyed and elevated to determine groundwater flow parameters.

The boring locations at the Site are illustrated in Figure 1. Copies of the boring logs are included in Appendix 1.

Shallow Bedrock Wells Analytical Results - Groundwater

Groundwater samples were sent under Chain of Custody Procedures to Paradigm Laboratories, Inc. of Rochester, New York. The analytical results for those compounds detected above method detection limits from the groundwater samples for Volatile Organic Compound analysis (VOC) are summarized in Table 14. The individual constituents are compared to the NYSDEC Part 703 Groundwater Standards.

TABLE 14
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Parameter	RW-1	RW-2	RW-3	NYSDEC Part 703 Groundwater Standards
Bromodichloromethane	ND<2.00	ND<2.00	ND<2.00	50*
Bromomethane	ND<2.00	ND<2.00	ND<2.00	5
Bromoform	ND<2.00	ND<2.00	ND<2.00	50*
Carbon Tetrachloride	ND<2.00	ND<2.00	ND<2.00	5
Chloroethane	ND<2.00	ND<2.00	ND<2.00	50
Chloromethane	ND<2.00	ND<2.00	ND<2.00	N/A
2-Chlorotheyl Vinyl Ether	ND<2.00	ND<2.00	ND<2.00	N/A
Chloroform	ND<2.00	ND<2.00	ND<2.00	7
Dibromochloromethane	ND<2.00	ND<2.00	ND<2.00	50*
1,1-Dichloroethane	ND<2.00	ND<2.00	ND<2.00	5
1,2-Dichloroethane	ND<2.00	ND<2.00	ND<2.00	5
1,1-Dichloroethene	ND<2.00	ND<2.00	ND<2.00	N/A
Cis-1,2-Dichloroethene	4.75	**7.21**	**18.5**	5
trans-1,2-Dichloroethene	ND<2.00	ND<2.00	ND<2.00	5
1,2-Dichloropropane	ND<2.00	ND<2.00	ND<2.00	5
cis-1,3-Dichloropropene	ND<2.00	ND<2.00	ND<2.00	5
trans-1,3-Dichloropropene	ND<2.00	ND<2.00	ND<2.00	5
Methylene chloride	ND<5.00	ND<5.00	ND<5.00	5
1,1,2,2-Tetrachloroethane	ND<2.00	ND<2.00	ND<2.00	5
Tetrachloroethene	ND<2.00	ND<2.00	ND<2.00	5
1,1,1-Trichloroethane	ND<2.00	2.74	2.5	5
1,1,2-Trichloroethane	ND<2.00	ND<2.00	ND<2.00	5

TABLE 14 (Continued)
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Trichloroethene	**19.6**	**31.2**	**30.6**	5
Vinyl Chloride	ND<2.00	ND<2.00	ND<2.00	5
Benzene	ND<2.00	ND<2.00	ND<2.00	2
Chlorobenzene	ND<2.00	ND<2.00	ND<2.00	1
Ethylbenzene	ND<2.00	ND<2.00	ND<2.00	5
Toluene	ND<2.00	ND<2.00	ND<2.00	5
m,p-Xylene	ND<2.00	ND<2.00	ND<2.00	5
o-Xylene	ND<2.00	ND<2.00	ND<2.00	5
Sytrene	ND<2.00	ND<2.00	ND<2.00	50
Acetone	ND<10.00	ND<10.00	ND<10.00	50
Vinyl Acetate	ND<5.00	ND<5.00	ND<5.00	50*
2-Butanone	ND<5.00	ND<5.00	ND<5.00	N/A
4-Methyl-2-pentanone	ND<5.00	ND<5.00	ND<5.00	N/A
2-Hexanone (MEK)	ND<5.00	ND<5.00	ND<5.00	N/A
Carbon Disulfide	ND<5.00	ND<5.00	ND<5.00	N/A

All sample results and guidance values in ug/L = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Standard
* denotes Guidance Value

The three groundwater-monitoring wells were developed, purged and sampled on September 11, 2001. A copy of the analytical data is included in Appendix 5.

Based on this analytical data, it was determined that low levels of cis-1,2-dichloroethene are present in all three monitoring wells. Low levels of 1,1,1-trichloroethane are present in RW-2 and RW-3. The levels of cis-1,2-dichloroethene and 1,1,1,-trichloroethane are below NYSDEC Part 703 Groundwater Standards. There are also levels of TCE in all three monitoring wells, which exceed NYSDEC Part 703 Groundwater Standards.

The levels chemical contaminants present in the upgradient well (RW-1), are likely indicative of background concentrations in the vicinity of the Site.

Production Well Sampling

There are two production wells that are no longer in use but were installed at the Site. These two wells were installed to provide cooling water for industrial processes at the Site. They are both located on the west side of the building at the Site. The shallow (south) production well depth is approximately 30.5' below ground surface. The deeper (north) production well depth is approximately 94' below ground surface. On September 26, 2001, these wells were sampled. These wells were not developed and sampled, but a water sample was obtained from the approximate center depth of the water column of each well. These were sampled to obtain additional data points and to aid in determining the depth of the impairment.

The approximate locations of these two wells are depicted on Figure 1.

The results are as follows:

TABLE 15
Volatile Organic Compound Laboratory Analysis for Groundwater Samples
(USEPA Method 8260) (ug/L)

Parameter	Shallow Production Well	Deep Productio n Well	NYSDEC Part 703 Groundwate r Standards
Bromodichloromethane	ND<20.0	12.0	50*
Bromomethane	ND<20.0	ND<2.00	5
Bromoform	ND<20.0	ND<2.00	50*
Carbon Tetrachloride	ND<20.0	ND<2.00	5
Chloroethane	ND<20.0	ND<2.00	50
Chloromethane	ND<20.0	ND<2.00	N/A
2-Chlorotheyl Vinyl Ether	ND<20.0	ND<2.00	N/A
Chloroform	ND<20.0	**18.5**	7
Dibromochloromethane	ND<20.0	ND<2.00	50*
1,1- Dichloroethane	ND<20.0	ND<2.00	5
1,2-Dichloroethene	ND<20.0	ND<2.00	N/A
Cis-1,2-Dichlorethene	**325**	ND<2.00	5
Trans-1,2-Dichlorethene	ND<20.0	ND<2.00	5
1,2-Dichloropropane	ND<20.0	ND<2.00	5
Cis-1,3-Dichloropropene	ND<20.0	ND<2.00	5
Trans-1,3-Dichloropropene	ND<20.0	ND<2.00	5
Methylene Chloride	ND<50.0	ND<5.00	5
1,1,2,2-Tetrachloroethane	ND<20.0	ND<2.00	5
Tetrachlorethene	ND<20.0	ND<2.00	5
1,1,1-Trichloroethane	ND<20.0	ND<2.00	5
1,1,2-Trichlorethane	ND<20.0	ND<2.00	5
Trichloroethene	**2,110**	3.55	5
Vinyl Chloride	ND<20.0	ND<2.00	5
Benzene	ND<20.0	ND<2.00	2
Chlorobenzene	ND<20.0	ND<2.00	1
Ethylbenzene	ND<20.0	ND<2.00	5
Toluene	ND<20.0	ND<2.00	5
M,p-Xylene	ND<20.0	ND<2.00	5
o-Xylene	ND<20.0	ND<2.00	5
Sytrene	ND<20.0	ND<2.00	50
Acetone	ND<100.0	ND<10.00	50
Vinyl Acetate	ND<50.0	ND<5.00	50
2-Butanone	ND<50.0	ND<5.00	N/A
4-Methyl-2-pentanone	ND<50.0	ND<5.00	N/A
2-Hexanone (MEK)	ND<50.0	ND<5.00	N/A
Carbon Disulfide	ND<50.0	ND<5.00	N/A

All sample results and guidance values in ug/L = ppb
ND = Not Detected
N/A = Not Applicable
Bold denotes constituents above NYSDEC Standard
* denotes Guidance Value

Based on these results it is clear that Trichloroethene was present in both production wells, however it was present above NYSDEC Part 703 Groundwater Standards only in the shallow production well. In the shallow production well cis-1,2,-dichlorethene was also present above guidance values.

A copy of the analytical data is included in Appendix 6.

VII. Discussion of Findings

Site characterization activities have been conducted at the Site. Analytical data indicate that shallow groundwater has been most severely impacted with Trichloroethene (TCE). These levels of TCE exceed New York State Department of Environmental Conservation groundwater standards. In addition, limited areas of impaired soil and shallow bedrock groundwater exist at the Site that contains levels of TCE above NYSDEC Part 703 Groundwater Standards.

The area of identified soil impairment is located in the former drum storage area. The area of identified groundwater impairment is generally located underneath the south portion of the building at the Site and under the former drum storage area, under and near an area that historically has been used for degreasing. The area of groundwater impairment may migrate off the Site to the south.

The sediment sample analyzed from the storm water pond did not contain elevated levels of TCE. This sample did contain elevated levels of Chromium (151 mg/kg). However, the levels of chromium were below the levels that would cause the sediment sample to fail Toxicity Characteristics.

Groundwater that is pumped from the basement sump contains elevated levels of TCE (535 ug/l). This wastewater is discharged to the municipal sewer, along with sanitary and industrial wastewater from the plant. Analysis of this combined flow to the sewer indicates that the concentration of TCE (84.2 ug/l) on June 5, 2001 from the facility was well below the Monroe County Pure Waters (MCPW) allowable total Volatile Organic Compound level of 2.1 parts per million. Barthelmes Manufacturing with assistance from the project team is in the process of obtaining a MCPW industrial wastewater permit for the discharge of this water.

The analytical data discussed above support the observations made at the time of the fieldwork. The analytical data indicate that there have been releases of TCE to the soil and groundwater at the Site from the historical activities at the Site. It appears that this impairment is much more widespread in the groundwater than in the soil. The surface soil impairment appears to be limited to an areal extent, and is estimated at approximately 300 tons in the former drum storage area (actual amounts could vary from these estimates).

Based on observations made during the direct push "geoprobe" soil boring and sampling program, the shallow bedrock boring and sampling program, and the comparison of the analytical data to the NYSDEC Part 703 Groundwater Standards, there appears to be a remedial concern with regard to the TCE impaired groundwater at the Barthelmes Manufacturing property.

The use of groundwater as a supply of potable water in the vicinity of the Site is precluded by City of Rochester laws. City of Rochester, Code of the City of Rochester, Health and Sanitation-Article III, Section 59-27, Water Supply.

VIII. Conclusions and Recommendations

The following measures are recommended for the Site:

1) Submit reports to the NYSDEC and meet with the NYSDEC to enroll the Site in the NYSDEC voluntary cleanup program; this will involve coming to a mutual agreement with the NYSDEC regarding any additional requested or required investigation by the NYSDEC.
2) Develop reasonable Site specific clean up objectives based on risk-based criteria.
3) Develop conceptual remedial plans to achieve Site specific cleanup objectives.
4) Develop a final remedial strategy for the Site that incorporates the NYSDEC's input.
5) Implement remedial programs at the Site.

Please feel free to contact us at (716) 454-6110 with any questions or comments regarding the contents of this report.

R1J22GS1

LABELLA
LaBella Associates, P.C.
300 State Street
Rochester, New York 14614

Figures

Junkyard

Junkyard

B-8

RW-1
Top of Rock Elevation = 75.24'

Parking Lot

Metal-Sided Addition

B-4 (MW-3)

Deep Production Well

B-9

B-11

Railroad Right of Way

Drainage Pipe Clean Out

Pond

SED-1

B-3

B-10

IB-6 (MW-10)

IB-3 (MW-7)

IB-1 (MW-1)

IB-2 (MW-6)

IB-5 (MW-9)

IB-4 (MW-8)

Shallow Production Well

Loading Dock

Former Drum Storage Area

Driveway

RW-3
Top of Rock Elevation = 75.92'

RW-2
Top of Rock Elevation = 74.43'

B-2 (MW-2)

B-6

B-1

Former Oil Storage Facility

Cairn Street

NORTH

PROJECT TITLE:

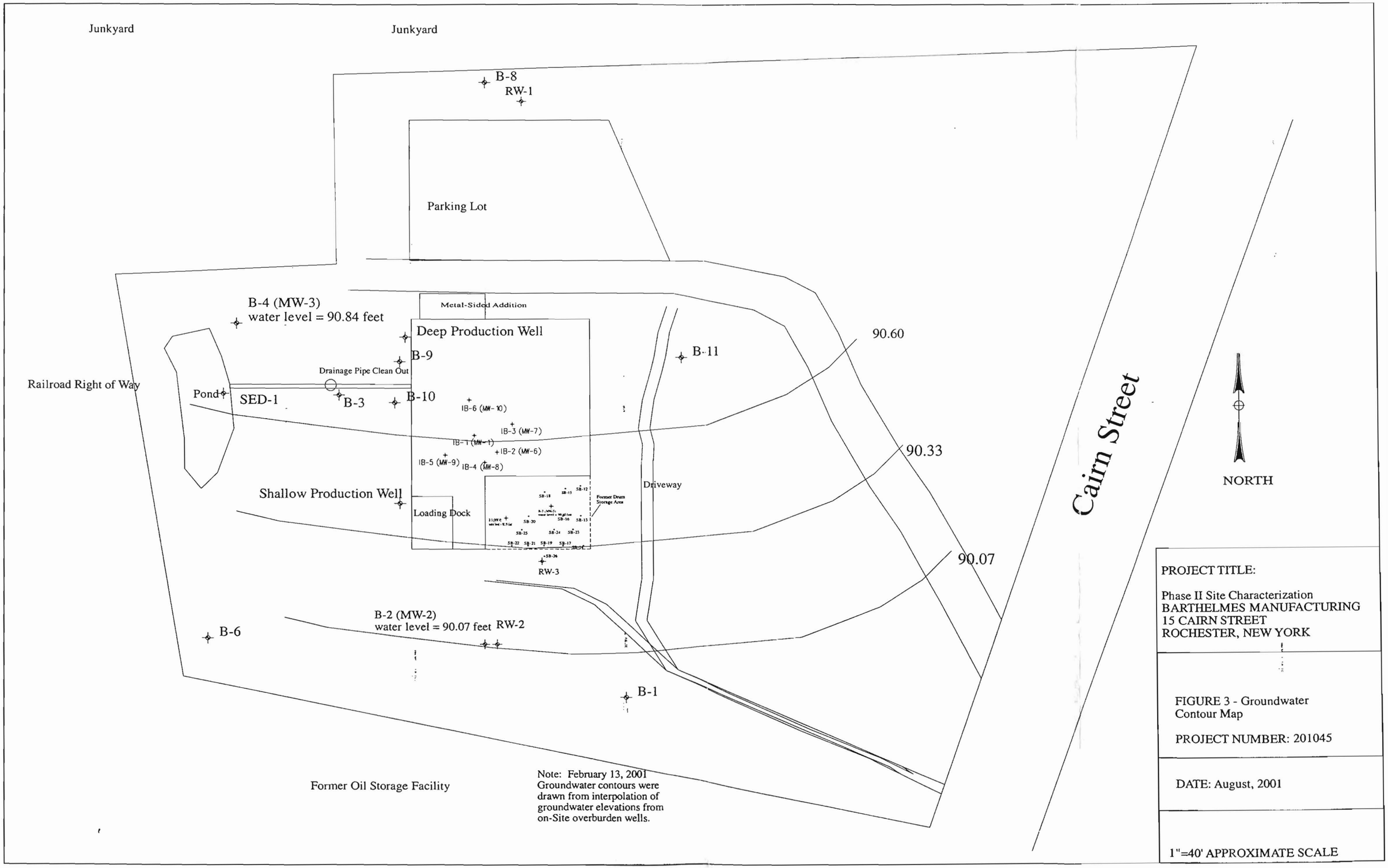
Phase II Site Characterization
BARTHELMES MANUFACTURING
15 CAIRN STREET
ROCHESTER, NEW YORK

FIGURE 1 - Soil Boring and Monitoring Well Locations

PROJECT NUMBER: 201045

DATE: FEBRUARY, 2001

1"=40' APPROXIMATE SCALE



Note: February 13, 2001 Groundwater contours were drawn from interpolation of groundwater elevations from on-Site overburden wells.

PROJECT TITLE:

Phase II Site Characterization
BARTHELMES MANUFACTURING
15 CAIRN STREET
ROCHESTER, NEW YORK

FIGURE 3 - Groundwater Contour Map

PROJECT NUMBER: 201045

DATE: August, 2001

1"=40' APPROXIMATE SCALE

Junkyard

Junkyard

B-8

RW-1
TCE = 19.6 ppb

Parking Lot

Metal-Sided Addition

B-4 (MW-3)

Deep Production Well
TCE = 3.55 ppb

B-9

B-11

Drainage Pipe Clean Out

Railroad Right of Way

Pond

SED-1

B-3

B-10

IB-6 (MW-10)
TCE = 223 ppb

IB-3 (MW-7)
TCE = 801 ppb

IB-1 (MW-1)
TCE = 8,140 ppb

IB-2 (MW-6)
TCE = 2,390 ppb

IB-5 (MW-9)
TCE = 4,400 ppb

B-4 (MW-8); TCE = 1,990 ppb

Shallow Production Well
TCE = 2,110 ppb

Former Drum Storage Area

Driveway

Loading Dock

B-7 (MW-5)
TCE = 15,600 ppb

RW-3
TCE = 30.6 ppb

RW-2
TCE = 31.2 ppb

B-6

B-2 (MW-2)
TCE = 257 ppb

B-1

Cairn Street

NORTH

Low Exeedance Wells
(above NYSDEC Groundwater
Standards, below 200 ppb of TCE)

Higher Exeedance Wells
(above NYSDEC Groundwater
Standards, above 200 ppb of TCE)

Former Oil Storage Facility

PROJECT TITLE:

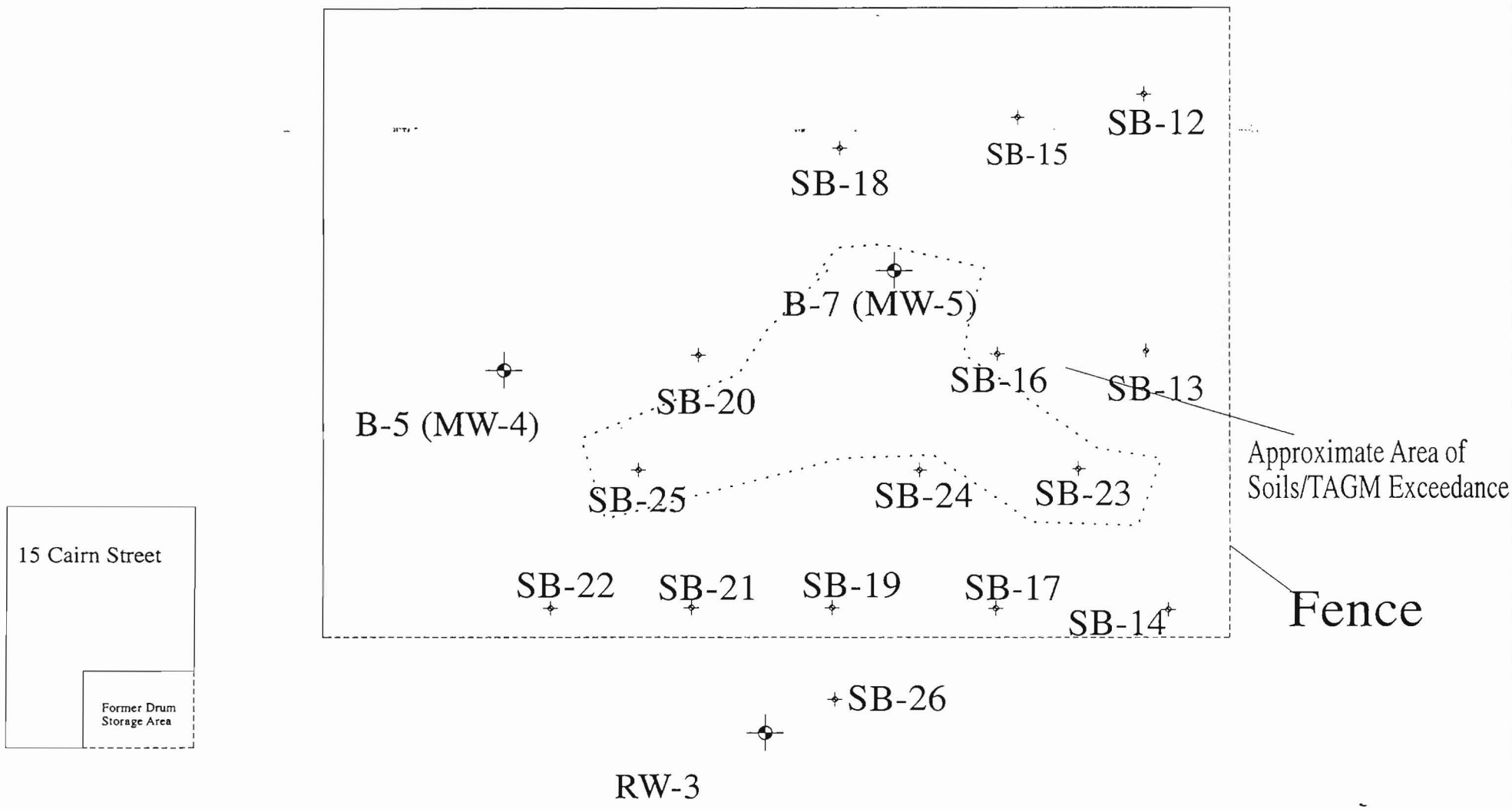
Phase II Site Characterization
BARTHELMES MANUFACTURING
15 CAIRN STREET
ROCHESTER, NEW YORK

FIGURE 4 - Groundwater Exceedances

PROJECT NUMBER: 201045

DATE: August, 2001

1"=40' APPROXIMATE SCALE



NORTH

FIGURE 2 - Former Drum Storage Area
Soil Boring Locations
BARTHELMES MANUFACTURING
15 CAIRN STREET

DATE: June, 2001

PROJECT NO. 201045

DRAWN BY: TMS

Scale Approximately 1"=20'

SITE CHARACTERIZATION REPORT

BARTHELMES MANUFACTURING COMPANY, INC.
15 CAIRN STREET
CITY OF ROCHESTER, NEW YORK
BCP SITE NO. C828122
INDEX B8-0607-02-01

Prepared For:

Barthelmes Manufacturing Company, Inc.
15 Cairn Street
Rochester, New York 14611

Prepared By:

Leader Professional Services, Inc.
271 Marsh Road, Suite 2
Pittsford, NY 14534

October 2006

555.001

Table of Contents

Table of Contents

Figures

Appendices

Tables

1.0 Introduction

This site characterization report discusses the investigation activities completed at the Barthelmes Manufacturing Company, Incorporated ("Barthelmes") property located at 15 Cairn Street, Rochester, in Monroe County (see Figure 1). Barthelmes completed the site characterization activities in partial fulfillment of their Brownfield Cleanup Agreement with the New York State Department of Environmental Conservation ("NYSDEC"). The Barthelmes property is also known by its Brownfield Cleanup Program ("BCP") Site Index Number V00517-8

2.0 Objectives

The objectives of the site characterization were designed to provide the following:

- Historical background for property;
- Establish the physical setting for the property;
- Summarize previous investigations;
- Identify sources of contamination and the nature of the contamination;
- Extent of contamination and potential receptors to the contaminated media;
- Prepare a qualitative risk assessment for those receptors; and
- Provide a list of potential remedial solutions.

The work involved to achieve these objectives was completed following the procedures in the NYSDEC approved project Work Plan dated February 2003.

3.0 Historical Background

3.1 Site History

The Barthelmes property has been used for commercial or industrial purposes since at least 1900. Based on a review of Sanborn fire insurance maps, Platt maps, and aerial photographs, the site has changed little since approximately 1911 when the first fire insurance maps were prepared for the area. In 1911, the property was used by the American Fruit Products Company ("AFPC") and their canning factory and vinegar works. At this time the site had two buildings, a foundation for a three-story building under construction, a vinegar tank farm, and a reservoir. One of the two former AFPC buildings is used currently by Barthelmes (see Figure 2).

In 1921 Barthelmes began operating from the southern-most AFPC building and started removing the northern-most building, the unfinished building foundation, and the vinegar tank farm (see Figures 3). Figure 4 shows a 2006 aerial photograph of the site area and shows that little has changed since 1935. Barthelmes originally manufactured aluminum products, but now is in the sheet metal fabrication business.

Neighboring properties have also been used for industrial purposes since at least 1911 when the T.H. Symington Company operated on the property to the east. As early as 1935, Pfaudler Company, Pennsylvania Glass Sand Company (Consolidated Feldspar Corporation), and General Railway Signal Company were also established in the area. Railroads were also present on the east and west sides of the site and rail spurs entered the property from the north and paralleled the west side of the Barthelmes building.

In the early 1980s a fire engulfed the shipping department of the building and storage yard, both areas are located on the south side of the building. The fire department responded and put out the fire. The fire investigation found that water used to put out the fire also entered the Trichloroethylene ("TCE") vapor degreaser tank and displaced the TCE onto the building floor, floor drains and soil. As a result, the fire and water used to extinguish the fire influenced the migration of contaminants in the subsurface more than the typical migration mechanisms in the unsaturated and saturated zones of the environment.

3.2 Previous Investigations

In 2004 Barthelmes entered into the New York State BCP. In February 2003, Barthelmes' consultant at the time prepared a work plan for the characterization of the site, which supplemented a Phase II Environmental Site Assessment completed in October 2001. Subsequent to the October 2001 report, the consultant also collected and analyzed samples until 2005 as part of their completion of a Site Characterization Study. Those laboratory results are discussed with the Leader's Site Characterization results.

3.2.1 Phase II Findings

The Phase II investigation included the completion of soil borings and the installation of monitoring wells, sampling the storm water swale sediment, and discharges from the sewer. A copy of the consultant's Phase II Environmental Site Assessment – Site Characterization is provided as Appendix A. The analytical results are shown with results collected by Leader on Tables 1 and 5. Figures 5 and 6 also summarize the results.

3.2.1.1 Volatile Organic Compounds

In general, the results show that TCE and its daughter products (1,2-Dichloroethene and Vinyl Chloride) are the primary volatile organic compounds ("VOCs") present in the subsurface. Acetone, p-Isopropyltolene, Methylene Chloride, Tetrachloroethene, Trimethylbenzene and Xylene were also found, but at lower concentrations.

3.2.1.2 Semi-volatile Organic Compounds

The semi-volatile organic compounds ("SVOCs") found are those often associated with petroleum products or combustion and these include: Napthalene, Acenapthalene, Fluorene, Fluoranthene, Anthracene, Phenanthrene, Benzo (a) anthracene, Chrysene,

Pyrene, Benzo (b) fluorathene, Benzo (k) fluorathene, Benzo (g,h,i) perylene, Benzo (a) pyrene, Dibenzo (a,h) anthracene, and Indeno (1,2,3-cd) pyrene. The SVOCs were primarily found in the soil at boring B-7 within the fenced in area at the southeast corner of the building. This fenced yard area is referred to as a former drum storage area by LaBella Associates.

3.2.1.3 Metals

Metals found at elevated concentrations during the previous consultant's investigation included Barium, Cadmium, Chromium, Lead, and Silver in a sample collected at soil boring B-7, and Chromium in a sample of the storm water swale sediment. The sample was also tested using a TCLP extraction. This testing found that the Chromium was not leachable; the extract containing less than 0.05 micrograms per Liter ("ppm") of Chromium.

LaBella also collected one sample from the groundwater in a sump within the building's basement and from the wastewater leaving the plant. Both of these samples found TCE, and cis-1,2-Dichloroethene, a daughter product of TCE, was also found in the sump water sample.

3.2.1.4 Groundwater Flow

The monitoring wells installed by the previous consultant's to determine the groundwater quality and to estimate the direction of groundwater flow are shown on Figure 7. Monitoring wells identified as "MW" were installed into the overburden using direct push sampling tools and were terminated at a point of refusal, which range in depth from 15 to 19.5 feet below the ground surface. Monitoring wells identified as "RW" are overburden-bedrock inter face wells, which range in depth from 30 to 37 feet below the ground surface. The RW monitoring wells found bedrock at a depth ranging from 23 to 26 feet below the ground surface. Interface monitoring wells have screens which begin at a depth ranging from 21 to 27 feet below the ground surface and terminate at a depth ranging from 30 to 37 feet below the ground surface.

