REMEDIAL INVESTIGATION REPORT

Former C & F Plating
406 North Pearl Street
Albany, New York,12207

Site Code # 401057
WA # D006130-26

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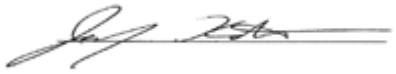

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Submitted: August 17, 2012

HRP Associates, Inc.

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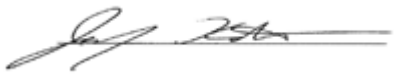
Remedial Investigation Report

For

Former C & F Plating
406 North Pearl Street
Albany, New York, 12207
(Site Code # 401057)
(WA # D006130-26)

CERTIFICATION

I, Jennifer Kotch, certify that I am currently a Qualified Environmental Professional as defined at 6 Part NYCRR Part 375 and that this report, Remedial Investigation/Feasibility Study 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.



Jennifer Kotch

Senior Project Geologist

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1.0 INTRODUCTION

This report presents the results of the Remedial Investigation (RI) completed by HRP Engineering, P.C. (HRP), during the period of September 2011 through July 2012 in connection with the Former C & F Plating Site at 406 North Pearl Street in the City of Albany, Albany County, New York (Site # 401057), referred to herein as the Site (See Figure 1). The on-site and off-site 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 on-site at C and F Plating and off-site at adjacent properties have been reviewed by HRP. Applicable data from these reports have been included in sections of this report.

1.1 PURPOSE

The purpose of this Engineering Services Standby Contract Work Assignment (WA) was to conduct a RI and Alternatives Analysis (AA) report to characterize on-site and off-site media potentially impacted by historic activities at the Site. This RI report is for the tasks associated with the on-site remedial investigation. The primary objectives of the RI/AA Scope of Work (SOW) were to:

- Repair the fence and replaced the entrance gate located at the ingress/egress of the Site;

- Remove enough debris from the Site to access the areas to be investigated;

- Obtain geologic and hydrogeologic data from the Site. Verify previous data generated by other consultants and the United States Environmental Protection Agency (USEPA) and the NYSDEC. The specific information that was verified includes: soil types (or fill), depth to groundwater, groundwater flow direction, subsurface geology, etc. Data gaps were identified from existing data and were addressed by the sampling locations included in the RI;

- Evaluate on-site and off-site soil and groundwater quality to assess if chemical concerns exist relative to the NYSDEC and New York State Department of Health (NYSDOH) standards and guidances. Previous investigations on-site and off-site have revealed groundwater and soil

contamination above NYSDEC and NYSDOH standards and guidance values;

- Compile data generated by previous investigations and produced a base map of the Site and adjacent area with previous sampling results;

- Delineate the vertical and horizontal extent of contaminated media (e.g. soil and groundwater); and

- Determine remedial options for the contamination found in the sampling media on-site.

1.2 BACKGROUND

1.2.1 Site Description

The Site is located on the west side North Pearl Street, in the City of Albany, Albany County, New York. The Site is approximately 0.34 acres in size and is improved by an approximately 6,600-square foot, vacant two-story building with a second floor loft area. According to the City of Albany Code Enforcement Supervisor, the Site is zoned Commercial/Industrial, and is identified with section/lot/block number 65.16-1-25. The Site is currently vacant but was used as a chrome plating facility from the 1920's until its abandonment in 1985. Since 1985, the facility has stored miscellaneous equipment and household items, resulting in an accumulation of debris on-site that was partially removed prior to the Site investigation. The Site and surrounding area is generally flat and featureless, and is located approximately 30 feet above mean sea level. At present, the areas surrounding the property include:

North: Patroon Creek, then Albany Spring Services
West: Family Danz Heating and Air Conditioning Inc. (Family Danz), then American Boiler Tank and Welding
South: Family Danz, then Pleasant Street
East: North Pearl Street, then Cross Fit Beyond

Operations at the Site have resulted in the on-site contamination of soil and groundwater with heavy metals. Based on our review of historical data potential contaminants primarily include: cadmium, chromium, and nickel at levels exceeding NYSDEC standards and guidances.

A May 14, 2003 joint NYSDEC/USEPA inspection uncovered caustic waste, cyanide, and paint waste at the Site. The Site was referred to the USEPA by the NYSDEC on May 27, 2003 for an emergency removal action. On June 27, 2003, the USEPA conducted a Removal Site

Evaluation (RSE) which included a limited inventory of over 40 containers and several vats. Labeling on these materials indicated the presence of strong acids and bases including containers of chromic acids, sodium hydroxide, and zinc solutions. An estimated 2,000 gallons of hazardous waste was present throughout the building and were stored in an unsafe manor. USEPA conducted an emergency removal between November 2003 and July 2004, effectively removing all waste materials stored in drums, canisters, vats, or otherwise existing on the Site.

A subsurface investigation of the site completed by Precision Environmental Services, Inc. (Precision) completed for the NYSDEC occurred in 2006 to determine the presence, if any, of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), target analyte list (TAL) metals, and polychlorinated biphenyl (PCBs) in soil, sediment, and groundwater on-site and off-site. Six (6) soil borings and five (5) groundwater-monitoring wells were installed to varying depths at the subject Site to investigate the subsurface. In addition, eleven (11) surface soil samples were collected around the Site, as well as five (5) sediment samples from the adjacent Patroon Creek.

The laboratory results from the surface and subsurface soil samples collected during the Precision investigation indicated that elevated levels of inorganic contaminants existed at the Site above Recommended Soil Cleanup Objectives (RSCO) levels as published in NYSDEC TAGM 4046 Heavy Metals Soil Cleanup Criteria Table (standard since revised). Several of these inorganics, specifically cadmium, chromium and nickel, are readily attributed to typical chrome plating operations. Cadmium was detected at concentrations greater than the corresponding RSCO level in ten (10) out of the eleven (11) surface soil samples and five (5) of the six (6) subsurface soil samples collected. Elevated chromium concentrations were detected in seven (7) of the eleven (11) surface soil samples and in two (2) subsurface soil samples. The concentration of nickel was detected at elevated levels in six (6) of the eleven (11) surface samples and three (3) subsurface samples.

On December 10, 2010, the NYSDEC placed this Site in the Inactive Hazardous Waste Disposal program for further investigation.

1.2.2 Site History

In 1853, the New York Central Railroad (NYCRR) established a large rail yard adjacent to the Site. A review of the Sanborn Fire Insurance Maps for the City of Albany for the years 1892, 1908, 1935, 1951, 1989, 1992, 1993, 1994, and 1995 gives a history of the Site during those years. Below is a description of each Sanborn Fire Insurance Map depicting the Site.

1892 Sanborn Fire Insurance Map

According to the 1892 Sanborn Fire Insurance Map for the City of Albany, the Site is improved with the Littlefield Stove Company building. The boundary of the building perimeter extends well beyond the current Site boundary of 406 North Pearl Street and extends to the railroad tracks west of the Site (present in 1892); the current boundary of the Former C & F Plating, Family Danz, and American Broiler buildings. The map depicts a one main large structure, labeled "Foundry", to the west of the subject Site, and several small buildings along Patroon Creek. These buildings are labeled tumblers, basting racks, mounting shop, polishing room, packing room, and office. The office is the same shape as the office currently on-site and appears to be the only original building since 1892. Heat is noted as stoves and light is gas. Across North Pearl Street to the east is a small machine shop and across Pleasant Street to the south is Haight and Clark Iron and Brass Founders.

1908 Sanborn Fire Insurance Map

According to the 1908 Sanborn Fire Insurance Map for the City of Albany, the Site is improved with the Littlefield Stove Company building. The structure is the same as the one identified on the 1892 Sanborn map with the exception that the main foundry building does not exist. Heat is noted as stoves, steam for power, fuel is coal, and lights are electric. An oil house and coal shed are present on what would appear to be the property currently occupied by Family Danz. Across Patroon Creek to the north is Harry E. Campell Iron Foundry, the structure that currently exists north of the Site, and to the east is a concrete contractor.

1935 Sanborn Fire Insurance Map

According to the 1935 Sanborn Fire Insurance Map for the City of Albany, the Site is improved with an auto repair garage, a machine shop and metal works shop, and front office and laboratory. The front office and machine shop appear to be structures currently on-site. The auto repair garage and machine shop are constructed with a concrete floor, steel frame, and brick apron. To the north is Patroon Creek then Clausen Iron Company and Albany Spring Service, to the east is North Pearl Street then a filling station, to the south is a parking lot then a private residence and auto repair garage, and to the west is an auto repair garage with lacquer spraying, General Ice Cream Corp. and New York Central Railroad (NYCRR) railroad tracks.

1951 Sanborn Fire Insurance Map

According to the 1951 Sanborn Fire Insurance Map for the City of Albany, the Site is improved with a roofing and sheet metal works shop, and front office. The auto repair facility on the west side of building does not exist, but a storage facility for Clausen Iron Company has been constructed to the west of the Site with an iron bridge over Patroon Creek. All of the same facilities adjacent to the Site are the same as the 1935 Sanborn Map.

1989, 1992, 1993, 1994, 1995 Sanborn Fire Insurance Maps

According to the 1989 through 1995 Sanborn Fire Insurance Maps for the City of Albany, the Site is improved with a plating works shop, front office, and an additional storage room has been added to the west side of the building. To the north is Patroon Creek then a metal works facility and Albany Spring Service, to the east is North Pearl Street then a filling station, to the south is a parking lot then an electric repair shop. To the west is the storage facility for the metal works facility, American Boiler Company, and NYCRR railroad tracks.

1.2.3 Previous Investigations

The following provides a summary of previous environmental investigations regarding the former C & F Plating Site that were provided to HRP by the NYSDEC.

Revised Limited Subsurface Investigation Report, by Precision Environmental Service, Inc, dated May 2008

Precision Environmental Services, Inc. (Precision) was issued a directive to complete a Revised Limited Subsurface Investigation (SI) of the Site on November 3, 2005 under Spill Program, NYSDEC Spill Number 02-9561 Pin H0743. Work tasks carried out from October 2006 to May 2007 included the advancement of six (6) soil borings, the installation and sampling of five (5) groundwater monitoring wells, a Site survey and base map development for the newly installed monitoring wells with relevant surface features, the collection of eleven surface soil samples across the Site, and the collection of five (5) sediment samples collected from the adjacent Patroon Creek.

Soil borings were advanced using a skid steer mounted direct push rig and continuous soil samples (SB-1 through SB-6) were collected. Five (5) of the soil borings (SB-1, SB-2, SB-3, SB-5, and SB-6) were converted to permanent groundwater monitoring wells (MW-1 to MW-5). The wells were constructed of 1" outside diameter PVC pipe and slotted well screen that spanned the water table. In total, seven (7) subsurface soil samples, eleven (11) surface soil samples, five (5) sediment samples, and five (5)

groundwater samples were submitted for analysis of VOCs, PCBs, and TAL metals. Groundwater and sediment samples were additionally analyzed for SVOCs. A second round of groundwater samples collected in May 2007 and submitted for analysis of the same constituents due to high sediment content in the first sampling round and subsequent elevated results of heavy metals in water samples. Field work for the investigation was completed in May 2007.

The laboratory results from the surface and subsurface soil samples collected during the investigation indicated that elevated levels of inorganic contaminants exist at the Site above Recommended Soil Cleanup Objectives (RSCO) levels as published in NYSDEC TAGM 4046 Heavy Metals Soil Cleanup Criteria Table. Several of these inorganics are readily attributed to typical chrome plating operations including cadmium, chromium and nickel. Cadmium was detected at concentrations greater than the corresponding RSCO level in ten (10) out of the eleven (11) surface soil samples and five (5) of the six (6) subsurface soil samples collected. Elevated chromium concentrations were detected in seven (7) of the eleven (11) surface soil samples and in two (2) subsurface soil samples. The concentration of nickel was detected at elevated levels in six (6) of the eleven (11) surface samples and three subsurface samples.

In addition to cadmium, chromium and nickel, several other inorganics were detected in soil samples at the Site exceeding relevant Eastern USA Background levels including arsenic, barium, beryllium, cobalt, copper, mercury and zinc.

The laboratory results from the groundwater samples collected during the investigation indicated elevated levels of heavy metals. A comparison of the October 2006 and May 2007 groundwater analytical results completed by Precision suggested that the significantly higher concentrations of heavy metals observed during the first round are due to suspended solids in the groundwater samples. However, the SI Report stated that analytical results from the less turbid samples collected during the second round indicated direct impacts to the groundwater from past Site operations. Most notable were elevated concentrations of cadmium, chromium and nickel, relative to the NYSDEC groundwater standard as defined in 6 NYCRR Part 703. VOCs, SVOCs, and PCBs were not detected in groundwater. Gauging data also indicated that groundwater encountered is migrating east southeast, consistent with the October 2006 groundwater contour data complied by Precision.

To assess potential impacts to the Patroon Creek five (5) sediment soil samples were obtained from the creek bottom. The analytical results suggested that the creek sediments have not been adversely impacted by Site operations. The creek flows primarily through commercial and

industrial properties where numerous releases and environmental impacts to the creek have been documented. The compounds identified in the sediment samples both near the Site and downcreek are commonly found in such settings. According to the SI, the lack of a marked increase in concentrations downcreek as compared to those discovered upcreek provide further support that the creek had not been impacted by the subject facility.

Based on the findings, Precision attributed the elevated levels of heavy metals detected in soil and groundwater at the Site to historic chrome plating operations.

Figure 3 and Figure 4 depict historical work previously completed on the Site and are included in this On-Site Remedial Investigation/Feasibility Study Report. Figure 3 (Previous Investigation Soil Sampling Locations) and Figure 4 (Previous Investigations Groundwater Sampling Locations) depict historical soil and groundwater sampling locations where exceedances of NYSDEC Standards for analyzed parameters were notes, respectively.

1.3 REPORT ORGANIZATION

The text of this report is divided into five (5) 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 on-site and off-site RI report; the report organization; the Site background including Site description, Site history, summary of previous relevant studies, agency involvement, and summary of Site specific environmental database search, and scope of work are discussed.

Section 2.0 Study Area Investigation: Summarizes field activities associated with the remedial investigation, including surficial and subsurface soil investigations, groundwater investigations, and geological investigations. Technical correspondence documenting field activities are also summarized in this section.

Section 3.0 Physical Characteristics of the Study Area: 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 on-site and off-site RI, both natural and chemical components and contaminants in the following media: soil and groundwater.

Section 5.0 Contaminant Fate and Transport: An evaluation of potential migration pathways and contaminant persistence and/or migration is presented.

Section 6.0 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 7.0 Conclusions, Data Limitations, and Recommendations: Summarizes the results and findings of the on-site and off-site RI.

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 degree and extent of contamination on-site and off-site. A description of the study area investigations conducted during this Remedial Investigation/Alternatives Analysis is presented in this section.

This Remedial Investigation/ Alternatives Analysis (RI/AA) 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: 401027," dated August 31, 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 field activities plan utilized the NYSDEC's DER-10 (DER-10), Technical Guidance for Site Investigation and Remediation, dated May 2010 for guidance. As required by the NYSDEC, the scope of work incorporated the following Site specific components:

- Site Specific 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/AA was conducted in several mobilizations to the Site and included the following tasks:

- Debris removal for access to areas included in the FAP (November 14, 2011);
- Fence gate replacement and fence repair (December 1, 2011);
- Advancement of soil borings and installation of monitoring wells using a direct push rig and the collection and submittal for analysis of select soil samples (December 5 through 9, 2011 and April 18, 2012);
- Development of groundwater monitoring wells (December 16 and 21, 2011 and April 23, 2012);
- Global Positioning System (GPS) survey of groundwater monitoring wells and relative groundwater monitoring well elevation survey (May 4, 2012);
- Sampling of groundwater monitoring wells and submittal for analysis (December 28, 2011 and 29, 2011 and May 1, 2012); and
- Measurement of depth to water in groundwater monitoring wells (December 29, 2011 and May 1, 2012).

2.1 Field Activities Associated with the RI/AA

To determine the degree and extent of possible on-site contaminants from the Former C & F Plating Site, HRP advanced soil borings and installed permanent groundwater monitoring wells as presented in the Work Assignment Issuance/Notice to Proceed. Groundwater and soil samples were collected from these points and submitted to a NYS certified laboratory for analysis. Sampling procedures are discussed throughout Section 2.1.5 (Soil Boring Installation and Sampling). The analytical results for each medium are discussed in Section 3.0 (Physical Characteristics the Site). The Data Usability Summary Report (DUSR) is included in Appendix B.

2.1.1 Surface Features: Natural and Manmade Features

HRP conducted an initial Site visit in September 2011 to inspect the Site and review features described in previous reports listed in section 1.2.3 (Previous Investigations) of this report. During the field activities in November and December 2011, HRP collected field data to verify the locations of the natural and manmade features on-site. The following paragraphs describe the natural and manmade features identified during the field activities.

The Site is located on the west side North Pearl Street and is improved with a vacant two-story brick and metal structure that is in a dilapidated condition that appears to be structurally unstable. The inside of the structure was full of household debris (garbage) such as papers, books, wood, tires, mattresses, toys, couches, tarps, Styrofoam, and a hot tub. The metal fence and gate surrounding the western and southern perimeter of the site was broken in spots and needed repair. Since 1985 the facility had been used for storage of miscellaneous equipment and household items, resulting in an accumulation of debris that had to be partially removed prior to the Site investigation. In April 2012, the City of Albany removed the remainder of the debris from outside of the building.

With regards to topography, the Site is generally flat, with the exception that the northern to eastern perimeter building foundation is adjacent to the Patroon Creek. The Patroon Creek currently exists in a concrete and brick culvert and the creek appears to be eroding the eastern foundation of the building. On December 16, 2011, HRP observed that the northeast corner on the building partially collapsed into Patroon Creek. The NYSDEC and Albany Fire Department (AFD) inspected the site and subsequently the AFD will only permit access to the interior of the building while an AFD representative is on-site.

2.1.2 Meteorological Observations

Throughout HRP's on-site and off-site subsurface investigation, visual and thermal observations (i.e. ambient temperature readings) were noted and recorded in field logs. Other meteorological observations were conducted as part of the Community Air Monitoring Program (CAMP).

2.1.3 Debris Removal

Since 1985, the Site has been used to store miscellaneous equipment and household items, resulting in an accumulation of debris on-site that completed littered the inside of the main building structure. The debris started with a slight pile (zero to one foot) at the northern end of the building and extended to the South of the building where it was as high as six feet in spots. The office area at the South end of the building was covered in garbage bags that were stacked at least two high in most locations thought the two story office area.

Before the subsurface investigation began on-site an area of the debris within the building and lead up to the rear of the building along the driveway area had to be removed. This was completed in order to physically see the floor structure of the building in order to determine the location of the floor drains and previously installed monitoring wells. In addition, the dumping of the debris also occurred along the side of the building that had driveway access. In order to have a drill rig or Geoprobe enter the site, some of this debris needed to be removed.

HRP and its subcontractor removed approximately 34,740 lbs of debris from the site that was taken to the Troy transfer station at 799 Burden Avenue in Troy, NY. The debris was removed from the Site before the subsurface investigation proceeded.

2.1.4 Surface-Water and Sediment Investigations

Patroon Creek borders the Site to the north; however, surface-water and sediment samples were not included under the scope of this investigation. The 2008 Precision Site Investigation Report stated that sediment samples were collected from the bottom of the Patroon Creek upcreek, adjacent to the Site, and downcreek locations and that Patroon creek sediments had not been adversely impacted by Site activities.