LaBella also prepared a groundwater flow drawing for the site showing the groundwater flow direction as north to south in the overburden.

4.0 Physical Setting

The property is located in the City of Rochester within Monroe County. The general area is in a highly industrialized portion of the city. Fire Insurance maps of the area show that the site and the surroundings were used for industrial purposes since at least 1911.

The topography of the site area is shown on Figure 8 and depicts the site as being at a lower elevation compared to the surrounding properties to the east and south. Although not shown on the scale of the topographic map, the site is slightly lower than the neighboring property to the north. This location makes the site a receptor of storm water

runoff from the street, access roads and the neighboring properties. On the west side of the property, the site has a storm water swale, which was created by the expansion of the property to the north. The property owner north of Barthelmes filled in their portion of the drainage swale, which cut off the site's only storm water conveyance and created an area of standing water at various times during the year. On the west side of the swale there is an unused railroad spur, which separates the site from the neighboring Pfaudler property.

In addition to being at a lower elevation compared to the neighboring properties, the site is also bounded by railroad spurs, which accesses the former General Railway Signal property to the northeast and the Pfaudler Company to the west. In the early 1900s, the site had its own railroad spur that paralleled the west side of the plant building. In addition, and as shown on Figure 9, the vacant property to the south was once used as a tank farm.

Additional significant physical feature in the site area includes the New York State Barge Canal located west of the site. The canal was excavated into the bedrock and the bedrock remains exposed on the canal's sidewalls. The canal could be a local discharge point for groundwater flow. Borings logs prepared by LaBella show the bedrock is approximately 23 to 26 feet below the ground surface. Above the bedrock the overburden is reported by LaBella as consisting of sand with some intervals of clay, silt and gravel. Borings completed inside the plant experienced different sampling conditions. The Geoprobe sampling tools were stopped at a depth ranging from 16 to 18 feet below the ground surface. LaBella identified this as the top of bedrock during sampling. Based on information from other sampling locations it is likely that this was actually the limit of the sampling equipment since other on-site borings found sands and gravel at this depth.

5.0 Site Characterization Field Activities

As a part of entering the BCP, Barthelmes prepared a work plan for additional site characterization activities. These activities included:

- Installation and sampling of three additional bedrock monitoring wells (RW-4, RW-5, and RW-6);
- Completion of a total sampling of all on-site monitoring wells;
- Sampling of the storm water swale sediment;
- Sampling the soil in the area beneath the paint room discharge vents;
- Delineation of sewer and process water discharge points from the plant; and
- Characterization and labeling the investigation derived waste.

5.1 Installation of Additional Overburden-Bedrock Interface Monitoring Wells

The previous consultant installed three overburden-bedrock interface monitoring wells at locations as shown on Figure 10. No boring logs were provided to Leader for these

monitoring wells, but based on the depth of the monitoring wells, the design may to be similar to that used in the previous three RW monitoring wells (see Table 1).

All of the RW monitoring wells use two-inch diameter PVC monitoring well risers and presumably PVC monitoring well screens. The monitoring wells were completed with flush mounted roadboxes. On August 17, 2006, each monitoring well was purged and sampled using a flow sampling pump. Prior to sampling, the purge water was monitored for pH, conductivity, total dissolved solids ("TDS"), oxidation reduction potential ("ORP") and turbidity. Once these parameters yielded consistent results (three consecutive measurement within 10% of each other over a 10 minute time span), the groundwater was collected for VOC analysis.

5.2 Monitoring Well Sampling

Leader completed a sampling of all of the site's monitoring wells on August 17, 2006. Each sample was collected using the following procedure:

- Water levels in each monitoring well were collected and referenced to the top of the monitoring well roadbox.
- Each monitoring well was checked by dipping the water column with a clear bailer to determine if there was a visible light or dense non-aqueous liquid present.
- Each monitoring well was purged using a low flow sampling pump using a dedicated sample tube. During purging the following chemical characteristics were measured: pH, conductivity, TDS, ORP and turbidity.
- When characteristics were stable (three measurements within 10% of each other over a 10 minute period), a sample was collected in a laboratory provided glass vial for VOCs analysis.
- Each sample was analyzed following NYSDOH Analytical Services Protocol ("ASP") method for VOCs.
- Trip blank, duplicates and matrix spike samples were also submitted for analysis.

During the monitoring well sampling, Leader also collected rising head data from two monitoring wells to calculate an estimated hydraulic conductivity for the site. This testing was completed after sampling and using the low flow sample pump to drop the static water level down to one to two feet below the static water level. The rising water level was measured using a water level meter.

5.3 Sediment Sampling

On September 26, 2006, Leader collected four sediment samples from the storm water swale located on the west side of the site (see Figure 11). Sample locations were determined by located areas of visual contamination, the swale's former discharge point, at the discharge pipe from the plant, or from areas accessible to sampling. The samples

were collected by scooping the sediment directly into the sampling jar. Each sample was analyzed using ASP Methods for VOCs and RCRA Metals. Trip blank, duplicate, and matrix spike samples were also collected.

5.4 Paint Booth Discharge Soil Sampling

The previous consultant collected five samples from the soil below the paint booth discharge vents located on the south side of the building on May 4, 2005. Four test borings were completed using Geoprobe direct push sampling tools. A sample of the soil was collected from three of the test borings and two surface soil locations. Figure 12 shows the locations on the sampling and Appendix B provides copies of the boring logs. Samples were selected on measurements using an organic vapor analyzer with photoionization detector. Each sample was analyzed using USEPA Method 8260 for Target Compound Listed VOCs and Method 8021 for NYSDEC STARS listed VOCs, and USEPA Target Analyte Listed metals.

5.5 Delineation of Sewer and Process Water Discharges

Leader completed a delineation of sewer and process water discharges from the plant. Leader and Barthelmes staff completed the delineation by visual inspection of the drains, introducing flowing water, and dye tracing.

5.6 Investigation Derived Waste Characterization and Drum Labeling

Leader opened each of the drums of investigation-derived waste and collected samples of each matrix. A composite sample from each of the six drums of soil were collected using a hand auger through the drummed material. Each composite was placed into a five-gallon pail then mixed. A composite sample was then collected from the pail and analyzed for RCRA characteristics and TCLP VOCs, SVOCs, PCBs and RCRA Metals. A composite sample was collected from the purge water collected during Leader's sampling of the monitoring wells. The composite sample was collected using a dedicated bailer and dipping it into the drum. The liquid sample was analyzed for RCRA Characteristics, VOCs, TCLP listed SVOC, PCBs and RCRA Metals.

6.0 Findings

6.1 Installation of Additional Overburden-Bedrock Interface Monitoring Wells

LaBella completed at least two phases of monitoring wells installation. The later phase of monitoring well installation included the placement of 3 overburden-bedrock interface monitoring wells (monitoring wells RW-4, RW-5 and RW-6) to add data points to collect water level measurements and groundwater quality data. Figure 10 provides the location of the monitoring wells. Table 2 provides a list of the monitoring wells, ground surface elevations and water level elevations. It should be noted that monitoring well MW-3 could not be found for surveying or sampling.

The hydrogeology of the site appears to be typical of the Rochester area, stratified soils and a dense almost till-like unit that can separate the overburden into separate flow zones. In addition, the top of rock is often broken and has characteristics like the overburden. The interpretation of the site flow zones and directions are also complicated by the building space. Buildings and their infrastructure often interrupt groundwater flow by either intercepting flow or by impacting recharge.

Leader's interpretation of the direction of groundwater flow is shown in Figures 13 and 14. Figure 13 shows the elevations of the overburden flow zone and our interpretation of the direction of groundwater flow. Since monitoring well MW-3 appears to have been lost, the data is grouped to the center of the site and this appears to be driving the interpretation, which suggests groundwater may be flowing away from a groundwater mound that appears to be present beneath the plant.

The overburden-bedrock zone is as complicated as the overburden suggesting a trough or trench-like feature where groundwater is flowing to the northwest. This interpretation is based only on the fact that monitoring wells RW-2 and RW-3 have lowest groundwater elevations.

The groundwater also appears to have a downward flow component as suggested by the water level in the shallow production well, PW-S compared to the overburden-bedrock water level data. The design and construction of the production well is unknown, however, and this could impact our interpretation. What is known is the bottom of the shallow production well is at approximately 30.5 feet below the ground surface. This is similar to the bottom of the interface monitoring wells. The difference between the water levels in the interface (RW-3 at 76.82 ft.) and the shallow production well (water level at 72.02 ft.) suggests that the well is entirely in the bedrock zone and this supports our interpretation of a downward groundwater flow (see Figure 14).

6.2 Monitoring Well Sampling

The results for the monitoring well sampling completed by Leader on August 17, 2006 and by the previous consultant on February 14, 2001 and May 14, 2005 (monitoring wells RW-4, RW-5 and RW-6 only) are shown on Table 1. A copy of the laboratory data is provided as Appendix C. Each monitoring well, with the exception of monitoring well MW-3, was sampled twice for TCL VOCs. In addition to VOCs, the following monitoring wells were also analyzed for selected metals Methane, Ethane, Ethene, Chloride, Total Organic Carbon, and Sulfate: MW-5, RW-4, RW-5 and RW-6. This series of parameters are useful to determine if natural attenuation of VOCs is occurring and if there are any obstacles to bioremediation of the VOCs.

In general the VOCs found in the monitoring wells consist of aromatics, ketones, and chlorinated ethenes, but our interest is in TCE and its breakdown products because these are the most abundant and have the highest concentration. In the 2001 sampling, TCE was found in overburden monitoring wells at concentrations ranging from 225 ppb at

MW-10 to 15,600 ppb at MW-5. The sample from monitoring well MW-3 did not have TCE and the sample from monitoring well MW-2 had TCE at a concentration of 257 ppb. This distribution of TCE shows that there are elevated concentrations of TCE beneath the building and beneath the yard area.

In comparison, the 2001 and 2005 data for the interface monitoring wells shows TCE concentrations ranging from 5 ppb in monitoring well RW-4 to 1,500 ppb in monitoring well RW-6. Monitoring wells RW-1 and RW-2, did not have TCE in 2001.

In the bedrock wells, the shallow production well, PW-S, had TCE at a concentration of 2,110 ppb, and the nearby monitoring well MW-8, had TCE at a concentration of 1,990 ppb. In the deeper production well, PW-D, TCE was found at a concentration of 3.6 ppb.

The 2006 data from the site was similar to 2001. Six of the 10 monitoring well results showed a decrease in TCE concentration. In the overburden monitoring wells TCE was found to range in concentration from 11 ppb in monitoring well MW-10 to 9,800 ppb in monitoring well MW-5. Figure 15 and Figure 16 present the groundwater sample results.

Among the interface monitoring wells, the TCE concentrations did not show a tread when the 2001, 2005, and 2006 data was compared. The largest TCE concentration change occurred at monitoring well RW-6 where the TCE concentration dropped from 1,500 ppb in 2005 to 69 ppb in 2006.

There are two bedrock wells on the property that have been identified as a shallow production well and a deep production well. The shallow production well, PW-S, had a TCE concentration of 3,400 ppb in 2006, which was an increase from the 2001 concentration of 2,110 ppb. Other contaminants of concern found in PW-S include: 1,1-Dichloroethene found only in 2006 at a concentration of 3.9 ppb; cis 1,2-Dichloroethane found in 2001 at a concentration of 325 ppb and in 2006 at a concentration of 690 ppb; Trans 1,2-Dichloroethene which was found only in 2006 at a concentration of 40 ppb; Tetrachloroethene which was found only in 2006 at a concentration of 1.5 ppb; and 1,1,2-Trichloroethane which was found only in 2006 at a concentration of 0.77 ppb. The deeper production well, PW-D, sample did not contain TCE in 2006 and only 3.6 ppb in 2001.

The groundwater samples were also analyzed for selected metals in 2001 and 2005. In 2001 only the sample from monitoring well MW-5 was analyzed for RCRA metals. In this sample only Barium at a concentration of 0.281 ppm, Chromium at a concentration of 0.047 ppm, and Lead at a concentration of 0.065 ppm were found. In 2005 monitoring wells RW-4, RW-5 and RW-6 were analyzed for iron and manganese and the following was found:

- Iron was found at a concentration of 0.507 ppm at monitoring well RW-6 2.67 ppm at monitoring well RW-5, and 3.59 ppm at monitoring well RW-4.

- Managanese was found at a concentration of 0.106 ppm at monitoring well RW-5, 0.216 ppm at monitoring well RW-6, and 0.285 ppm at monitoring well RW-4.

Samples from monitoring wells RW-4, RW-5 and RW-6 were also analyzed for Methane, Ethane, and Ethene in 2005. These compounds are end products of the bioremediation of chlorinated VOCs and also indicators of the path of the bioremediation process. Only Methane was found in samples from RW-4 and RW-5. At monitoring well RW-4, Methane was found at a concentration of 1.4 ppm and at monitoring well RW-5, Methane was found at a concentration of 5.6 ppm. The presence of Methane is a positive indicator of the bioremediation process, but also a sign that the microbes are producing Methane instead of completely breaking down the chlorinated compounds to produce Ethane and Ethene.

Chloride, Total Organic Carbon, and Sulfate were also analyzed in 2005 on samples from monitoring wells RW-4, RW-5 and RW-6. Like Iron and Manganese, these parameters are indicators of how well bioremediation will proceed and what compounds are available that might compete with the VOCs in the bioremediation process. Chloride was found in each monitoring wells, RW-4, RW-5 and RW-6, at concentrations of 15.5, 219, and 6.2 ppm, respectively. Total Organic Carbon was only found in the sample from monitoring well RW-4 at a concentration of 6.5 ppm. Sulfate was found in each monitoring wells (RW-4, RW-5 and RW-6) at the following concentrations: RW-4 at a concentration of 15.6 ppm, at monitoring well RW-5 at a concentration of 121 ppm, and at monitoring well RW-6 at a concentration of 18.8 ppm. In general, the concentrations of these parameters were found to be conducive to a bioremediation process. It also shows some weakness, but this is to be expected in nature. But more importantly, these initial measurements are helpful to define the baseline conditions from which change can be monitored.

6.3 Sediment Sampling

Two sampling events were completed to collect and analyze sediment samples from the site's storm water swale. In 2000 one sample was collected from the storm water swale bottom at a location below a pipe outfall from the plant and the samples were analyzed for TCL and STARS Listed VOCs, STARs listed SVOCs and RCRA metals. In addition to these analyses, the sample was analyzed for Chromium following a TCLP extraction of the sample. In 2006 Leader collected four samples from around the storm water swale and had the samples analyzed for TCL and STARS Listed VOCs and RCRA Metals. The sample results are shown on Table 3 and the locations are shown on Figure 11.

The 2000 sample analysis did not find any VOCs or SVOCs, but did find several metals including: Arsenic at a concentration of 1.45 ppm; Barium at a concentration of 90.2 ppm; Cadmium at a concentration of 0.905 ppm; Chromium at a concentration of 151 ppm; and Lead at a concentration of 36.5 ppm. The result of the TCLP analysis showed that Chromium was not leachable.

Leader's 2006 samples showed that the following VOCs were found in the sediment: 1,4-Dichlorobenzene, Acetone, Dichlorodifluoromethane, Methylene Chloride, p-Cymene, and Toluene. 1,4-Dichlorobenzene and Dichlorodifluoromethane were found in each sample but at concentrations which were lower than the reporting limits. Methylene Chloride was found in every sample but also in the laboratory blanks and qualified as a laboratory contaminant. Acetone was found in each sample ranging in concentration from 22 ppb (below the reporting limit) in sample P-3 to 80 ppb in sample P-2. p-Cymene was found in 3 of 4 samples ranging in concentration from 5 ppb (below the reporting limit) in sample P-4 to 27 ppb in sample P-1. Toluene was found in each sample ranging in concentration from 5 ppb (below the reporting limit) to 250 ppb in sample P-2.

The only RCRA metals found in the sediment samples include: Barium, Chromium, and Lead. Barium was found in each sample at a concentration ranging from 11.9 ppm in sample P-3 to 61.9 ppm in sample P-2. Chromium was found in each sample, but qualified because spike sample recovery was not within quality control limits. Chromium concentrations ranged from 11.5 ppm in sample P-3 to 247 ppm in sample P-2.

6.4 Paint Booth Discharge Soil Sampling

Five samples were collected from the soil below the paint booth discharge vents on May 4, 2005. Each sample was analyzed for TCL and STARS listed VOCs, and TAL metals. The sample results are shown on Table 4 and sample locations are shown on Figure 12.

Two VOCs were found, Methylene Chloride and TCE. Methylene Chloride was found only in sample TB-1 at a depth of 2.8 to 4 feet below the ground surface at a concentration of 87.6 ppb. TCE was found in three of five samples ranging in concentration from 12.2 ppb in the sample from TB-2 at a depth of 0 to 1 feet below the ground surface, to 51.5 ppb in the sample from TB-4 at a depth of 1.6 to 2.3 feet below the ground surface.

Seventeen of the 23 TAL metals were found in the analysis of samples including the following: Aluminum, Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Potassium, Vanadium, and Zinc. Of these 17 metals only Barium, Chromium, and Zinc were found at concentrations, which are elevated compared to expected background concentrations.

Barium was found in two samples at elevated concentrations: surface soil sample SS-1 at a depth of 0 to 6 inches below the ground surface at a concentration of 577.0 ppm; and soil sample TB-2 at a depth of 0 to 1 foot below the ground surface at a concentration of 11,100 ppm. The expected Barium concentration is 300.0 ppm.

Chromium was found in all 5 samples at elevated concentrations ranging from 54.7 ppm, at surface soil sample SS-1 at a depth of 0 to 6 inches below the ground surface, to 273.0

ppm at SS-2 at a depth of 0 to 6 inches below the ground surface. The expected Chromium concentration is 10 ppm.

Zinc was found all 5 samples at elevated concentrations ranging from 50.0 ppm at surface soil sample SS-1, at a depth of 0 to 6 inches below the ground surface, to 486.0 ppm at TB-2 at a depth of 0 to 1 foot below the ground surface. The expected Zinc concentration is 20 ppm.

6.5 Delineation of Sewer and Process Water Discharges

Leader completed a delineation of sewer and process water discharges of the plant. The different discharge routes are shown on Figure 17.

There are three processes within the plant that have a discharge: rinse tanks, tumbler, and welding. The rinse tanks discharge into the Monroe County sewer system. If a tank failure or a pump failure occurred, this wastewater would flow into an overflow pipe and into a collection pit, located on the west side of the plant, which ultimately discharges into the storm water swale. The tumbler discharges to a collection pit, located on the west side of the plant, which ultimately discharges into the storm water swale. The welding operation cooling water discharges to a collection pit located on the northwest corner of the plant. Some of the cooling water is also received into the deep production well also located off the northwest corner of the plant. It is unclear if the connection between the welding cooling water and the deep production well is a piped connection or a leak in the well casing which could receive water from the pit.

The plant's two compressors and one chiller unit also have discharges, but this is condensate produced from the compression or cooling of air. There is one compressor and chiller located on the north side of the building and they discharge their condensate to a floor drain which is piped to a discharge located on the building's north side. The discharge pipe is buried in gravel, which surrounds a perforated pipe location on the building's north side and ultimately discharges to the collection pit located off the northwest corner of the building. The second compressor is located on the south side of the building and it discharges its condensate to the floor where it evaporates.

In addition to these process or equipment discharges, the plant has two floor drains, which occasionally receive fluids. One floor drain is located on the north side of the building and the other is located in the loading dock on the south side of the building. The floor drain located on the building's north side is a dry well; it does not have a piped discharge to a different location. The drain was dry when it was inspected. The second location is on the south side of the building within the truck well. The drain could receive runoff from the drive way or spills occurring at the loading dock. The drain is piped to a catch basin located on the west side of the plant. The catch basin lid is elevated above the adjacent ground surface and does not receive runoff. Any precipitation or fluids from the drain entering the basin is pumped to the storm water swale.

The plant's sanitary waste discharges are discharged to Monroe County's sewer system by a pipe exiting the northeast corner of the plant with one exception. Sanitary waste from a urinal located in the center of the building is discharged to a collection pit on the west side of the plant and then to the storm water swale. This discharge pipe also collects wastewater from the tumbler and a drinking water fountain.

Outside the plant there is a system of buried drains, pipes and collection pits that gather storm water and limited discharges from the plant. In addition to these systems there are two dry wells located on the south side of the plant within the fenced yard area. On the east side of the plant there are three interconnected collection pits which collect storm water and direct it to a perforated pipe drain on the north side of the plant.

On the north side of the plant the perforated pipe is buried in gravel where it collects runoff and condensate from a compressor and chiller. The perforated pipe directs its flow to a collection pit located on the northwest corner of the plant.

On the west side of the plant there is a pipe which collects storm water from the roof downspouts and directs the flow to collection pits on the west side of the building. Each of the collection pits and a catch basin direct their flows to the storm water swale. Also on the west side of the plant there is a deep production well. The deep production well was originally used for cooling water purposes, but this practice was stopped because of water hardness. However, the production well still receives cooling water from the welding processes as evidenced by the appearance of dye in the well after it was placed in the welding coolant water discharge. Dye also appeared in the adjacent collection pit. It is unknown if the dye appeared in the well because of a pipe connection or a leak in the casing. A shallow well was also used for cooling water purposes, but it is no longer used.

6.6 Investigation-Derived Waste Characterization and Drum Labeling

Leader opened each of the drums of investigation-derived waste and collecting samples of each matrix. A composite sample from each of the six drums of soil was collected using a hand auger to burrow through the drummed material. The results showed no leachable organic or metal contaminants, with the exception of Barium at a concentration of 1.46 milligrams per Liter or ppm. No hazardous waste characteristics were identified.

A composite sample was collected from the purge water collected during Leader's sampling of the monitoring wells. The composite sample was collected using a dedicated bailer and dipping it into the drum. This sample found only TCE at a concentration of 23.8 ppm. No other chemical contaminants or hazardous waste characteristics were identified.

7.0 Nature and Extent of Contamination

Contaminants found in both soil and groundwater indicate the primary contaminants found on the site involve selected VOCs and metals. SVOCs were also found but

primarily in the drum storage area and could be related to historic fill or the plant's use of petroleum-based cooling and lubricating fluids.

VOCs of interest involve chlorinated solvents and their breakdown or daughter products. TCE, PCE, cis and trans-1,2-Dichloroethene, Vinyl Chloride, 1,1,1-Trichloroethane, and 1,1-Dichloroethene are those compounds of primary interest because of their frequency of detection in soil and groundwater samples. Other compounds have been found, but their frequency of detection is low, 1 to 2 appearances, make them less of a focal point of the investigation. These compounds include: Acetone, Bromoform, Bromodichloromethane, Chloroform, Dibromochloromethane, 1,4-Dichlorobenzene, p-Cymene (also known as p-Isopropyltoluene), 1,1,2-Trichloro-1,2,2-Trifluoroethane, 1,1,2-Trichloroethane, Trimethylbenzene, Toluene, and Xylene. Although infrequently found Bromoform, Bromodichloromethane, Chloroform,and Dibromochloromethane may be from potable, chlorinated water entering the groundwater through the collection pits or the deep production well.

Metals of interest found in the soil and groundwater include: Barium, Cadmium, Chromium, Lead, Silver, and Zinc; but Chromium is of interest because it has been found in the soil within the drum storage area and also in the storm water swale sediment.

The distribution of these contaminants of interest on the site has three closely related focal points: the area beneath the plant, the former drum storage area and the storm water swale. The three are related because the storm water swale has the ability to receive discharges from the plant. The plant and drum storage area are related because of the paint booth discharge and probable past waste management practices. But most importantly is the past fire, which most likely caused a release of many products including TCE degreasing fluids in the shipping department located on the south side of the plant.

Based on the premise the fire was the probable cause for the release of the majority of the contaminants, the distribution of contaminants can be related to seepage through the floor and flow through the various drains and discharges in the plant. Normal groundwater flow and the past use of production wells are main contributors to the distribution of VOCs in the groundwater.

The appearance of TCE and its daughter products in monitoring well RW-1 and RW-6, however, are not well explained by the conceptual model of groundwater flow, which assumes there is downward migration of contaminants from the source areas and groundwater flow is the primary mechanism for contaminant migration. Figures 13 and 14 show the groundwater elevations for overburden monitoring wells and interface monitoring wells. The overburden water table elevations indicate an outward flow from the drum storage area to the west, north and south. Among the interface monitoring wells, groundwater flow appears to flow from the south toward the northwest. Assuming this flow configuration, it would seem unlikely that TCE would be found in monitoring wells RW-5 and RW-6, and less likely in monitoring well RW-1.

Theoretical explanations for these observations might include:

- A second source of contamination. In the vicinity of the site there are multiple potential sources of contamination including those facilities currently operating and those with former operations. Those potential other sources include the former tank farm located to the south, the former Symington Gould Plant located to the southeast, the former Consolidated Feldspar Corporation (Pennsylvania Glass Sand Company) and the current automobile salvage yard, located north of the Barthelmes property, and use of railroad spurs on and off-site.

- The downward migration of TCE is greater than expected in the overburden and plays a larger role in the migration of TCE. Also, the overburden and interface groundwater zones are distinct as evidenced by the difference in hydraulic head. Monitoring well MW-2 has a groundwater elevation of +80.43 feet (local datum) compared to the adjacent monitoring well RW-2, which has a groundwater elevation of +76.89 feet. This is a difference of 3.54 feet and would promote the downward migration of the TCE. Additional evidence to downward flow component is the difference between the groundwater elevations in the interface monitoring wells and the shallow production well PW-S. These differences range from 9.9-feet to 11.34-feet. Since borehole logs are not available for some of the interface monitoring wells and the shallow production well, we have made the assumption that the well construction of the interface monitoring wells is consistent with the others on the site and the construction of the shallow production well is only within the upper bedrock zone.

8.0 Potential Receptors and Qualitative Risk Assessment

8.1 Potential Receptors

The contamination on the site was found in three places: surface soils, subsurface soils, and groundwater. The potential receptors to this contamination include plant workers, off-site workers, and contractors who might be on-site to make repairs or maintenance to the exterior of the building. Ecological resources and exposures are not considered because the storm water swale only receives storm water and does not discharge to another surface water, and there are no threatened or endangered species located in the site area.

8.1.1 Surface Soil

Potential receptors to surface soil contamination, 0 to 2 feet below the ground surface, include only workers on-site and workers visiting the site making repairs to the building or underground utilities. Off-site workers are not at risk because of the distance between the source and the off-site worker's location.

Exposures to contaminated surface soil can result from wind blown dust, dust created from vehicle traffic (forklift trucks), or excavating work within the drum storage area. The remaining property is grass or asphalt paved with the exception of the storm water swale area. The sediments with swale area are also a potential source, but this area is heavily covered with vegetation, the sediments are often wet and not susceptible to wind blown erosion, and the area is not used or maintained. As a result these conditions the sediments are not a potential source for exposure.

Comparing the surface soil data to Part 375 risk-based soil quality values for industrial properties (see Table 5), there is a potential risk from the following contaminants: TCE, SVOCs, Barium, Chromium, Lead, and Zinc. Fortunately, these surface soils are confined to the drum storage area with a limited means for migration. The drum storage area is surrounded with trees, grass and pavement. Runoff is likely to enter the drum storage area instead of flowing away from the area.

8.1.2 Subsurface Soil

Potential receptors to subsurface soil contamination, at a depth greater than 2 feet below the ground surface, include only workers on-site who excavate or repair underground utilities. Exposures would include dermal contact, inhalation of vapors and dust, and ingestion. The yard area of the site is the only confirmed area where contaminants have been found to exceed risk-based concentrations and soil clean up recommendations. There is also a potential for areas beneath the plant to be contaminated. Table 6 shows the results of subsurface soil sample analysis. Comparing the sample results to Part 375 Restricted Use for Industrial Property and Groundwater Protection shows that SVOCs in the sample from location B-7, at a depth of 12-14 feet below the ground surface (and also below the water table), exceed only soil guidelines for the protection of groundwater. The sample from location SB-25, at a depth of 4 to 6 feet below the ground surface, exceeds the TCE concentration for soil and the protection of ground water. Since the site is known to be contaminated, any subsurface work must include a health and safety plan and awareness training, which should reduce these risks; as a result, the risk of exposure is not significant.