2.1.5 Geological Investigations

HRP observed the advancement of soil borings and the installation of groundwater monitoring wells using a Geoprobe 54 Series and a 6610DT direct push rig, and recorded soil mineralogy and grain size, per the Udden-Wentworth Scale (1922), in boring logs. The larger rig was utilized to penetrate into the tight regolith geology. The soil boring logs and monitoring well construction logs are provided in Appendix A. Information on the boring log 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. Soil boring and monitoring well installations were conducted by Aztech Technologies, Inc. (Aztech) of Ballston Spa, New York, a New York State Licensed drilling company.

2.1.6 Soil Boring Installation and Sampling

To evaluate the condition of the Site's subsurface soils, HRP and Aztech mobilized to the Site on December 5 through 9, 2011 and on April 18, 2012 and installed a total of eighteen soil borings (HRP-SB-01 through HRP-SB-11, HRP-SB-4A, HRP-SB-10A, HRP-SB-12, and HRP-MW-6 through HRP-MW-11). Ultimately, the goal was to install borings to 20 feet below ground surface (bgs) with the exceptions that HRP-SB-08 and HRP-MW-10 were sampled to 24 feet bgs and HRP-SB-6 and HRP-SB-11 were sampled to 15 feet bgs through the floor drain of the facility. Due to subsurface conditions at the Site, the borings were advanced to 1.75 feet bgs to 24 bgs. Aztech advanced the borings and collected continuous soil samples using 5-foot Macrocore acetate liners. The soil boring locations were proposed in the Work Assignment (WA) and were modified in the field due to limited access and Site conditions.

Three (3) surface soil samples were also collected at the Site. Surface soil samples were collected from locations were in the floor drain next to HRP-SB-11, and in close proximity to HRP-MW-9 and HRP-MW-8.

The soil boring locations are shown on Figure 5 and are summarized below. Soil Boring Logs can be found in Appendix A.

During soil boring advancement activities, continuous soil samples were collected from the ground surface to the desired depth using 5-foot Macrocore acetate liners. Sample depths and amount of samples taken at each soil boring varied due to subsurface conditions and

recovery. The samples were collected by the attending HRP geologist, placed in polyethylene bags, labeled, and preserved on ice in a cooler. Each sample was then reviewed 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 photoionization detector (PID).

All non-disposable soil sampling equipment was decontaminated between samples using an Alconox wash followed by a clean water rinse. All investigation derived waste (IDW) was stored in labeled, approved 55-gallon drums for proper disposal.

Based on the results of the field screening and observations, HRP would normally select one soil sample exhibiting the highest PID reading from each soil boring for laboratory analysis. Since no elevated PID readings were observed on-site and off-site, the soil sample that corresponded with the water table interface was generally selected for sampling. HRP select one (1) soil sample for analysis from each boring with the exception that three (3) samples from different intervals were sent from HRP-SB-11 at the floor drain location. HRP submitted a total of twenty (20) subsurface soil samples, three (3) surface soil samples, and one (1) duplicate sample for analysis.

The soil samples identified and sample depths that were submitted and analyzed are listed below. Each sample was sent to Chemtech, of Mountainside, New Jersey, an NYSDOH ELAP approved laboratory, for analysis.

Soil Boring ID	Sample Depth (ft bgs)	Sample Location	Analysis
HRP-SB-01	10-12.5	West Side of Building	All Samples analyzed for Mercury (via USEPA 7471A) and Metals ICP-TAL (via USEPA 6010B) (1) Samples analyzed for VOCs (via USEPA 8260B), SVOCs (via USEPA 8270C), Cyanide
HRP-SB-02	10-15	Northwest Corner of Building	
HRP-SB-03	10-12.5	Northwest Corner of Property	
HRP-SB-04	0-1.75	North of Building in Center of Asphalt Area	
HRP-SB-04A	5-10.1	Under Northern Bay Door of Building	
HRP-SB-05	7.5-10	North End of Property Near Gate	
HRP-SB-06 (1)	10-15	East Side of Floor Drain in Building	
HRP-SB-07	7.5-10	Northwest Corner Inside	

Soil Boring ID	Sample Depth (ft bgs)	Sample Location	Analysis
		Building	(via USEPA 9012B), PCBs (via USEPA 8082), and Pesticides (via USEPA 8081A) (2) Samples analyzed for TCLP Metals
HRP-SB-08 (1)	10-15	West entrance Inside Building	
HRP-SB-09	10-12.5	Center of Building	
HRP-SB-10	5-10	East Side Inside Building	
HRP-SB-10A	5-10	Ten feet North of HRP-SB-10, Near Floor Drain	
HRP-SB-11	5-7.5, 7.5-10, 10-15	Center of Length of Floor Drain	
HRP-SB-12	10-12	Off-site to the East of site across North Pearl Street in grass	
HRP-MW-06	15-17.5	Off-site- American Boiler Lot	
HRP-MW-07	7.5-10	Northwest Corner of Property	
HRP-MW-08(1)	10-12.5	Northeast Corner of Property	
HRP-MW-09 (1, 2)	7.5-10	In Storage Area on North Side of Building	
HRP-MW-10 (1)	10-12.5	Southeast Side Inside Building	
HRP-MW-11	10-12	Off-site to the East of site across North Pearl Street in grass	
HRP-SS-1	0-0.5	Next to HRP-SB-11	
HRP-SS-2	0-0.5	Next to HRP-SB-9	
HRP-SS-3	0-0.5	Next to HRP-SB-8	
Duplicate 12/6 (1)	10-15	Duplicate of HRP-SB-6	

2.1.6. Groundwater Investigations

2.1.6.1 Groundwater Monitoring: Well Installation, Development, Sampling

To evaluate the condition of on-site and off-site groundwater, HRP and Aztech mobilized to the Site during the period of December 5 through December 9, 2011 installed five (5) overburden monitoring wells (HRP-MW-6, HRP-MW-7, HRP-MW-8, HRP-MW-9, and HRP-MW-10), and on April 18, 2012 installed one (1) off-site overburden monitoring well (HRP-MW-11).

Subsequent to the installation of soil borings, six (6) of the nineteen (19) boreholes were converted to permanent, flush-mounted groundwater monitoring wells. Monitoring well locations were

selected by HRP and approved by the NYSDEC. The type of well installed was modified based on field conditions.

Monitor Well ID	Location	Justification
HRP-MW-6	Off-site - American Boiler Lot	To assess the presence, identity, and concentration of VOCs, SVOCs, metals (total and dissolved) including mercury, cyanide, pesticides, and PCBs at strategic locations surrounding the Former C & F Plating property.
HRP-MW-7	Northwest Corner of Property	
HRP-MW-8	Northeast Corner of Property	
HRP-MW-9	In Storage Area on North Side of Building	
HRP-MW-10	Southeast Side Inside Building	
HRP-MW-11	Off-site – East of the Site across North Pearl Street	

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. Five (5) 1.5-inch diameter PVC monitoring wells with pre-packed screens and one (1) 2.0-inch diameter PVC monitoring well was installed in the shallow saturated zone beneath the Site. The overburden monitoring wells were installed using the procedures described below:

- Soil borings were driven to the desired depth;
- The 1.5-inch diameter Schedule 40 PVC with pre-packed sand well screen (0.010-inch slot) or 2.0-inch diameter Schedule 40 PVC well screen (0.010-inch slot) and riser pipe were inserted and placed on the bottom of the borehole. The riser was capped to prevent well construction materials from entering the well;
- Due to the diameter of the pre-packed well screen, rods were removed and washed silica was poured into the annular space between the well material and the borehole sidewall. The sand pack continued to at least two-feet above the top of the screen section;
- Above the sand, a seal (bentonite pellets) was formed in the borehole. The bentonite seal extended at least two (2) feet above the top of the sand pack section;
- Clean water was periodically added to the borehole to hydrate the pellets. The pellets were then allowed to hydrate for at least 30 minutes;
- The well riser was cut to approximately 2-inches below grade and flush-mounted curb boxes were installed and grouted in place; and

- A lockable gripper plug was inserted onto the top of each well casing and locked.

Methods of Groundwater Development

HRP mobilized to the Site on December 16 and 21, 2011 to develop the six (6) recently installed groundwater monitoring wells and again on April 23, 2012 to develop the one additional off-site monitoring well (HRP-MW-11). HRP removed water from each of the wells utilizing a whale pump and/or new Teflon lined polyethylene bailer. These methods were chosen as the appropriate well development method based on water depth, well productivity, and sediment content of the water. Non-disposable equipment (i.e. water level indicator) was decontaminated prior to use in each well. Care was taken not to introduce contaminants to the equipment during installation. All development waters were emptied into a clean 5-gallon pail for approximate volume measurement and were then dumped on ground surface near the well per NYSDEC request. 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 A.

Well development was discontinued when field parameters met the following conditions:

- Well water had achieved a turbidity value of less than 50 NTU; and
- Well development was supplemented by measurements of temperature, pH, and specific conductance. Development was complete when these parameters stabilized for a minimum of three consecutive readings at 10 percent variability or less; or
- Greater than six well volumes were removed from each location.

Methods of Groundwater Sampling

To evaluate the groundwater quality beneath the Site, groundwater samples were collected from each of the five installed groundwater monitoring wells. To collect representative groundwater samples, monitoring wells were adequately purged prior to sampling. A minimum of 48 hours elapsed following the development of each well prior to groundwater sampling. Low flow sampling equipment and procedures were used to purge and sample the monitoring wells. Purging required removing water from the well at a rate of at least 250 milliliters per minute, but not exceeding 1 liter per minute for a sufficient length of time for water quality parameters to stabilize (at

least 30 minutes). Drawdown did not exceed ten percent of the standing water column. Sampling commenced immediately after purging, without adjusting the flow rate or water intake depth.

Groundwater samples were collected from each well, including a duplicate and matrix spike/matrix spike duplicate (MS/MSD) sample. A matrix spike is an aliquot of a field sample, which is fortified with the analyte(s) of interest and analyzed to monitor measurement bias associated with the sample matrix. A matrix spike and matrix spike duplicate are performed for every analytical batch.

Sample ID	Analyses
HRP-MW-6	All Samples analyzed for Mercury (via USEPA 7470A), Metals ICP-TAL (total and dissolved) (via USEPA 6010B), and Total Cyanide (via USEPA 9012B) (1) analyzed for VOCs (via USEPA 8260B), SVOCs (via USEPA 8270C), and PCBs (via USEPA 8082)
HRP-MW-7	
HRP-MW-8 (1)	
HRP-MW-9	
HRP-MW-10 (1)	
HRP-MW-11 (1)	
VOC: Volatile Organic Compounds SVOC: Semi Volatile Organic Compounds TAL: Target Analyte List PCBs: Polychorinated Byphenols USEPA: United States Environmental Protection Agency	

Previously installed monitoring wells MW-1 and MW-3 through MW-5 could not be located for this sampling event and are presumed to have been destroyed. Installed in October 2006, onsite monitoring well MW-2 was identified onsite during the November 2011 debris removal activity. The integrity of the monitoring well was suspect and the monitoring well was a direct path to the subsurface, therefore, the monitoring well was not included in the sampling plan. MW-2 was abandoned on December 5, 2011 as per general guidance document *CP-43: Groundwater Monitoring Well Decommissioning Policy, (date November 2009)* while executing the monitoring well decommissioning activities.

Each sample was sent to Chemtech Laboratory, an NYSDOH ELAP approved laboratory, for analysis.

The following list describes the well purging and sampling procedures that were utilized on December 28 and 29, 2011 and May 1, 2012:

- All field instruments were calibrated as indicated by manufacturer's standards at the beginning of each work day.
- Monitoring well covers were unlocked and carefully removed to avoid having any foreign material enter the well.
- The water level was measured below the top of casing using an electronic water level indicator. With knowledge of the total depth of the well, it was possible to calculate the volume of water in the well. The tape and probe of the water level indicator was cleaned with an Alconox and water soaked paper towel while reeling in.
- New teflon lined polyethylene tubing was installed into the well and the end of the tubing was set to approximately the midpoint of the groundwater column inside the well.
- The teflon lined polyethylene tubing was attached to a Geopump peristaltic pump. Another section of tubing was attached to the effluent side of the pump.
- The tubing was attached to a flow-through cell water quality monitor (YSI 600xl).
- The pump was turned on and set to a relatively low discharge rate (less than 1-liter per minute) and drawdown rate was monitored using a water level indicator.
- The wells were purged while collecting water quality measurements (pH, Specific Conductivity, Temperature, Dissolved Oxygen, Oxidation/Reduction Potential, and Turbidity) and water level measurements were collected every 3 to 5-minutes.
- After water quality conditions stabilized and well purging was completed, a groundwater sample was collected into the appropriate containers.
- The VOC sample containers were filled first. The discharge tubing was directed toward the inside wall of the sample container to minimize volatilization. VOC sample containers were filled so that no headspace (air bubbles) was present.
- Each sample bottle was labeled in the field using a waterproof permanent marker and placed in a cooler with ice.
- All non-disposable equipment was decontaminated with alconox and water, and then rinsed with deionized water prior to and after each use.
- Monitoring well sampling data was recorded in a groundwater sampling data sheet (provided in Appendix A).

2.1.7 Monitoring Well Survey

HRP obtained the services of YEC Engineering, P.C. (YEC) of Valley Cottage, New York to complete the survey portion of the RI/FS. A Site survey was conducted in order to properly locate all sampling points. The field survey included establishing project horizontal and vertical control and the collection of planimetric and topographic. 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. YEC was on-site May 4, 2012 to collect geophysical and Site data for the survey needed to be completed in accordance with the Site specific field activities plan. The sampling survey plots are attached in Appendix A.

2.1.8 Ecological Investigations

In the original scope of work HRP was not tasked with completing a Fish and Wildlife Impact Analysis (FWIA) through Step II. The NYSDEC directed HRP that the FWIA would not be required.

2.1.9 Deviations from Workplan

During the course of the RI/AA there were deviations from the original scope of work. Listed below are the deviations:

- Due to restrictions regarding mobility at the Site, HRP-SB-6 was moved from the northeast corner of the Site to the floor drain within the building. Additional soil boring HRP-SB-11 was also collected from the floor drain area.

- During soil boring and monitoring well installation, drill rig refusal was encountered at the glacial till and weathered bedrock interface at HRP-SB-4, HRP-SB-7A, and HRP-SB-10A. These locations were advanced to refusal at shallow depths and the locations were adjusted based on site conditions with the NYSDEC's approval.

- Based on its distance from the Site and from HRP-MW-11 and dry nature of the soil boring, purposed monitoring well HRP-SB-12 (proposed HRP-MW-12) was not converted into a monitoring well and remained a soil boring.

- Groundwater parameters wells were developed until water was clear and six well volumes were removed. See

groundwater sampling sheets in Appendix A for water sampling parameters.

- Soil vapor samples were included in the work plan, however, soil vapor was not recommended at this point as VOC and SVOC were not observed in the analytical results.

- Wipe samples were purposed in the work plan, but based on conversations with the NYSDEC, were not collected.

There were no other deviations from the work plan.

2.2 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 contact throughout the RI/AA field work and other activities via site visits, email, telephone conversations, and meetings. Any changes to the work plan and items encountered in the field were relayed to the NYSDEC project manager immediately and if approval was needed for a change it was obtained prior to it being completed.

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 Site is located on the west side North Pearl Street, in the City of Albany, Albany County, New York (see Figure 1). The Site is approximately 0.34 acres in size and is improved by a vacant two-story building constructed of brick with metal supports. The building on-site is currently in a dilapidated condition that appears to be structurally unstable. Since 1985 the facility had been used for storage of miscellaneous equipment, resulting in an accumulation of debris that had to be partially removed prior to the Site investigation. The remainder of the debris located outside was removed by the City of Albany after the on-site portion of the RI work had been completed. The Site is generally featureless, with the exception that the northern perimeter building foundation drops in Patroon Creek.

3.1.2 Meteorology

Throughout HRP's on-site investigations, the weather on-site varied due to seasonal temperature changes and precipitation. Visual and thermal observations (i.e. ambient temperature readings) were noted and recorded in field notebooks and in the weather station itself. The data the weather station recorded is included with this report on an attached CD.

3.1.3 Surface Water Hydrology

The Patroon Creek is adjacent to the northern property line of the Site. The creek's source is Rensselaer Lake in the western section of the city of Albany. This creek is defined on the NYSDEC Environmental Resource Mapper as entering the Hudson River from the northwest in Albany. The creek flows underground through a man-made culvert before passing the Site boundary until it reaches the Hudson River to the east. The NYSDEC has classified this creek as "C", which is a fresh water surface water creek and has a best use for fishing.

3.1.4 Geology

Surficial Geology

Surficial geological materials were encountered throughout the Site and surrounding area to varying depths below grade. Depth to bedrock surface ranged from 1.5 feet to 24 feet bgs. Regolith (overburden) was variable across the Site, however, generally consisted of brown to gray sand and gravel, with few clay layers. Boring logs prepared during this investigation are presented in Appendix A.

According to the Surficial Geology Map of New York – Lower Hudson Sheet (1989), the site's underlying material is on the cusp between recent deposits (Al) and lacustrine silt and clay (Lsc). Recent deposits consist of materials generally confined to floodplains within a valley. Material is oxidized non-calcereous, fine sand to gravel, in larger valleys may be overlain by silt, subject to frequent flooding, with thickness from 1-10 meters. Lacustrine silt and clay consist of materials of generally laminated silt and clay, deposited in proglacial lakes, generally calcareous, with potential land instability, and thickness variable from 1-100 meters. The material observed off-site closely resembled lacustrine silt and clay. HRP's observations are consistent with the mapped descriptions.

Bedrock Geology

According to the NYS Geological Survey, Bedrock Geology of NYS (1999), bedrock underlying the Site and surrounding area is classified as the Middle Ordovician aged Normanskill Shale (On). The Normanskill Shale in this area is classified as shale with secondary mudstone and sandstone rock types. Bedrock was encountered during the subsurface investigation.

3.1.5 Subsurface Soils

Surficial soils encountered at the Site and surrounding areas were highly variable, however generally consisted of brown to gray sand and gravel. 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 (Ur). Urban land soils are designated in areas where greater than seventy percent of the land surface is covered by impervious materials (i.e. buildings, roads, etc.).

3.1.6 Hydrogeology

Groundwater in Soil Borings

During the installation of monitoring wells, groundwater was encountered at depths on average ranging from 6 to 9-feet bgs.

Groundwater in Monitoring Wells

Groundwater was observed in monitoring wells at depths ranging from 6.84 to 8.89 feet bgs during the December 28 and 29, 2011 monitoring well sampling, 16.20 feet bgs during the May 1, 2012 groundwater sampling, and from X to C feet bgs during the August 9, 2012 gauging event (Figures 6 and 6A). No odor, sheen, or free product was observed in any other monitoring wells.

HRP conducted a relative groundwater elevation survey between on-site and off-site wells on December 28, 2011 and May 1, 2012. A review of the groundwater flow direction determined based on the December 28, 2011, May 1, 2011 and August 8, 2012 indicates the groundwater flow is to the east northeast. The groundwater levels recorded during the event are as follows.