8.1.3 Groundwater

Potential receptors to contaminated groundwater impacts are limited to only those exposed to potential vapors from contaminated groundwater. There is no threat from groundwater contamination, as a drinking water source, because it is not used for potable purposes on-site or in the site area. Vapors from contaminated groundwater could potentially impact workers in the plant or workers excavating to repair utilities. It is unlikely that utility workers would be endangered from vapors, because of the depth to groundwater outside the building area and dilution of the potential vapors with outdoor air. For plant workers, the Johnson-Ettinger soil vapor model was used to predict indoor air vapor concentrations. The Johnson-Ettinger vapor concentration ranges from 107.1 to 112.1 micrograms per cubic meter ("µg/M^3"). Model inputs for the Barthelmes building

included a groundwater TCE concentration of 535 ppb (from LaBella's sampling of the basement sump) and a complete slab on grade building foundation. The slab on grade construction provides a worst-case in-door air concentration for the plant. OSHA's permissable exposure level for TCE is 100 ppm or approximately 537 milligrams per cubic meter. It is doubtful that the indoor air will be impacted at this level based on Johnson-Ettinger model, but air sampling should resolve this issue.

9.0 Potential Remedial Actions

Remedial actions that could be potentially used on the site need to address sediment, soil, and groundwater contaminants. Storm water swale sediments are contaminated with metals, primarily Chromium. Soils are contaminated with metals and TCE. The groundwater is contaminated with TCE.

The primary contaminant in the storm water swale is Chromium and sampling to date does not suggest that the Chromium is leachable. The storm water swale sediments are confined to the storm water swale and in the swale's current condition, the sediments do not represent a potential for contaminant migration off-site or a potential exposure problem for on or off-site workers. Remedial actions for the swale sediments might include:

1. Excavation
2. No action, institutional controls to limit access to the area

The surface soil is contaminated with metals, SVOCs and TCE, whereas the subsurface soil is contaminated with TCE. Remedial solutions for the soils include:

1. Excavation
2. Capping
3. Bioremediation for organics only
4. No action, institutional controls to limit access to the area

The subsurface soil is contaminated with SVOCs and TCE, whereas the subsurface soil is contaminated with TCE. Remedial solutions for the soil include:

1. Excavation
2. Capping
3. Bioremediation
4. No action, institutional controls to limit access to the area

The groundwater is contaminated with TCE and remedial techniques for the groundwater include:

1. Air sparging and soil vapor extraction
2. Bioremediation
3. Groundwater pumping and treatment

4. No action, institutional controls to limit access to the groundwater

9.1 Storm Water Swale

To remove or reduce the concentration of Chromium in the storm water swale area will require excavation of the sediment and disposal of the material as a non-hazardous waste. However, since Chromium in the sediment was found during the Phase II not to be leachable, it is not a hazardous waste. The best solution is to manage the storm water swale area by restricting access. Fencing around the storm water swale is a reasonable solution.

9.2 Surface Soil

The contaminated surface soils are located only in the fenced yard area of the site, which is the only portion of the site with restricted access. Although surrounding fence provides some protection to workers coming onto the site and working potential hazardous conditions, it is not a long term solution. The soils in this area are contaminated with metals, SVOCs and VOCs. The presence of this mix of contaminants limits some of the remedial solutions, because few methods are appropriate for all three contaminant types.

Potential long term solutions for this the fenced yard area include capping and removal. Capping provides the restricted access and controls dust, which could potentially be a risk to on site workers when weather conditions make the surface dry and dusty. Capping however, does not provide a benefit by removing or reducing the waste mass, but does limit the downward migration of potentially leachable contaminants. Capping not only will benefit surface soil but also subsurface soil, which are deeper than can reasonably be removed by excavation.

Excavation is a method to reduce the mass of the contaminants within the fenced yard area and can also be used during the same event to remove deeper contaminated soil. Excavation does have limitations and these include cost and not being able to remove all of the contaminated soil. If all of the contaminated soil can not be removed, because the excavation may jeopardize the building stability or it involves pumping groundwater, then removal may not benefit project more than capping.

9.3 Subsurface Soil

The contaminated subsurface soils are located in the fenced yard area and beneath the plant building. The contaminants present include SVOCs and VOCs. By the nature of their location in the subsoil, many of these contaminants are confined and workers are not directly exposed to their hazards. The contaminants present in the yard area are still susceptible to migration from runoff infiltrating into the soil. Soil located beneath the plant and in the yard area could potentially be impacted by water table flucuations, which mobilize some of the contaminants.

Potential longer-term solutions to the subsoil contamination issues include two basic techniques: soil vapor extraction ("SVE") and bioremediation. For soil located beneath the fenced yard, area excavation is also an option. SVE is primarily a technique used on VOCs and can have a small effect on some SVOCs, but enhanced with heating elements or steam injection, the effect on SVOCs can be improved. Enhancements like heating elements or steam injection also increase the cost of the technique.

Bioremediation has been successful on both SVOCs and VOCs. The technique is also flexible and can be manipulated by injecting microbes and nutrients (proprietary chemicals, oxygen, propane, and water).

Excavation can also be used on the subsurface soil in the fenced yard area and is only limited by the location of the contaminants, building, and water table. Bioremediation can also play a part in the excavation plan by providing a conduit to introduce microbes or nutrients, and also treating the excavation waste on the site to lower its toxicity.

No action is another feasible method of managing the subsurface soil, since it is unlikely that the contamination will be a hazard to others. The soil contamination could potentially be a continued source of groundwater contamination, but this will be the case in whatever remedial action is used or at least until the soil is either cleaned up or meets the NYSDEC's criteria for no further action. Unless the soil is remediated to an unrestricted use criteria, the property will remain zoned for industrial or commercial usage in affect putting a use restriction on the property.

9.4 Groundwater

The groundwater is contaminated with TCE and other VOCs and remedial techniques suitable for these contaminants include:

1. Air sparging and SVE
2. Bioremediation
3. Groundwater pumping and treatment
4. No action, institutional controls to limit access to the groundwater

Air sparing and SVE relies on the ability of the contaminant to be air stripped from the groundwater into a vapor or gas phase, then to collected in a vapor extraction system. The technique is often successful to reduce large contaminant concentrations, but as the concentrations lessen, the efficiency of the technique is also lowered. At times the system must be manipulated by cycling (turning the system on and off) to increase the efficiency in the closing stages of the project. Site geology also influences the efficiency of the system. With some contaminants, there is often as a secondary benefit of the system operation as a result of bioremediation being enhanced. Since the contaminants of concern are not known to be successfully remediated under aerobic conditions (conditions where oxygen is increased in the groundwater), the sparging unit would require modification so it could be used to introduce propane or another hydrocarbon gas to enhance the bioremediation properties.

Bioremediation can also be used to treat the soil and groundwater. The presence of TCE breakdown products in the groundwater indicated some intrinsic bioremediation is occurring without enhancements. The addition of nutrient enhancement will make the bioremediation process work more rapidly and more efficiently; however, like other mechanical remediation systems, the bioremediation process will have to be monitored and managed. In some cases as the bioremediation process degrades the contaminants to different chemicals, the nutrients used may require modification to ensure complete breakdown of the chemicals.

Groundwater pumping and treatment can be used to control the migration of contaminants and clean up the groundwater zone. The technique is independent of the contaminant type until the groundwater requires treatment then the treatment system would be designed accordingly. Ideally, the untreated groundwater could be pumped to the Monroe County Division of Pure Waters sewer system. If on-site treatment is required, chemical, physical and biological treatment can be utilized. Under certain circumstances the treatment groundwater can be injected back into the groundwater to facilitate contaminant removal or enhance bioremediation.

10.0 Conclusions

The Barthelmes property and the surrounding properties have been used for commercial and industrial purposes since at least 1911, when the property first operated as the American Fruit Products Company. In 1921 Barthelmes began its operation from the property manufacturing aluminum products. In the 1980s, a fire at the Barthelmes plant destroyed portions of the facility including a TCE degreaser. It is suspected that the fire and the water used to extinguish the fire spread contaminants through out the building and the former drum storage area.

The site characterization found that the soil, storm water swale sediment and ground water have been impacted by contaminants. TCE and its breakdown products are the primary contaminants of concern, but SVOCs and metals have also been found at concentrations that are greater than NYSDEC's soil clean values and TOGs groundwater quality criteria.

TCE has been found in the surface soil and subsurface soil in beneath the building and inside the former drum storage area. TCE contaminated groundwater has been in both the overburden and interface monitoring well samples. The extent of groundwater contamination based on groundwater samples and the direction of groundwater flow, appears to extend from the center of the building to near the southern most property line. TCE was also found on the north side of the property, but this appearance may be due to off-site sources of contamination.

SVOCs have been found only in the surface soil, subsurface soil and storm water swale sediments. The appearance of SVOCs could be from the historic fill or the use of petroleum-based lubricants in during manufacturing process.

Metals found during sampling have been found in the surface soil, subsurface soil, and storm water swale sediment. Chromium is the primary metal of concern, although Barium and Zinc have also been found at elevated concentrations. Chromium has been found in the surface soil and swale sediment. Barium and Zinc have been confined to the surface soil in the fenced yard area.

To address the contamination, multiple solutions will probably be used because not every technique is usable in soil as it is in groundwater. Similarly, the diversity of the contamination also requires different remedial methods to be employed. Based on a preliminary review of remedial options and risks associated with the contamination present, it appears the following remedial actions may be appropriate:

Surface and subsurface soil in the fenced yard area can be successfully addressed by capping. This approach will reduce direct contact and inhalation risks to workers and reduce the migration of contaminants caused by storm water runoff and infiltration. To cap the area, limited excavation will be useful to remove stained soil and sloping the ground surface to assist with runoff.

Subsurface soil beneath the plant is effectively capped and is not a hazard to workers. To reduce the mass of contaminants in the soil, vapor extraction methods could be utilized in high concentration areas, but it is likely that the technique will have only limited success because of the relatively low VOC concentrations present. Depending on soil moisture, bioremediation may be a better solution and can be applied to address the groundwater contamination present simultaneously.

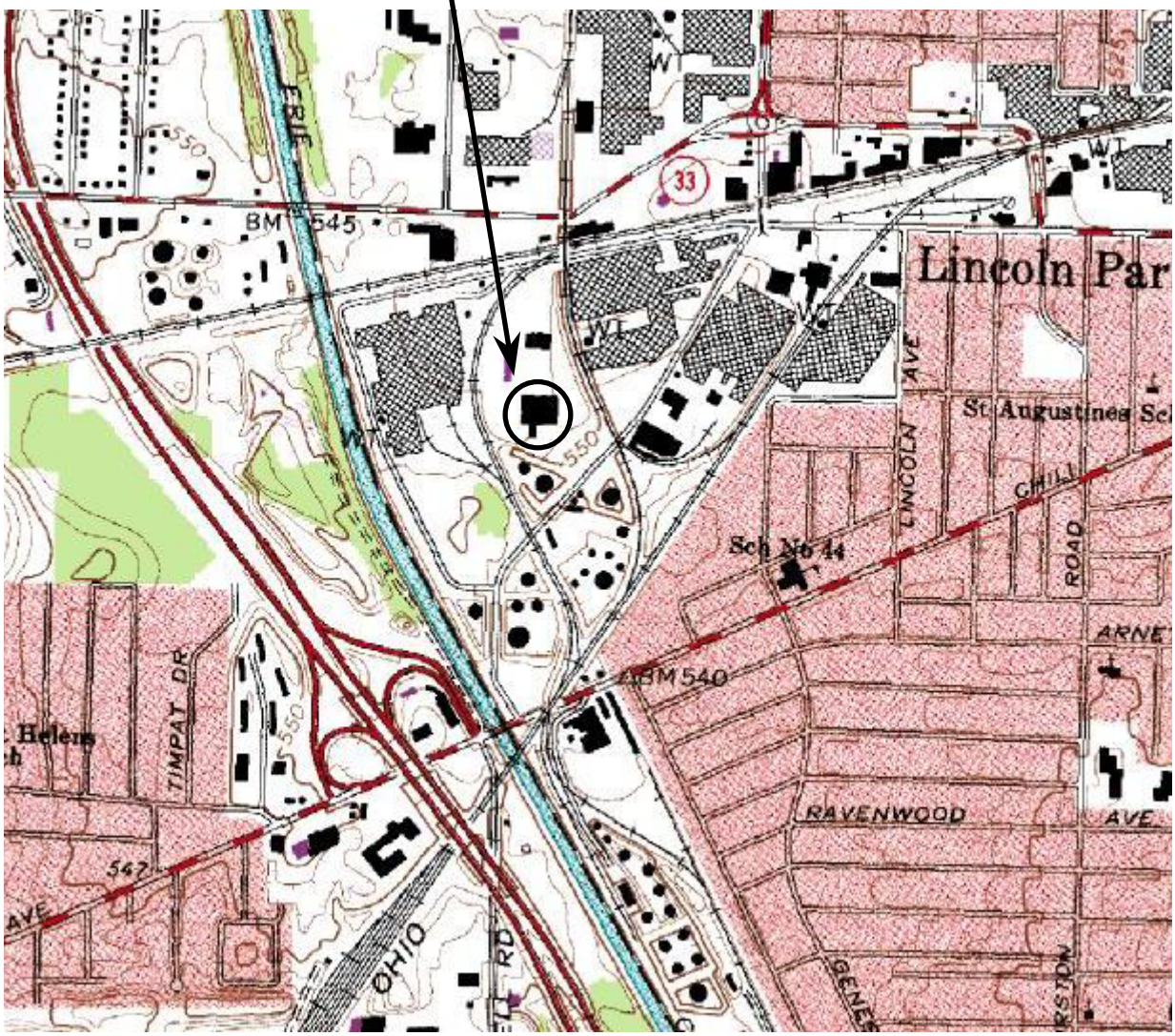
Storm water swale sediments have been impacted by VOCs and Chromium. Although the Chromium is at an elevated concentration, it does not leach under TCLP conditions so its threat as a groundwater contaminant is small. Since the storm water swale's standing water is a creation of the neighboring property owner, it has no value as an ecological resource, the only reason to address it would be to remove the potential hazard Chromium represents. This risk is also every small because the area is lush with vegetation, often wet, and not visited by workers. Further restricting access would be an appropriate response to the level of contamination present.

Groundwater contamination is present in both the overburden and interface groundwater zones of the property. The groundwater is contaminated with TCE and its breakdown products. The presence of breakdown products is significant because it indicates the presence of intrinsic bioremediation processes. As a result, the contamination may be best remediated using bioremediation techniques. Since contaminants like 1,2-Dichloroethane, Vinyl Chloride, Methane, and Sulfate are present, there appears to be a limited resources available to fully dechlorinate TCE. As a result, Methane and Sulfate are being formed over the consumption of 1,2-Dichloroethane and Vinyl Chloride. Additional nutrient resources are needed by the microbes to completely breakdown the contaminants and these can be supplied by a variety of commercial products.

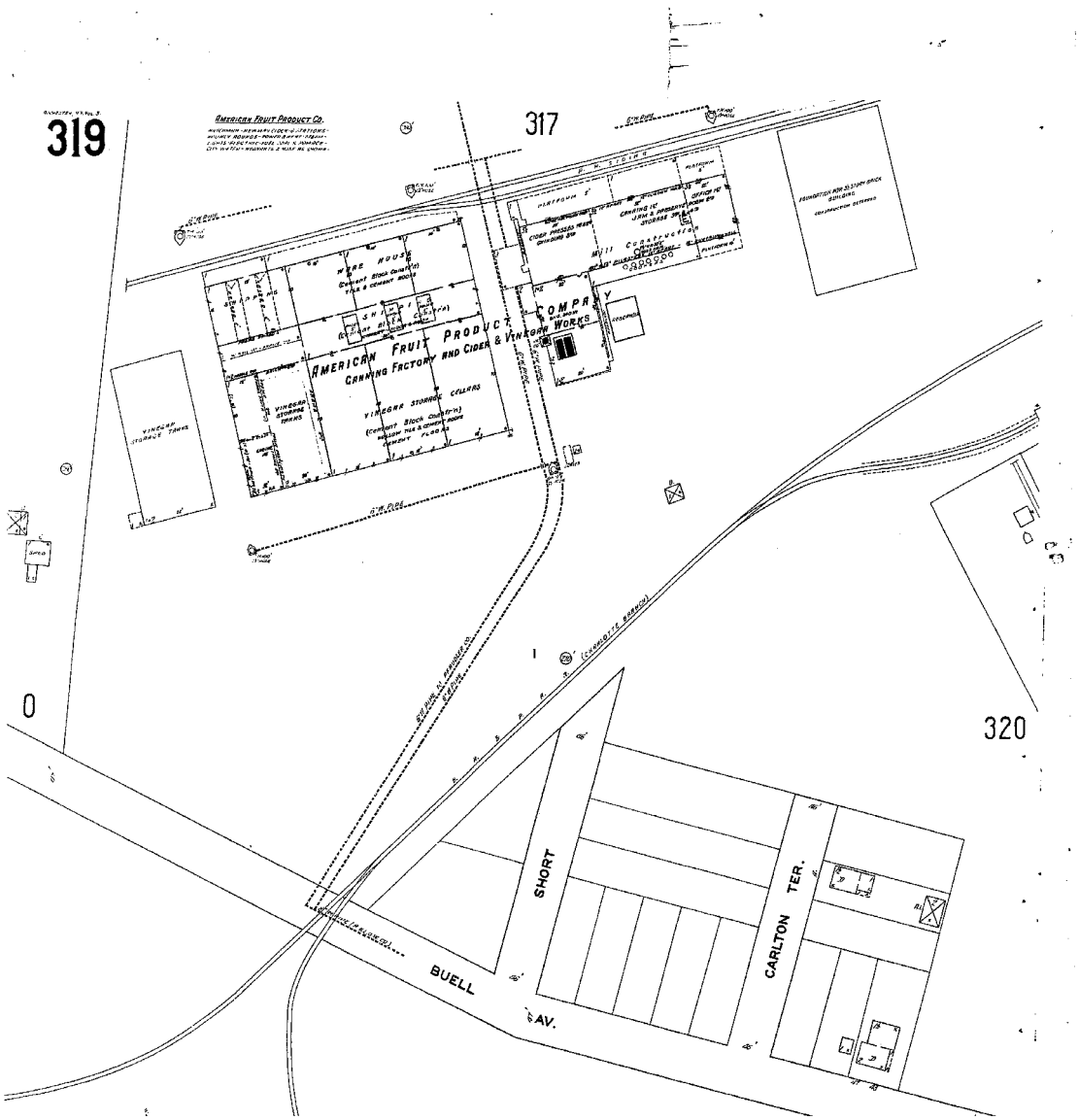
FIGURES

N

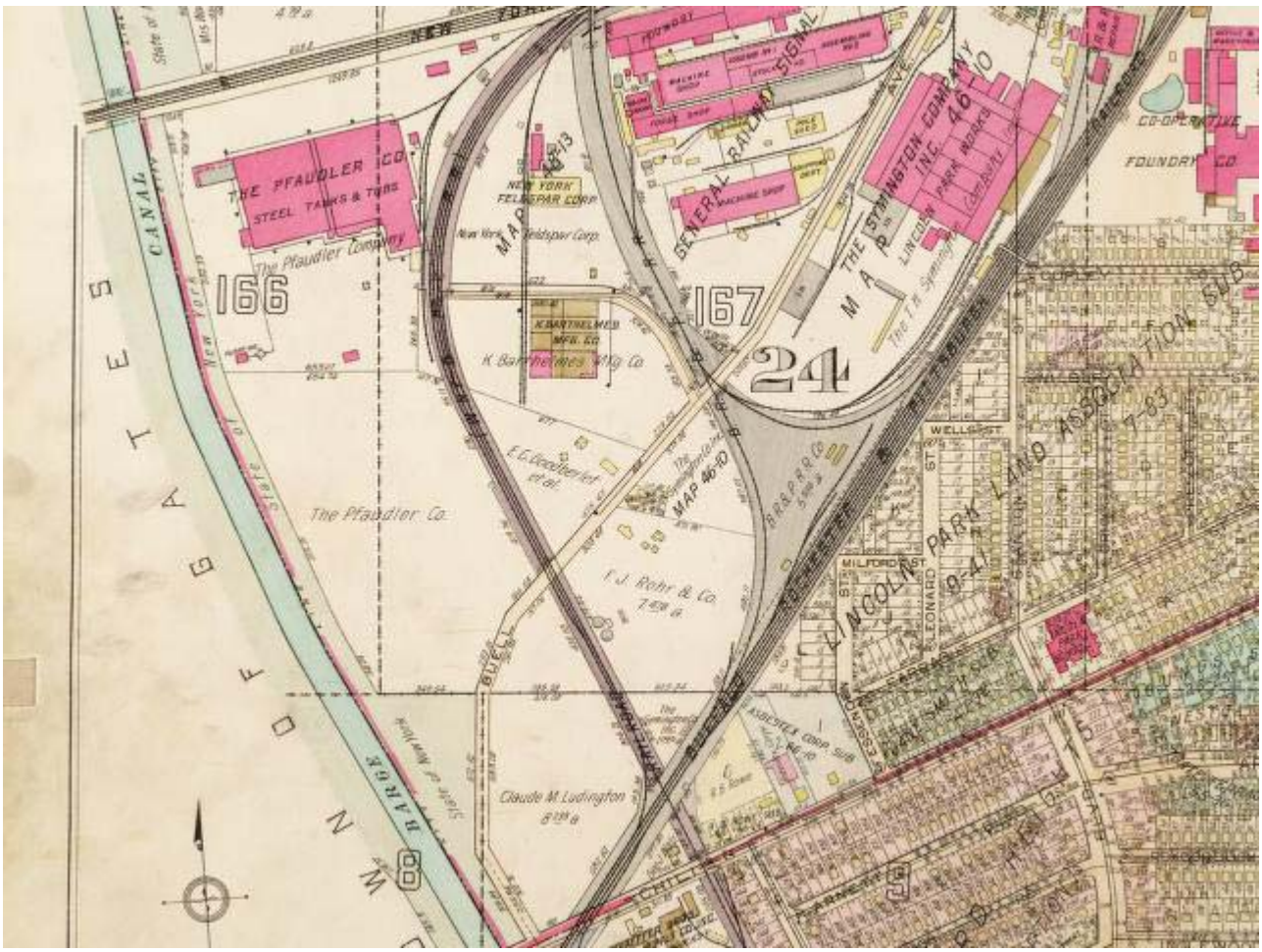
Site Location



Title: Site Location Map 15 Cairn Street, Rochester, New York	LEADER Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 11/06 Scale Unknown	Drawn PVS Checked MPR File Name Site Map	Figure 1
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				



Title: 1911 Site and Vicinity Map 15 Cairn Street, Rochester, New York	Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 11/06 Scale Unknown	Drawn PVS Checked MPR File Name Site Map	Figure 2
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				



Title: 1935 Site and Vicinity Map
15 Cairn Street, Rochester, New York

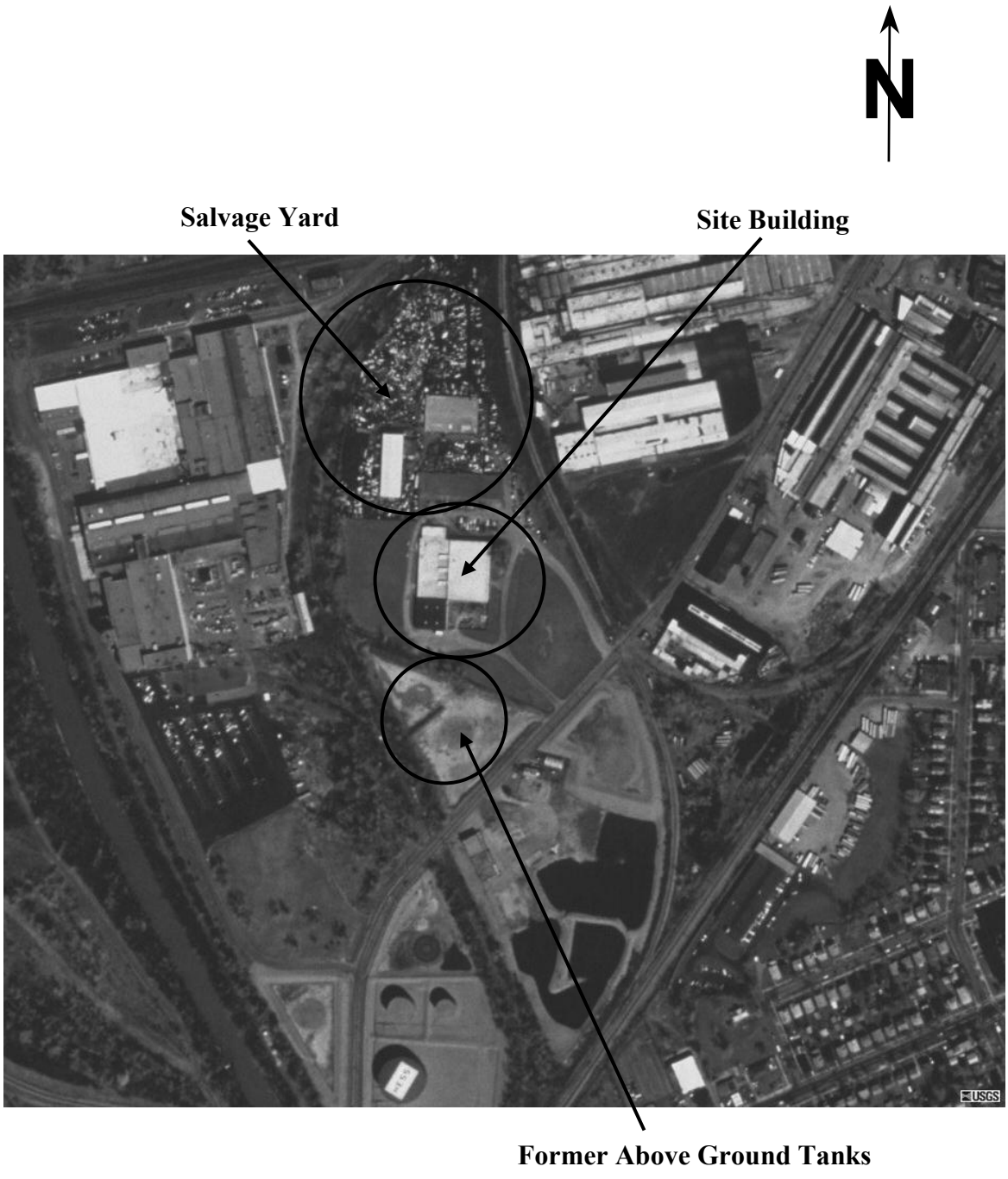
Prepared For: Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

LEADER
Leader Professional Services
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
Fax (585) 248-2834

Project: 555.001
Date: 11/06
Scale: Unknown

Drawn: PVS
Checked: MPR
File Name: Site Map

Figure: 3



Title: 2004 Aerial Photograph of Site
15 Cairn Street, Rochester, New York

Prepared For: Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

LEADER
Leader Professional Services
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
Fax (585) 248-2834

Project: 555.001
Date: 11/06
Scale: Unknown

Drawn: PVS
Checked: MPR
File Name: 2004

Figure: 4

B-3 (8-12 ft.
PCE = 106 ppb
SVOC = ND

B-4 (8-12 ft.)
VOC = ND
SVOC = ND

B-10 (8-12 ft.)
VOC = ND

g Lot

IB-1 (12-14ft.)
VOC = ND
SVOC = ND

Sediment at Outfall
VOC = ND
SVOC = ND
Chromium = 151 ppm
TCLP Chromium = <5 ppm

Pond

Drain Pipe

	TB-1 2.8-4 ft.	TB-2 0 – 1 ft.	TB-4 1.6-2.3 ft.	SS-1 0-.5 ft.	SS-2 0-.5 ft.
MeCl	87.6	ND	ND	ND	ND ppb
TCE	47.3	12.2	51.5	ND	ND ppb
Barium	82.1	11,100	68.8	557	244 ppm
Chrome	101	68.8	61.1	54.7	273 ppm
Zinc	265	486	83.7	50	98.4 ppm

SB-15 (4-6 ft.)
TCE = 397 ppb

IB-2 (5-7 ft.)
1,3,5-TMB = 267 ppb
1,2,4-TMB = 327 ppb
P-Isopropyltoluene = 257 ppb

SB-13 6-8 ft.	SB-16 6-8 ft.	SB 17 0-2 ft.	SB-23 0-2 ft.
TCE = 45.1	49.1	ND	2,450 ppb

B-5
TCE = 2.98 ppm

B-7 (0-4 ft)
TCE = 10.3 ppm
SVOC = 89 ppm
Barium = 464 ppm
Cadmium = 56.9 ppm
Chromium = 299 ppm
Lead = 366 ppm
Silver = 6.59 ppm

B-7 (12-14 ft.)
TCE =13.5 ppb
SVOC = 28.6 ppm

SB-25 (4-6 ft.)
TCE = 889 ppb

Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
MeCl = Methylene Chloride
TMB = Trimethylbenzene
VOC = Volatile Organic Compounds
SVOC = Semivolatile Organic Compounds
TCLP = Toxicity Characteristic Leaching Procedure

Title Summary of LaBella Soil Sample Results
Barthelmes Manufacturing
Rochester, NY

Prepared For Barthelmes Manufacturing
15 Cairn Street
Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project 555.001

Date 11/06

Drawn By PVS

Checked By MPR

File Name

Figure 5

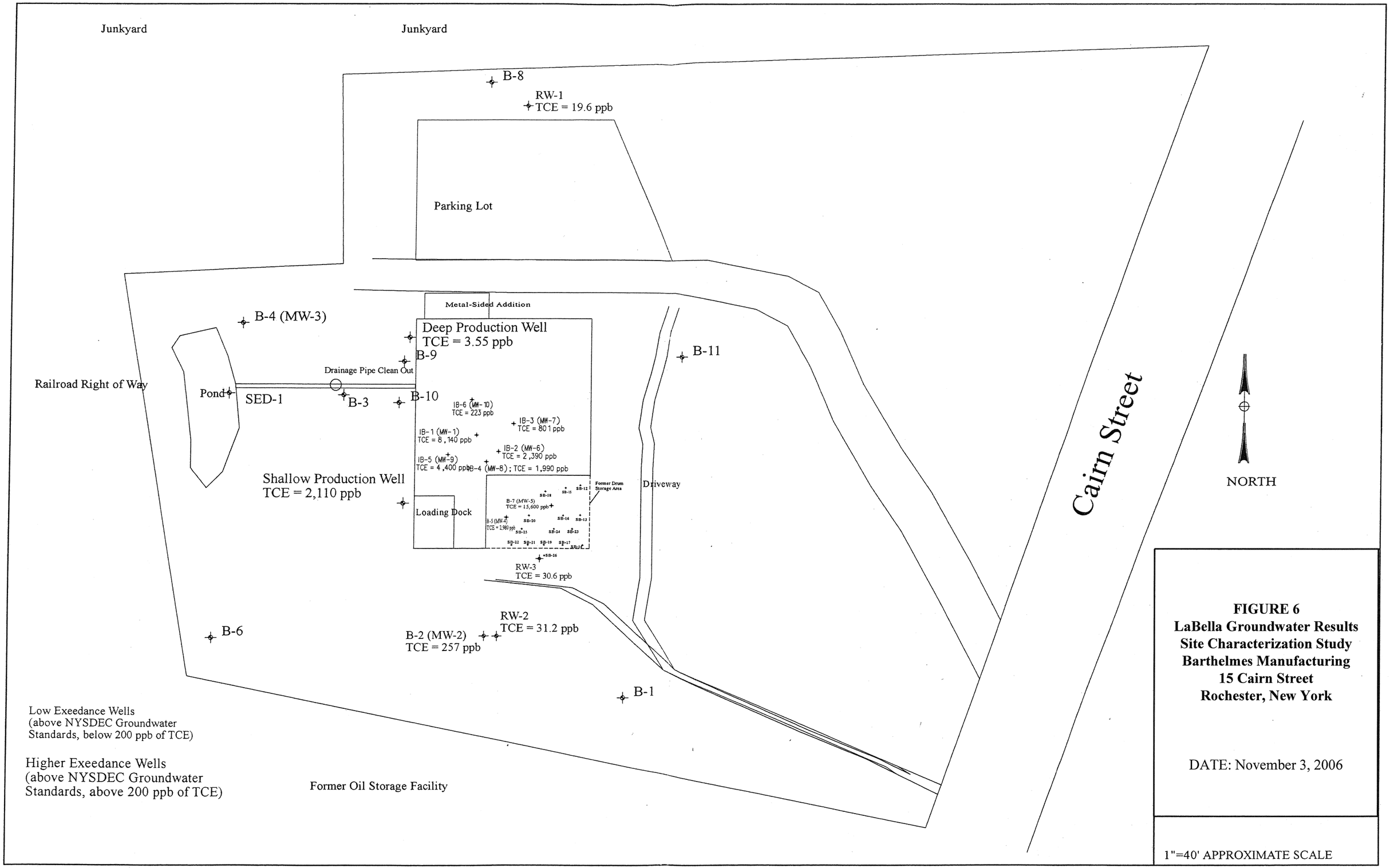
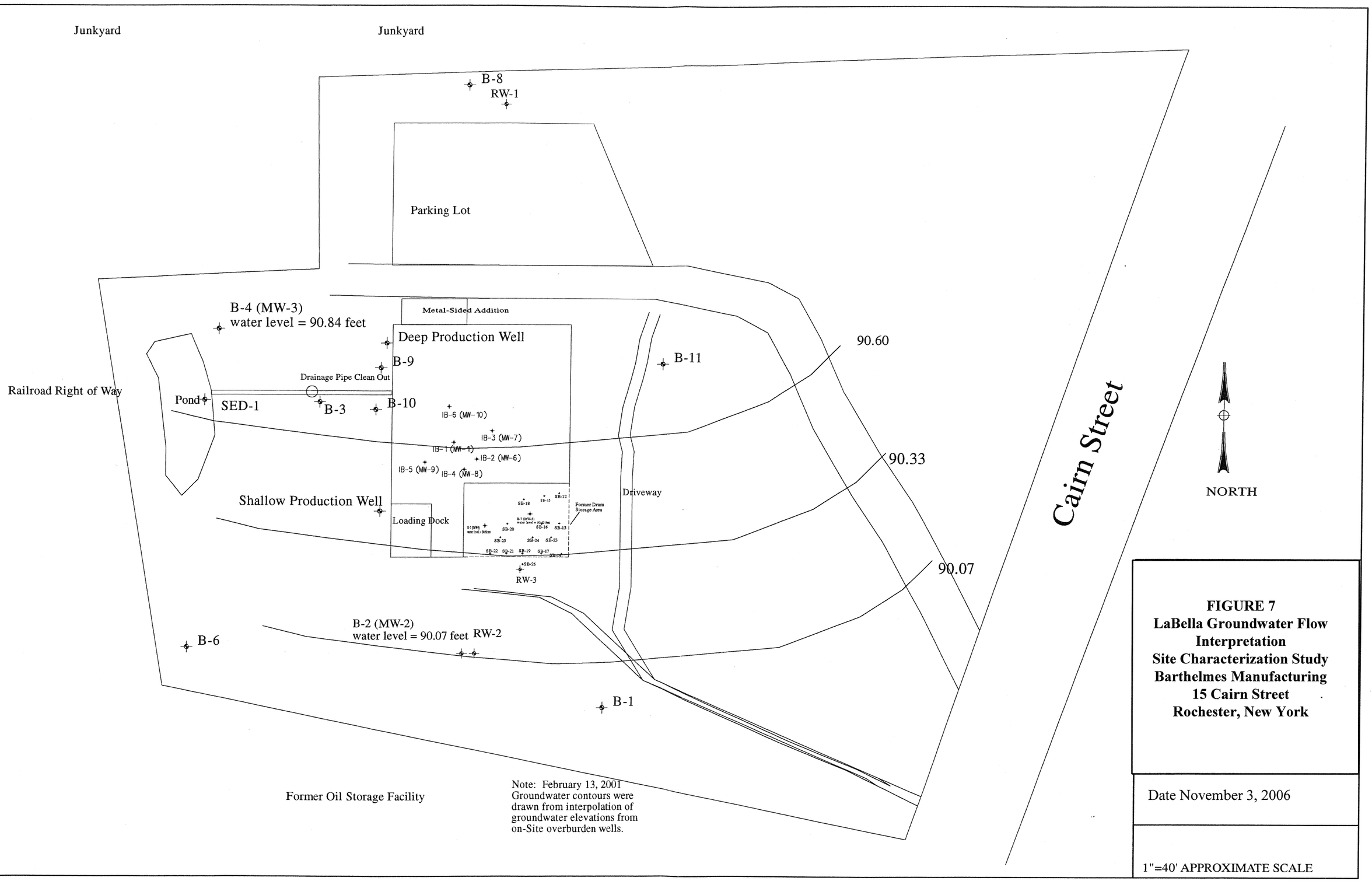


FIGURE 6
LaBella Groundwater Results
Site Characterization Study
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

DATE: November 3, 2006

1"=40' APPROXIMATE SCALE



Note: February 13, 2001
Groundwater contours were drawn from interpolation of groundwater elevations from on-Site overburden wells.

FIGURE 7
LaBella Groundwater Flow Interpretation
Site Characterization Study
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

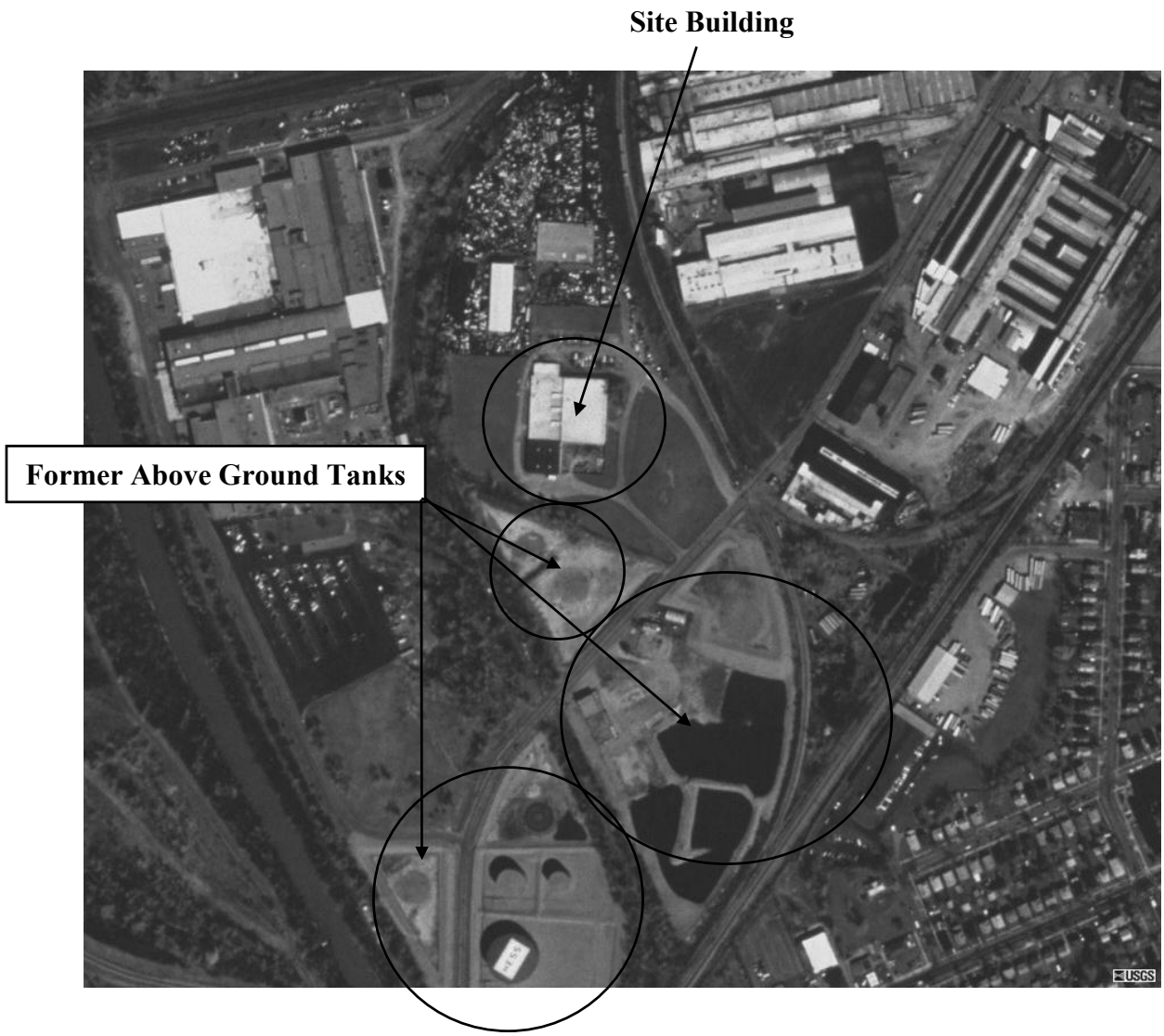
Date November 3, 2006

1"=40' APPROXIMATE SCALE

Title:	Site Topography 15 Cairn Street, Rochester, New York
Prepared For:	Barthelmes Manufacturing 15 Cairn Street Rochester, New York

LEADER
Leader Professional Services
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
Fax (585) 248-2834

Project	555.001
Date	11/06
Scale	Unknown
Drawn	PVS
Checked	MPR
File Name	Site Map
Figure	8



Title: Former Tank Farm Locations
15 Cairn Street, Rochester, New York

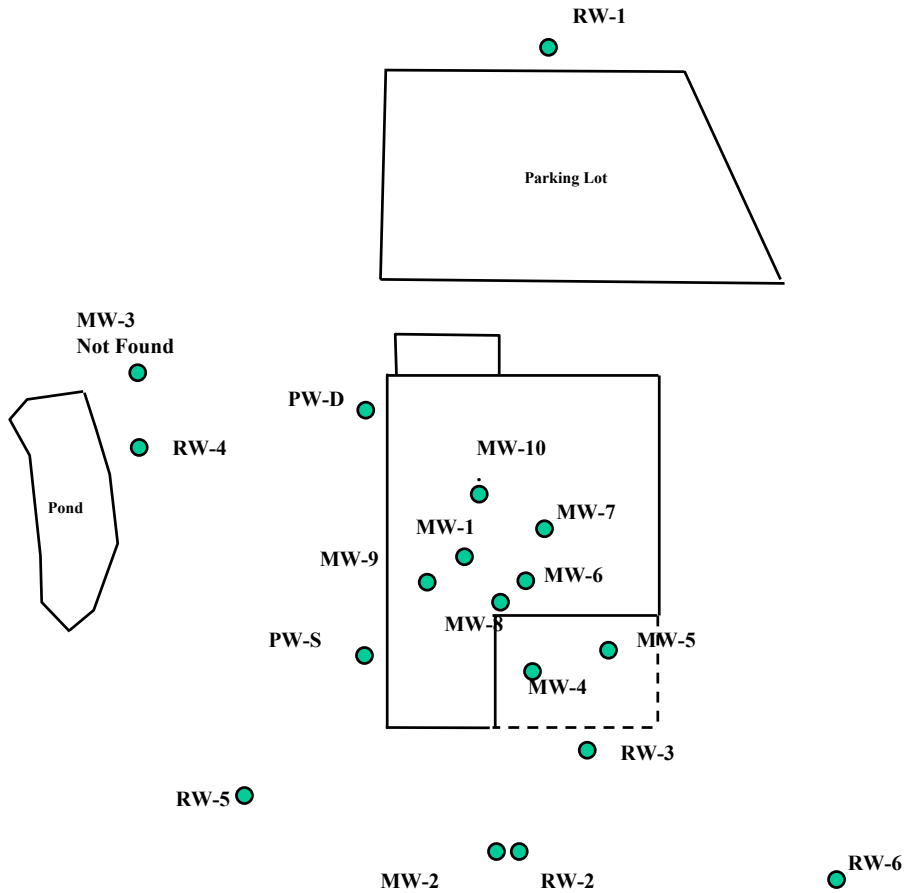
Prepared For: Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

LEADER
Leader Professional Services
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
Fax (585) 248-2834

Project 555.001
Date 11/06
Scale Unknown

Drawn PVS
Checked MPR
File Name Site Map

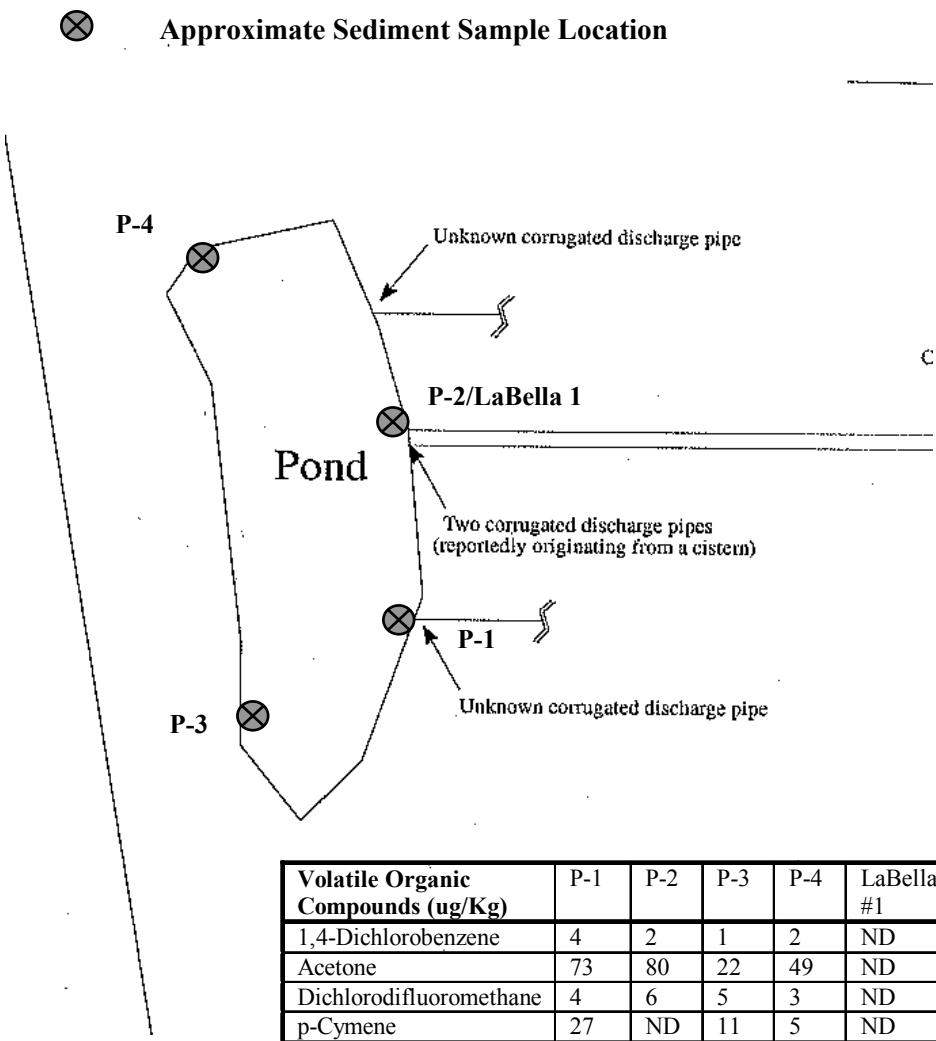
Figure 9



Title	Monitoring Well Locations Barthelmes Manufacturing Rochester, NY
Prepared For	Barthelmes Manufacturing 15 Cairn Street Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	555.001
Date	09/06
Scale	NTS
Drawn	PVS
Checked	MPR
File Name	Site Plan
Figure	10



Volatile Organic Compounds (ug/Kg)	P-1	P-2	P-3	P-4	LaBella #1
1,4-Dichlorobenzene	4	2	1	2	ND
Acetone	73	80	22	49	ND
Dichlorodifluoromethane	4	6	5	3	ND
p-Cymene	27	ND	11	5	ND
Toluene	130	250	8	5	ND
Metals (mg/Kg)					
Arsenic	ND	ND	ND	ND	1.45
Barium	32.4	61.9	11.9	46.9	90.2
Cadmium	ND	ND	ND	ND	0.905
Chromium	29.4	247	11.5	35.4	151
Lead	ND	38.1	ND	ND	36.5

Title: Storm Water Basin Sample Locations
15 Cairn Street, Rochester, New York

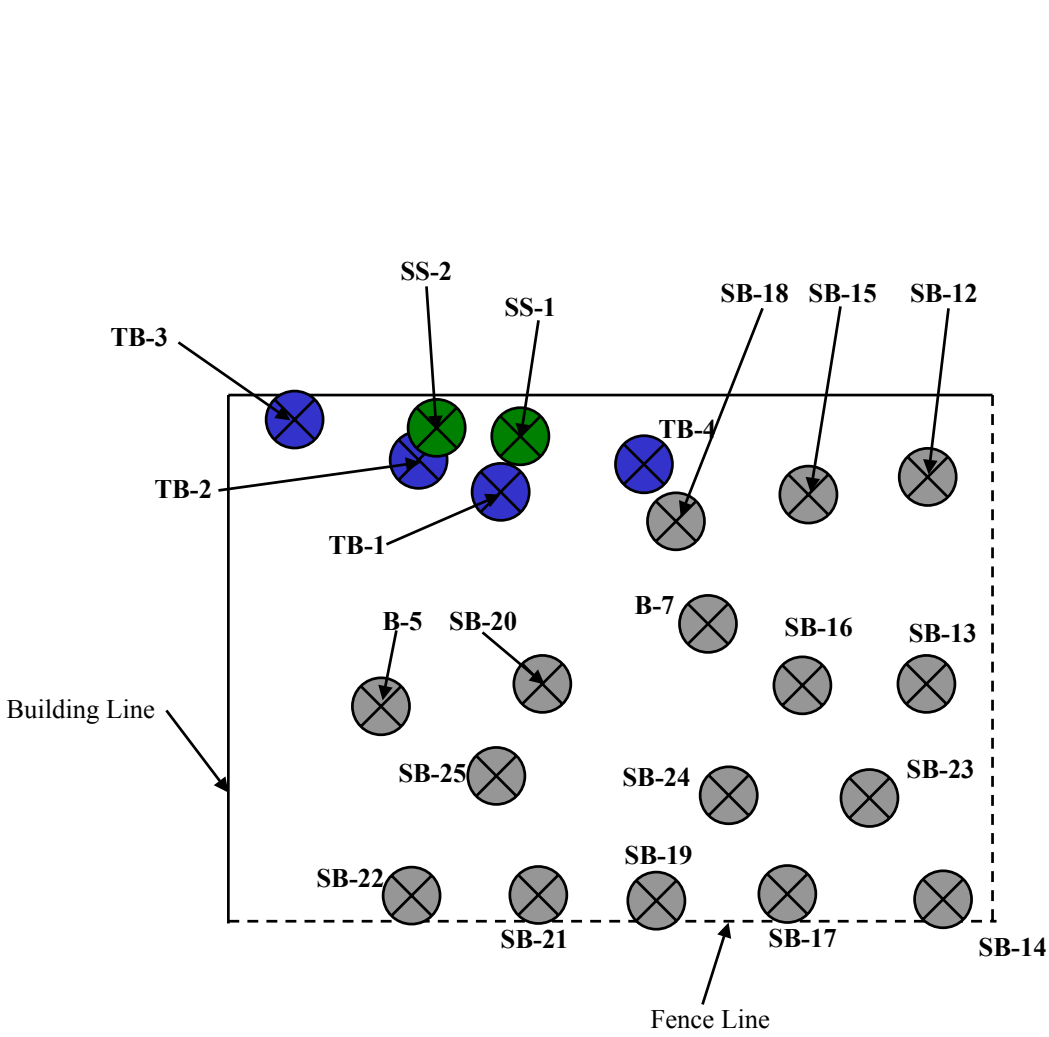
Prepared For: Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

LEADER
Leader Professional Services
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
Fax (585) 248-2834

Project 555.001
Date 11/06
Scale Unknown

Drawn PVS
Checked MPR
File Name Site Map

Figure 11

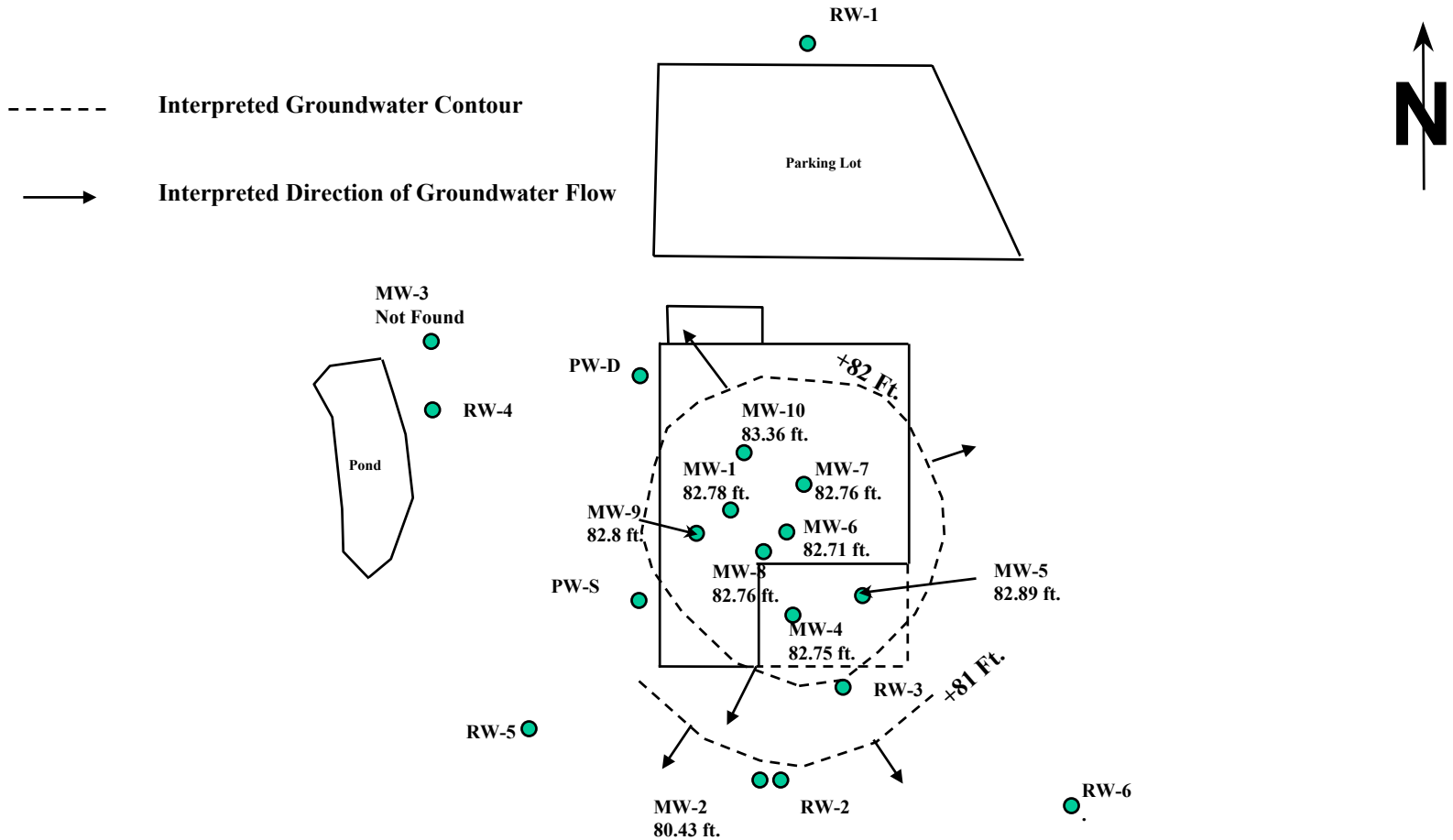


Surface Soil Sample Location

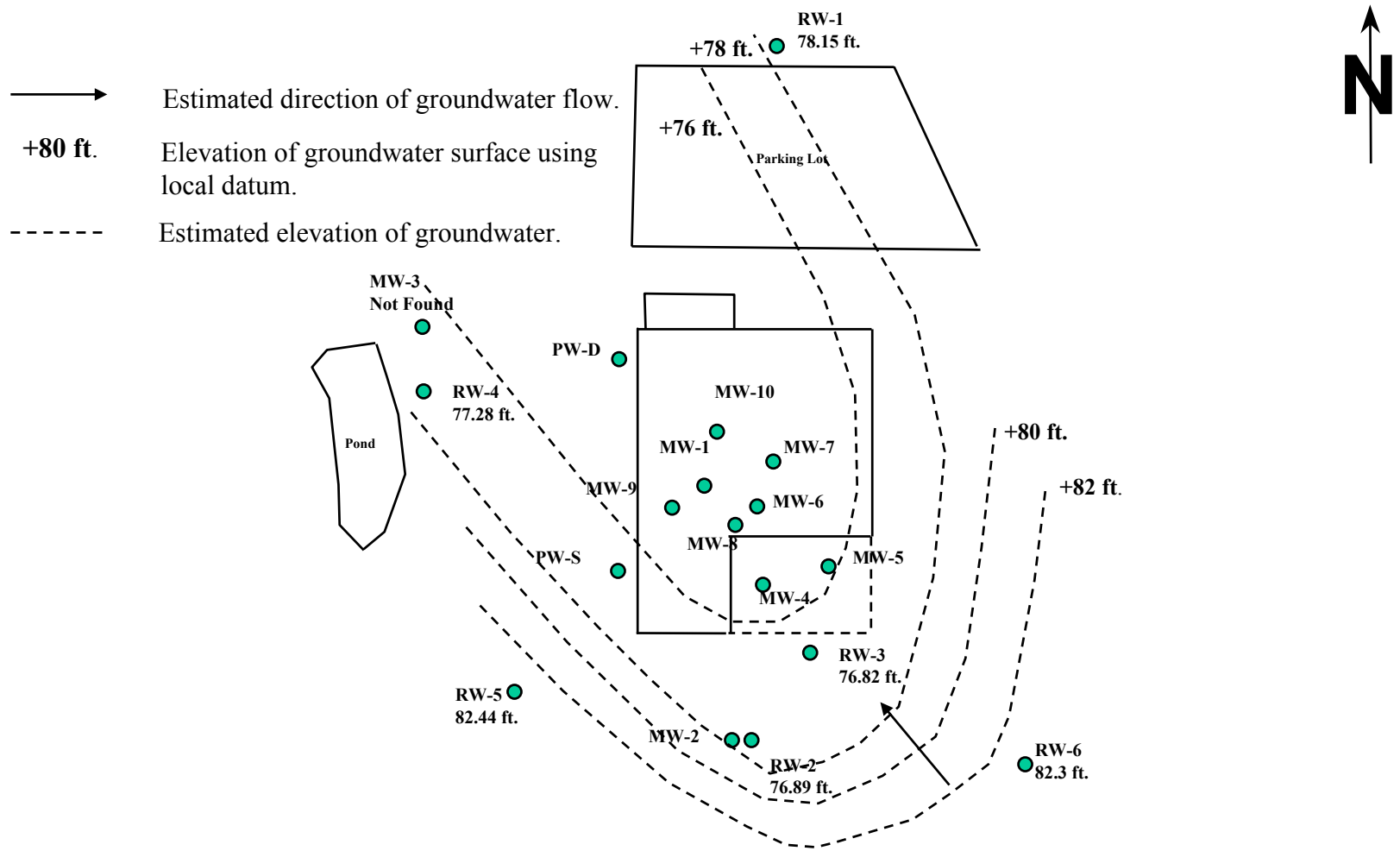
Test Borings

Soil Borings and Monitoring Wells

Title: Paint Booth Discharge Sampling 15 Cairn Street, Rochester, New York	LEADER Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 11/06 Scale Unknown	Drawn PVS Checked MPR File Name Site Map	Figure 12
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				