Overburden Well ID	Groundwater Measurements December 28, 2011 and May 1, 2012		Groundwater Measurements August 9, 2012	
	Depth to Water (feet below top of casing)	*Depth to Water (feet below top of casing)*	*Depth to Water (feet below top of casing)*	*Groundwater Elevation (feet)*
HRP-MW-6	8.89	38.86	9.54	38.21
HRP-MW-7	6.85	31.97	7.56	31.26
HRP-MW-8	6.84	31.33	7.61	30.56
HRP-MW-9	6.95	31.01	7.78	30.18
HRP-MW-10	7.75	30.44	8.41	38.19
HRP-MW-11	16.20 (1)	28.64	13.14	31.70

(1) HRP-MW-11 gauged on May 1, 2012.

Based on the results of the groundwater elevation survey, flow in the monitoring wells was generally to the east northeast. Groundwater flow diagrams are presented in Figure 6 for the monitoring wells.

3.1.7 Investigation Derived Waste

During the installation of monitoring wells, non-hazardous investigation derived waste (IDW) was generated, which consisted of soil and drill cuttings. The IDW was placed into 55-gallon steel drums and stored inside the gate at the Site, adjacent to North

Pearl Street. During the length of the remedial investigation, five (5) drums of IDW were generated. Of note, one of the properly labeled drums containing contaminated soil was punctured sometime between December 28, 2011 and May 1, 2012. It is assumed that the drum was accidently punctured while the City of Albany was performing their site clean-up. The punctured soil drum was over packed prior to removal.

The IDW drums were sampled and the analytical results were profiled for Toxic Characteristic Leaching Procedures (TCLP). Based on the representative samples of cuttings and spoils that were analyzed it was determined that the materials would be classified as non-regulated material. The drums were then transported off-site using non-hazardous waste manifests. HRP subcontracted with Precision Industrial Maintenance of Schenectady, New York to arrange for the removal and transportation of the IDW to properly permitted treatment, storage, or disposal facility. The following drums were taken off-site and properly disposed:

Date removed	Material removed	Number of drums	Total quantity (lbs.)
7/13/12	Non-regulated material (soil), Non RCRA/Non DOT	5	2,600

The IDW was disposed of at Cycle Chem Inc. of 217 South First Street, Elizabeth New Jersey (EPA ID#NJD00200046).

3.1.8 Demography and Land Use

North Pearl Street is located on the eastern side of Albany, New York, running parallel to the Hudson River approximately 0.5 miles to the east. The property is zoned for commercial or industrial use. According to the United States census of 2010, there were 97,856 people and 41,168 households residing in the city. The population density was 4,575.3 people per square mile.

3.1.9 Ecology

A Fish and Wildlife Impact Analysis (FWIA) was not included in the original Scope of Work and was not completed for the Site.

4.0 NATURE AND EXTENT OF CONTAMINATION

In order to identify the nature and extent of contamination from the Former C & F Plating, HRP submitted soil and groundwater samples to a certified laboratory for analysis. The various media samples were analyzed for one or more of the following including: volatile organic compounds (VOCs); semi-volatile organic compounds (SVOCs); Target Analyte List (TAL) Metals including mercury; PCBs and pesticides; and total cyanide.

Chemtech of Mountainside, New Jersey provided the analytical laboratory services for the soil and groundwater analysis. Nancy Potak of Greensboro, Vermont, 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/AA and the analytical results are presented in Tables 1 through 5. A general description of the various media sampled and analyzed is provided below.

- Subsurface soil samples (HRP-SB-01 through HRP-SB-12, HRP-SB-4A, HRP-SB-10A HRP-SB-12, and HRP-MW-6 through HRP-MW-11) and surface soils samples (HRP-SS-1 through HRP-SS-3) were collected from on-site and off-site at the Former C & F Plating Site.

- One round of groundwater samples collected over two dates (due to the later date of the installation of the off-site monitoring well) were collected from newly installed monitoring wells (HRP-MW-6 through HRP-MW-11).

Compounds detected in the various media tested during this RI/AA were compared to the following NYS criteria guidance documents and standards:

- 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).

- 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).

- NYSDEC, Division of Environmental Remediation, DER-10, "Technical Guidance For Site Investigation and Remediation", dated May 2010.

Soil analytical results for this investigation were compared against Unrestricted, Restricted Residential, Commercial, and Industrial Soil Cleanup Objectives (SCOs).

4.1 Results of Remedial Investigation

This section presents the results of RI, both natural chemical components and contaminants in some, but not necessarily all, of the following media:

4.1.1 Sources

Based on the results of the previous subsurface investigations on-site at Former C & F Plating, the principal contaminants of concern at the Site includes the following metals: arsenic, antimony, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, sodium, and zinc. Media impacted by the contaminants of concern include soil and groundwater. Concentrations were detected in the samples for one or more of the above media at levels exceeding NYSDEC standards and guidance. No other VOCs, SVOCs, or PCBs were detected above NYSDEC standards and guidance.

4.1.2 Soils

4.1.2.1 Subsurface Soils

Subsurface Sample Submittal

Twenty-two (22) subsurface soil samples were collected at twenty (20) locations during the RI between December 5 and December 9, 2011 and on April 18, 2012. All twenty-two (22) soil samples were analyzed for mercury (via USEPA 7471A), and metals ICP-TAL (via USEPA 6010B). Six (6) subsurface soil samples were analyzed for VOCs (via USEPA 8260B), SVOCs (via USEPA 8270C), Cyanide (via USEPA 9012B), PCBs (via USEPA 8082), and Pesticides (via USEPA 8081A). Two (2) soil samples were sampled for metals Toxicity Characteristic Leaching Procedure (TCLP) analysis.

Analytical Results - Subsurface Soils for VOCs

Two (2) VOCs were detected among the five (5) subsurface soil samples tested. Of the two (2) VOCs detected, there were no exceedances observed at a concentration exceeding its NYSDEC Part 375-6 respective Unrestricted SCO. The two (2) VOCs detected include acetone and ethyl acetate, known lab artifacts. VOC results for subsurface soils from soil borings are listed in Table 1.

Analytical Results - Subsurface Soils for SVOCs

Three (3) SVOCs were detected among the five (5) subsurface soil samples tested. Of the three (3) SVOCs detected, there were no exceedances observed at a concentration exceeding its NYSDEC Part 375-6 respective Unrestricted SCO. The three (3) VOCs detected include dimethylphthalate, fluoranthene, and pyrene, observed at HRP- MW-11. SVOC results for subsurface soils from soil borings are listed in Table 1.

Analytical Results - Subsurface Soils for Metals

All twenty-two (22) soil samples collected were analyzed for TAL metals and mercury. Six (6) soil samples were analyzed for total cyanide and two (2) samples were analyzed for metals TCLP. Sixteen (16) soil samples had exceedances over SCOs. Nine (9) metals (barium, cadmium, chromium, copper, lead, nickel, silver, and zinc) were detected at concentrations which exceed the Unrestricted SCOs. Seven (7) metals (barium, cadmium, chromium, copper, lead, and nickel) were detected at concentrations which exceed the Restricted-Residential SCOs. Three (3) metals (cadmium, lead, and nickel) were detected at concentrations which exceed the Commercial SCOs. One (1) metal (cadmium) was detected at concentrations which exceed the Industrial SCOs. One (1) metal (cadmium) was detected at concentrations which exceed the 40 CFR 261.24 – Code of Federal Regulations for Metals TCLP concentrations for cyanide. Metal results for subsurface soil samples collected are listed in Table 2 and on Figure 7.

Analytical Results - Subsurface Soils for PCB and Pesticides

PCBs and pesticides were not detected among the five subsurface soil samples tested.

Summary – Subsurface soils

In summary, only TAL metals were detected above NYSDEC SCOs among the twenty (20) samples analyzed. A total of nine (9) metals exceeded NYSDEC SCOs in eighteen (18) of the twenty-three (23) soil samples analyzed. Cross sections of the Site

oriented in a generally north/south and east/west direction have been included as Figures 10 through 12.

DUSR – subsurface soils

The analytical results were reviewed by Nancy Potak for overall usability issues. The DUSR Report (Appendix B) found several changes of data in various samples due to low initial and continuing calibration RRF values. The dilution sample results were not used with several exceptions noted in the tables.

4.1.2.2 Surface Soils

Surface Sample Submittal

Three (3) surface soil samples were collected at three locations during the RI/AA on December 28, 2011. All three (3) soil samples were analyzed for mercury (via USEPA 7471A) and metals ICP-TAL (via USEPA 6010B). One sample from the floor drain area was analyzed for Toxic Characteristic Leaching Procedures (TCLP) Metals.

Analytical Results - Surface Soils for Metals

All three (3) soil samples collected were analyzed for TAL metals and mercury. All three (3) soil samples had exceedances over SCOs. Nine metals (barium, cadmium, total chromium, copper, lead, mercury, nickel, silver, and zinc) were detected at concentrations which exceed the Unrestricted SCOs. Five (5) metals (total chromium, lead, mercury, silver, and zinc) were detected at concentrations which exceed the unrestricted SCOs. Two (2) metals (total chromium and mercury) were detected at concentrations which exceed the Restricted-Residential SCOs. Five (5) metals (barium, total chromium, copper, lead, and nickel) were detected at concentrations which exceed the commercial SCOs. Two (2) metals (cadmium and lead) were detected at concentrations which exceed the industrial SCOs. Metal results for surface soil samples collected are listed in Table 3 and on Figure 8 and TCLP metals results are presented on Table 4.

Summary – Surface soils

In summary, TAL metals were detected above NYSDEC SCOs among the three samples analyzed. A total of nine metals exceeded NYSDEC SCOs in eighteen (18) of the twenty-three (23) soil samples analyzed.

DUSR – Surface soils

The analytical results were reviewed by Nancy Potak for overall usability issues. The DUSR Report (Appendix B) found several

changes of data in various samples due to low initial and continuing calibration RRF values.

4.1.3 Groundwater

Groundwater - sample submittal

Five (5) groundwater samples were collected from the newly constructed monitoring wells (HRP-MW-6 through HRP-MW-10) during the RI/FS on December 28 and December 29, 2011 and one groundwater sample was collected on May 1, 2012 from newly installed monitoring well HRP-MW-11 for a total of six (6) monitoring wells sampled. All samples were analyzed for mercury (via USEPA 7471A), metals ICP-TAL (via USEPA 6010B), and Cyanide (via USEPA 9012B). Two (2) samples (HRP-MW-8 and HRP-MW-10) were analyzed for VOCs (via USEPA 8260B), SVOCs (via USEPA 8270C), and PCBs (via USEPA 8082).

Analytical Results for VOCs

VOCs were not detected above NYSDEC TOGS 1.1.1 Class GA Criteria in the two (2) groundwater monitoring wells samples analyzed.

Analytical Results for SVOCs

One (1) SVOC (2-Pentanone, 4-hydroxy-4-methyl) was detected; however, the analyte was not above NYSDEC TOGS 1.1.1 Class GA Criteria in the five groundwater samples analyzed. The SVOC results for the groundwater samples are listed in Table 5.

Analytical Results for Metals, Cyanide, and Mercury

All six (6) groundwater samples collected were analyzed for TAL metals, cyanide, and mercury. A total of seven (7) metals (aluminum, antimony, cadmium, iron, magnesium, manganese, and sodium) exceeded NYDEC TOGS 1.1.1 Class GA Criteria in all groundwater samples taken. The metal results for this groundwater sample are listed in Table 5 and on Figure 9.

Analytical Results for PCBs

PCBs were not detected in the two (2) groundwater samples analyzed.

Summary

In summary, among the six (6) groundwater samples tested, only seven (7) metals were detected at levels that exceed the NYSDEC TOGS 1.1.1 Class GA Criteria value for these parameters. There were no other exceedances above the TOGS values in submitted groundwater samples.

DUSR

The analytical results were reviewed by Nancy Potak for overall usability issues. The DUSR Report found several changes of data in various samples due to low initial and continuing calibration RRF values. The dilution sample results were not used with several exceptions noted in the tables. The Data Usability Summary Report can be found in Appendix B, the full DUSR report can be found on the enclosed CD.

4.1.4 Sample Exceedances

The following table contains results for samples collected during the investigation that exceeded either NYSDEC TOGS values for groundwater or SCOs for soil. The investigation sample results revealed that subsurface and surface soil and groundwater samples collected and analyzed only exceeded standards and guidances in metals criteria. Please note, only samples with exceedances are listed below.

HRP-SB-1 10-12.5 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/5/2011	Silver	22.9	2	180	1,500	6,800

HRP-SB-4 0.0-1.75 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/5/2011	Cadmium	19.8	2.5	4.3	9.3	60
12/5/2011	Total Chromium	115	31	290	1,900	7,600
12/5/2011	Copper	78.7	50	270	270	10,000
12/5/2011	Nickel	314	30	310	310	10,000
12/5/2011	Zinc	199	109	10,000	10,000	10,000

HRP-SB-4A 5-10.1 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	2.69	2.5	4.3	9.3	60

HRP-SB-5 7.5-10 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/5/2011	Cadmium	2.56	2.5	4.3	9.3	60

HRP-SB-6 10-15 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	204	2.5	4.3	9.3	60
12/6/2011	Total Chromium	107	31	290	1,900	7,600
12/6/2011	Copper	99.6	50	270	270	10,000
12/6/2011	Nickel	76.4	30	310	310	10,000
12/6/2011	Zinc	155	109	10,000	10,000	10,000

HRP-SB-8 10-15 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Total Chromium	172	31	290	1,900	7,600

HRP-SB-9 10-12.5 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	5.04	2.5	4.3	9.3	60
12/6/2011	Silver	4.08	2	180	1,500	6,800

HRP-SB-10 5-10 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	451	2.5	4.3	9.3	60
12/6/2011	Total Chromium	65.1	31	290	1,900	7,600
12/6/2011	Copper	53.4	50	270	270	10,000
12/6/2011	Nickel	168	30	310	310	10,000

HRP-SB-10A 5-10 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	140	2.5	4.3	9.3	60
12/6/2011	Total Chromium	67.9	31	290	1,900	7,600
12/6/2011	Copper	117	50	270	270	10,000
12/6/2011	Nickel	86.6	30	310	310	10,000
12/6/2011	Zinc	174	109	10,000	10,000	10,000

HRP-SB-11 5-7.5 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	2,340	2.5	4.3	9.3	60
12/6/2011	Total Chromium	520	31	290	1,900	7,600
12/6/2011	Copper	208	50	270	270	10,000
12/6/2011	Lead	1,540	63	400	1,000	3,900
12/6/2011	Nickel	627	30	310	310	10,000
12/6/2011	Zinc	473	109	10,000	10,000	10,000

HRP-SB-11 7.5-10 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	3,500	2.5	4.3	9.3	60
12/6/2011	Total Chromium	64.1	31	290	1,900	7,600
12/6/2011	Nickel	335	30	310	310	10,000
12/6/2011	Zinc	440	109	10,000	10,000	10,000

HRP-SB-11 10-15 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	19.9	2.5	4.3	9.3	60

HRP-SS-1 0.0-0.5 ft. bgs						
Located at Former C & F Plating						
SURFACE SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Barium	1,240	350	400	400	10,000
12/6/2011	Cadmium	1,640	2.5	4.3	9.3	60
12/6/2011	Total Chromium	4,150 N	31	290	1,900	7,600
12/6/2011	Lead	9,850	63	400	1,000	3,900
12/6/2011	Mercury	0.383	0.18	0.81	2.8	5.7
12/6/2011	Nickel	4,290	30	310	310	10,000
12/6/2011	Silver	2.48	2	180	1,500	6,800
12/6/2011	Zinc	1,750	109	10,000	10,000	10,000

N = Presumptive Evidence of a Compound

HRP-SS-2 0.0-0.5 ft. bgs						
Located at Former C & F Plating						
SURFACE SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	5,140	2.5	4.3	9.3	60
12/6/2011	Total Chromium	915	31	290	1,900	7,600
12/6/2011	Copper	1,910	50	270	270	10,000
12/6/2011	Lead	1,280	63	400	1,000	3,900
12/6/2011	Mercury	0.294	0.18	0.81	2.8	5.7
12/6/2011	Nickel	810	30	310	310	10,000
12/6/2011	Zinc	1,670	109	10,000	10,000	10,000

HRP-SS-3 0.0-0.5 ft. bgs						
Located at Former C & F Plating						
SURFACE SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	255	2.5	4.3	9.3	60
12/6/2011	Total Chromium	207	31	290	1,900	7,600
12/6/2011	Copper	1,230	50	270	270	10,000
12/6/2011	Lead	271	63	400	1,000	3,900
12/6/2011	Mercury	0.944	0.18	0.81	2.8	5.7
12/6/2011	Nickel	567	30	310	310	10,000
12/6/2011	Zinc	2,250	109	10,000	10,000	10,000

HRP-MW-8 10-12.5 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/5/2011	Total Chromium	72.6	31	290	1,900	7,600

HRP-MW-9 7.5-10 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Barium	402	350	400	400	10,000
12/6/2011	Cadmium	53.7	2.5	4.3	9.3	60

HRP-MW-10 10-12.5 ft. bgs						
Located at Former C & F Plating						
SOIL RESULTS (all results are in mg/kg)						
Date of Collection	Parameter	Concentration	Unrestricted	Restricted-Residential	Commercial	Industrial
Metals						
12/6/2011	Cadmium	36.8	2.5	4.3	9.3	60
12/6/2011	Total Chromium	36.3	31	290	1,900	7,600
12/6/2011	Copper	74.4	50	270	270	10,000
12/6/2011	Nickel	63.5	30	310	310	10,000

HRP-MW-6			
Located at Former C & F Plating			
GROUNDWATER RESULTS (all results are in mg/L)			
Date of Collection	Parameter	Concentration	NYSDEC Class GA Criteria
Metals			
12/29/2011	Iron	12.6	0.3
12/29/2011	Magnesium	36.5	35
12/29/2011	Manganese	1.61	0.3
12/29/2011	Sodium	66.9	20

HRP-MW-7			
Located at Former C & F Plating			
GROUNDWATER RESULTS (all results are in mg/L)			
Date of Collection	Parameter	Concentration	NYSDEC Class GA Criteria
Metals			
12/28/2011	Iron	3.04	0.3
12/28/2011	Magnesium	36.3	35
12/28/2011	Manganese	0.699	0.3
12/28/2011	Sodium	87.3	20

HRP-MW-8			
Located at Former C & F Plating			
GROUNDWATER RESULTS (all results are in mg/L)			
Date of Collection	Parameter	Concentration	NYSDEC Class GA Criteria
Metals			
12/28/2011	Antimony	0.00838	0.003
12/28/2011	Iron	2.61	0.3
12/28/2011	Manganese	0.918	0.3
12/28/2011	Sodium	35.9	20

HRP-MW-9			
Located at Former C & F Plating			
GROUNDWATER RESULTS (all results are in mg/L)			
Date of Collection	Parameter	Concentration	NYSDEC Class GA Criteria
Metals			
12/29/2011	Cadmium	0.0138	0.005
12/29/2011	Iron	0.789	0.3
12/29/2011	Manganese	1.24	0.3
12/29/2011	Sodium	84.8	20

HRP-MW-10			
Located at Former C & F Plating			
GROUNDWATER RESULTS (all results are in mg/L)			
Date of Collection	Parameter	Concentration	NYSDEC Class GA Criteria
Metals			
12/28/2011	Aluminum	0.143	0.1
12/28/2011	Cadmium	0.148	0.005
12/28/2011	Iron	1.35	0.3
12/28/2011	Manganese	0.704	0.3
12/28/2011	Sodium	68.2	20

HRP-MW-11			
Located at Former C & F Plating			
GROUNDWATER RESULTS (all results are in mg/L)			
Date of Collection	Parameter	Concentration	NYSDEC Class GA Criteria
Metals			
5/1/2012	Manganese	0.457	0.3
5/1/2012	Sodium	375	20

4.1.5 Air

A Community Air Monitoring Plan (CAMP) was included in the scope of work as presented and approved in the site specific field activity plan. Real-time monitoring was conducted for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when ground intrusive activities were being conducted, including soil borings and monitoring wells installation. Its intent was to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

VOCs were monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during intrusive work or as otherwise specified. Upwind concentrations were measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work was performed using a Mini Rae 2000 photo ionization detector

(PID) equipped with a 10.2 eV bulb. The PID was calibrated to manufacture's standards daily for the contaminant(s) of concern or for an appropriate surrogate. The PID was placed in a weather proof box that sat on a tripod approximately four feet off the ground. The downwind PID readings did not exceed 5 ppm during the field activities.