Title: Overburden Groundwater Contours Barthelmes Manufacturing Rochester, NY	LEADER Leader Professional Services, Inc 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 FAX (585) 248-2834	Project: 555.001 Date: 09/06 Scale:	Drawn: PVS Checked: MPR File Name: Site Plan	Figure: 13
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, NY				

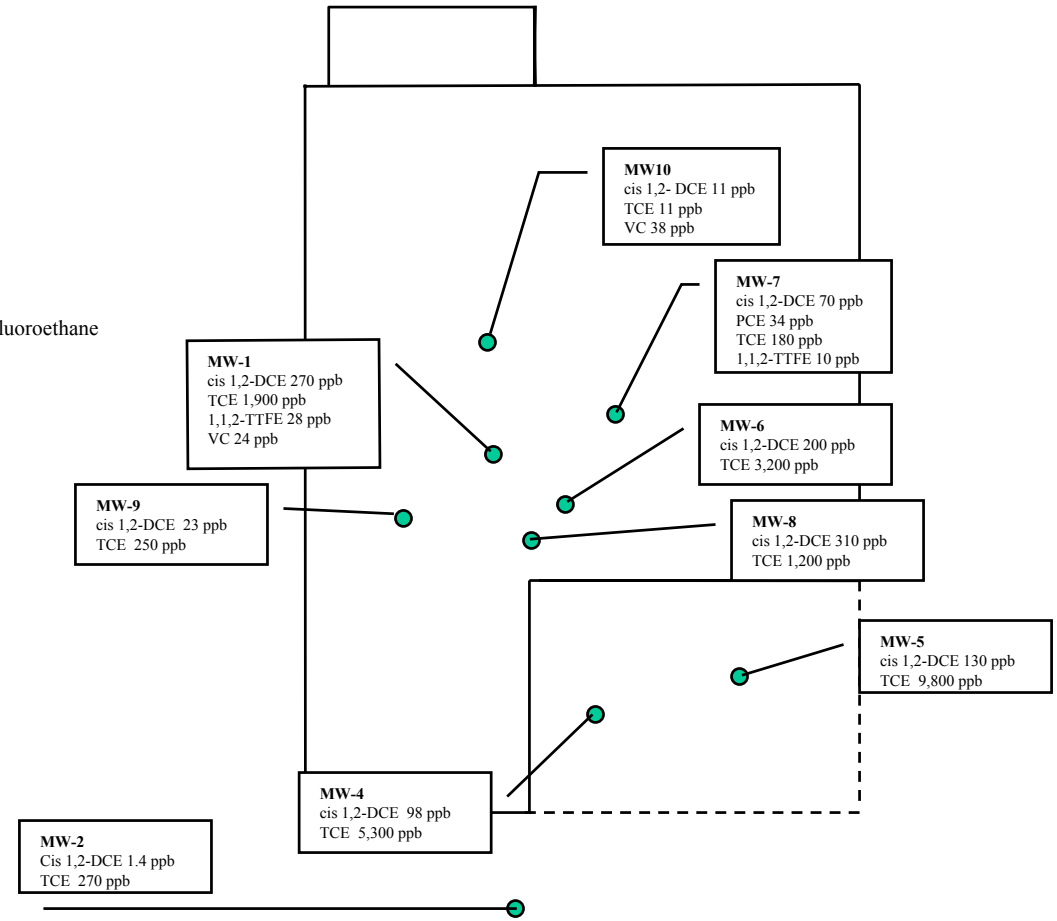


Title	Interface Groundwater Contours Barthelmes Manufacturing Rochester, NY
Prepared For	Barthelmes Manufacturing 15 Cairn Street Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	555.001
Date	11/06
Scale	
Drawn	PVS
Checked	MPR
File Name	Site Plan
Figure	14

Notes:
BDCM = Bromodichloromethane
DBCM = Dibromochloromethane
cis 1,2-DCE = cis 1,2-Dichloroethene
TCE = Trichloroethene
PCE = Tetrachloroethene
1,1,2-TTFE = 1,1,2-trichloro-1,2,2-tricfluoroethane
VC = Vinyl Chloride



Title: Overburden Groundwater Chlorinate Compounds Results
Barthelmes Manufacturing
Rochester, New York

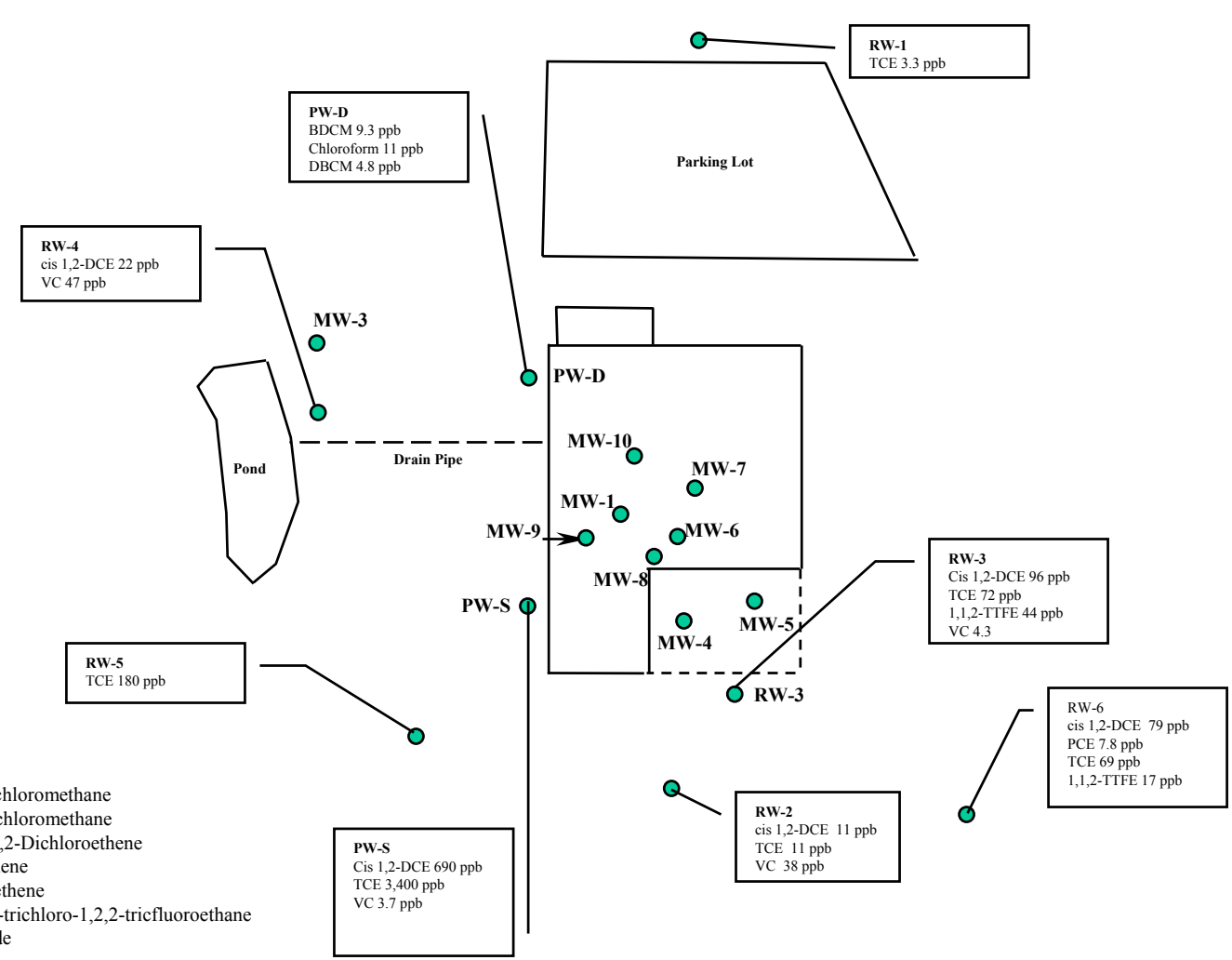
Prepared For
Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project: 555.001
Date: 09/01/06
Scale:

Drawn: PVS
Checked: MPR
File Name: Site Plan

Figure 15



Notes:
BDCM = Bromodichloromethane
DBCM = Dibromochloromethane
cis 1,2-DCE = cis 1,2-Dichloroethene
TCE = Trichloroethene
PCE = Tetrachloroethene
1,1,2-TTFE = 1,1,2-trichloro-1,2,2-tricfluoroethane
VC = Vinyl Chloride

Title: Interface and Bedrock Groundwater Chlorinated Compound Results
Barthelmes Manufacturing
Rochester, NY

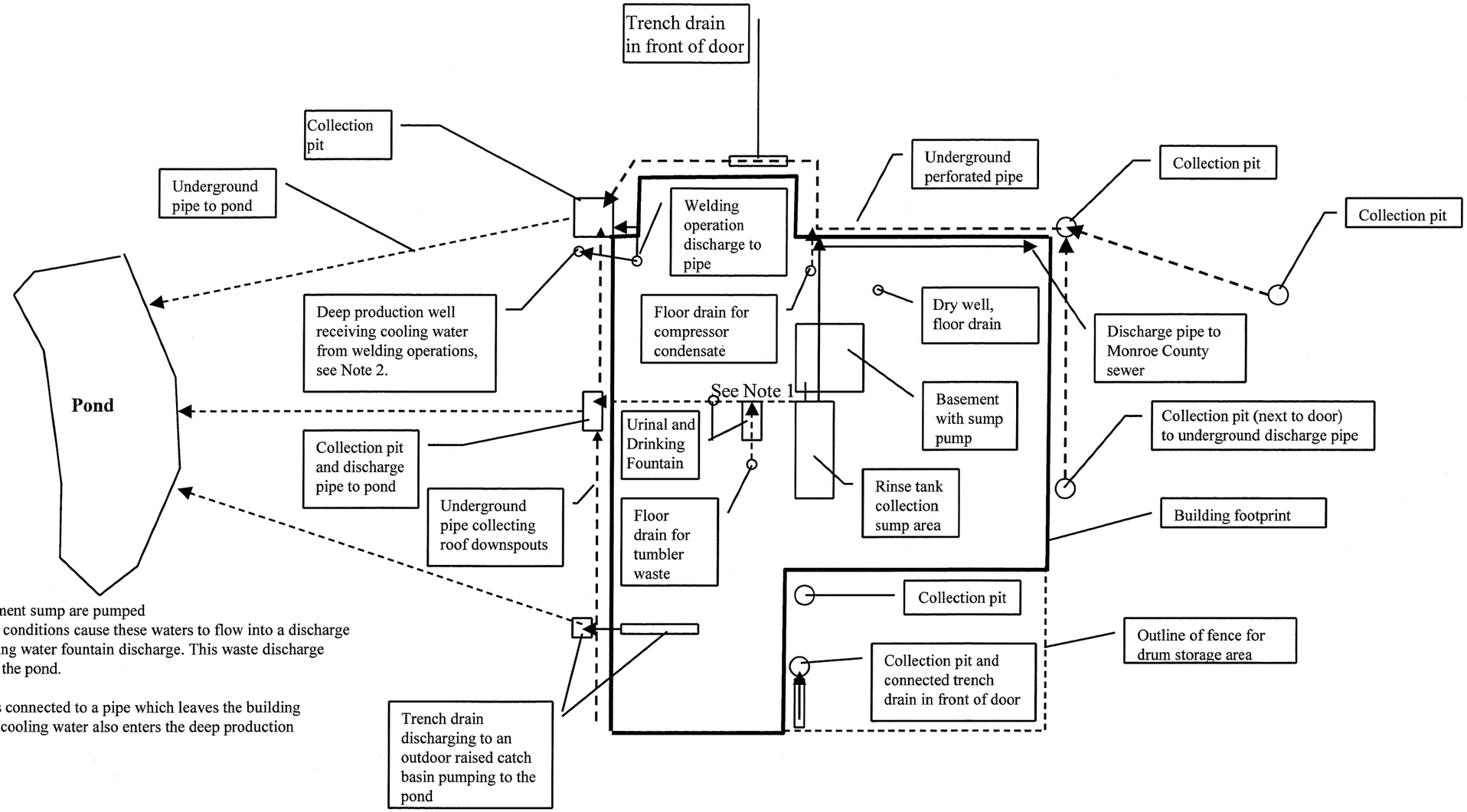
Prepared For
Barthelmes Manufacturing
15 Cairn Street
Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project: 555.001
Date: 09/06
Scale:

Drawn: PVS
Checked: MPR
File Name: Site Plan

Figure: 16



Notes

1. Effluent from the rinse tanks and basement sump are pumped to the Monroe County's sewer. Overflow conditions cause these waters to flow into a discharge connecting the urinal, tumbler, and drinking water fountain discharge. This waste discharge flows into the collection pit and then into the pond.

2. The welding operation cooling water is connected to a pipe which leaves the building and enters the collection pit. Some of the cooling water also enters the deep production well.

Title	Facility Discharges Barthelmes Manufacturing Rochester, NY
Prepared For	Barthelmes Manufacturing 15 Cairn Street Rochester, NY

LEADER

Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	555.001
Date	10/06
Scale	
Drawn	PVS
Checked	MPR
File Name	Site Plan
Figure	17

VAPOR INTRUSION STUDY

BARTHELMES MANUFACTURING COMPANY, INC.
15 CAIRN STREET
CITY OF ROCHESTER, NEW YORK
BCP SITE NO. C828122
INDEX B8-0607-02-01

Prepared For:

Barthelmes Manufacturing Company, Inc.
15 Cairn Street
Rochester, New York 14611

Prepared By:

Leader Professional Services, Inc.
271 Marsh Road, Suite 2
Pittsford, New York 14534

555.001

January 2007

Table of Contents

FIGURES

TABLES

APPENDICES

1.0 Introduction

This report was prepared to present the results of a vapor intrusion study completed at the Barthelmes Manufacturing Company, Inc. property located in Rochester, Monroe County, New York ("Site"). The site is located at 15 Cairn Street (See Figure 1) and used for the fabrication of sheet metal.

This project was completed following an approved Work Plan prepared by LaBella Associates, on the behalf of Barthelmes Manufacturing Company ("Barthelmes"). Barthelmes was required to complete this study by the New York State Department of Environmental Conservation ("NYSDEC") and the New York State Department of Health ("NYSDOH"), as a part of their entry into the Brownfield Cleanup Program ("BCP").

1.1 Background

The Barthelmes property has been used for commercial or industrial purposes since at least 1900. In 1911, American Fruit Products Company ("AFPC") used the property for their canning and vinegar production. At this time the site had two buildings, a foundation for a three-story building under construction, a vinegar tank farm, and a reservoir. The Barthelmes plant operates in one of the two former AFPC buildings (see Figure 2).

In 1921, Barthelmes began operating from the southern-most AFPC building and started removing the northern-most building, the unfinished building foundation, and the vinegar tank farm (see Figures 3). Figure 4 shows a 2006 aerial photograph of the site area and shows that little has changed since 1935. Barthelmes originally manufactured aluminum products, but it is now in the sheet metal fabrication business.

In the early 1980s, a fire engulfed the shipping department of the building and storage yard, both areas are located on the south side of the building. The City of Rochester Fire Department responded and put out the fire. The fire investigation found that water used to put out the fire also entered the Trichloroethylene ("TCE") vapor degreaser tank and displaced the TCE onto the building floor, floor drains and soil. As a result, the fire and water used to extinguish the fire influenced the migration of contaminants in the subsurface more than the typical migration mechanisms in the unsaturated and saturated zones of the environment.

1.2 Previous Investigations

In 2004 Barthelmes entered into the New York State BCP. A Phase II Environmental Site Assessment completed in October 2001 and subsequent sampling completed in 2005 and 2006 found volatile organic compounds, semivolatile organic compounds and metals in the soil and groundwater. The analytical results are summarized on Figures 2 and 3.

The location of former processes, the location of underground utilities, drains and pipes, soil type, and the direction of groundwater flow have all influenced the pattern of contamination. Monitoring wells installed for the project and the interpreted direction of groundwater flow is shown on Figures 4 and 5. The bedrock was encountered at a depth ranging from 23 to 26 feet below the ground surface.

2.0 Purpose

The purpose of this sampling is to evaluate the potential for worker exposure to vapors produced from contaminated soil and groundwater.

3.0 Building Inventory, Building Review and Property Owner Questionnaire

3.1 Building Inventory

On December 20, 2006, Leader completed an inventory of the Barthelmes manufacturing area. Table 1 provides a list of the materials and the products found during the inventory. In general, Barthelmes uses many products containing volatile organic compounds, which will also be identified by the TO-15 analytical method for Target Compound List volatile organic compounds.

An inventory of the office areas was not completed because these areas are located on the building's second floor where sampling was not done. All manufacturing is conducted on the building's main floor.

3.2 Building Review

Leader also inspected the building for the location of drains, underground utilities, heating and ventilation units, and the building's foundations and load bearing walls. Figure 9 shows the interior of the building with significant activities shown such as welding, parts fabrication (including grinding, punch presses, and shearing), metal treating, painting, and shipping. Figure 9 also shows areas of the plant where load-bearing walls are located and where building construction may enhance vapor intrusion. The depth of the building foundations is not known.

Areas of the plant where building construction may enhance vapor intrusion pathways are located in the vicinity of the plant's basement mechanical room and the plating rinse tanks. Metal plates and an office area cover the plant's basement. The plating rinse tanks are located above a recessed (below the level of the adjacent concrete floor) dirt floor in the center of the building.

3.3 Property Owner Questionnaire

Mr. Larry Lehning, Vice President and General Manager for Barthelmes, and Peter von Schondorf, from Leader, completed the NYSDOH's standard property owner questionnaire form. The completed questionnaire is presented as Appendix A.

4.0 Sampling

Sampling was completed on December 20, 2006. Figures 10 and 11 present the sample locations. Sampling was done in general agreement with the project Work Plan, which was approved by NYSDEC and NYSDOH. The sampling was completed to provide data on the presence of volatile organic compounds present in the sub-slab soil and in the indoor and outdoor ambient air.

Three types of samples were collected: outdoor ambient air samples, indoor ambient air samples and sub-slab soil vapor.

Each sample, regardless of type was collected in a stainless steel 6-Liter capacity Summa canister. Ambient air samples (both indoor and outdoor samples) and sub-slab samples were collected over an 8-hour time period.

The ambient air samples were collected using a Summa canister that was placed on a platform or using an intake tube, which elevated the sample collection point into the breathing zone, approximately 3 to 5 feet above the ground surface. The outdoor ambient air sample was collected at an upwind location from the Barthelmes building.

Sub-slab samples were collected through food-grade PVC tubing, which was implanted into the aggregate beneath the concrete floor slab. The tube was partially backfilled with clean quartz sand to form a filter to exclude silt size material and to keep an open hole for sampling. After the sand was placed, a Bentonite clay seal was placed over the sand to form an airtight seal at the surface. The sample tubing was then connected directly to the Summa canister's flow valve for sampling.

Once the sample location was prepared, all samples were collected following the same procedure, with the exception of sample time. The sampling technician then recorded the identification number of each canister and assigned a canister to each sampling location. The sampling technician collected basic information before sampling: start time of sampling, weather conditions, temperature, barometric pressure, and wind direction and approximate velocity. Once sampling started the collection ran uninterrupted for the sampling period. During the sample collection period, the sampling technician inspected the sampling train and gauges several times to ensure the regulator and sampling train was operating properly. When sampling was completed, the regulator was closed and the time, weather conditions, temperature, barometric pressure, and wind direction and velocity were noted. The sample chain of custody was then completed and the canister placed into a shipping container for next day delivery.

During the collection of indoor ambient air samples no problems were experienced; however, when the samples were received at the laboratory two Summa canisters were found not containing a sample. The impacted samples are indoor ambient air samples #7 and #9.

5.0 Results

All samples were analyzed for volatile organic compounds using USEPA Method TO-15. The sample results are shown on Table 2 (Ambient Air and Sub-Slab Vapor Results). Appendix B provides a complete set of laboratory results, chain of custody and weather and gauge monitoring results.

5.1 Data Usability

The analytical data was reviewed for adherence to sample handling and analytical protocols. To do this, the sample chain of custody documents were reviewed as well as laboratory quality assurance documents.

The samples were collected on December 20, 2006 and received by the laboratory on December 21, 2006. All samples, including laboratory control samples were analyzed on December 21, 2006 and December 22, 2006. The Summa canisters were certified clean on December 11, 2006. Three groups of quality control samples were analyzed with the site samples: a laboratory control sample and laboratory control duplicate sample, and a laboratory blank sample. The laboratory control sample is a sample spiked with each of the targeted compounds and the analytical instrument detected each of the compounds within the control limits (percent recovery) specified by the analytical method. During the completion of the laboratory control sample spike and duplicate analysis n-Hexane was found not to be incompliance with expected values. This problem was not identified by the laboratory, but during this review. The analysis of the blank sample found none of the targeted compounds above the method's practical quantitation limits ("PQLs'). These PQL's are also within those limits required by the NYSDOH for this project. The laboratory also provided canister certification results, which demonstrate the Summa canisters used for the sampling did not contain any contaminants.

The laboratory analysis was completed without the need to qualify any of the results. Sample dilutions were required because some compounds were detected at elevated levels. As a result of this review, the data is valid and can be used for the intended purpose of this project, with the exception of n-Hexane which was failed quality assurance review.

5.2 Ambient Air Sample Results

In the outdoor ambient air sample, 7 compounds were found out of the 61 compounds analyzed by Method TO-15. Trichloroethylene ("TCE") was not identified in the outdoor ambient air sample. The following compounds were also found: Acetone, Benzene,

Chloromethane, Ethanol, Methylene Chloride, Toluene, and m&p-Xylene. In general, these compounds were found at low concentrations ranging from 0.7 to 6.6 µg/M^3, with the exception of Acetone, which was found at a concentration of 22 µg/M^3.

In four out of six indoor ambient air samples, a sample was collected that could be analyzed. Many of the compounds found in the indoor ambient air were found consistently in all samples. Those compounds common to every indoor ambient air sample included:

- Trichloroethylene
- Acetone
- Benzene
- Chloromethane
- Cyclohexane
- Ethanol
- Ethylbenzene
- Methyl Ethyl Ketone
- 2-Propanol
- Toluene
- 1,2,4-Trimethylbenzene
- m&p Xylene
- o-Xylene

Compounds found in two to three indoor ambient air samples included the following:

- 1,4-Dichlorobenzene
- 4-Ethyltoluene
- Freon 12
- Heptane
- n-Hexane
- Methylene Chloride
- Styrene
- 1,3,5-Trimethylbenzene

Compounds found in only one indoor ambient air sample included the following:

- 1,2-Dichloropropane
- Methyl Isobutyl Ketone
- Naphthalene
- Tetrachloroethylene
- Vinyl acetate

In general, many of the compounds were found at similar concentrations regardless of the sample location, but there were also locations where individual compounds were found at

relatively higher concentrations. The following compounds, concentrations and locations are noteworthy:

- TCE at a concentration of 33 µg/M^3 at sample location 3.
- Acetone at a concentration of 69 µg/M^3 at sample location 11.
- Benzene at a concentration of 19 µg/M^3 at sample location 5.
- Cyclohexane at a concentration of 160 µg/M^3 at sample location 3.
- Ethanol at a concentration of 58 µg/M^3 at sample location 2.
- Methyl Ethyl Ketone at a concentration of 110 µg/M^3 at sample location 2.
- Toluene at a concentration of 110 µg/M^3 at sample location 2.

5.3 Sub-Slab Sample Results

The sub-slab samples contained up to 22 of the 61 compounds analyzed and 13 of these compounds were found at their highest concentration in the sub-slab samples. Most notable of these 22 compounds is TCE. The concentration of TCE in the samples ranged from 23 µg/M^3 to 64,000 µg/M^3. Compounds commonly found in the sub-slab samples include:

- TCE
- Acetone
- Benzene
- Cyclohexane
- 1,4-Dichlorobenzene
- Ethanol
- Ethylbenzene
- Heptane
- N-Hexane
- 2-Propanol
- Toluene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- m&p-Xylene
- o-Xylene

Compounds found exclusively in the sub-slab samples include: Carbon Disulfide, Chloroform, cis 1,2-Dichloroethene, and trans 1,2-Dichloroethene. The presence of cis and trans 1,2-Dichloroethene suggests that TCE is either breaking down in the unsaturated zone or vaporization of these compounds is occurring from the contaminated groundwater. The absence of these four compounds in the indoor air samples could suggest that infiltration of the sub-slab vapor into the building envelop is not as great as the results may imply and that other factors may be contributing TCE to the indoor ambient air.

6.0 Conclusions

The sample data obtained identified the presence of TCE and other volatile organic compounds in the sub-slab and indoor ambient air samples. A review of Barthelmes Material Safety Data Sheets for the products currently being used in the plant, indicates that many of these volatile organic compounds are also present in the products being used. TCE is no longer used in the plant.

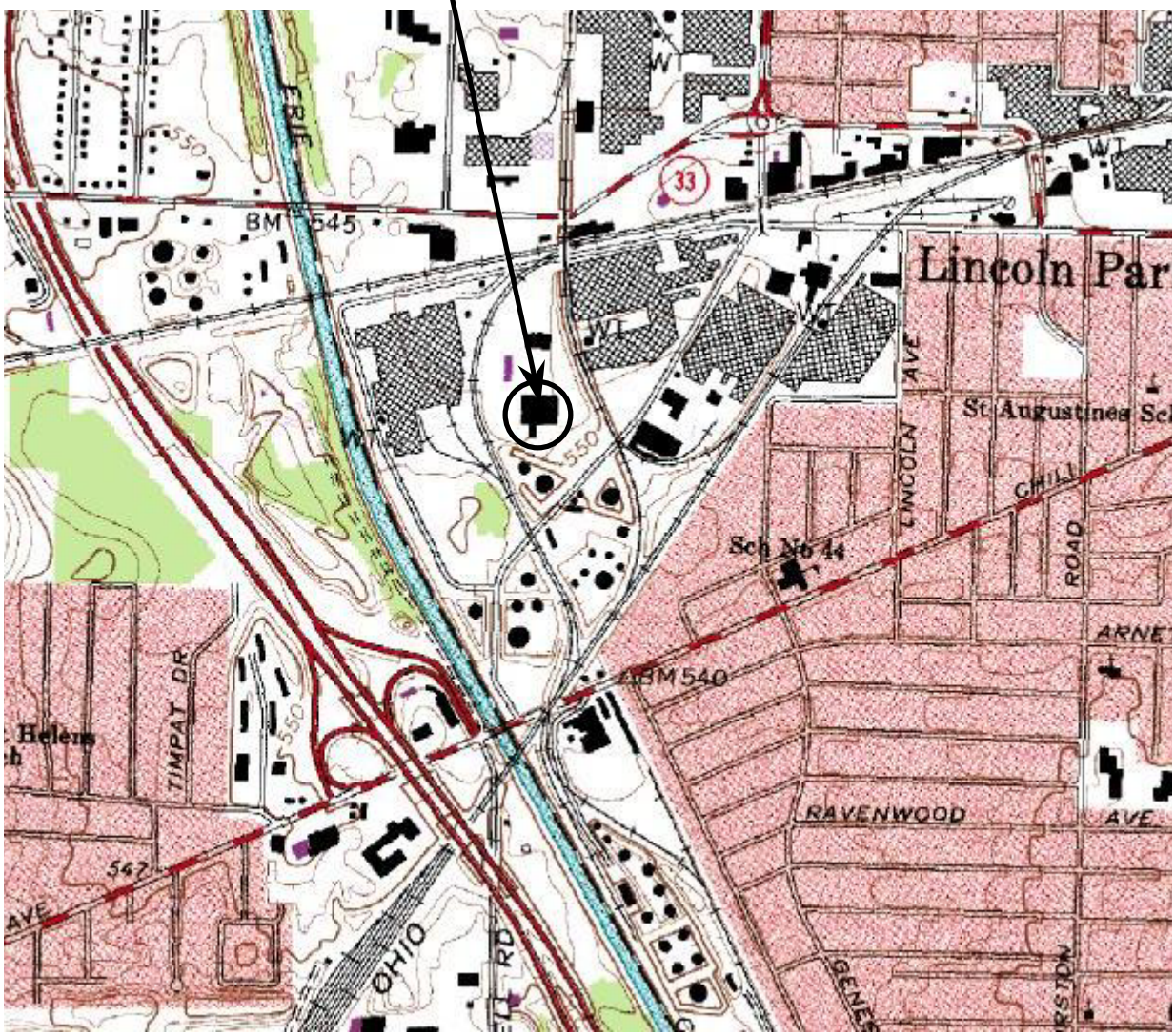
The presence of TCE in the sub-slab samples is not surprising, since TCE was found in the site's groundwater. The concentrations of TCE in the indoor ambient air was not anticipated, given the size and age of the building, relatively poor condition of building insulation in the manufacturing area, and the amount of infiltration of outdoor air into the building. The presence of TCE in the indoor air is likely caused by the infiltration of vapors from groundwater collecting in the basement or the infiltration of vapors through the basement and the soil beneath the plating rinse tanks.

Following Matrix 1 of the NYDOH guidance for vapor intrusion, the presence of TCE in the sub-slab vapor and the indoor air requires mitigation. Since Barthelmes is a manufacturing property with an OSHA compliant Hazard Communication Program, the need for immediate mitigation is not required at this time, because the levels of TCE found in the indoor ambient air do not exceed OSHA's action level of 268.7 milligrams per cubic meter. Leader recommends that a mitigation of the TCE vapor problem be addressed as a part of the overall site cleanup program. As interim protective measures, Leader also recommends (1) quarterly monitoring of selected workers for exposure to TCE using OSHA action levels; (2) venting the air space within the basement; and (3) covering the dirt floor beneath the rinse tanks.

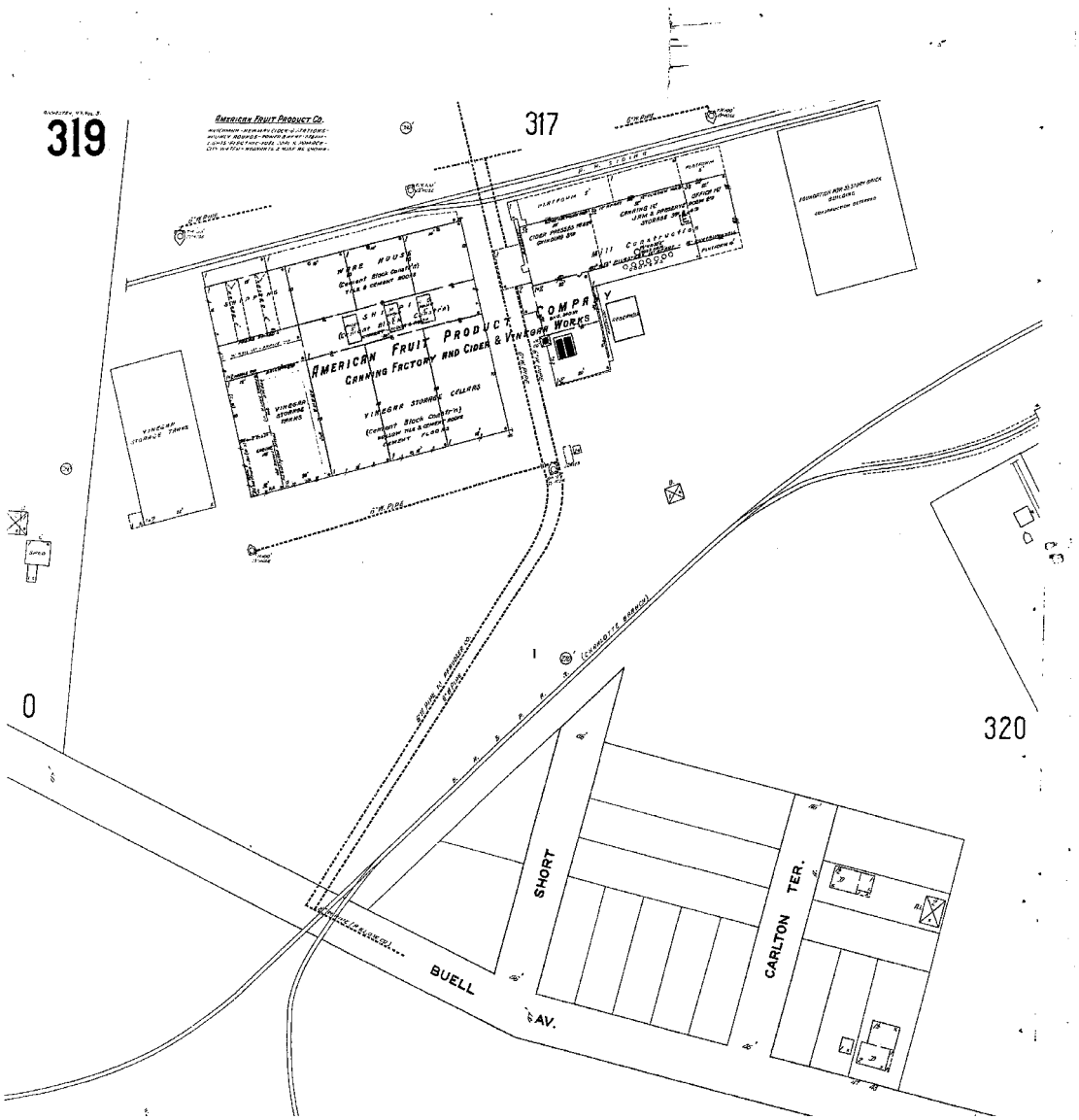
FIGURES

N

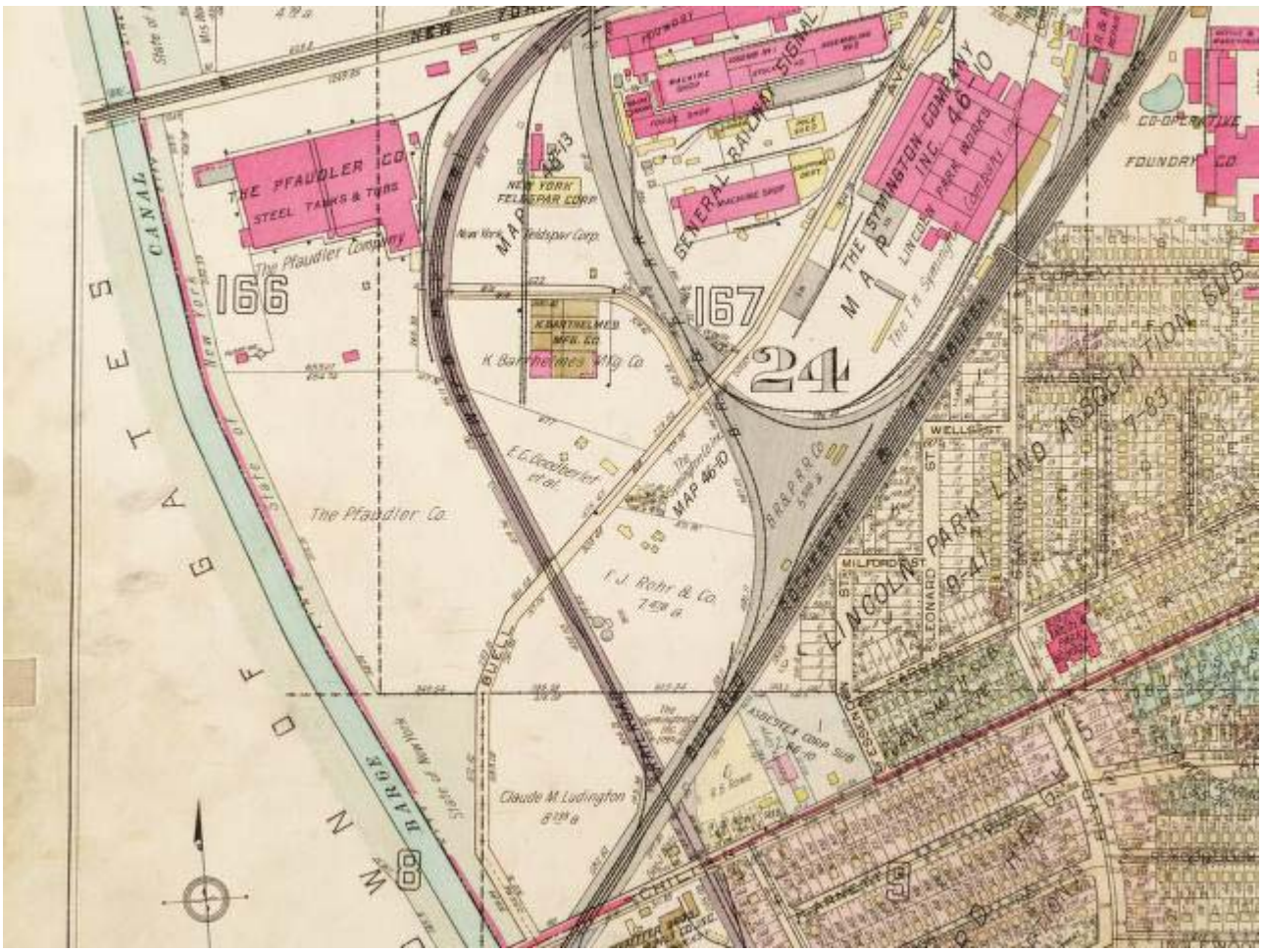
Site Location



Title: Site Location Map Barthelmes Manufacturing Company 15 Cairn Street, Rochester, New York	LEADER Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 12/06 Scale Unknown	Drawn PVS Checked MPR File Name Site Map	Figure 1
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				



Title: 1911 Site and Vicinity Map 15 Cairn Street, Rochester, New York	Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 12/06 Scale Unknown	Drawn PVS Checked MPR File Name Site Map	Figure 2
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				

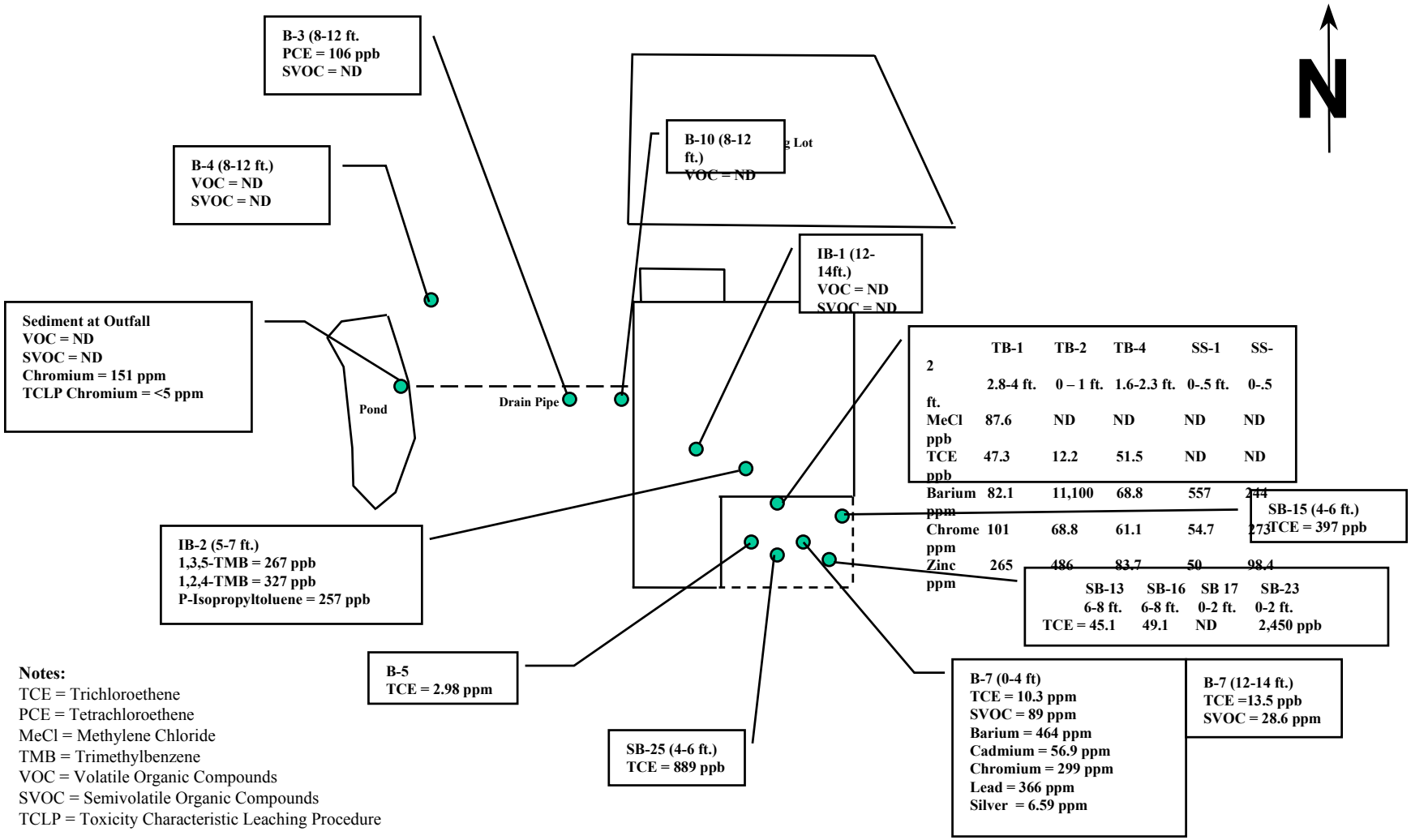


Title: 1935 Site and Vicinity Map Barthelmes Manufacturing Company 15 Cairn Street, Rochester, New York	LEADER Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 12/06 Scale Unknown	Drawn PVS Checked MPR File Name Site Map	Figure 3
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				

N

Site Building

Title: 2004 Aerial Photograph of Site Barthelmes Manufacturing Company 15 Cairn Street, Rochester, New York	LEADER Leader Professional Services 271 Marsh Road-Suite 2 Pittsford, New York 14534 (585) 248-2413 Fax (585) 248-2834	Project 555.001 Date 12/06 Scale Unknown	Drawn PVS Checked MPR File Name 2004	Figure 4
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York				



Notes:
TCE = Trichloroethene
PCE = Tetrachloroethene
MeCl = Methylene Chloride
TMB = Trimethylbenzene
VOC = Volatile Organic Compounds
SVOC = Semivolatile Organic Compounds
TCLP = Toxicity Characteristic Leaching Procedure

Title Summary of LaBella Soil Sample Results
Barthelmes Manufacturing Company
Rochester, NY

Prepared For Barthelmes Manufacturing
15 Cairn Street
Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project 555.001

Date 12/06

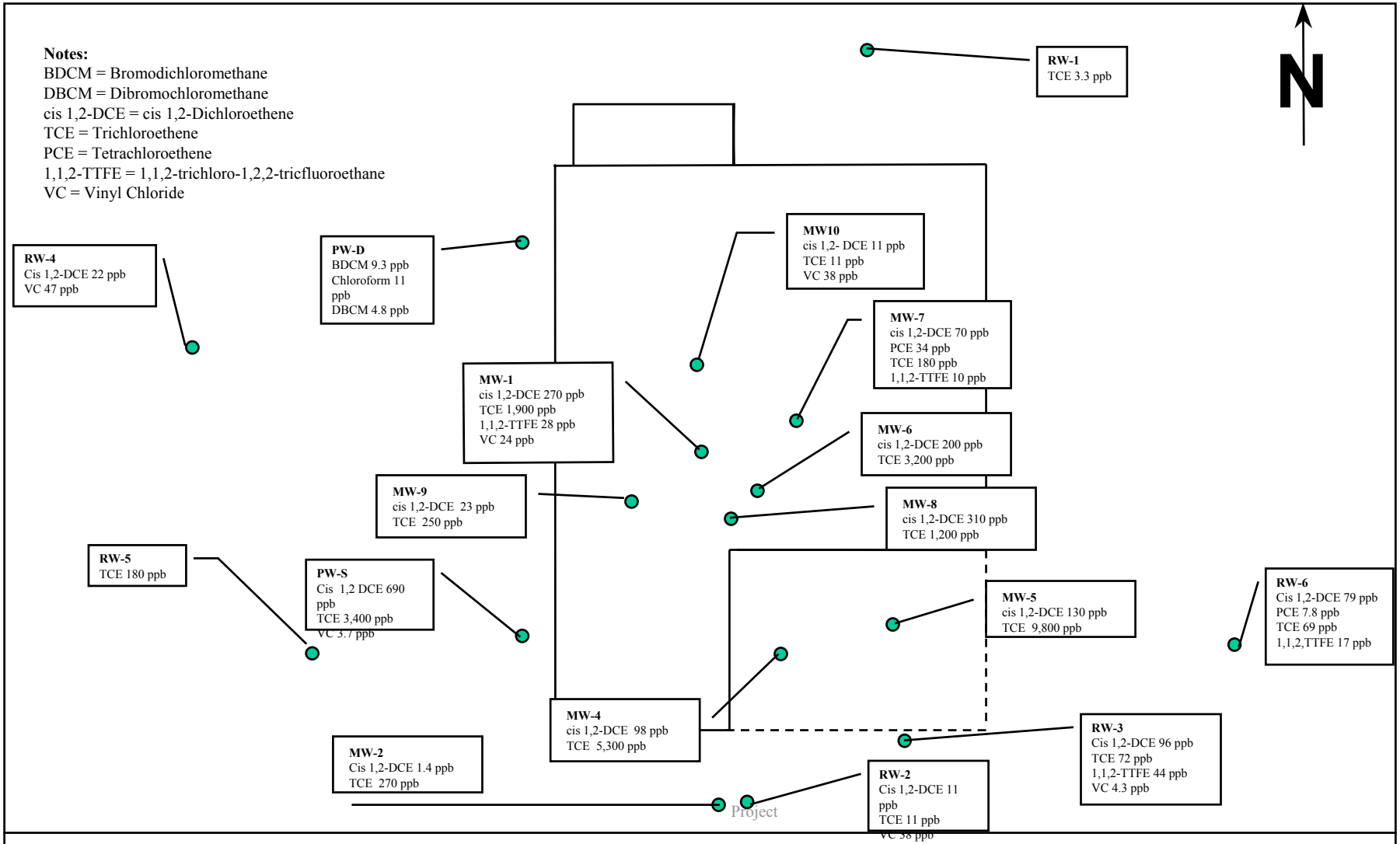
Drawn By PVS

Checked By MPR

File Name

Figure 5

Notes:
BDCM = Bromodichloromethane
DBCM = Dibromochloromethane
cis 1,2-DCE = cis 1,2-Dichloroethene
TCE = Trichloroethene
PCE = Tetrachloroethene
1,1,2-TTFE = 1,1,2-trichloro-1,2,2-tricfluoroethane
VC = Vinyl Chloride



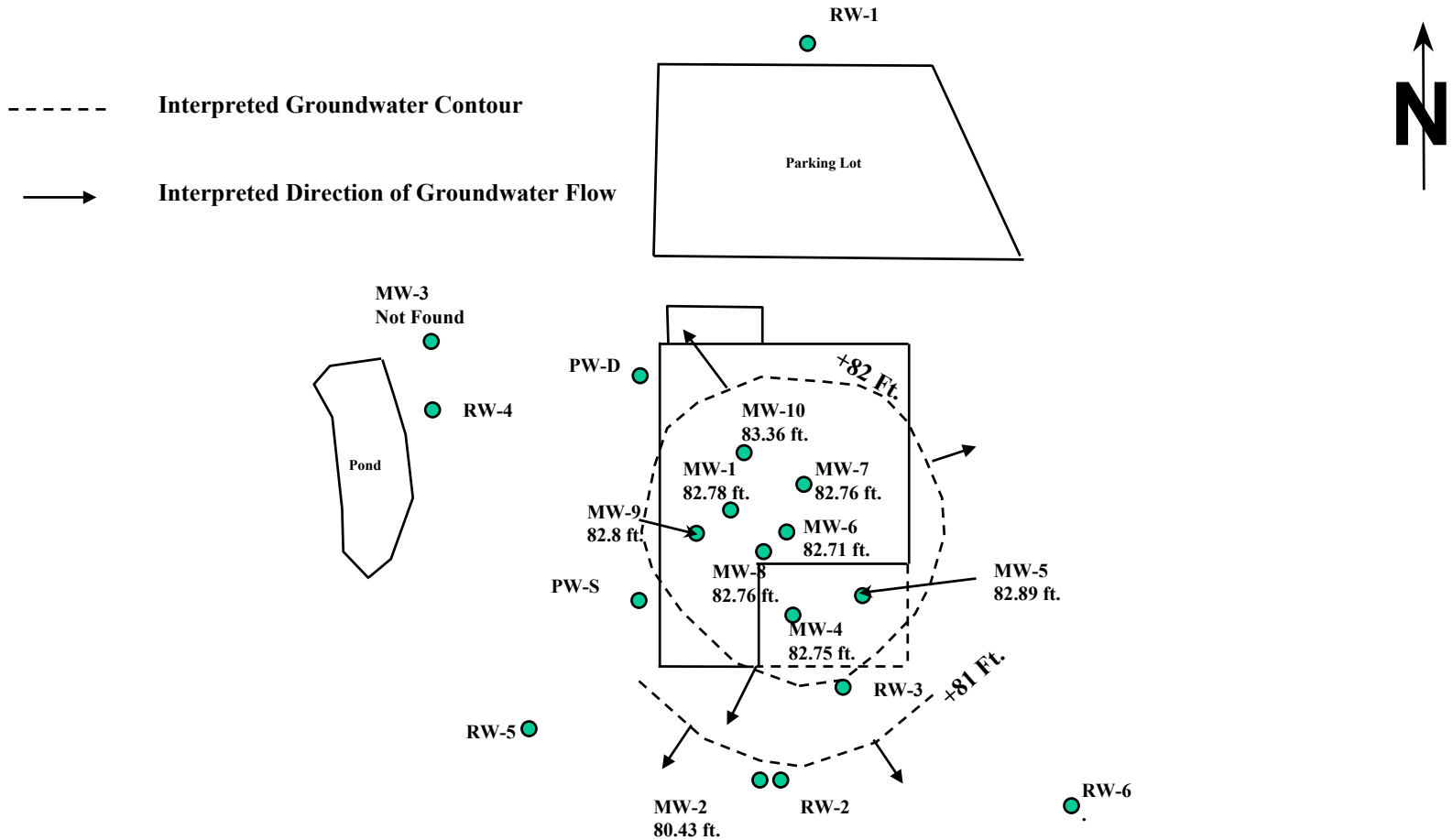
Title: Overburden Groundwater Chlorinate Compounds Results
Barthelmes Manufacturing Company
Rochester, New York

Prepared For: Barthelmes Manufacturing
15 Cairn Street
Rochester, New York

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Date: 12/01/06
Project: 555.001
Checked: MPR
File Name: PVS
Site Plan

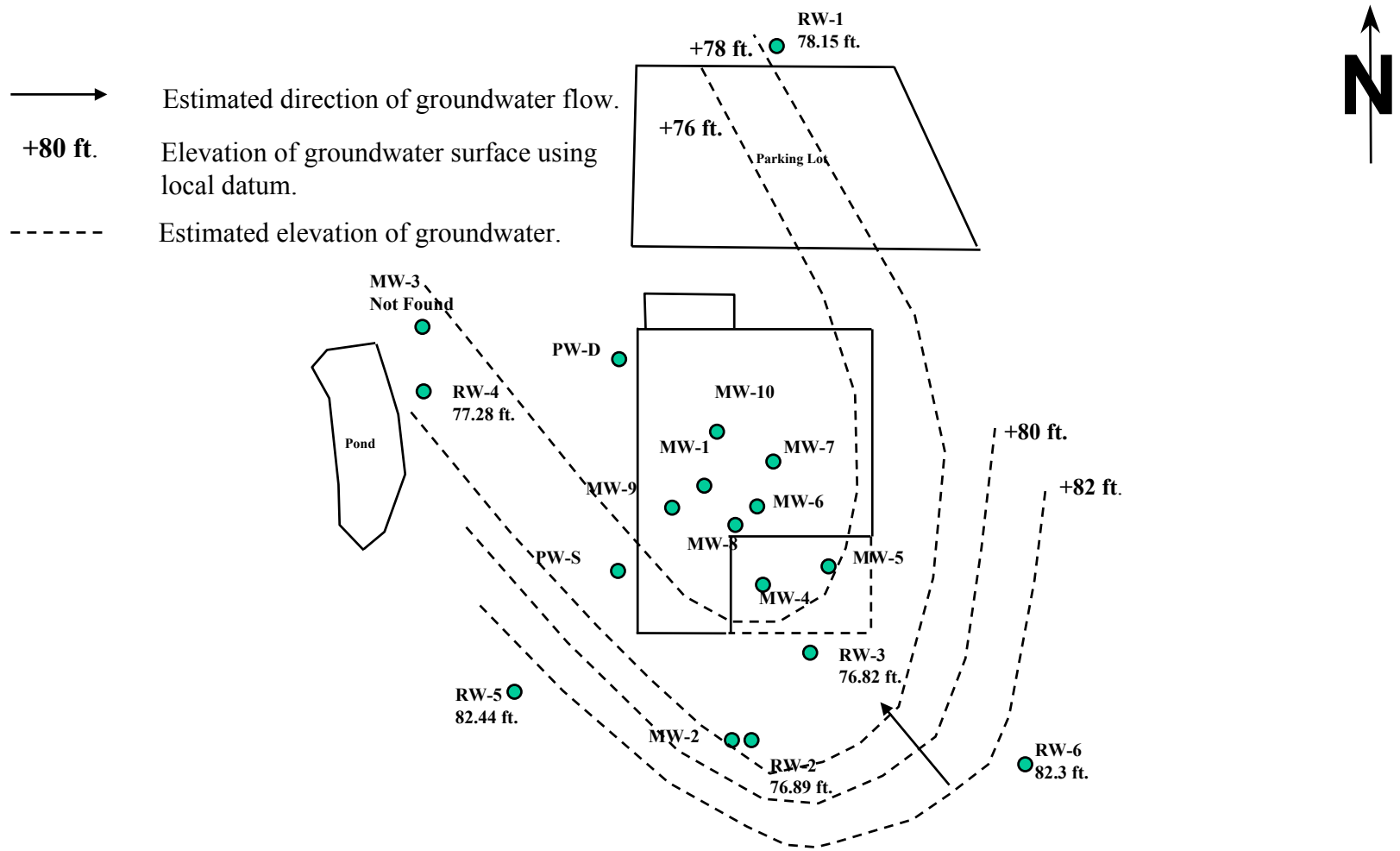
Figure 6



Title	Overburden Groundwater Contours Barthelmes Manufacturing Company Rochester, NY
Prepared For	Barthelmes Manufacturing Company 15 Cairn Street Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