Particulate concentrations were monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations during intrusive work. The particulate monitoring was performed using a Quest Dust Trak 8520, a real-time monitor capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The Dust Trak was routinely zero (0) checked and was placed in a weather proof box that sat on a tripod approximately four feet off the ground. The equipment was equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration was visually assessed during all work activities. The particulate readings were below 100 mcg/m^3 during all field activities. All tables for VOCs and particulates concentration readings can be found on the included CD.

5.0 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.

5.1 Potential Routes of Migration

5.1.1 Groundwater

HRP collected and analyzed groundwater samples from the six (6) installed monitoring wells on-site and off-site (sampled over two rounds of sampling). Based on the analytical results, there were not VOCs detected in groundwater sampling which exceeded the NYSDEC TOGS guidance values. In addition, several metals and one (1) SVOC were detected above NYSDEC TOGS guidance values.

Primary route of contaminant migration within the site is via groundwater. The overburden groundwater generally flows in east direction. Due to the historical high levels of cadmium, chromium, and nickel in the soil and groundwater and cadmium being detected in on-site and off-site monitoring wells it has been shown that there is a high potential for groundwater metals 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 soil and groundwater analytical results.

5.1.2 Soil

On-site and off-site subsurface soil samples were collected at nine (9) locations, and submitted for analysis. Two (2) VOCs were detected among the five (5) samples analyzed. Two (2) VOCs (acetone and ethyl acetate) were detected at concentrations below Unrestricted Subpart 375-6 SCOs. In addition, the soil sample from the monitoring wells and soil borings were also analyzed for total metals, there were numerous detections which exceeded their respective SCOs.

The on-site investigation area consists of paved asphalt, sidewalks, basement floors, and some small dirt covered areas. Due to the impervious nature of the on-site investigation area, the majority of the storm water will via sheet flow discharge to the Patroon Creek.

Therefore, due to the impervious nature of the site and low detections of VOCs above NYSDEC SCOs, there is little to no potential for the subsurface soil contaminants to migrate off-site in the unsaturated zone.

5.2 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 detected above in applicable TOGS values in the groundwater samples, are expected to be persistent on site because of their chemical nature or natural occurrence in the area.

5.3 Contaminant Migration

5.3.1 Factors Affecting Contaminant Migration

Factors affecting contaminant migration for the media of importance (i.e. groundwater) is the Patroon Creek and the covering of the overburden with impermeable structures. Additional factors affecting contaminant migration for the media of importance includes future development or alteration of the on-site and off-site properties and the potential for contact with the subsurface that has several metal concentrations above NYSDEC SCO values.

5.3.2 Modeling Methods and Results

Modeling methods were not included in the scope of this RI.

6.0 EXPOSURE ASSESSMENT

A qualitative baseline exposure assessment was completed based on the information presented in Sections 1.0 through 5.0. Generally, the human health evaluation involves an exposure assessment, an evaluation of Site occurrence, hazard identification and comparison to New York State risk-based criteria.

6.1 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 "worse case scenarios".

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 be similar 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 Groundwater

Exposure to overburden 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

No surface water is present on the subject Site. The Patroon Creek is located adjacent to the Site, however the creek is located in a culvert and entrance to the creek is limited. Exposure to surface water is unlikely, and the overall likelihood for exposure to surface water is considered minimal at the subject Site.

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 asphalt and concrete roads and sidewalks, as well as the building partially covering the Site area. Exposure through inhalation is also considered low since no intrusive activities occur on-site 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 future construction activities, specifically disturbance of soils, the potential for exposures to soils would increase for on-site workers, utility workers, trespassers and visitors. During development periods, construction fencing would be installed for safety reasons. This scenario would keep trespassers out and exposure to soils would be minimal to low.

Hazard Identification and Comparison to State Risk-Based Criteria

The potential Site hazards due to human exposures were reviewed based on chemical-specific health exposure based criteria. State values believed potentially applicable to the medium or pathway were examined (see Tables 1 through 4).

Subsurface Soils

The State risk-based criteria used for the Site subsurface soils include the following:

- 6 NYCRR Part 375-6: Remedial Program Soil Cleanup Objectives, Technical Support Document (TSD). "Technical Support Document" is also known as the "New York State Brownfield Cleanup Program Development of Soil Cleanup Objectives Technical Support Document" dated September 2006. This document presents and discusses the assumptions, exposure scenarios, receptors, rationale, and calculations utilized by the Department and the New York State Department of Health to develop the soil cleanup objectives in ECL 27-1415(6).

- NYSDEC, Division of Environmental Remediation, DER-10, “Technical Guidance For Site Investigation and Remediation”, dated May 2010.

- 40 CFR 261.24- Code of Federal Regulations - Title 40: Protection of Environment.

All Soil analytical results for this investigation were compared against Unrestricted, Restricted Residential, Commercial and Industrial Soil Cleanup Objectives (SCOs). A comparison of soil risk-based criteria and investigation occurrence information compiled from analytical testing results of subsurface soil samples collected from the investigation is included on Tables 1 through 4.

From the twenty-two (22) subsurface soil samples and three (3) surface soil samples collected miscellaneous VOCs were detected at low levels that did not exceed the Unrestricted, Restricted Residential, Commercial, or Industrial SCOs. In addition, two VOCs were detected that exceeded the Unrestricted SCO, but did not exceed Restricted Residential, Commercial, or Industrial SCOs.

The former plating Site is zoned Commercial and Industrial.

Based on the results from the subsurface soils sampling there were several exceedances of cadmium and nickel above the Commercial SCO and only cadmium exceeded the Industrial SCO. There is a need for restrictions to be in place for intrusive activates within the area that had cadmium and nickel exceedances above commercial SCOs. There would be no restrictions on the use of the surrounding properties investigated as defined in DER-10.

Groundwater

Human health risks associated with exposure to groundwater were examined by considering both:

- Use of the overburden groundwater as a drinking water source; and

- Potential exposure to overburden groundwater at a point of contact, by construction or utility workers.

The State criteria used for human health risks associated with use of overburden groundwater at the Site as drinking water source includes the following.

- NYSDEC Division of Water Technical and Operational Guidance Series (TOGS 1.1.1)

VOCs were not detected above NYSDEC TOGS 1.1.1 Class GA Criteria in the two (2) groundwater monitoring wells samples analyzed. Seven (7) metals were detected at levels that exceed the NYSDEC TOGS 1.1.1 Class GA Criteria value for these parameters. There were no other exceedances above the TOGS values in submitted groundwater samples.

The potential for exposure due to use of overburden groundwater as a drinking water source or for cooling, dewatering, or irrigation is considered minimal. The site currently and will presumably use municipal water in the future, and therefore there is minimal risk onsite water will be used for drinking purposes. However in the event those construction activities are carried out onsite, construction or utility workers would have minimal contact of the overburden groundwater.

7.0 CONCLUSIONS, DATA LIMITATIONS, and RECOMMEDATIONS

The purpose of this on-site and off-site remedial investigation is to identify and define the extent of the on-site and, if any, off-site media potentially impacted by historic on-site activities and assess the degree and extent of contamination at the Site. This investigation identified contamination in each medium shown below which were assessed at levels exceeding applicable criteria.

7.1 Conclusions

- Based on the data generated from the site investigation, there are two source areas at the site that appear to have historically contributed to the current on-site contamination. These source areas are the former drum storage area, just north of the main building structure, and the interior floor drain.

- Based on site investigation findings, the nature and extent of on-site contamination has been determined to include Cadmium, Nickel, Chromium, and Lead in the soil and Cadmium in the groundwater on the Site.

- The Site is located on the west side North Pearl Street, in the City of Albany, Albany County, New York. The Site is approximately 0.34 acres in size and is improved by an approximately 6,600-square foot, vacant two-story building with a second floor loft area. The Site is currently vacant but was used as a chrome plating facility from the 1920's until its abandonment in 1985. Since 1985, the facility has stored miscellaneous equipment and household items, resulting in an accumulation of debris on-site.

- Previous investigations and remedial actions at the Site included the removal an estimated 2,000 gallons of hazardous waste was present throughout the building and stored in an unsafe manor. USEPA conducted an emergency removal between November 2003 and July 2004, effectively removing all waste materials stored in drums, canisters, vats, or otherwise existing on the Site.

- HRP and its subcontractor removed approximately 34,740 lbs of debris from the site that was taken to the Troy transfer station at 799 Burden Avenue in Troy, NY. The debris was removed from the Site before the subsurface investigation proceeded.

- Nine (9) metals (barium, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc) metals were detected in

subsurface soil samples (5 to 17.5 feet below the ground surface) at concentrations exceeding one or more Subpart 375-6 SCOs (including Unrestricted, Residential, Restricted Residential, Commercial, and Industrial). In addition, Cadmium, Nickel, and Lead exceeded the Commercial SCO, and Cadmium also exceed the Industrial SCO. Therefore, based on the sampling results, subsurface soils (primarily five to fifteen feet bgs) have been impacted by past site operations.

- Based on the findings to date, the detections of volatile organic compounds, semi-volatile organic compounds, PCBs and pesticides in soils do not exceed Restricted Residential, Commercial and Industrial land use values listed for 6 NYCRR Part 375-6 Soil Cleanup Objectives;
- One subsurface sample (HRP-MW-9) and one surface soil sample (HRP-SS-1) were submitted for Toxicity Characteristic Leaching Procedure (TCLP) Metals. Eight metals were detected; however with one exception the TCLP metals sample results did not exceed USEPA Regulatory Levels. Cadmium exceeded the USEPA Regulatory Level for TCLP in the surface soil sample (HRP-SS-1). Because the soil sample exceeded the TCLP level, any soil removal activities in the area of HRP-SS-1 may result in the removed soil being characterized as hazardous waste based on the toxicity levels.
- Three (3) surface soil samples (HRP-SS-1 through HRP-SS-3), taken at a depth of zero to six inches, were analyzed for TAL metals and twenty-three metals were detected. Of these 23 metals, Chromium, Lead, Mercury, Silver, and Zinc exceeded the Unrestricted SCOs; Chromium and Mercury exceeded Restricted Residential SCOs; Barium, Chromium, Copper, Lead, and Nickel exceeded Commercial SCOs; and Cadmium and Lead exceeded Industrial SCOs. Therefore, based on the sampling results, surface soils have been impacted by past site operations.
- HRP installed six groundwater monitoring wells and part of this remedial investigation. The six groundwater wells were sampled, and the samples were submitted for analysis of SVOCs 8270, TAL Metals, Mercury, and Cyanide. The laboratory detected nineteen (19) metals within the six groundwater samples. Of those 19 metals detected, seven (aluminum, antimony, cadmium, iron, magnesium, manganese, and sodium) exceed the NYSDEC TOGS GA values for their respective compounds. Based on the previous contaminants of concern in the groundwater at the site (Cadmium, Chromium, and Nickel), this investigation detected Cadmium well above the NYSDEC TOGS value for Chromium at MW-9 (outside

the main structure in the former drum storage area) and MW-10(inside the main building, south of the floor drains). The groundwater at the site has been impacted by past site operations.

- There were no exceedances above the NYSDEC TOGS GA values in the six analyzed groundwater samples for SVOCs, Mercury, and Cyanide.

7.2 Data Limitations

Data limitations were not identified in the course of HRP's investigations.

7.3 Recommendations

The purpose of this Work Assignment was to conduct a Remedial Investigation to determine the degree and extent of on-site contamination impacted by past operations at the Former C&F Plating facility. Based on the investigation findings, the following recommendations are offered:

- Based on the remedial investigation findings, subsurface and surface soils on-site exceeded Commercial and Industrial SCOs. Remediation of the contaminated soil on-site is recommended. The can be accomplished through excavation and off-site disposal of the soil. The soil that would need to be excavated is in the area of the interior floor drain and surrounding subsurface areas as shown on the cross sections presented on Figure 11 and Figure 12.

- If it is determined that excavation of the contaminated soils on-site is not possible due to the structural integrity of the building and the storm water culvert adjacent to the building, other remedial technologies such as immobilization (stabilization or solidificaiton) of the contaminated soils may be pursued.

- Prior to any on-site remediation, an building structural engineer or qualified person would have to inspect the building at 406 North Pearl Street and determine if the structure is structurally sound enough to have remediation completed inside the building or if the back portion of the building would have to be removed and/or the portion of the Site abutting the Patroon Creek would have to be shored.

- The remainder of the debris inside of the building should be removed prior to a remedial measure being conducted within the building.

- If no remediation occurs at the site, at a minimum, an Institutional

Control, such an environmental easement or environmental notice, needs to be put in place to control on-site activities in the future.

Table 1
Former C & F Plating
406 North Pearl Street
Albany, New York
12/5/2011 - 12/6/2011 and 4/18/2012
375-6 SCO - Protection of Public Health - Unrestricted, Restricted- Residential, Commercial, and Industrial
Subsurface Soil Samples - Analyzed for VOCs 8260 B, SVOCs 8270C
(Only detected constituents are listed)

Soil Sample ID		FIELD DUPLICATE (12-6-11) (HRP-SB-6)	HRP-SB-6	HRP-MW-8	HRP-MW-9	HRP-MW-10	HRP-MW-11	375-6 SCO - Protection of Public Health Unrestricted	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
Sample Depth		**10-15' bgs**	**10-12.5' bgs**	**7.5-10' bgs**	**10-12.5' bgs**	**10-12' bgs**					
Date Collected		**12/6/2011**	**12/6/2011**	**12/5/2011**	**12/6/2011**	**12/6/2011**	**4/18/12**				
VOCs 8260 B (ug/kg)	**CAS #**										
Acetone	67-64-1	**13**	**13**	**13**	**14**	**9**	<27	**50**	**100,000**	**500,000**	**1,000,000**
Ethyl Acetate	141-78-6	**2.9**	**15**	**94**	**8.6**	**48**	<5.3	**NE**	**NE**	**NE**	**NE**
SVOCs 8270 C (ug/kg)											
Dimethylphthalate	131-11-3	<370	<370	<370	<370	<370	**530**	**NE**	**NE**	**NE**	**NE**
Fluoranthene	206-44-0	<370	<370	<370	<370	<370	**180**	**100,000**	**100,000**	**500,000**	**1,000,000**
Pyrene	129-00-0	<370	<370	<370	<370	<370	**170**	**100,000**	**100,000**	**500,000**	**1,000,000**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Restricted-Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Establihed
<###	Sample is Non-Detect at Laboratory
ug/kg	Micrograms per Kilogram
VOCs	Volatile Organic Compounds
BGS	Below Ground Surface
CAS #	Chemical Abstract Services #
SB	Soil Boring

Table 2
Former C & F Plating
406 North Pearl Street
Albany, New York
12/5/2011 - 12/6/2011, and 4/18/12
375-6 SCO - Protection of Public Health - Unrestricted, Restricted- Residential, Commercial, and Industrial
Subsurface Soil Samples - Analyzed for Metals
(Only detected constituents are listed)

Soil Sample ID		FIELD DUPLICATE (12-6-11) (HRP-SB-6)	HRP-MW-6	HRP-MW-7	HRP-MW-8	HRP-MW-9	HRP-MW-10	HRP-MW-11	HRP-SB-1	HRP-SB-2	HRP-SB-3	HRP-SB-4	HRP-SB-4A	375-6 SCO - Protection of Public Health Unrestricted	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
Sample Depth		15-17.5' bgs	7.5-10' bgs	10-12.5' bgs	7.5-10' bgs	10-12.5' bgs	10-12' bgs	10-12.5' bgs	10-15' bgs	10-12.5' bgs	0-1.75' bgs	5-10.1'bgs					
Date Collected		12/6/2011	12/5/2011	12/5/2011	12/5/2011	12/6/2011	12/6/2011	4/19/12	12/5/2011	12/5/2011	12/5/2011	12/5/2011	12/6/2011				
Metals (mg/kg)	**CAS #**																
Aluminum, Total	7429-90-5	5900	4260	5840	9310	6210	8690	6870	3520	2980	4170	13000	6760	NE	NE	NE	NE
Arsenic	7440-38-2	5.8	5.17	1.96	5	8.15	7.09	3.03	2.04	2.9	5	9.57	5.39	13	16	16	16
Barium	7440-39-3	39.8	18.4	72.5	52.5	402	60.6	41.5	23.3	14.4	16.1	106	59.7	350	400	400	10,000
Beryllium	7440-41-7	0.311	0.317 J	0.225 J	0.441	0.276	0.449	0.36	0.282	0.224J	0.255	0.995	0.453	7.2	72	590	2,700
Cadmium	7440-43-9	37.4	1.38	0.46	2.02	53.7	36.8	0.88	1.32	1.11	1.33	19.8	2.69	2.5	4.3	9.3	60
Calcium	7440-70-2	1650	11800	1760	2060	2200	7130	20200	7960	14800	15600	23300	2050	NE	NE	NE	NE
Chromium, Total	7440-47-3	24.5	6.81	7.15	72.6	13.9	36.3	15.7	5.7	5.54	6.41	115	9.42	31	290	1,900	7,600
Cobalt	7440-48-4	6.36	5.23	2.65	7.76	5.76	7.64	6.95	3.08	2.89	5.24	14.1	7.03	NE	NE	NE	NE
Copper	7440-50-8	72.6	14.4	8.75	25.7	20	74.4	15.8	17.9	14.6	13.6	78.7	16.4	50	270	270	10000
Cyanide, Total	57-12-5	2.4	NA	NA	0.325	1.1	4.2	<.268	NA	NA	NA	NA	NA	27	27	27	10,000
Iron	7439-89-6	18000	11600	6990	26800	15600	24400	16200	10400	9420	12900	28400	15400	NE	NE	NE	NE
Lead	7439-92-1	9.09	5.7	5.45	12	9.83	15.6	25.1	4.42	3.98	5.6	31.2	10.5	63	400	1000	3900
Magnesium	7439-95-4	3560	6430	1440	5490	3220	4610	9150	5210	5200	5900	6090	2410	NE	NE	NE	NE
Manganese	7439-96-5	192	140	50.8	190	143	628	217	111	156	220	559	151	1600	2000	10000	10000
Mercury	7439-97-6	0.018	NA	NA	0.016	0.018	0.076	0.107	NA	NA	NA	NA	NA	0.18	0.81	2.8	5.7
Nickel	7440-02-0	42.6	11.9	6.89	22.5	16.3	63.5	21.7	7.94	6.77	10.9	314	18.1	30	310	310	10,000
Potassium, Total	7440-09-7	646	642	514	836	752	850	892	493	469	495	2310	862	NE	NE	NE	NE
Selenium	7782-49-2	<0.718	<1.21	<0.793	<0.851	<1.06	<0.98	<0.88	<0.876	<1.16	<0.822	<1.15	<1.12	3.9	180	1,500	6,800
Silver	7440-22-4	<0.359	<0.605	<0.397	<0.426	<0.528	<0.49	<0.44	22.9	<0.582	<0.411	<0.577	<0.559	2	180	1,500	6,800
Sodium, Total	7440-23-5	154	111 J	157	134	155	216	203	116	127	120	1190	219	NE	NE	NE	NE
Thallium	7440-28-0	<1.44	<2.42	<1.59	<1.7	<2.11	<1.96	<0.176	<1.75	<2.33	<1.64	<2.31	<2.24	NE	NE	NE	NE
Vanadium	7440-62-2	12.1	12.1	11.7	16.4	12.1	16.3	13.7	9.98	9.85	10.3	25.2	15.1	NE	NE	NE	NE
Zinc	7440-66-6	63.8	42.4	21.4	67	44.1	90.4	46.8	38.7	34.3	36.6	199	43.8	109	10,000	10,000	10,000

Soil Sample ID		HRP-SB-5	HRP-SB-6	HRP-SB-7	HRP-SB-8	HRP-SB-9	HRP-SB-10	HRP-SB-10A	HRP-SB-11	HRP-SB-11	HRP-SB-11	HRP-SB-12		375-6 SCO - Protection of Public Health Unrestricted	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
Sample Depth		7.5-10' bgs	10-15' bgs	7.5-10' bgs	10-15' bgs	10-12.5' bgs	5-10' bgs	5-10' bgs	5-7.5' bgs	7.5-10' bgs	10-15' bgs	10-12' bgs					
Date Collected		12/5/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	4/19/12					
Metals (mg/kg)	**CAS #**																
Aluminum, Total	7429-90-5	13100	8650	6990	9240	3360	10700	9200	10300	8570	5420	4320		NE	NE	NE	NE
Arsenic	7440-38-2	6.13	10.1	12	5.02	0.945	8.57	5.72	4.51	12	3.45	1.57		13	16	16	16
Barium	7440-39-3	99.6	73	50.9	55.2	18.1	78.8	53.4	168 N	77.2	34 N	65.2		350	400	400	10,000
Beryllium	7440-41-7	0.78	0.451	0.379	0.461	0.278	0.511	0.425	0.66	0.608	0.26	0.21		7.2	72	590	2,700
Cadmium	7440-43-9	2.56	204	1.84	2.1	5.04	451	140	2340	3500	19.9	<0.32		2.5	4.3	9.3	60
Calcium	7440-70-2	7530	2220	4710	1880	1520	6230	1830	13500 N	3650	5760 N	1370		NE	NE	NE	NE
Chromium, Total	7440-47-3	15.4	107	11.6	172	5.63	65.1	67.9	520	64.1	9.76	7.2		31	290	1,900	7,600
Cobalt	7440-48-4	14.5	9.79	7.45	7.45	2.72	8.89	7.83	9.07	11	5.67	5.58		NE	NE	NE	NE
Copper	7440-50-8	24.2	99.6	24.1	24.6	13.5	53.4	117	208	46.5	17.2	7.65		50	270	270	10000
Cyanide, Total	57-12-5	NA	1.7	NA	NA	NA	NA	NA	9.07	NA	NA	<0.312		27	27	27	10,000
Iron	7439-89-6	26300	29600	18000	25800	9690	28200	26700	29800	23300	13600	9720		NE	NE	NE	NE
Lead	7439-92-1	16.4	14.1	22.4	13.3	3.88	15	18.3	1540	25.3	8.27	4.34		63	400	1000	3900
Magnesium	7439-95-4	6500	4790	3550	5370	1980	5540	4360	3550	4050	5780	1500		NE	NE	NE	NE
Manganese	7439-96-5	286	809	204	176	69.2	1010	450	444	352	524	524		1600	2000	10000	10000
Mercury	7439-97-6	NA	0.029	NA	NA	NA	NA	NA	0.071	NA	0.017	0.008		0.18	0.81	2.8	5.7
Nickel	7440-02-0	24.4	76.4	15.6	21.1	21.4	168	86.6	627	335	19.4	10.9		30	310	310	10,000
Potassium, Total	7440-09-7	1890	876	932	872	453	1160	932	1740	1400	873	668		NE	NE	NE	NE
Selenium	7782-49-2	<0.993	<0.969	<0.98	<0.817	<0.807	<1.01	<0.865	<1.18	<1.17	<0.79	<0.106		3.9	180	1,500	6,800
Silver	7440-22-4	<0.496	<0.485	<0.49	<0.409	4.08	<0.506	<0.433	<0.59 N	<0.585	<0.4 N	<0.53		2	180	1,500	6,800
Sodium, Total	7440-23-5	328	159	906	137	127	211	141	1380	1040	123 N	200		NE	NE	NE	NE
Thallium	7440-28-0	<1.99	<1.94	<1.96	<1.63	<1.61	<2.03	0.282 J	<2.36	<2.34	<1.58	<2.12		NE	NE	NE	NE
Vanadium	7440-62-2	22.8	20.7	13.8	17.2	10	19.6	15.4	17.5	19.3	12.1	10.7		NE	NE	NE	NE
Zinc	7440-66-6	70.2	155	55.9	68.8	43.1	102	174	473	440	47 N	28.3		109	10,000	10,000	10,000

Bold	Sample is Above Non-Detect Value but Below Objective	Chromium, Total	Chromium DEC standards as shown are for Hexavalent Chromium.
Bold	Sample Exceeds Unrestricted Objective	J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
Bold	Sample Exceeds Restricted-Residential Objective	UJ	The analyte was not detected above the sample reporting limit: and the reporting limit is approximate
Bold	Sample Exceeds Commercial Objective	U	The analyte was analyzed for, but was not detected above the sample reporting limit
Bold	Sample Exceeds Industrial Objective	N	Presumptive Evidence of a Compound
NE	Not Established	CAS #	Chemical Abstract Services #
NA	Not Analyzed		
<###	Sample is Non-Detect at Laboratory		
mg/kg	Milligrams per Kilogram		
bgs	feet Below Ground Surface		

Table 3
Former C & F Plating
406 North Pearl Street
Albany, New York
December 28, 2011
375-6 SCO - Protection of Public Health - Unrestricted, Restricted- Residential, Commercial, and Industrial
Surface Soil Samples - Analyzed for Metals
(Only detected constituents are listed)

Soil Sample ID Sample Depth Date Collected		HRP-SS-1 0-6"bgs 12/28/2011	HRP-SS-2 0-6"bgs 12/28/2011	HRP-SS-3 0-6"bgs 12/28/2011	375-6 SCO - Protection of Public Health Unrestricted	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 (mg/kg)	**CAS #**							
Aluminum, Total	7429-90-5	**2700**	**3050**	**4780**	**NE**	**NE**	**NE**	**NE**
Arsenic	7440-38-2	**2**	**4.71**	**11.1**	**13**	**16**	**16**	**16**
Barium	7440-39-3	**1240**	**72.4**	**88.2**	**350**	**400**	**400**	**10,000**
Beryllium	7440-41-7	**2.34**	**1.2**	**0.96**	**7.2**	**72**	**590**	**2,700**
Cadmium	7440-43-9	**1640**	**5140**	**255**	**2.5**	**4.3**	**9.3**	**60**
Calcium	7440-70-2	**11900**	**33800**	**39400**	**NE**	**NE**	**NE**	**NE**
Chromium, Total	7440-47-3	**4150 N**	**915**	**207**	**31**	**290**	**1,900**	**7,600**
Cobalt	7440-48-4	**18.2**	**8.17**	**10.1**	**NE**	**NE**	**NE**	**NE**
Copper	7440-50-8	**18.2**	**1910**	**1230**	**50**	**270**	**270**	**10000**
Cyanide, Total	57-12-5	**NA**	**NA**	**NA**	**27**	**27**	**27**	**10,000**
Iron	7439-89-6	**86700**	**29500**	**31300**	**NE**	**NE**	**NE**	**NE**
Lead	7439-92-1	**9850**	**1280**	**271**	**63**	**400**	**1000**	**3900**
Magnesium	7439-95-4	**1210 N**	**7340 N**	**4530**	**NE**	**NE**	**NE**	**NE**
Manganese	7439-96-5	**679**	**305**	**440**	**1600**	**2000**	**10000**	**10000**
Mercury	7439-97-6	**0.383**	**0.294**	**0.944**	**0.18**	**0.81**	**2.8**	**5.7**
Nickel	7440-02-0	**4290**	**810**	**567**	**30**	**310**	**310**	**10,000**
Potassium, Total	7440-09-7	**819**	**724**	**1100**	**NE**	**NE**	**NE**	**NE**
Selenium	7782-49-2	**1.13**	**0.9**	**1.33**	**3.9**	**180**	**1,500**	**6,800**
Silver	7440-22-4	**2.48**	<0.45	1.45	**2**	**180**	**1,500**	**6,800**
Sodium, Total	7440-23-5	**2790**	**246**	**229**	**NE**	**NE**	**NE**	**NE**
Thallium	7440-28-0	**0.43 J**	<1.79	<2.66	**NE**	**NE**	**NE**	**NE**
Vanadium	7440-62-2	<2.27	**23.3**	**44.5**	**NE**	**NE**	**NE**	**NE**
Zinc	7440-66-6	**1750**	**1670**	**2250**	**109**	**10,000**	**10,000**	**10,000**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds Unrestricted Objective
Bold	Sample Exceeds Restricted-Residential Objective
Bold	Sample Exceeds Commercial Objective
Bold	Sample Exceeds Industrial Objective
NE	Not Established
NA	Not Analyzed
<###	Sample is Non-Detect at Laboratory
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Chromium DEC standards as shown are for Hexavalent Chromium.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
N	Presumptive Evidence of a Compound
CAS #	Chemical Abstract Services #

Table 4
Former C & F Plating
406 North Pearl Street
Albany, New York
12/6 and 28/2011
40 CFR 261.24- Code of Federal Regulations - Title 40: Protection of Environment
Subsurface abd Surface Soil Samples - Analyzed for TCLP Metals
(Only detected constituents are listed)

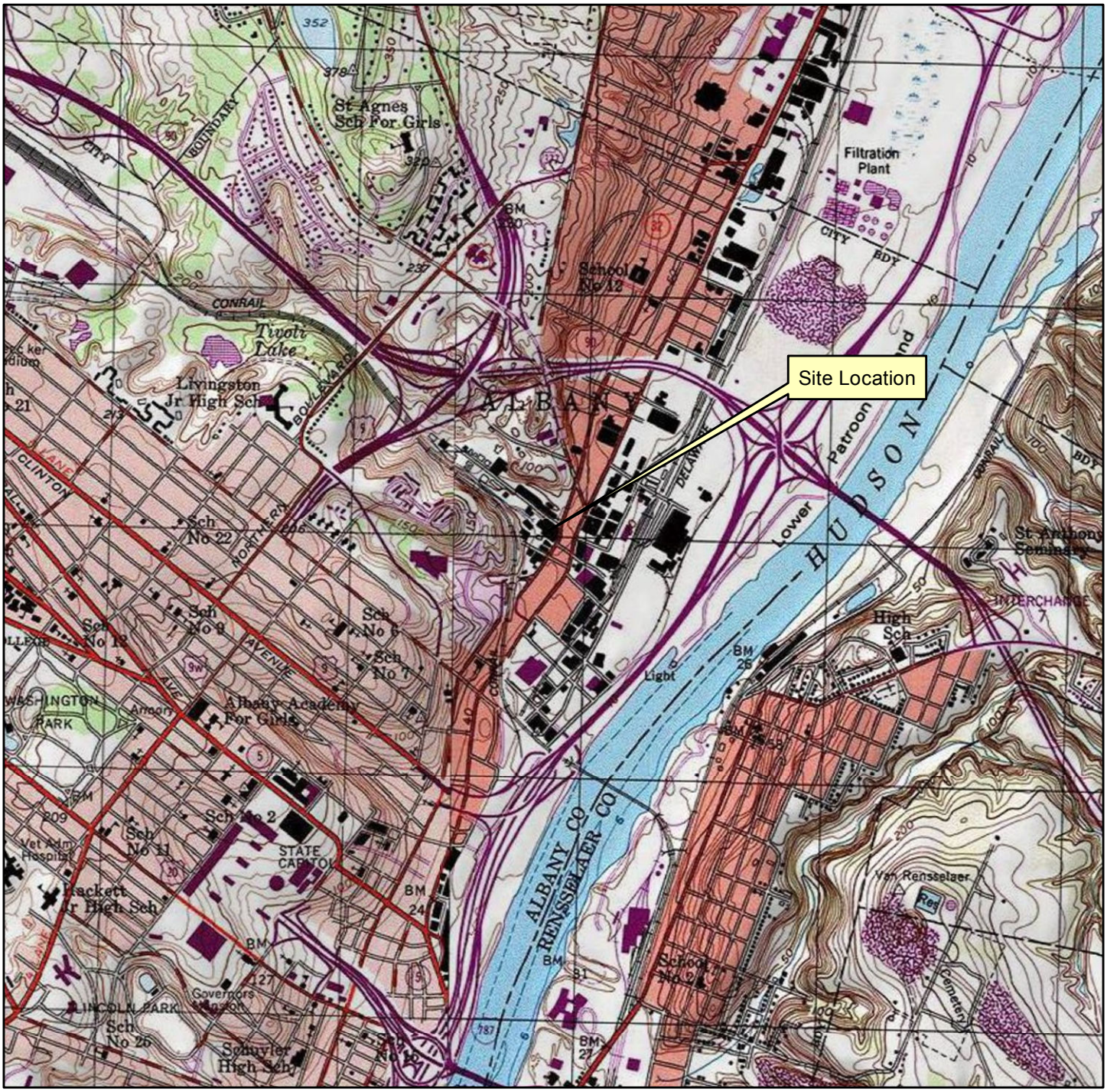
Soil Sample ID **Sample Depth** **Date Collected**		**HRP-MW-9** **7.5 - 10' bgs** **12/6/2011**	**HRP-SS-1** **0-6"bgs** **12/28/2011**	**40 CFR 261.24 TCLP Limits "Toxicity"**
Metals (mg/kg)	**CAS #**			
Arsenic	7429-90-5	**.100**	**0537**	**5**
Barium	7440-39-3	**0.402 J**	**0.0753 J**	**100**
Cadmium	7440-43-9	**0.053**	**12.3**	**1**
Iron	7439-89-6	**.050**	**1.25**	**5**
Lead	7439-92-1	**0.06**	**0.305**	**5**
Mercury	7439-97-6	**0.002**	**0.00149 J**	**0.2**
Selenium	7782-49-2	**0.1**	**0.1**	**1**
Silver	7440-22-4	**0.05**	**.0555**	**5**

Bold	Sample is Above Non-Detect Value but Below Objective
Bold	Sample Exceeds TCLP standard
NE	Not Established
NA	Not Analyzed
mg/kg	Milligrams per Kilogram
BGS	Below Ground Surface
Chromium, Total	Chromium DEC standards as shown are for Hexavalent Chromium.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
CAS #	Chemical Abstract Services #

Table 5
Former C & F Plating
406 North Pearl Street
Albany, New York
12/28/2011 - 12/29/2011 and 5/1/2012
Groundwater Samples - Analyzed for SVOCs 8270, TAL Metals, Mercury, and Cyanide
(Only detected constituents are listed)

Groundwater Sample ID		Duplicate 12-28-11	HRP-MW-6	HRP-MW-7	HRP-MW-8	HRP-MW-9	HRP-MW-10	HRP-MW-11	NYSDEC Class GA Criteria
Date Collected		12/28/2011	12/29/2011	12/29/2011	12/28/2011	12/29/2011	12/28/2011	5/1/2012	
SVOCs 8270 C (ug/L)	**CAS #**								
2-Pentanone, 4-hydroxy-4-methyl	123-42-2	**7.2**	NA	NA	**6**	NA	**6.8**	NS	**NE**
Metals (mg/L)	**CAS #**								
Aluminum, Total	7429-90-5	**0.113**	**0.0387**	**0.0691**	**0.0171**	**0.0266**	**0.143**	**0.0799**	**0.1**
Antimony	7440-36-0	(<0.025)	(<0.025)	(<0.025)	**0.00838**	(<0.025)	(<0.025)	**0.125**	**0.003**
Arsenic	7440-38-2	<0.01	**0.0172**	<0.01	<0.01	<0.01	<0.01	**0.005**	**0.025**
Barium	7440-39-3	**0.131**	**0.4**	**0.105**	**0.177**	**0.0937**	**0.132**	**0.126**	**1**
Cadmium	7440-43-9	**0.135**	<0.003	<0.003	0.00208	**0.0138**	**0.148**	<0.0015	**0.005**
Calcium	7440-70-2	**106**	**146**	**126**	**120**	**134**	**106**	**123**	**NE**
Chromium, Total	7440-47-3	**0.00647**	<0.005	<0.005	**0.0469**	<0.005	**0.00786**	<0.0025	**0.05**
Copper	7440-50-8	**0.00411**	<0.01	<0.01	<0.01	<0.01	**0.00555**	**0.00294**	**0.2**
Cyanide, Total	57-12-5	**0.153**	**0.004**	**0.003**	**0.024**	**0.112**	NA	**0.004**	**0.2**
Iron	7439-89-6	**1.3**	**12.6**	**3.04**	**2.61**	**0.789**	**1.35**	**0.123**	**0.3**
Lead	7439-92-1	<0.006	0.00382	<0.006	<0.006	<0.006	<0.006	<0.003	**0.025**
Magnesium	7439-95-4	**21.3**	**36.5**	**36.3**	**19.2**	**22.3**	**21.4**	**23.4**	**35**
Manganese	7439-96-5	**0.705**	**1.61**	**0.699**	**0.918**	**1.24**	**0.704**	**0.457**	**0.3**
Mercury	7439-97-6	<0.0002	<0.0002	0.000165	<0.0002	<0.0002	<0.0002	<0.001	**0.0007**
Nickel	7440-02-0	**0.0155**	<0.02	<0.02	**0.0193**	<0.02	**0.0167**	<0.01	**0.1**
Potassium, Total	7440-09-7	**3.33**	**4.32**	**3.29**	**3.33**	**5.17**	**3.4**	**84.3**	**NE**
Silver	7440-22-4	**0.00217**	**0.00191**	**0.00228**	**0.00166**	**0.00239**	**0.00164**	<0.0025	**0.05**
Sodium, Total	7440-23-5	**68.4**	**66.9**	**87.3**	**35.9**	**84.8**	**68.2**	**375**	**20**
Zinc	7440-66-6	**0.00893**	**0.0315**	<0.02	<0.02	**0.0159**	**0.0082**	**0.015**	**2**

Bold	Sample Exceeds NYSDEC Class GA Criteria
Bold	Sample is above Non-Detect Value but Below NYSDEC Class GA Criteria
J	an estimated concentration
MW	Monitoring Well
NE	Not Established
NA	Not analyzed
NS	Not Sampled
ug/l	micrograms per liter
CAS #	Chemical Abstract Services #
SVOCs	Semo-Volatile Organic Compounds