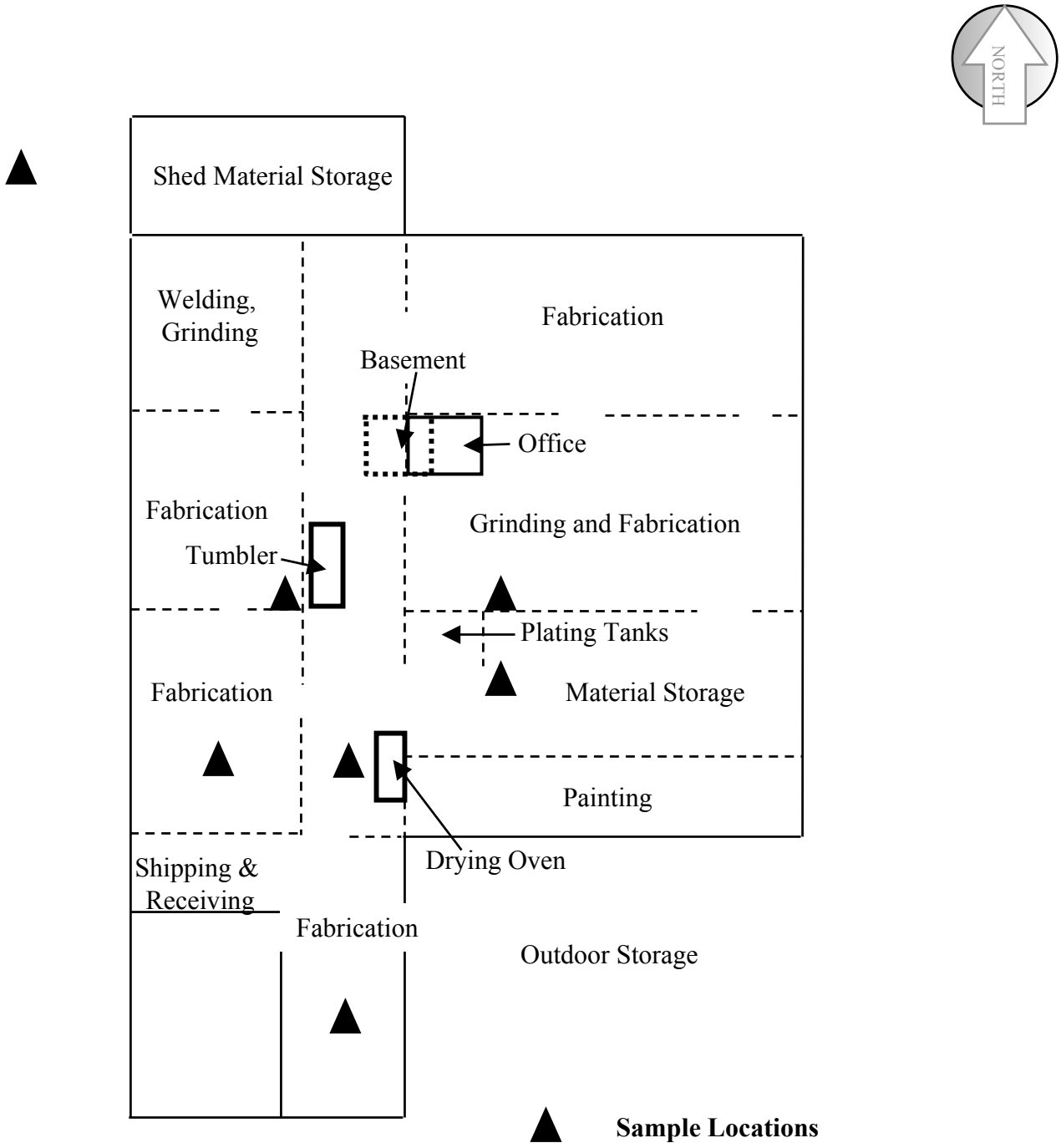
Project	555.001
Date	12/06
Scale	
Drawn	PVS
Checked	MPR
File Name	Site Plan
Figure	7



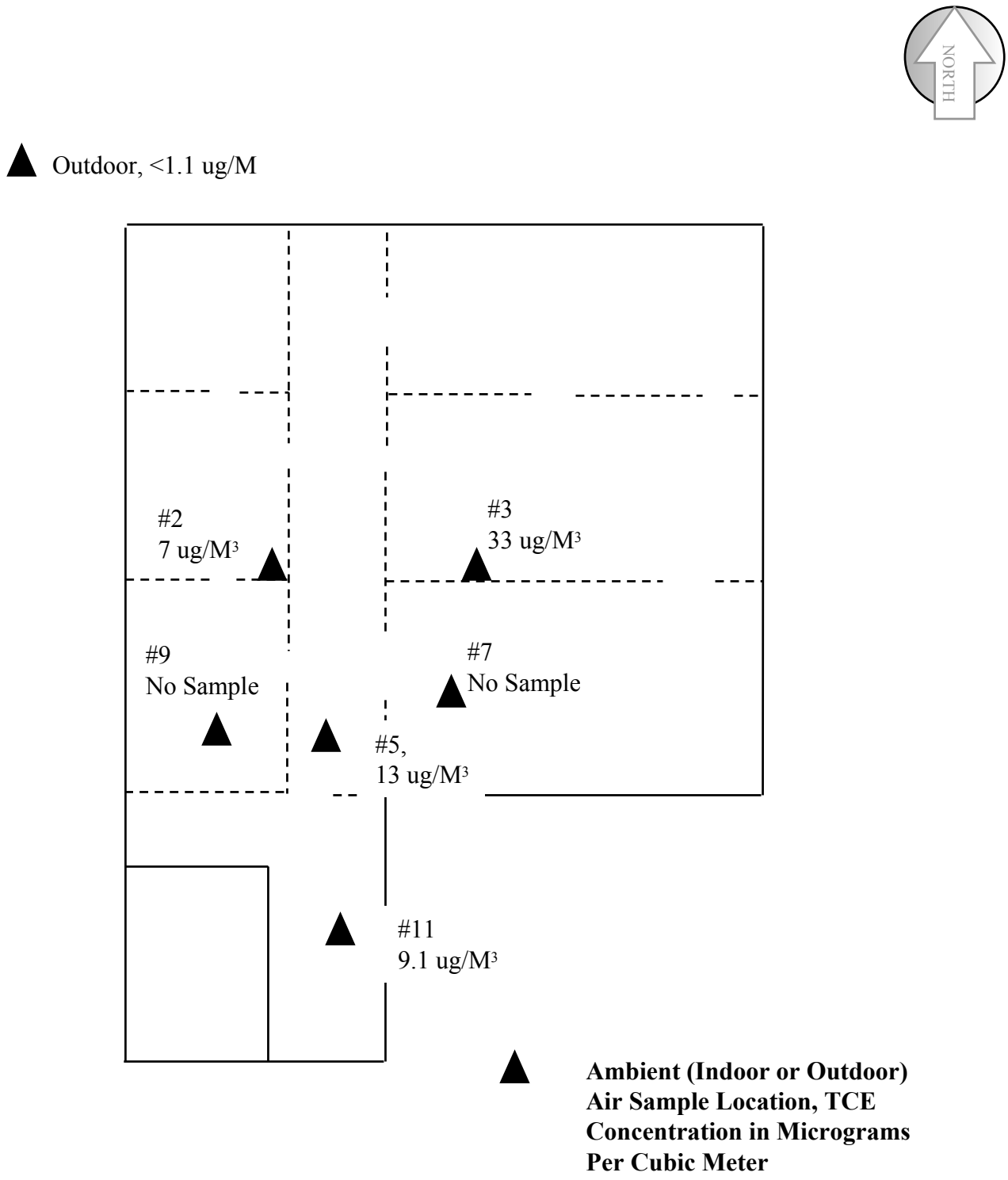
Title	Interface Groundwater Contours Barthelmes Manufacturing Company Rochester, NY
Prepared For	Barthelmes Manufacturing Company 15 Cairn Street Rochester, NY

LEADER
Leader Professional Services, Inc
271 Marsh Road-Suite 2
Pittsford, New York 14534
(585) 248-2413
FAX (585) 248-2834

Project	555.001
Date	12/06
Scale	
Drawn	PVS
Checked	MPR
File Name	Site Plan
Figure	8



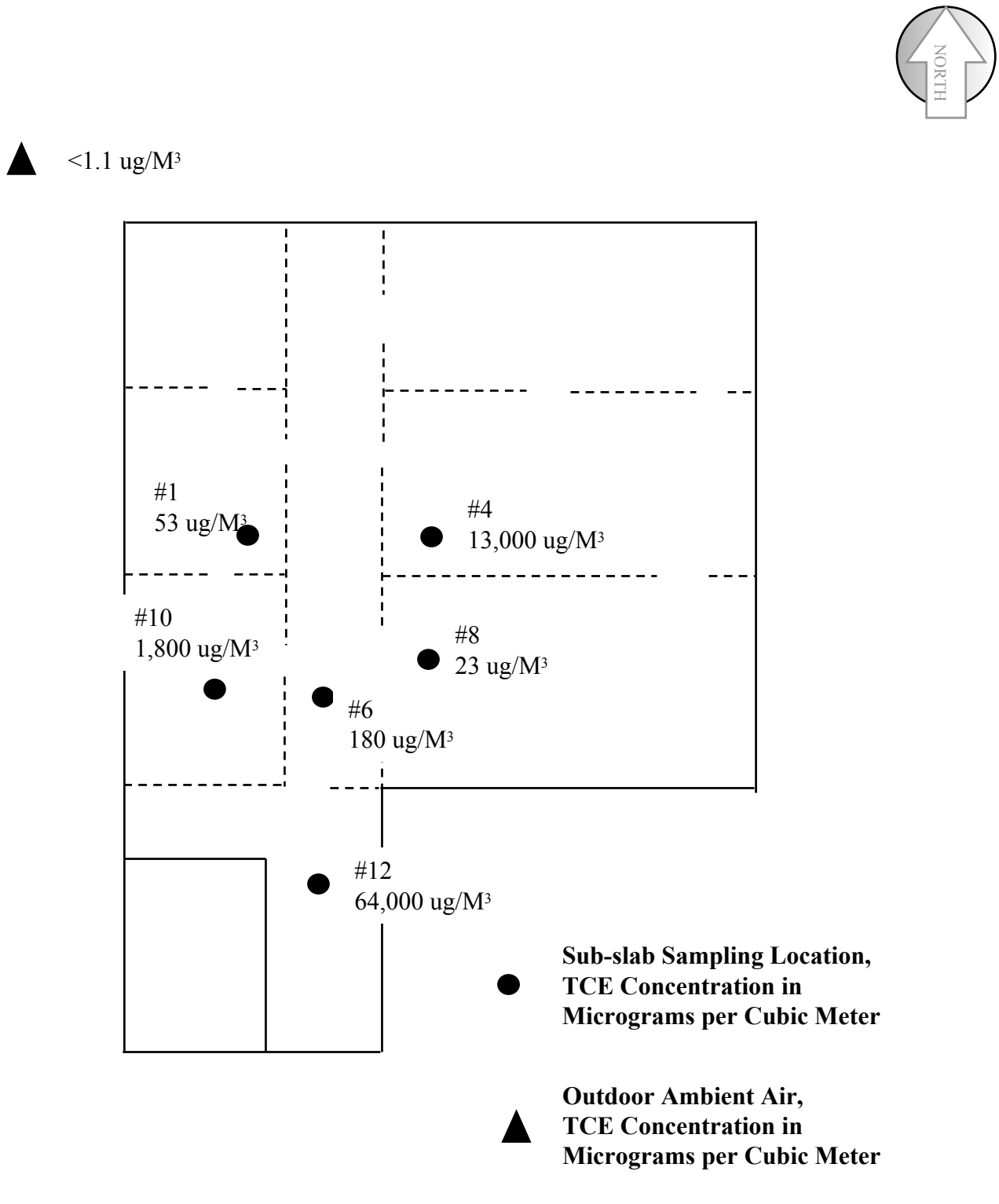
Title: Classification of Building Interior Barthelmes Manufacturing Rochester, New York	LEADER Leader Professional Services, Inc. 271 Marsh Road, Suite 2 Pittsford, NY 14534 (585) 248-2413 FAX (585) 248-2834	Project: 555.001 Date: 12/06 Scale: NTS	Drawn: PVS Checked: MPR File Name: Site Map	Figure: 9
Prepared For: Barthelmes Manufacturing 15 Cairn Street Rochester, New York 14611				



Title	Ambient Air Sampling TCE Results Barthelmes Manufacturing Rochester, New York
Prepared For	Barthelmes Manufacturing 15 Cairn Street Rochester, New York 14611

LEADER
Leader Professional Services, Inc.
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	555.001
Date	12/06
Scale	NTS
Drawn	PVS
Checked	MPR
File Name	Site Map
Figure	10



Title	Sub-Slab Vapor Sampling TCE Results Barthelmes Manufacturing Rochester, New York
Prepared For	Barthelmes Manufacturing 15 Cairn Street Rochester, New York 14611

LEADER
Leader Professional Services, Inc.
271 Marsh Road, Suite 2
Pittsford, NY 14534
(585) 248-2413
FAX (585) 248-2834

Project	555.001
Date	12/06
Scale	NTS
Drawn	PVS
Checked	MPR
File Name	Site Map
Figure	11

TABLES

TABLE 1
BUILDING CHEMICAL INVENTORY
Barthelmes Manufacturing Company
15 Cairn Street
Rochester

Chem # Barthelmes MSDS #	Product Name	Manufacturer	HSL Compounds
1001	Spray Feathering Disc Adhesive 08044	3M	MEK, Acetone, Glycerol Ester of Hydrogenate rosin, Propane, Styrene-butadiene polymer, Toluene
1006	Aroc Supreme SAE 10W-30	Lyondell Petrol. Co.	Petroleum hydrocarbons
1007	NIA Super D50	Niagara Lubricant	Hydrotreated Heavy Parafinic, Hydrotreated Residual Oil
1017	Dispoz Aid 1	Oakite	Sodium metabisulfite
1018	Dispoz Aid 2	Oakite	Calcium hydroxide
1026	Deoxidizer LNC	Oakite	Ferric sulfate, Nitric acid, potassium peroxymonsulfate
1028	Texolite 100 SP	Texo Corp	Triphosphoric acid
1032	Soluble oil	Stirling Industries	Mineral oil
1035	Air Tool Oil #1, 45-0919	DOTCO	Petroleum hydrocarbons
1038	140 Stick Wax	Castrol Metal working	Parafin wax
1040	#3 White Stamp Pad Ink	Phillips Process Co.	Diactone alcohol, Ethylene Glycol Monoethyl Ether, Benzyl Alcohol
1041	90 High Strength Adhesive	3 M	Dimethyl ether, Pentane, Acetone, Cyclohexane
1042	80 Series UV Curable Ink	Nor Cote	Acrylated oligomers, N-Vinyl 2 Pyrrolidone, Acrylated monomers
1043	079 PM Adhesion Modifier	Nor Cote	Acrylales
1044	800 Initiator	Nor Cote	Tertiary Amines
1053	Methyl Ethyl Ketone	Shell (Chemcore)	MEK
1059	Horizon Green Aerosol	Custom Aerosol Products	VM&P Naptha, Xylene, Butyl Alcohol, Aromatic hydrocarbon, Acetone, Mineral spirits, Methyl Iso Butyl Ketone, N Butyl Alcohol, 1,1,1-TCA, Propane, Isobutane
1061	Polane T Polyurethane Coating	Sherwin Williams	Toluene, Xylene, MEK, Cyclohexane, N Butyl Acetate, Talc, Titanium oxide, Carbon black, Lead Chromate, Molybdate Orange, Lead, Chromium
1068	Commerical Propane	Suburban Propane	Ethane, Propane, Propylene, Butanes, Ethyl Mercaptan
1069	Glo San	Rochester Midland	Hydrochloric acid
1072	Starrett Cleaner	Surry Chemicals	Dipropylene glycol, Potassium hydroxide, EDTA
1076	Bronze	Millard Lakes Metal	Lead, Tin, Aluminum, Manganese, Iron, Zinc, Silicon, Phophorus, Antimony, Arsenic, Chromium, Cobalt
1077	Copper	Millard Lakes Metal	Nickel, Beryllium, Cobalt, Cadmium, Aluminum oxide, Chromium, Lead, Silver, Tin, Arsenic
1078	Stainless Steel	Copper & Brass Sales	Iron, Chromium, Nickel
1080	Polane Dead Flat Black	Sherwin Williams	Toluene, Xylene, MEK, MIBK, Methyl n-Amyl Ketone, Cyclohexane, Isopropyl acetate, n-Butyl acetate, 1-Methoxy-2-Propanol acetate, Toluene Diisocyanate polymer, Mexamethylene diisocyanate polymer
1081	Polane T Plus Polyurethane Enamel	Sherwin Williams	Toluene, Xylene, Cyclohexanone, Isopropyl acetate n-Butyl acetate, Silica, Talc, Calcium carbonate, Titanium dioxide, Carbon black
1083	Descale 91 (Texo 91)	Texo Corp	Phosphoric acid
1084	SSR Ultra Coolant	Ingersol Rand	Polyoxyalkylene glycol, pentaerythritol ester
1090	Hot or Cold Carbon Steel	Samuel, Son & Co.	
1091	Galvanized Sheet Electrolytic	Samuel, Son & Co.	
1093	Aluminum Alloys	Samuel, Son & Co.	Aluminum
1094	Galvanized Sheet Carbon Steel	Samuel, Son & Co.	
1095	Stainless Steel	Samuel, Son & Co.	Iron, Chromium, Nickel, Manganese, Silicon, Aluminum
1096	Steel	Samuel, Son & Co.	
1097	Xylene	Interstate Chemical Co.	Xylene, Ethlybenzene, Benzene, Toluene
1099	Texo LP 1659	Texo Corp	Calcium Chloride
1100	Sealtex 1558 DI (Texo LP 1558)	Texo Corp	Ammonium bifluoride, Ammoniun dimolybdate, Sodium nitrate
1105	Protexo 1471	Texo Corp	Petroleum distillates, Naphthenic distillates
1108	Ultra Scrub Citrus Hand Cleaner	Rochester Midland	d-Limonene
1109	ICC 856 Spray/Wipe	Intercont. Chem Corp	None

TABLE 1
BUILDING CHEMICAL INVENTORY
Barthelmes Manufacturing Company
15 Cairn Street
Rochester

Chem # Barthelmes MSDS #	Product Name	Manufacturer	HSL Compounds
1110	Meltz It	Rochester Midland	Calcium chloride, Sodium chloride, Potassium chloride, Strontium chloride
1121	Polane Reducer 69	Sherwin Williams	Toluene, Ethylbenzene, Xylene, MEK, MIBK, Cyclohexanone, Isopropyl acetate, N-butyl acetate, 1-Methoxy-2-Propanol acetate, Hexamethylene diisocyanate polymer, Toluene diisocyanate polymer, Talc, Titanium dioxide, Lead chromate, Lead
1122	Polane Reducer 84	Sherwin Williams	Toluene, Ethylbenzene, Xylene, MEK, MIBK, Cyclohexanone, Isopropyl acetate, N-butyl acetate, 1-Methoxy-2-Propanol acetate, Hexamethylene diisocyanate polymer, Toluene diisocyanate polymer, Talc, Titanium dioxide, Lead chromate, Lead
1123	Polane Catayst 500-1318 V66V27	Sherwin Williams	Toluene, Ethylbenzene, Xylene, MEK, MIBK, Cyclohexanone, Isopropyl acetate, N-butyl acetate, 1-Methoxy-2-Propanol acetate, Hexamethylene diisocyanate polymer, Toluene diisocyanate polymer, Talc, Titanium dioxide, Lead chromate, Lead
1124	Globrite 762CS	Texo Corp	Chromium trioxide, Phosphoric acid
1128	127 Flying Insect Killer	Rochester Midland	Isobutane, Propane, Permethrin, d-Trans allethrin
1131	Oaklite 61B	Oakite	Sodium metasilicate, Sodium carbonate, Sodium tripolyphosphate, Tetrasodium pyrophosphate, Sodium silicate, Disodium phosphate, Coco amido sulfonate
1133	Florco, Cal-Flor-Dry	Floridin Co.	Silica
1135	Retarder Thinner Re182	NAZ DAR	Dipropylene glycol methyl ether, Aliphatic glycol ether
1138	042 Silver Paste	Nor Cote	Aluminum, Copper, Zinc, 2-Hydroxy-2-metyl-1-phenyl-1-propanone
1142	Belt Dressing	Krylon	Propane, Xylene, VM&P Naphtha, Tetrahydroabietyl alcohol, Acetone
1143	Cold Galvanizing Spray Zinc Rich Primer 135	Krylon	Propane, MEK, Xylene, VM&P Naphtha
1144	Fluorescent Spray Paint	Krylon	Propane, Isobutane, Toluene, Hexane, Heptane, Aliphatic solvent naphtha
1146	K Lens M Lens Cleaner	Wilkinson	Ethyl alcohol, Isopropyl alcohol, Methyl alcohol, Propylene glycol monomethyl ether
1154	Sweeping Compound	Buffalo Sweeping Compound Co.	Sawdust, Brick sand, Mineral oil, Acid dye #9, Petrolatum
1158	1200-2 Multi Purpose Grease	Lubriplate	None
1160	Tuff Job Remover	BIX	Dichloromethane, Methanol, 2-amino ethanol
1161	Safety Silver 45 White Brazing Alloy	JW Harris Co Inc.	Silver, Copper, Zinc, Nickel, Tin, Manganese, Boric acid, Lithium, Potassium fluoborate, Potassium tetraborate
1162	No. 14 Skin Protective Cream	Rochester Midland	Stearic acid, Triethanolamine, Bentonite, Corn starch, Methyl paraben, Methyl cellulose
1164	Almond Texture	Sherwin Williams	Polytetrafluoroethylene
1167	CLM ADS-71 High Temp/Extreme Pressure (	Equipment Life of California	Petroleum grease, Lead, Copper, Di-2-ethylhexyl dimerate
1169	Black EBS2-3003-H	Sherwin Williams	None
1172	Glid Guard Epoxy Chromate Metal Primer	Glidden	Fatty acids, 4,4-(1-methylethylidene) bis polymer phenol, 2,2-((1-miethylethylidene)bis(4,1-phenylene oxymethylene))bis(oxirane), 2-Propanol, methylbenzene, Ethylbenzene, 1-Methoxy 2-propanol, 2-Butanone, Cristobalite, Benzene, Dimethylbenzene
1173	Oaklite Chromicoat T3	Oakite	Nitric acid, Chromic acid, Hydrogen fluoride
1174	L Tec Spoolarc & Oxyweld Steel Weld Rods	ESAB Group	Aluminum, Carbon, Copper, Chromium, Iron, Manganese, Molybdenum, Nickel, Silicon, Titanium, Vanadium, Zirconium
1177	Multigear Oils	Sterling Industries	Petroleum lubircating oil

TABLE 1
BUILDING CHEMICAL INVENTORY
Barthelmes Manufacturing Company
15 Cairn Street
Rochester

Chem # Barthelmes MSDS #	Product Name	Manufacturer	HSL Compounds
1179	Perma Fil Part A	Trichem Corp	Diglycidyl Ether of Bisphenol-A, Acrylate Monomer
1180	Perma Fil Part B	Trichem Corp	Nonyl Phenol, m-Xylene diamine, Isophorone diamine
1182	Polane Spray Fil, White	Sherwin Williams	Toluene, Xylene, Cyclohexanone, n-Butyl acetate, Talc, Calcium carbonate, Barium sulfate, Titanium dioxide
1185	Polyurethane Matte Black 88-1086	Sherwin Williams	Synthetic paraffin
1186	Strippable Coating White	Sherwin Williams	VM&P Naptha, Toluene, Acetone, MEK, Methyl Iso Butyl Ketone, Calcium carbonate, Titanium dioxide
1196	International Compound #1598	International Chemical Co.	None
1203	Cutter Exp	IPG Industrial Products Group	Distilled hydrotreated naphthenic oil, Polychlorinated alkanes C10-C13
1214	Davison Blue Indicating Gel	WR Grace & Co.	Silca, Cobalt chloride
1223	Pyroboard CS	Rex Roto Corp	Silca, Clay, Alumina, organic binders
1224	Universal Gloss Modifer	Sherwin Williams	VM&P Naphtha, Toluene, Xylene, Isobutyl acetate, Silca, Talc
1228	Polane T Custom Poly Enamel F63BXW450-	Sherwin Williams	Toluene, Xylene, MEK, Cyclohexanone, n-Butyl acetate, Talc, Titanium dioxide
1235	Magic Lens Cleaning Ant Fogging Static Fluic	Silcone Sterling Paper Co.	Isoproply alcohol, Glycerine, Anti-Stat
1236	Gojo Painters Hand Cleaner	GOJO Industries	Dibasic ester, Linear alcohol alkoxylate, tocophery acetate, Triethanolamine
1237	KIWOFILLER 401NV and 402 HV	Kiwo, Inc.	None
1239	Powder Black	DuPont Powder Coatings	Carbon black
1241	Tech Draw 2900	Chemical Technologies Inc	Petroleum oil
1242	Tech Cool 3718	Chemical Technologies Inc	Triethanolamine, Potassium Hydroxide, Ethanol 2-(2-Aminoethaxy)
1243	Tech Draw 9240	Chemical Technologies Inc	Aliphatic hydrocarbon, Petroleum sulfanate
1244	Alpha Grey	DuPont Powder Coatings	Titanium dioxide, calcium carbonate, 1,3,5-Triglycidyl isocyanurate, silica, iron oxide, iron oixde.
1245	Flat Black	DuPont Powder Coatings	Calcium carbonate
1246	Crystal Clear	DuPont Powder Coatings	1,3,5-Triglycidyl Isocyanurate
1247	RB Putty II	DuPont Powder Coatings	Barium sulfate, Titanium doxide, Calcium carbonate
1248	WH Almond	DuPont Powder Coatings	Barium sulfate, Titanium doxide, Silca
1249	Clear Sailing	DuPont Powder Coatings	None
1250	Vision Black	DuPont Powder Coatings	Calcium carbonate
1252	Equipment Gray	DuPont Powder Coatings	Barium sulfate, Titanium dioxide, 1,3,5-Triglycidyl isocyanurate
1253	Buzz Bond No. 600	Bulk Chemicals Inc	Chromic acid, Potassium fluozirconate, Sodium fluoborate
1255	Machine Gray II	DuPont Powder Coatings	Titanium dioxide, calcium carbonate, 1,3,5-Triglycidyl isocyanurate, Barium sulfate
1256	Pasteweld Solder Paint	Harris Welco	Lead, Tin, Zinc chloride, Ammonium chloride
1257	Appliance White	DuPont Powder Coatings	Titanium dioxide, Barium sulfate, Silca, Aluminum hydroxide
1258	Carrier Alpha Grey RB-1698-4	TCI Powder Coatings	1,3,5-Triglycidyl Isocyanurate
1259	Sikaflex 252	SIKA Corp	Methylene Bisphenyl isocyanate, Xylene
1260	SIKA Primer 206 G&P	SIKA Corp	Ethyl acetate, Polyisocyanate prepolymer, Xylene
1261	Beach Gray II	DuPont Powder Coatings	Titanium dioxide, Calcium carbonate
1262	Vulcan Black	DuPont Powder Coatings	1,3.5-Triglycidyl isocyanurate
1264	Semi Off White	DuPont Powder Coatings	Calcium carbonate, Titanium dioxide, Silica
1265	Texo Kleen 1704	Ondeo Nalco Company	Dipropylene glycol monomethyl ether, Sodium tetraborate decahydrate
1266	E70S-2 Metal Alloy	JW Harris Co Inc.	Iron, Aluminum, Carbon, Copper, Manganese, Phosphorus, Sulfur, Molybdenum, Silicon, Titanium, Zirconium
1268	Para Blocks and Crystals	Freash Products Inc.	Paradichlorobenzene
1269	Illusion Amber	DuPont Powder Coatings	1,3,5-Triglycidyl Isocyanurate
1270	Ivory Sand II	DuPont Powder Coatings	1,3,5-Triglycidyl Isocyanurate, Talc, Titanium dioxide

TABLE 1
BUILDING CHEMICAL INVENTORY
Barthelmes Manufacturing Company
15 Cairn Street
Rochester

Chem # Barthelmes MSDS #	Product Name	Manufacturer	HSL Compounds
1272	RAL 9005 Texture	DuPont Powder Coatings	Talc, Calcium Carbonate, 1,3,5-Triglycidyl Isocyanurate
1274	Beige FRTT1	DuPont Powder Coatings	Titanium oxide, Calcium carbonate, Talc, Iron oxide, Iron oxide
1275	VMS3692IY Silver	DuPont Powder Coatings	1,3,5-Triglycidyl Isocyanurate, mica
1276	Hull Blue	DuPont Powder Coatings	1,3,5-Triglycidyl Isocyanurate, Barium sulfate, Titanium dioxide
1277	Bead Blast Silver	DuPont Powder Coatings	Calcium carbonate, Aluminum, 1,3,5-Trigylcidyl isocyanurate
1278	Hinge Black	DuPont Powder Coatings	Calcium carbonate, Talc, Carbon black
1279	Jet Black	DuPont Powder Coatings	Barium sulfate, Carbon black
1280	RAL 9005	DuPont Powder Coatings	Barium sulfate, 1,3,5-Triglycidyl Isocyanurate, Carbon black
1282	Monarch Black II	DuPont Powder Coatings	Barium sulfate
1283	Gray PFHS2	DuPont Powder Coatings	Titanium dioxide, 1,3,5-Triglycidyl isocyanurate, silica
1284	Gray PFHT2	DuPont Powder Coatings	Titanium dioxide, Talc, Calcium carbonate, 1,3,5-Triglycidyl isocyanurate, silica
1285	ML Gray Tex	DuPont Powder Coatings	Iron oxide, Titanium oxide, Talc, Calcium carbonate
1286	DFE Bioblast	Rochester Midland	Aliphatic hydrocarbon, Tripropylene glycol
1287	Everclear	DuPont Powder Coatings	None
1288	Black Ridge III	DuPont Powder Coatings	Calcium carbonate, Barium sulfate, Carbon black
1289	RAL 5015	DuPont Powder Coatings	Barium sulfate, Titanium dioxide, 1,3,5-Triglycidyl isocyanurate
1290	RAL 2002	DuPont Powder Coatings	Barium sulfate, 1,3,5-Triglycidyl Isocyanurate, Titanium dioxide
1291	Tech Cool 5907LF	Nalco Company	Hydrotreated heavy naphthenic distillate, alkylamine, Propylene glycol, Phosphate ester salt
1292	Tech Cool 4010	Chemical Technologies Inc	Petroleum oil, Hexahydrotriazine
1293	Mobil Hydraulic Oil 15	Exxon	None.
1294	Mobilith AW-2	Exxon	Zinc dialkyl dithiophosphate
1295	NOCO Lube AW Series	Noco Energy	Hydrotreated Heavy Paraffinic distillate, Solvent dewaxed residual oil
1296	Davy Blue	DuPont Powder Coatings	Barium sulfate, Titanium dioxide, Cobalt
1297	White Cloud	DuPont Powder Coatings	Titanium dioxide, Barium sulfate, 1,3,5-Triglycidyl isocyanurate, silica, carbon black
1298	Tech Draw 9311	Nalco Company	Hydrotreated Heavy Naphtha, Propoxylate butanol
1299	Skyward Blue	DuPont Powder Coatings	Barium sulfate, Titanium dioxide, 1,3,5-Triglycidyl isocyanurate
1300	Globrite 531 ADD	Nalco Company	None
1301	Silvadillo	DuPont Powder Coatings	1,3,5-Triglycidyl isocyanurate, Aluminum, Benzoin
1302	Tech Bond 38514	Nalco Company	Methanol, Acetic acid
1303	Tech Cool 35300	Nalco Company	Hydrotreated heavy naphthenic distillate, Heterocycle, Aliphatic alcohol, Fatty amine, Inorganic acid salt, Alkylamine salt, Hydrotreated light naphthenic distillate
1304	ASA 70 Gray	DuPont Powder Coatings	Titanium dioxide, Calcium carbonate, 1,3,5-Triglycidyl isocyanurate, silica, Carbon black
1305	4M767 Sealant Silicone Black	Dow Chemical	Methyltricacetoxysilane, Ethyltriactoxysilane
1306	Orelube HA-3	Orelube Corp	Solvent dewaxed heavy paraffinic distillate

TABLE 2
SUMMARY OF AMBIENT AIR AND SUB-SLAB VAPOR ANALYTICAL RESULTS
Barthelmes Manufacturing Company
15 Cairn Street, Rochester, New York

Location	1	2	3	4	5	6	7	8	9	10	11	12	13
Type	Sub-slab	In-door	In-door	Sub-Slab	In-door	Sub-Slab	In-door	Sub-slab	In-door	Sub-Slab	In-door	Sub-Slab	Outdoor
Units	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3	ug/M^3
Trichloroethylene	53.0	7.0	33.0	13000.0	13.0	180.0	No Sample	23.0	No Sample	1800.0	9.1	64000.0	ND
Acetone	24.0	26.0	17.0	ND	13.0	43.0		18.0		24.0	69.0	ND	22.0
Benzene	16.0	3.8	2.8	ND	19.0	7.7		8.0		3.2	6.7	ND	0.7
Carbon Disulfide	ND	ND	ND	ND	ND	2.1		ND		ND	ND	ND	ND
Chloroform	ND	ND	ND	29.0	ND	ND		ND		1.5	ND	58.0	ND
Chloromethane	ND	0.8	1.0	ND	0.9	ND		1.1		0.6	1.4	ND	1.0
Cyclohexane	96.0	96.0	160.0	170.0	76.0	23.0		330.0		38.0	19.0	ND	ND
1,4 Dichlorobenzene	12.0	11.0	21.0	ND	2.1	7.8		13.0		6.0	ND	ND	ND
cis 1,2-Dichloroethene	ND	ND	ND	1200.0	ND	ND		ND		ND	ND	3700.0	ND
trans 1,2-Dichloroethene	ND	ND	ND	52.0	ND	ND		ND		ND	ND	260.0	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND		ND		ND	1.2	ND	ND
Ethanol	45.0	58.0	17.0	ND	12.0	15.0		18.0		17.0	25.0	ND	6.6
Ethylbenzene	17.0	10.0	16.0	87.0	18.0	14.0		150.0		13.0	5.2	ND	ND
4-Ethyltoluene	ND	2.5	ND	ND	2.5	1.7		1.2		1.2	ND	ND	ND
Freon 12	ND	ND	ND	ND	3.4	4.3		ND		ND	3.2	ND	ND
Heptane	16.0	9.0	ND	ND	1.8	4.1		2.9		4.5	3.0	ND	ND
Methylene Chloride	9.7	2.5	ND	ND	8.3	5.9		ND		ND	5.6	ND	2.4
Methyl Ethyl Ketone	140.0	110.0	28.0	ND	17.0	21.0		44.0		ND	38.0	ND	ND
Methyl Isobutyl Ketone	ND	ND	ND	ND	9.8	ND		ND		32.0	ND	ND	ND
Naphthalene	ND	ND	ND	ND	4.2	ND		ND		ND	ND	ND	ND
2-Propanol	19.0	15.0	3.4	ND	4.9	3.4		9.1		4.9	23.0	ND	ND
Styrene	6.8	ND	ND	ND	6.8	13.0		ND		8.9	2.0	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	1.7	8.1		ND		12.0	ND	120.0	ND
Toluene	130.0	110.0	5.3	29.0	27.0	36.0		24.0		27.0	94.0	ND	3.8
1,2,4-Trimethylbenzene	14.0	9.8	1.3	ND	11.0	6.4		4.2		4.6	2.7	ND	ND
1,3,5-Trimethylbenzene	4.3	3.1	ND	ND	3.0	1.6		1.2		1.2	ND	ND	ND
Vinyl acetate	ND	ND	ND	ND	ND	ND		ND		ND	1.1	ND	ND
m&p Xylene	56.0	38.0	61.0	320.0	69.0	42.0		560.0		40.0	18.0	ND	2.2
o-Xylene	11.0	4.0	5.6	26.0	17.0	10.0		41.0		7.4	5.6	ND	ND

Notes:
ug/M^3 = Micrograms per cubic meter
ND = Not detected at a concentration above the analytical method detection limit

APPENDIX F

FISH AND WILDLIFE IMPACT ANALYSIS INFORMATION

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov

Joe Martens
Commissioner

September 17, 2012

Patrick Rodman
HRP Associates
One Fairchild Square, Suite 100
Clifton Park, NY 12065

Dear Mr. Rodman:

In response to your recent request, we have reviewed the New York Natural Heritage Program database, with respect to an Environmental Assessment for the Proposed Remedial Investigation – Barthelmes Mfg. Site, area as indicated on your enclosed map, located in the City of Rochester, Monroe County.

We have no records of rare or state listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity of your sites.

The absence of data does not necessarily mean that rare or state-listed species, or significant natural communities, do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Databases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,
Jean Pietrusiak
Jean Pietrusiak, Information Services
NYS Department Environmental Conservation

Enc.
cc: Reg. 8, Wildlife Mgr.

866

New York State Department of Environmental Conservation
Division of Environmental Permits, Region 8
6274 East Avon-Lima Road, Avon, New York 14414-9519
Phone: (585) 226-5400 • FAX: (585) 226-2830
Website: www.dec.ny.gov

Joe Martens
Commissioner

October 31, 2012

Patrick Rodman
HRP Associates, Inc.
1 Fairchild Sq, Suite 110
Clifton Park, NY 12065

RE: Natural Heritage Program Review
Barthelmes Manufacturing Site
15 Cairn St, Rochester, NY

Dear Mr. Rodman,

The following comments are based upon the location information provided and request for NYS Natural Heritage Program Data Review:

State Wetlands

There are no NYS-designated Freshwater Wetlands within a 0.5-mile radius of the site; therefore, an Article 24 Freshwater Wetlands Permit would not be required for construction or remediation activities at this site.

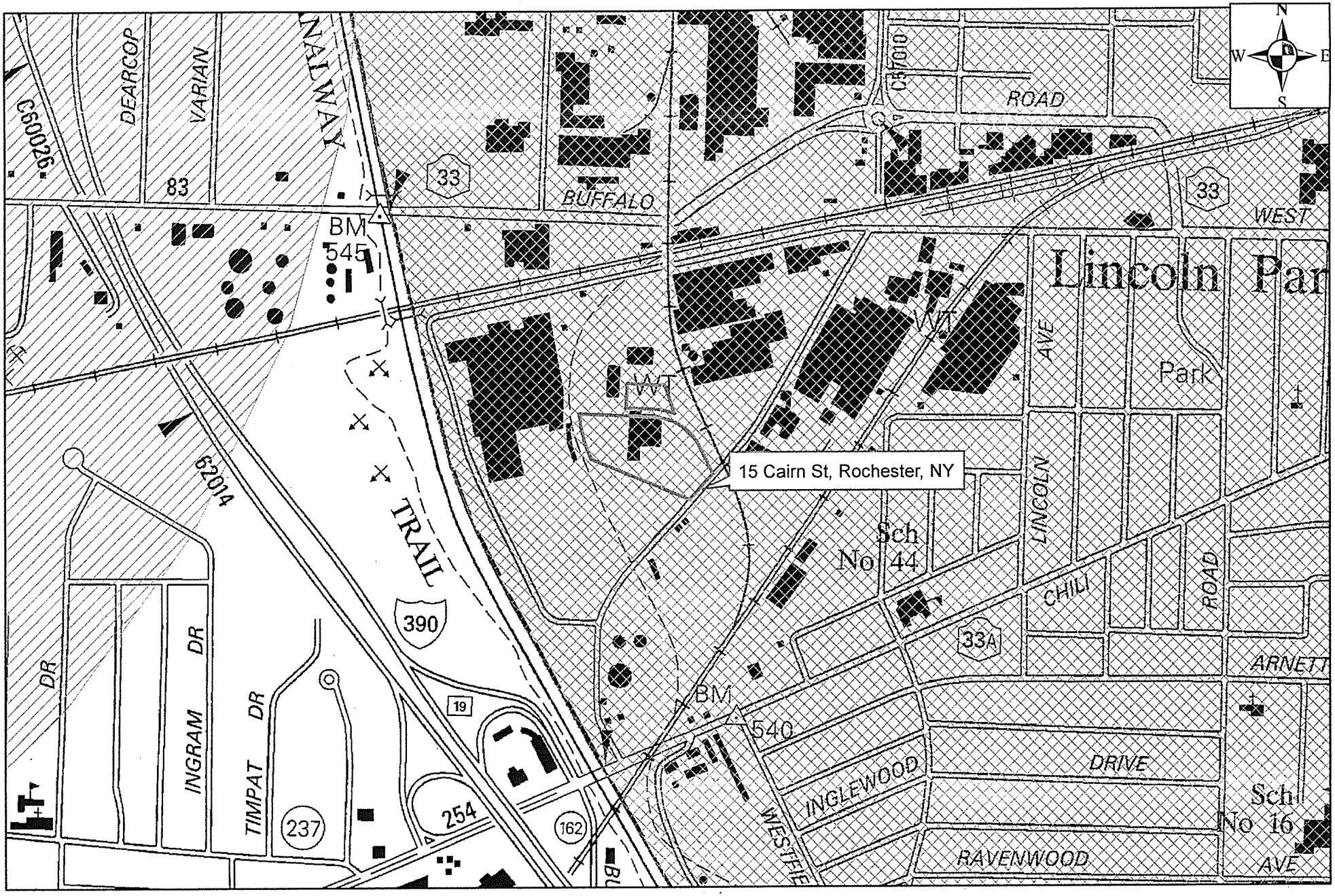
Federal Wetlands

While the Department asserts jurisdiction over NYS-designated freshwater wetlands, the U. S. Army Corps of Engineers (USACE) regulates federally protected wetlands under Section 404 of the Clean Water Act. Preliminary information about potential locations of federal wetlands can be viewed on-line at http://www.fws.gov/wetlands/Data/Mapper.html. For more information about federal jurisdictional determinations of Waters of the U.S. please contact the Buffalo District USACE office at (716) 879-4330. Information on their Regulatory Program can also be found on-line at http://www.lrb.usace.army.mil/

Biotic Communities/Endangered and Threatened Species of Flora and Fauna

We have reviewed the available information in the New York State Natural Heritage Program databases for known occurrences of federally-listed or proposed endangered or threatened species; state-listed endangered, threatened or rare animal and plant species; significant natural communities; and other significant habitats. According to the location information provided, there were several hits for known occurrences of NYS-listed threatened or endangered vascular plant species and one endangered invertebrate animal; however, all of the reports are historical records from the 1800's to early 1900's and are believed to be extant based on changes of land use and industrial development in the area.

For most sites, comprehensive field surveys have not been conducted; the enclosed information only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.



DEC Clearinghouse # 5026
Barthelmes Manufacturing Site

Map Prepared by:
Matt Griffiths, Env Analyst 1
NYSDEC Region 8
10/12/2012

900 450 0 900 1,800
Feet

Scale 1:10,000

Legend

NY Natural Heritage Program Data

- Vascular Plant
- Invertebrate Animal

Species particularly subject to collection and disturbance if location made public: No

Scientific Name: ***Nicrophorus americanus***

Common Name: American Burying Beetle

Element Group: Invertebrate Animal

Seasonal Use:

NY State Listed: Endangered

US Listed: Endangered

State Rank: SH

Global Rank: G2G3

Location(s): Rochester

Date Last Documented: no date

Date First Documented: no date

Date Last Surveyed: no date

ID Confirmed: Y

Observation Date:
no date

Observation EO Data:
Specimen collected.

EO Rank: H - Historical

EO Rank Comments:

EO Data:

Site Description:

Directions: Rochester.

Acres: 0

Threats:

Management Comments:

Protection Comments:

County(s): Monroe

Town(s): Rochester - City (Monroe County)

Managed Area(s): Durand-Eastman Park

Primary Reference: Raithel, Chris. 1991. Unpublished memo to Peter Nye of March 14, 1991 on American burying beetle Nicrophorus americanus Olivier with attached suggested survey protocol for N. americanus.

Mapping Precision: Very Low

Included in Filtered EOs Layer? No

Principal/Sub EO:

Number of Sub EO's:

EO_ID of Principal EO:

EO_ID: 8127

ELCODE: IICOL42010

EO Num: 11

Shape_ID: 35603

New York Natural Heritage Program
Element Occurrence Record

Species particularly subject to collection and disturbance if location made public: No

Scientific Name: ***Carex nigra***

Common Name: Black Sedge

Element Group: Vascular Plant

NY State Listed: Endangered

US Listed:

State Rank: S1

Global Rank: G5

Location(s): Rochester

Date Last Documented: 1841-05-29 Date First Documented: 1841-05-29 Date Last Surveyed: no date ID Confirmed: N

Observation Date: 1841-05-29

Observation EO Data: Extant.

EO Rank: H - Historical

EO Rank Comments:

EO Data:

Site Description:

Directions: Rochester.

Acres: 0

Threats:

Management Comments:

Protection Comments:

County(s): Monroe

Town(s): Brighton (Monroe County), Chili, Gates, Greece, Irondequoit, Rochester - City (Monroe County)

Managed Area(s): Irondequoit Bay and Creek SCFWH

Primary Reference: New York State Biological Survey. No date. Master file of plant distributions. New York State Museum. Albany, NY 12230.

Mapping Precision: Very Low

Included in Filtered EOs Layer? No

Principal/Sub EO:

Number of Sub EO's:

EO_ID of Principal EO:

EO_ID: 3330 ELCODE: PMCYP03990 EO Num: 5 Shape_ID: 2742

Species particularly subject to collection and disturbance if location made public: No

Scientific Name: ***Chaerophyllum procumbens***

Common Name: Spreading Chervil

Element Group: Vascular Plant

NY State Listed: Endangered

US Listed:

State Rank: S1

Global Rank: G5

Location(s): Rochester

Date Last Documented: 1841-06-05 Date First Documented: 1841-06-05 Date Last Surveyed: no date ID Confirmed: N

Observation Date: 1841-06-05

Observation EO Data: Extant.

EO Rank: X - Extirpated

EO Rank Comments: The area is developed.

EO Data:

Site Description:

Directions: Rochester.

Acres: 0

Threats:

Management Comments:

Protection Comments:

County(s): Monroe

Town(s): Brighton (Monroe County), Chili, Gates, Greece, Irondequoit, Rochester - City (Monroe County)

Managed Area(s):

Primary Reference: New York State Biological Survey. No date. Master file of plant distributions. New York State Museum. Albany, NY 12230.

Mapping Precision: Very Low

Included in Filtered EOs Layer? No

Principal/Sub EO:

Number of Sub EO's:

EO_ID of Principal EO:

EO_ID: 873 ELCODE: PDAPI0K020 EO Num: 8 Shape_ID: 808

New York Natural Heritage Program
Element Occurrence Record

Species particularly subject to collection and disturbance if location made public: No

Scientific Name: ***Buchnera americana***

Common Name: Blue-hearts

Element Group: Vascular Plant

NY State Listed: Endangered

US Listed:

State Rank: SH

Global Rank: G5?

Location(s): Rochester

Date Last Documented: 1897 **Date First Documented:** 1897 **Date Last Surveyed:** no date **ID Confirmed:** Y

Observation Date:	Observation EO Data:
no date	Specimen collected.
1897	Extant.

EO Rank: X - Extirpated

EO Rank Comments: The area is developed.

EO Data:

Site Description:

Directions: A specimen has been collected from Rochester. The plant was also found along "University Ave dugway".

Acres: 0

Threats:

Management Comments:

Protection Comments:

County(s): Monroe

Town(s): Rochester - City (Monroe County)

Managed Area(s):

Primary Reference: Specimen (temporary placeholder citation)

Mapping Precision: Very Low **Included in Filtered EOs Layer?** No

Principal/Sub EO: **Number of Sub EO's:** **EO_ID of Principal EO:**

EO_ID: 9581 **ELCODE:** PDSCR0B010 **EO Num:** 9 **Shape_ID:** 1988

New York Natural Heritage Program
Element Occurrence Record

Species particularly subject to collection and disturbance if location made public: No

Scientific Name: ***Cynoglossum virginianum var. borea***

Common Name: Northern Wild Comfrey

Element Group: Vascular Plant

NY State Listed: Endangered

US Listed:

State Rank: S1S2

Global Rank: G5T4T5

Location(s): Rochester

Date Last Documented: 1881

Date First Documented: 1881

Date Last Surveyed: no date

ID Confirmed: N

Observation Date:
1881

Observation EO Data:
Extant.

EO Rank: H - Historical

EO Rank Comments:

EO Data:

Site Description:

Directions: Rochester.

Acres: 0

Threats:

Management Comments:

Protection Comments:

County(s): Monroe

Town(s): Brighton (Monroe County), Chili, Gates, Greece, Irondequoit, Rochester - City (Monroe County)

Managed Area(s):

Primary Reference: Beckwith, Florence and Mary Macauley. 1894. Plants of Monroe County and adjacent territory. Proceedings of the Rochester Academy of Science Vol. 3:1-149.

Mapping Precision: Very Low

Included in Filtered EOs Layer? No

Principal/Sub EO:

Number of Sub EO's:

EO_ID of Principal EO:

EO_ID: 8388

ELCODE: PDBOR0B081

EO Num: 5

Shape_ID: 40891

Species particularly subject to collection and disturbance if location made public: No

Scientific Name: ***Thaspium trifoliatum var. flavum***

Common Name: Purple Meadow-parsnip

Element Group: Vascular Plant

NY State Listed: Unlisted

US Listed:

State Rank: SX

Global Rank: G5T5

Location(s): Rochester

Date Last Documented: 1881

Date First Documented: 1881

Date Last Surveyed: no date

ID Confirmed: ?

Observation Date:	Observation EO Data:
no date	Extant.
1881	FL.

EO Rank: X - Extirpated

EO Rank Comments: The area is developed.

EO Data:

Site Description:

Directions: The location was reported as "Rochester".

Acres: 0

Threats:

Management Comments:

Protection Comments:

County(s): Monroe

Town(s): Brighton (Monroe County), Chili, Gates, Greece, Irondequoit, Rochester - City (Monroe County)

Managed Area(s):

Primary Reference:

Mapping Precision: Very Low

Included in Filtered EOs Layer? No

Principal/Sub EO:

Number of Sub EO's:

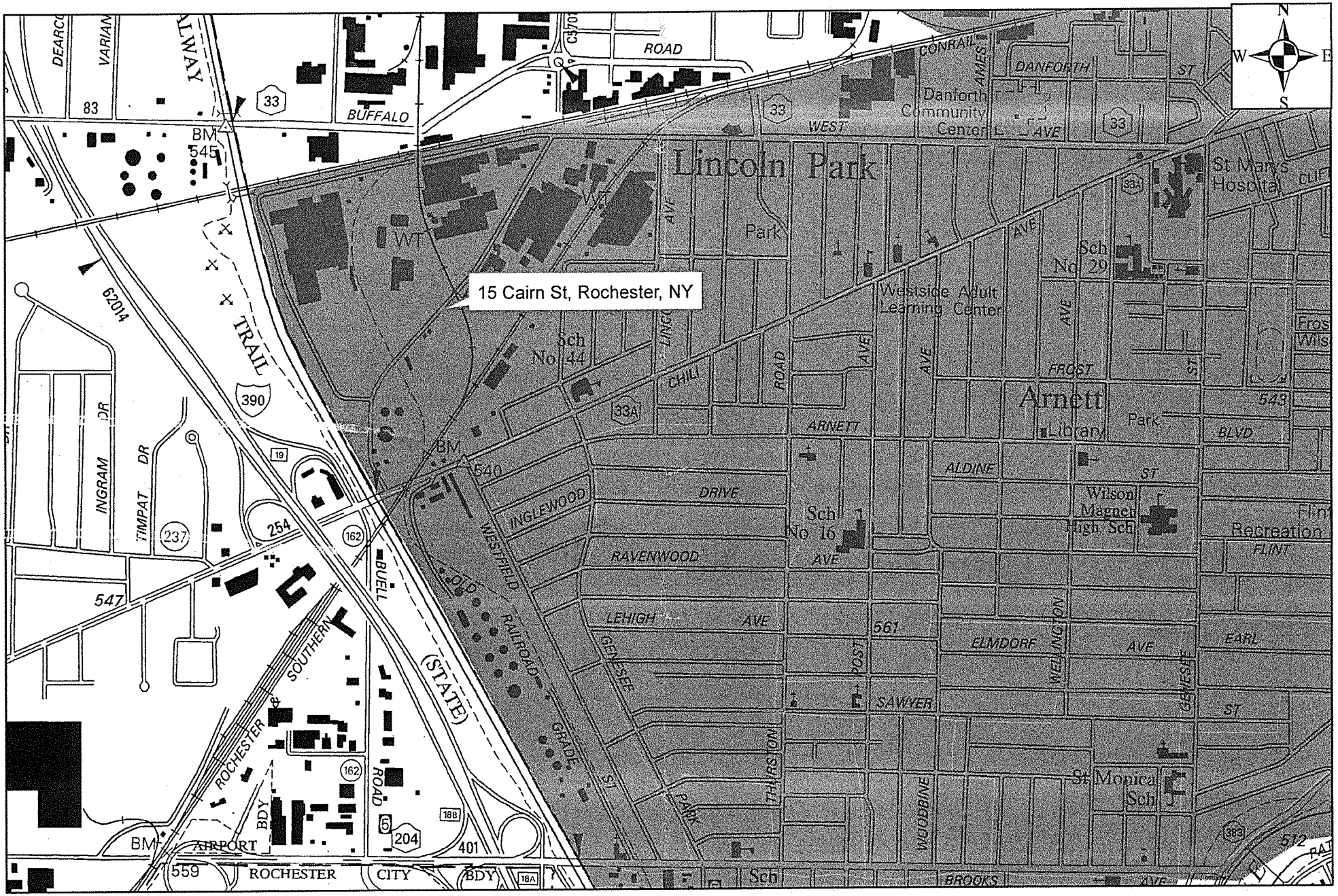
EO_ID of Principal EO:

EO_ID: 5467

ELCODE: PDAPI28033

EO Num: 3

Shape_ID: 4194



DEC Clearinghouse # 5026
Barthelmes Manufacturing Site

Map Prepared by:
Matt Griffiths, Env Analyst 1
NYSDEC Region 8
10/12/2012

1,250 625 0 1,250 2,500
Feet

Scale 1:15,000

Legend

Potential EJ area