USGS Quad ID: 42073-F7
Quad Name: Albany, New York
Publish Date: 1983

N

Figure 1
Site Location
CF Plating Facility
406 North Pearl Street
Albany, New York
HRP # NEW9627.RA
Scale 1"=2,000'

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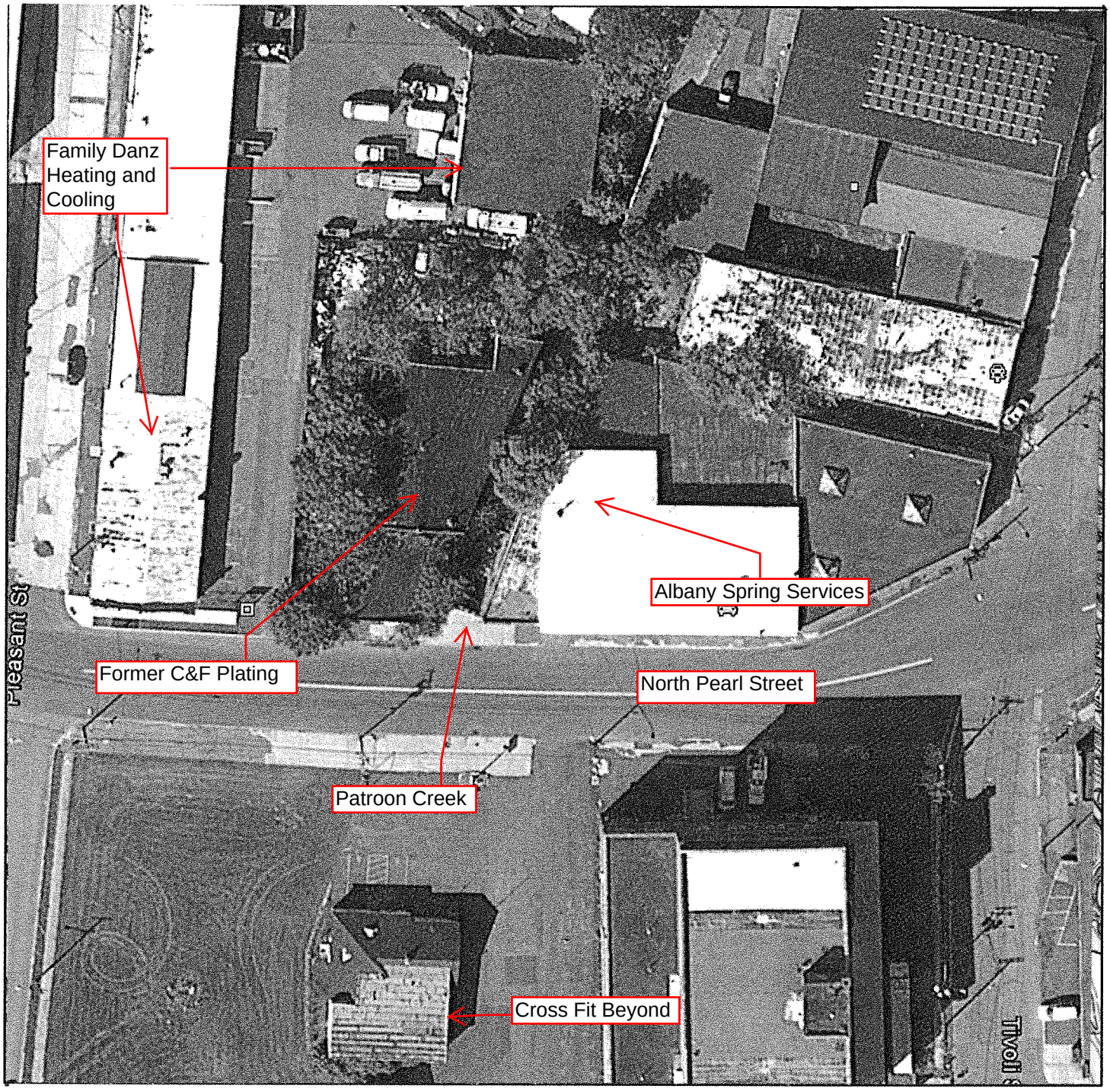
Path: S:\Data\NNEWEN - NY STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION\CF PLATING FACILITY, ALBANY NY\NEW9627RA\GIS\Site Location.mxd



USGS Quad ID: 42073-F7
Quad Name: Albany, New York
Publish Date: 1983

North

Figure 2
Site Location
CF Plating Facility
406 North Pearl Street
Albany, New York
HRP # NEW9627.RA
Scale 1"=2,000'

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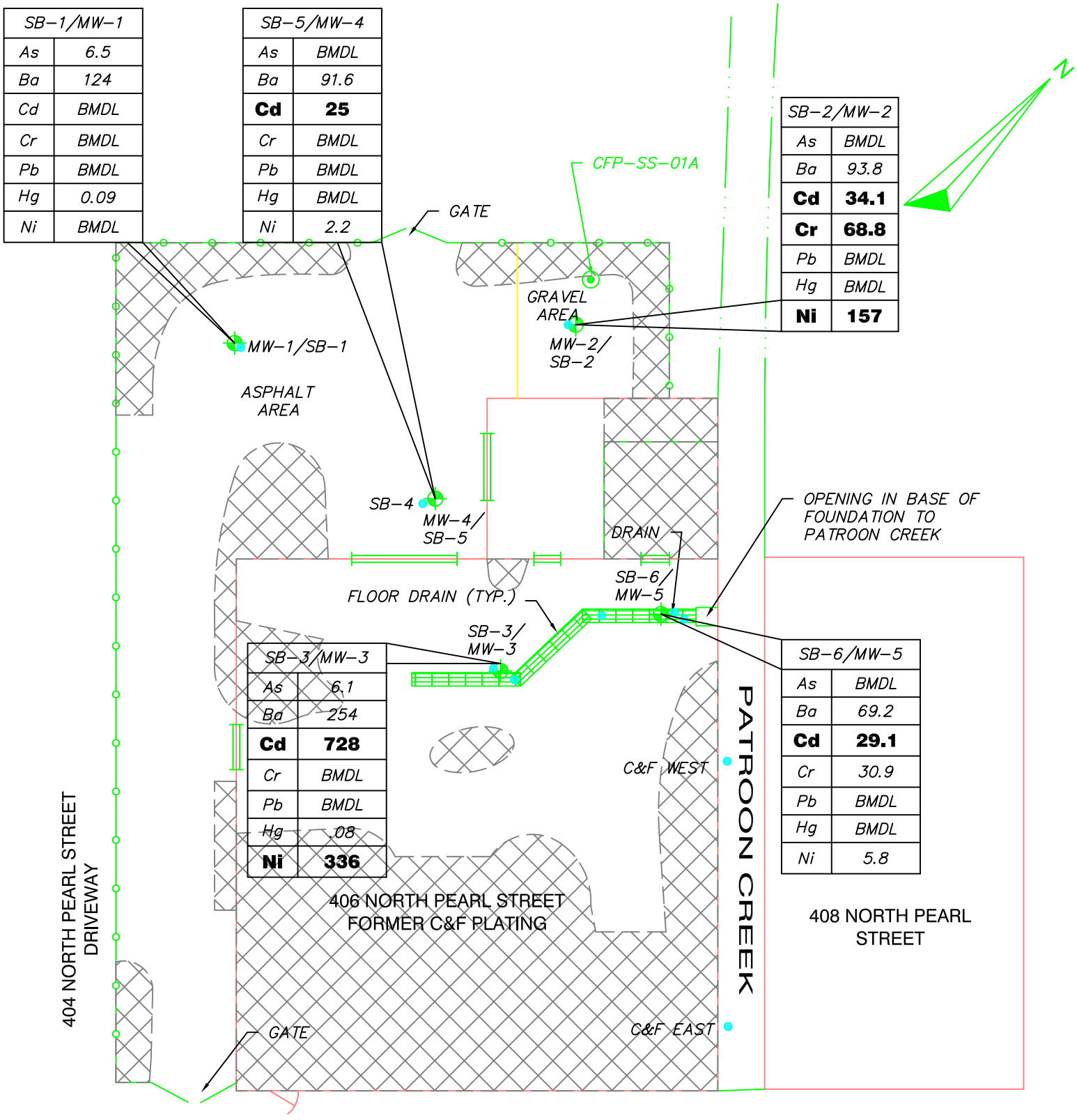


LEGEND

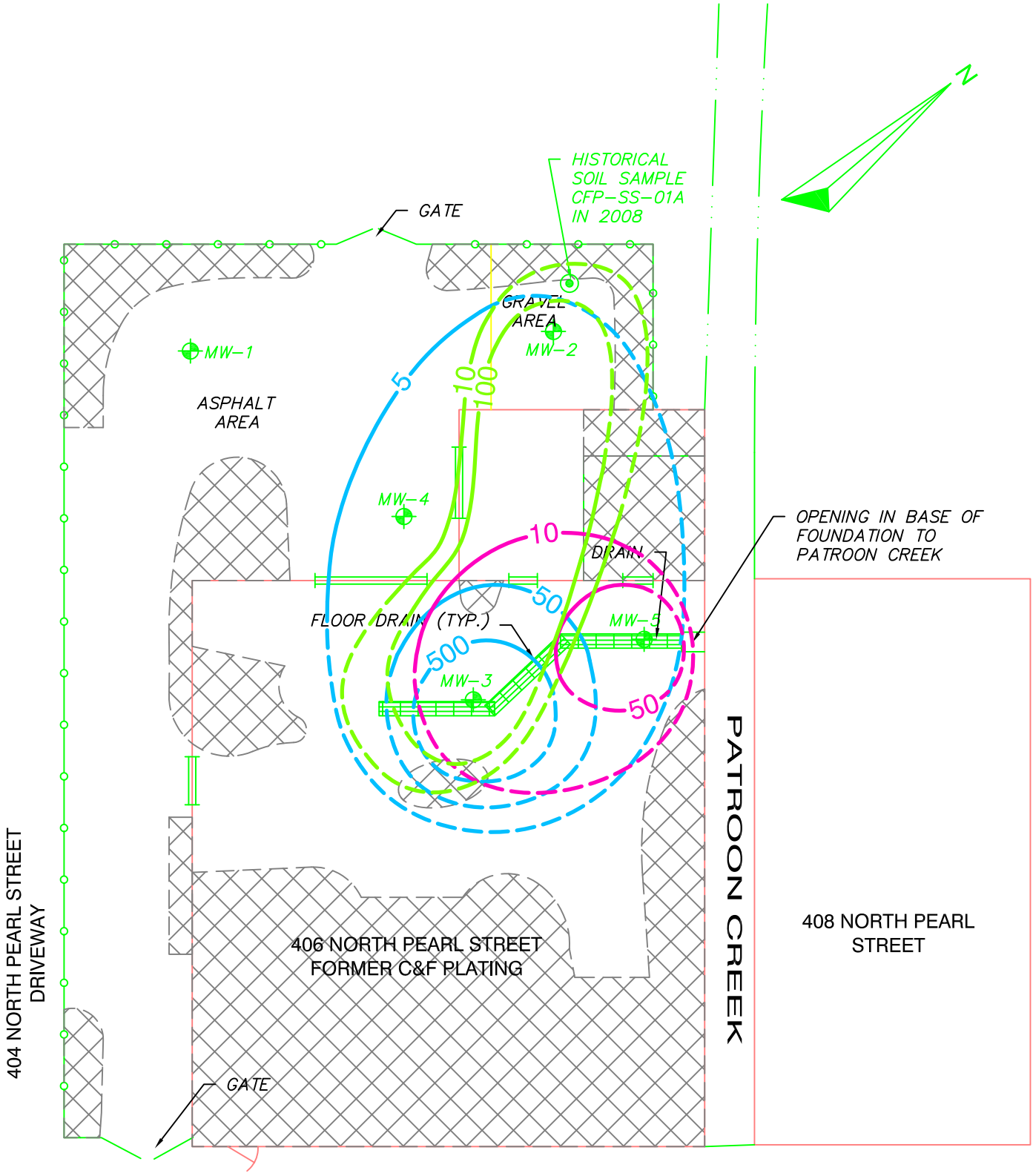
As – ARSENIC
Ba – BARIUM
Cd – CADMIUM
Cr – CHROMIUM
Pb – LEAD
Hg – MERCURY
Ni – NICKEL
BOLD – EXCEEDS NYSDEC GROUNDWATER STANDARD
BMDL – BELOW DETECTION LIMIT

– MONITORING WELL INSTALLED IN 2008
– SURFACE SOIL SAMPLE
– PRESUMED INACCESSIBLE AREA
ALL RESULTS ARE IN mg/L (PARTS PER MILLION)

NOTE:
WORK SAMPLED BY PRECISION ENVIRONMENTAL SERVICES, MAY 2008.

MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02-09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

FIGURE 3
PREVIOUS INVESTIGATIONS 2008 GW SAMPLING LOCATIONS
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE



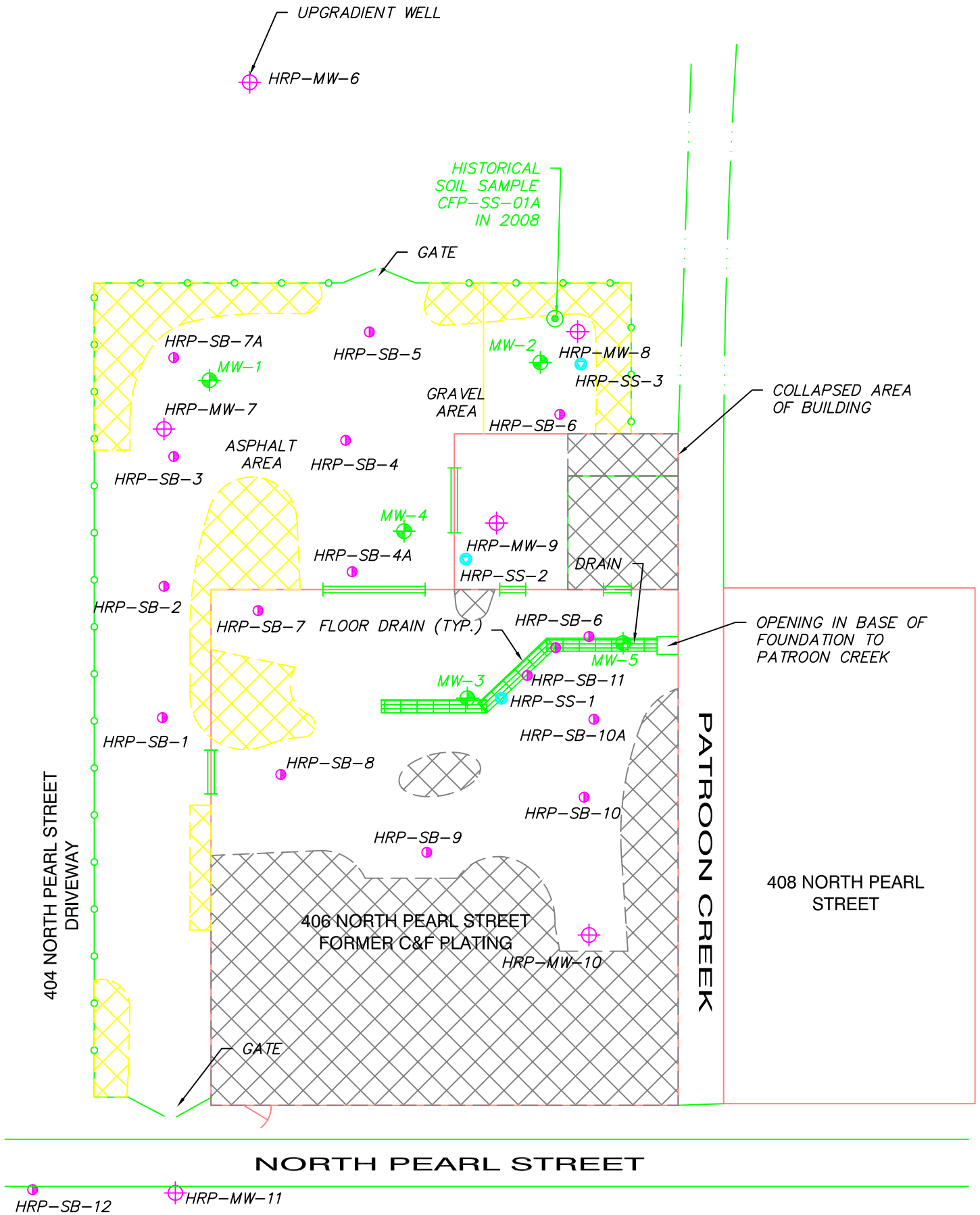
LEGEND

- —INFERRED CADMIUM ISOPLETH
- —INFERRED CHROMIUM ISOPLETH
- —INFERRED NICKLE ISOPLETH
- —PREVIOUS MONITORING WELL 2008 NOT DETECTED IN 2011
- —SURFACE SAMPLE LOCATON
- —PRESUMED INACCESSIBLE AREA
- —ALL RESULTS ARE IN mg/L (PARTS PER MILLION)

NOTE:
WORKED COLLECTED BY PRECISION EVIRONMENTAL SERVICES, MAY 2008.

MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02-09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

FIGURE 4
PREVIOUS INVESTIGATIONS
GROUNDWATER ISOPLETHS
CONTAMINANT
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE



LEGEND

- –PREVIOUS MONITORING WELL 2008 NOT DETECTED IN 2011
- –SURFACE SOIL SAMPLE LOCATION
- –MONITORING WELL
- –TEST BORING
- –INACCESSIBLE AREA
- –FORMERLY INACCESSIBLE AREA

MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02–09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

FIGURE 5
SITE PLAN SHOWING SOIL SAMPLING LOCATIONS FORMER C&F PLATING 406 NORTH PEARL STREET ALBANY, NEW YORK HRP # NEW9627.RA NOT TO SCALE

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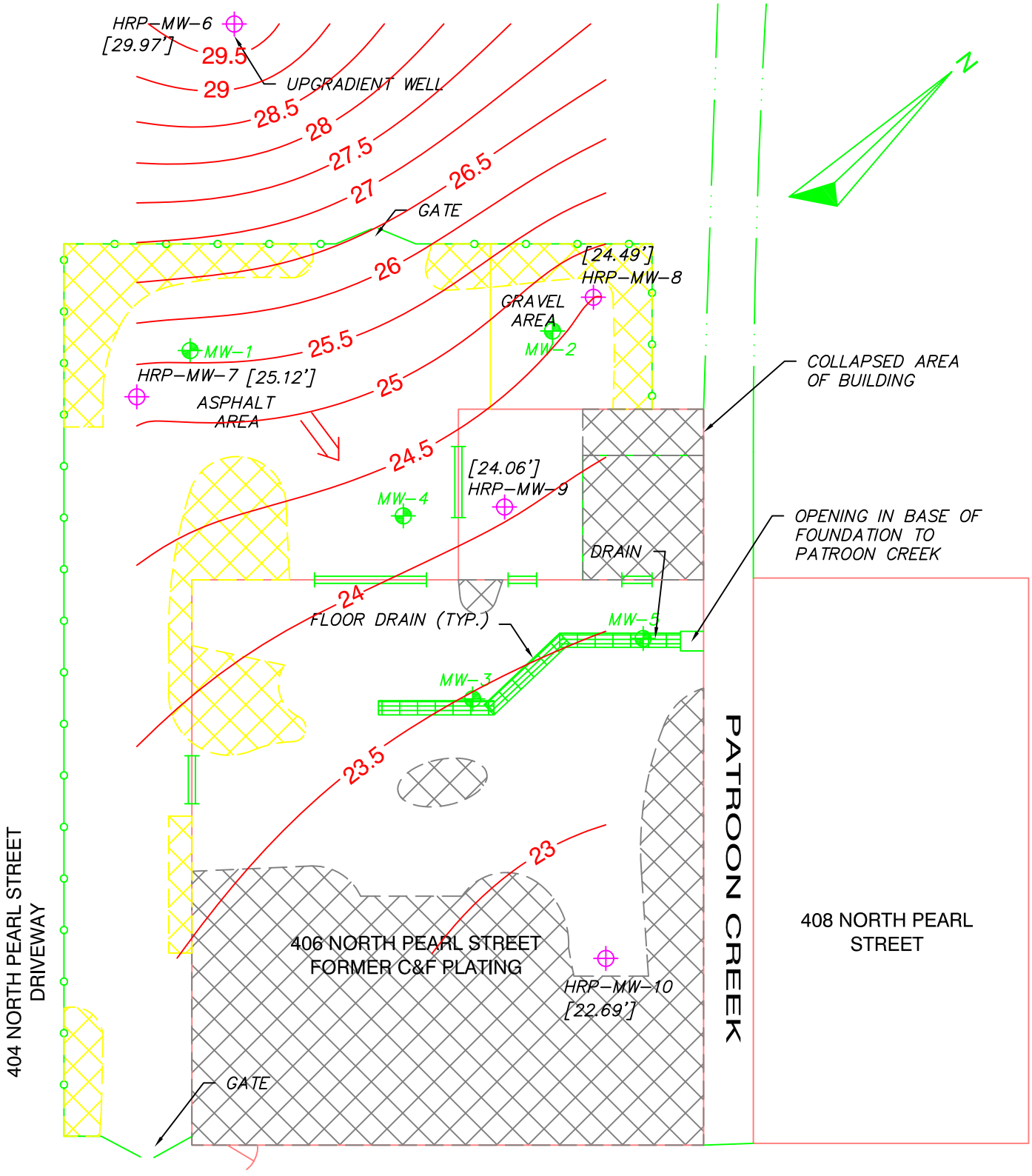


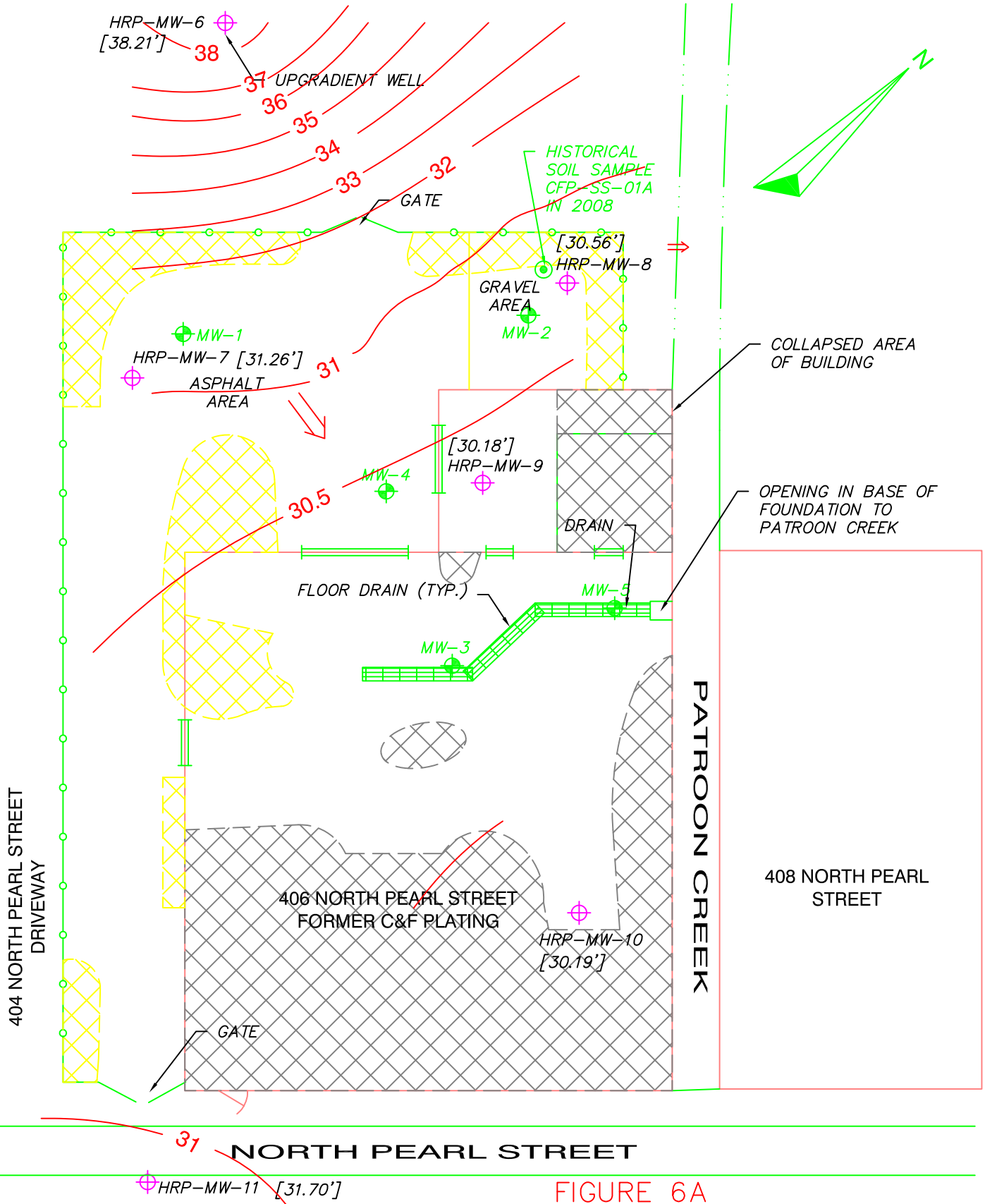
LEGEND

- –PREVIOUS MONITORING WELL 2008 NOT DETECTED IN 2011
- –MONITORING WELL
- –INACCESSIBLE AREA
- ⇒ –INFERRED GROUNDWATER FLOW DIRECTION
- –FORMERLY INACCESSIBLE AREA

NOTE:
**=HRP-MW-11 GAUGED 5/1/12 & NOT INCLUDED IN CONTOURING.

MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02-09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

FIGURE 6
GROUNDWATER CONTOUR MAP
12/29/2011 DATA
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE



LEGEND

- –PREVIOUS MONITORING WELL 2008 NOT DETECTED IN 2011
- –MONITORING WELL
- –INACCESSIBLE AREA
- ⇒ –INFERRED GROUNDWATER FLOW DIRECTION
- –FORMERLY INACCESSIBLE AREA

FIGURE 6A
GROUNDWATER CONTOUR MAP
8/13/2012 DATA
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE

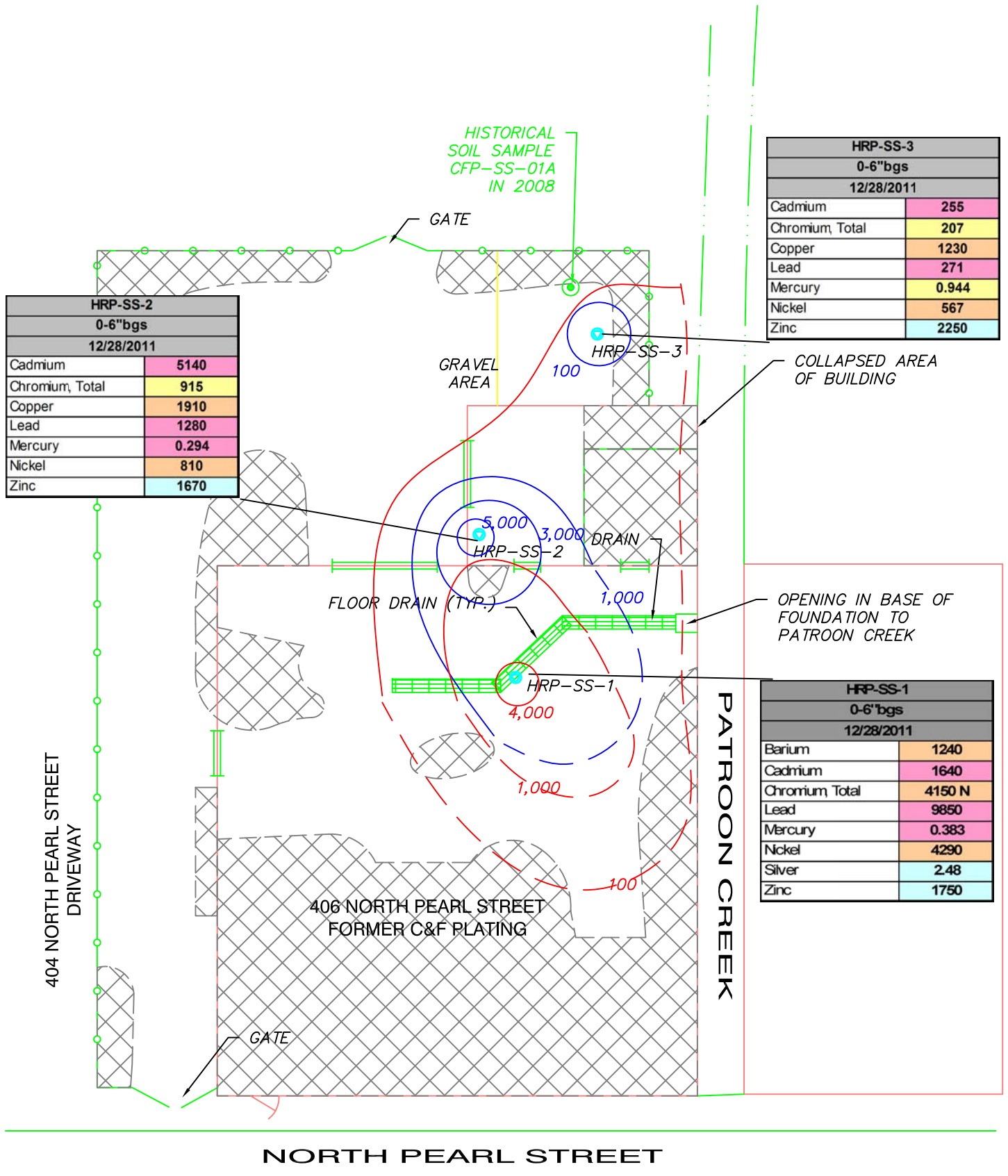
MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02-09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

LEGEND

- SURFACE SOIL SAMPLE LOCATION
- INACCESSIBLE AREA

###	Sample Exceeds Unrestricted Objective
###	Sample Exceeds Restricted-Residential Objective
###	Sample Exceeds Commercial Objective
###	Sample Exceeds Industrial Objective

- INFERRED CADIUM ISOPLETH
- INFERRED TOTAL CHROMIUM ISOPLETH



MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02-09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

FIGURE 8
SITE PLAN SHOWING METALS EXCEEDANCES IN SURFACE SOILS
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE

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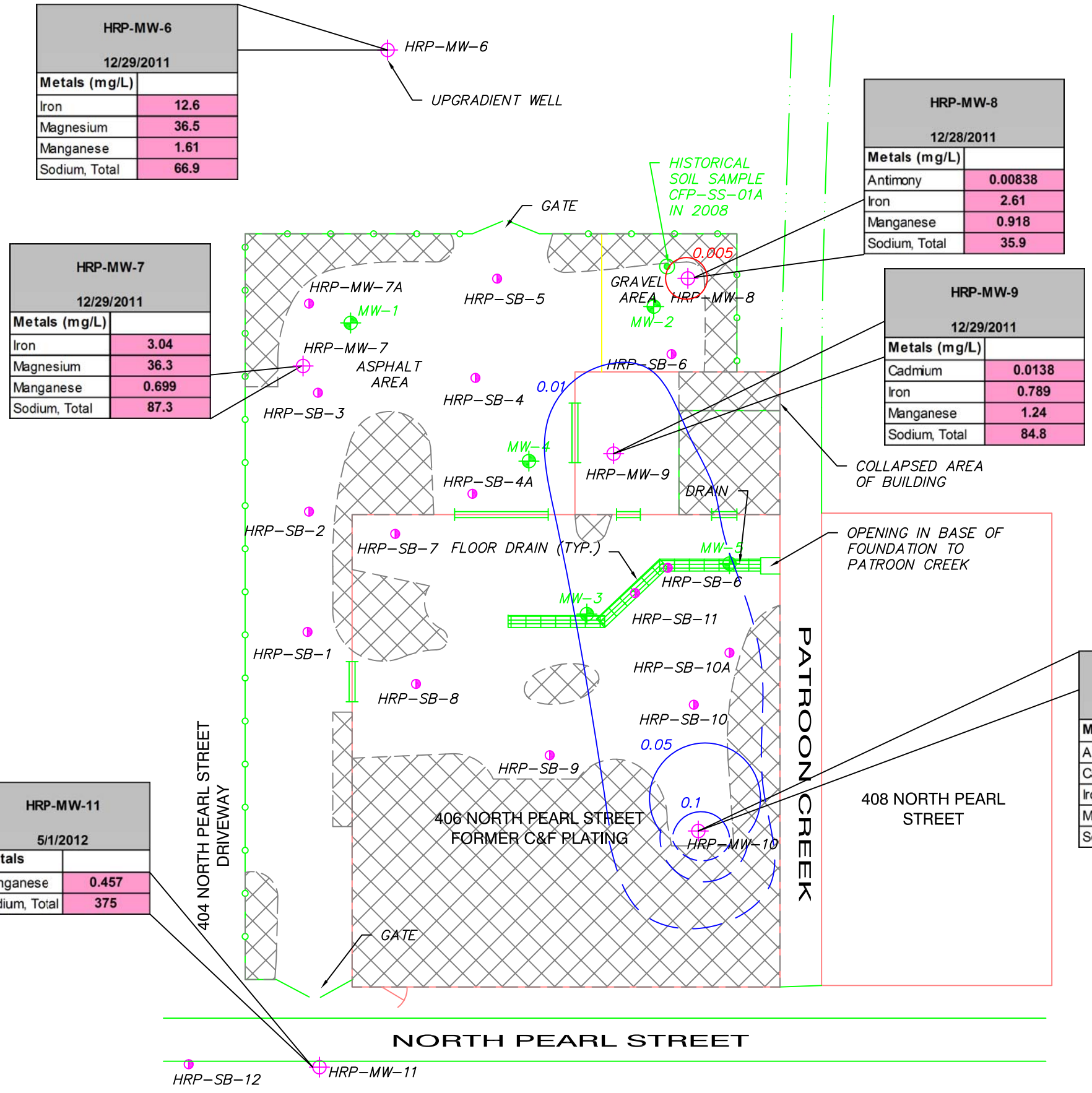

LEGEND

- –PREVIOUS MONITORING WELL 2008 NOT DETECTED IN 2011
- –MONITORING WELL
- –TEST BORING
- –ALL RESULTS IN mg/KG (MILLIGRAMS PER KILLOGRAM)
- –INACCESSIBLE AREA
- ### –SAMPLE EXCEEDS NYSDEC CLASS GA CRITERIA
- –INFERRED CADMIUM ISOPLETH
- –INFERRED ANTIMONY ISOPLETH

MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02-09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

FIGURE 9
SITE PLAN SHOWING METALS EXCEEDANCES IN GROUNDWATER
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE

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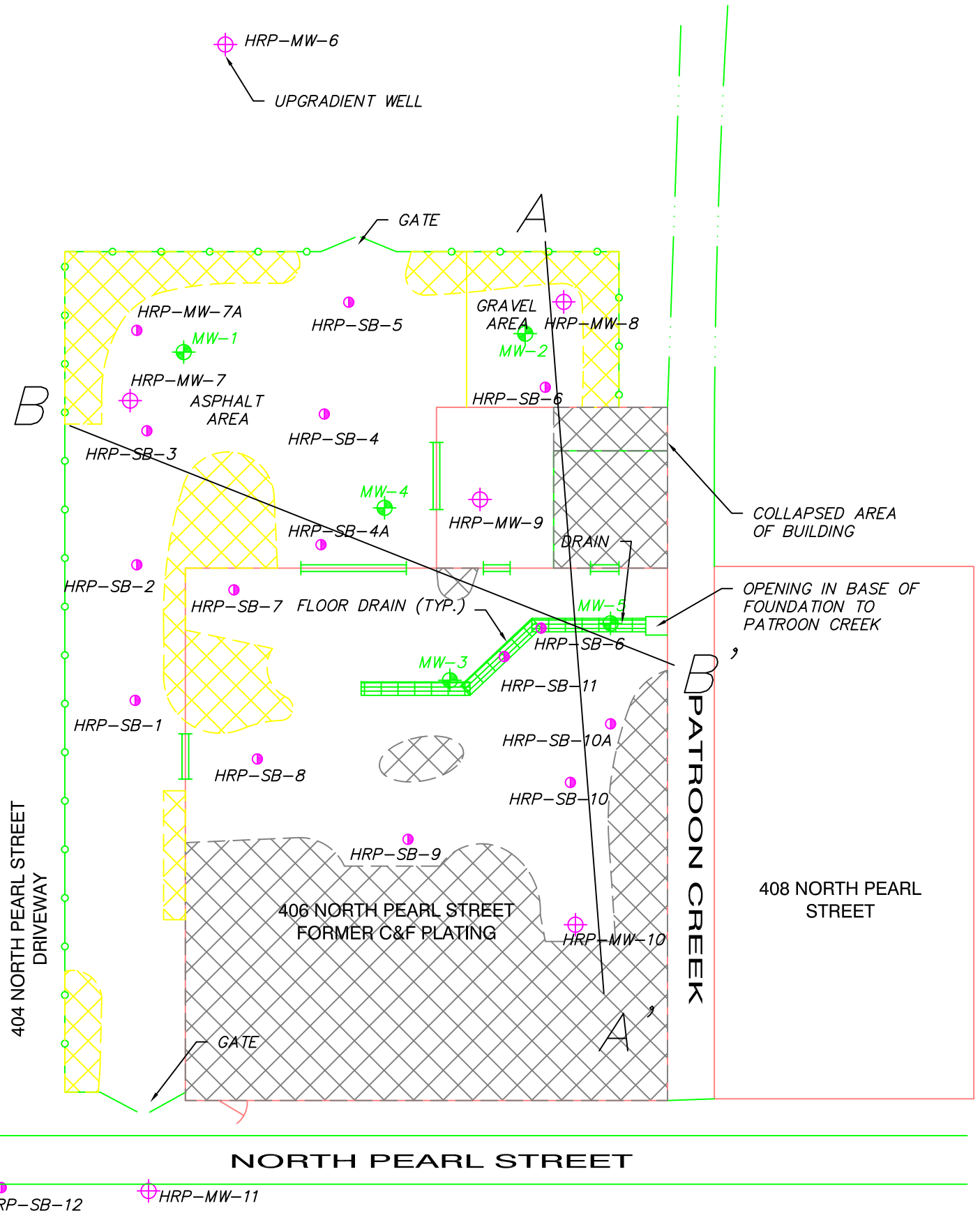

LEGEND

- –PREVIOUS MONITORING WELL 2008 NOT DETECTED IN 2011
- –MONITORING WELL
- –TEST BORING
- –INACCESSIBLE AREA
- –FORMER INACCESSIBLE AREA

A — A' –CROSS SECTION ORIENTATION

N

FIGURE 10
SITE PLAN SHOWING CROSS SECTION ORIENTATION
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP # NEW9627.RA
NOT TO SCALE

MAP REFERENCE:
DERIVED FROM A MAP ENTITLED "SITE PLAN" BY PRECISION ENVIRONMENTAL SERVICES OF BALLSTON SPA, NY, PROJECT # NYSDEC SPILL #02–09561, DATED MAY 2008, FIGURE 2, DRAWN BY SMP, NOT TO SCALE.

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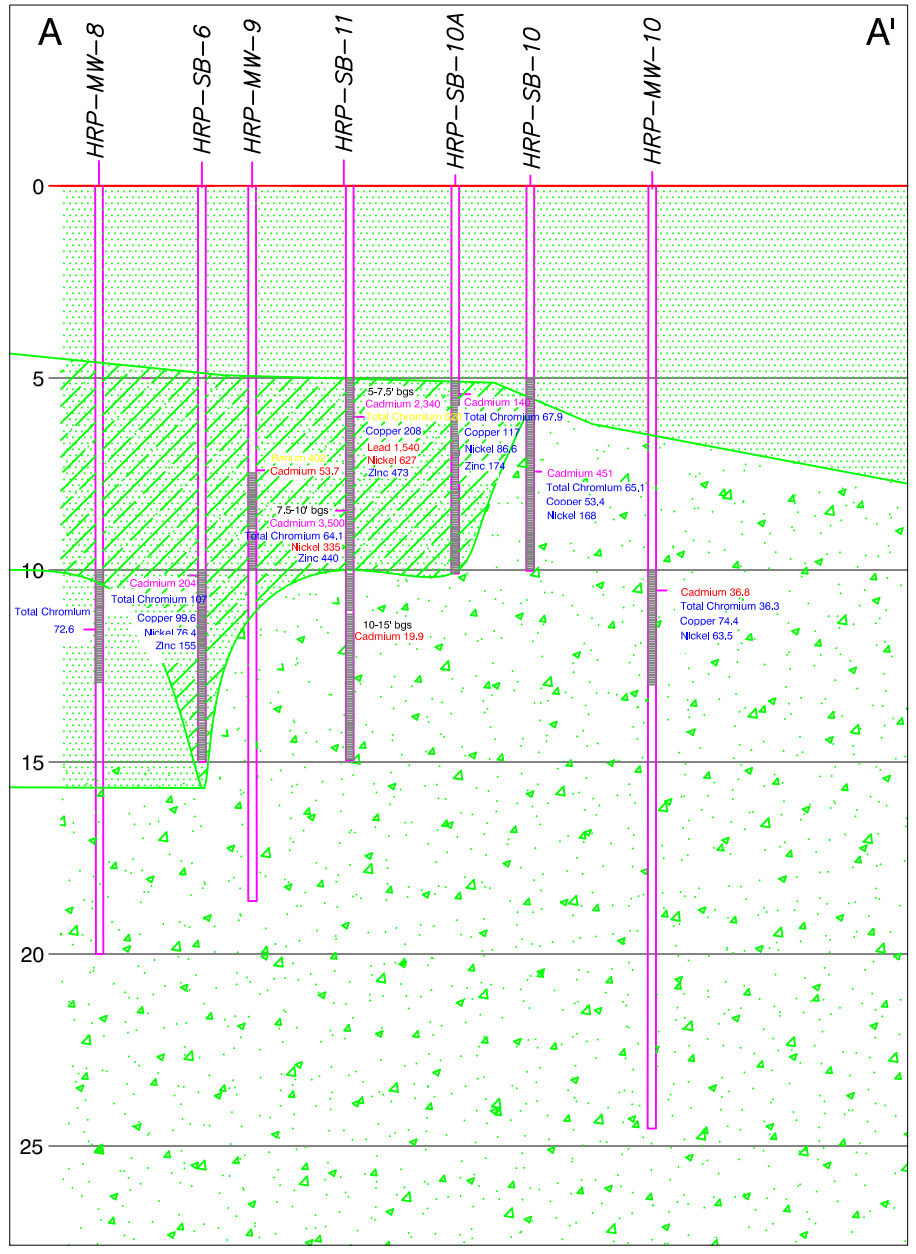

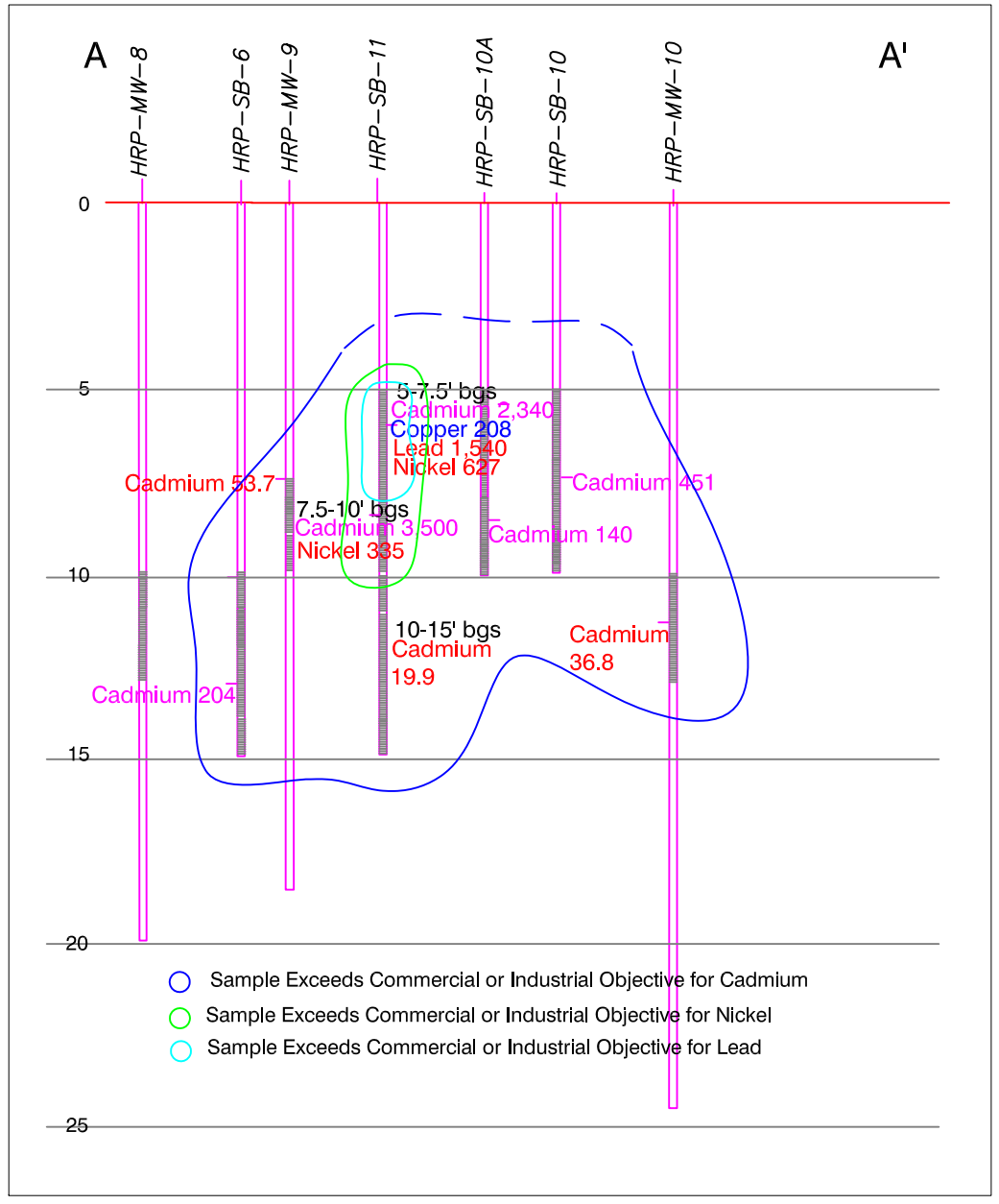

LEGEND

- SAND AND GRAVEL
- SAND
- SAND AND CLAY
- SILT AND SAND

Sample Exceeds Unrestricted Soil Cleanup Objective
Sample Exceeds Restricted-Residential Soil Cleanup Objective
Sample Exceeds Commercial Soil Cleanup Objective
Sample Exceeds Industrial Soil Cleanup Objective

1" = 10'

10 0 5 10 20

APPROXIMATE VERTICAL SCALE IN FEET

1" = 20'

10 0 5 10 20

APPROXIMATE HORIZONTAL SCALE IN FEET

FIGURE 11
CROSS SECTION A–A'
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP# NEW9611.P2
VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: 1" =20'

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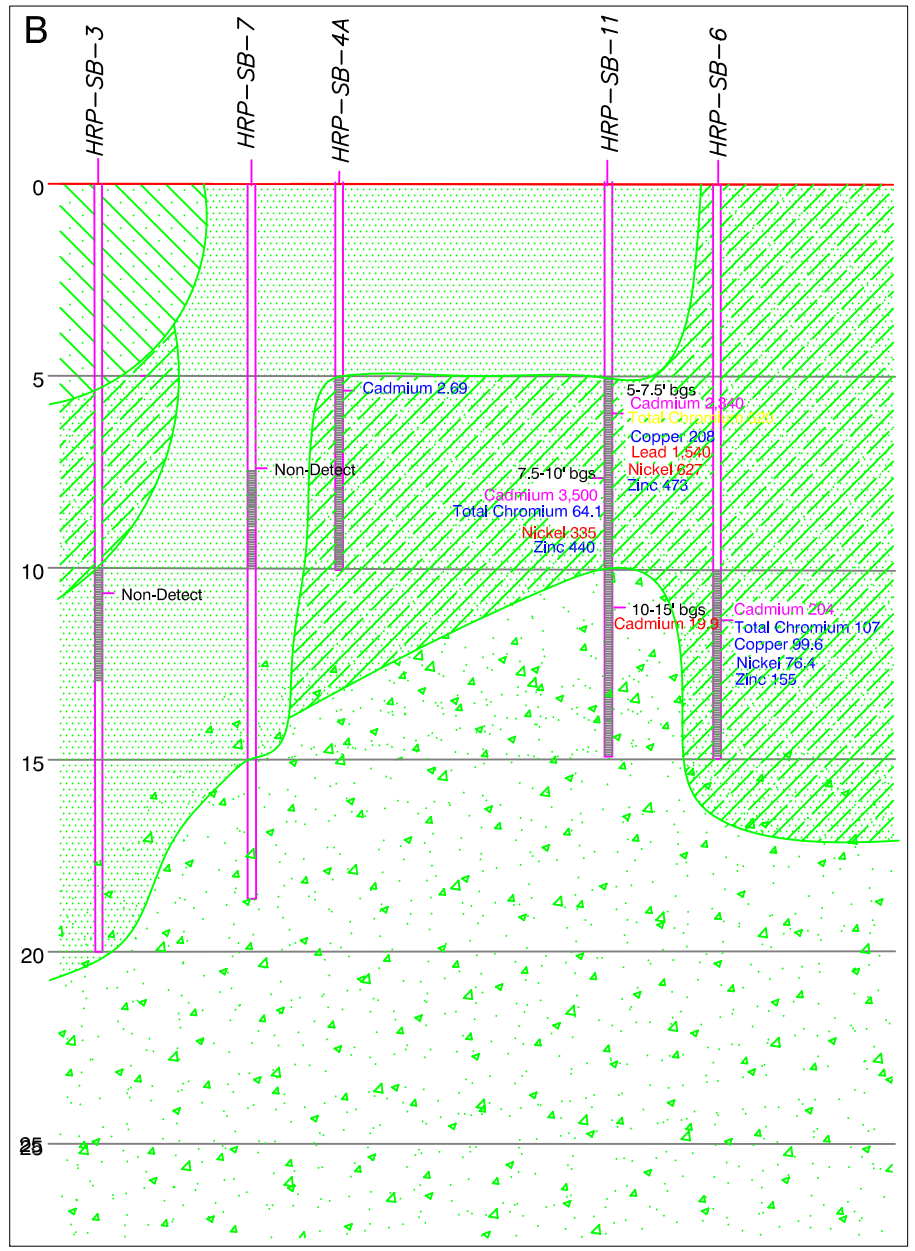

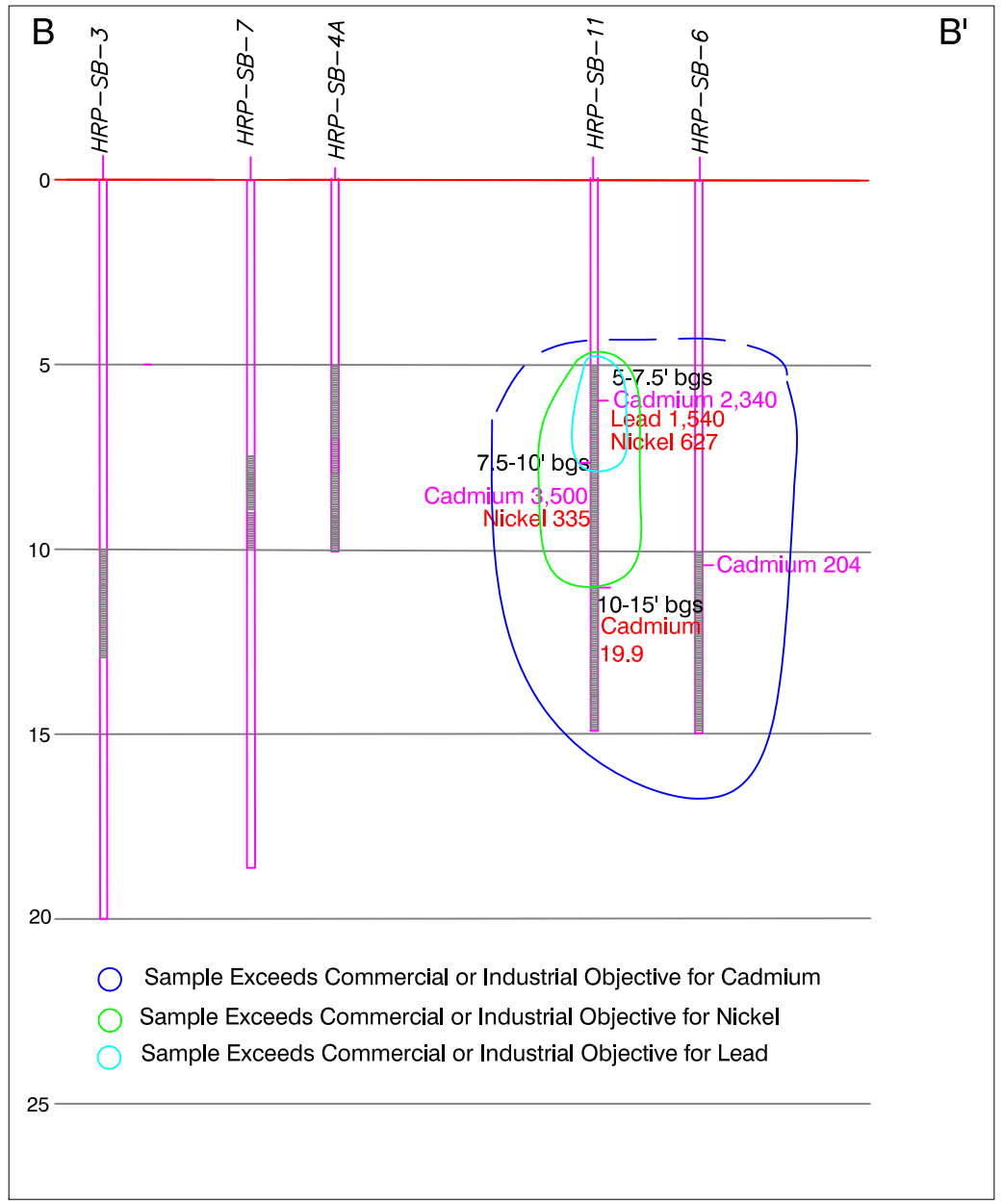

LEGEND

- *–SAND AND GRAVEL*
- *–SAND*
- *–SAND AND CLAY*
- *–SILT AND SAND*

Sample Exceeds Unrestricted Soil Cleanup Objective
Sample Exceeds Restricted-Residential Soil Cleanup Objective
Sample Exceeds Commercial Soil Cleanup Objective
Sample Exceeds Industrial Soil Cleanup Objective

1" = 10'

10 0 5 10 20

APPROXIMATE VERTICAL SCALE IN FEET

1" = 20'

10 0 5 10 20

APPROXIMATE HORIZONTAL SCALE IN FEET

FIGURE 12
CROSS SECTION B–B'
FORMER C&F PLATING
406 NORTH PEARL STREET
ALBANY, NEW YORK
HRP# NEW9611.P2
VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: 1" =20'

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APPENDIX A

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

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Project: C+F Plating	**Boring I.D.: HRP-SB-1**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time:11:30**
Location: In Driveway South of Building, Easternmost boring	
GPS Coordinates N: -73.74493725 W 42.66320175:	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.5	Dry	Black to gray silty c-f SAND, little brick fragments (4.5-5), little c-f gravel, no odor	0-5'-0.0
5	10	2.3	Moist to Wet	Brown to gray silty fine SAND, no odor	5-10'-0.0
10	15	3.0	Wet	Gray fine SAND, trace silt, no odor	10-12.5' 0.0
					12.5-15' 0.0
15	20	3.0	Wet	Similar to 10-15 sample	15-17.5' 0.0
					17.5-20' 0.0
				BOE: 20'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	11:40
		5-10ft.-	11:50
		10-12.5ft.-	11:55
		12.5-15ft.-	12:00
		15-17.5ft.-	12:05
		17.5-20ft.-	12:10
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

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Project: C+F Plating	**Boring I.D.: HRP-SB-2**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 12:25**
Location:	
GPS Coordinates N: -73.412022462 W: 42.66324004	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.5	Dry	Gray to dark gray silty c-f SAND, little c-f gravel, trace brick fragments, no odor	0-5'-0.0
5	10	2.6	Moist to Wet	Brown to gray silty fine SAND, little m-f gravel, no odor	5-10'-0.0
10	15	2.2	Wet	Gray fine SAND, trace silt, no odor	10-15' 0.0
15	20	3.0	Wet	Gray fine SAND, trace silt, gray gravel at 19.5', no odor	15-17.5' 0.0
					17.5-20' 0.0
				BOE: 20'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	12:30
		5-10ft.-	12:40
		10-15ft.-	12:45
		15-17.5ft.-	12:50
		17.5-20ft.-	12:55
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-3**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 13:00**
Location:	
GPS Coordinates N: -73.74506638 W: 42.66327622	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.8	Dry to Moist	Black to brown to gray silty c-f SAND, little c-f gravel, trace brick fragments, no odor	0-5'-0.0
5	10	2.5	Moist to Wet	Brown clayey c-f SAND, gravel at 9.5-10 with trace brick fragments, no odor	5-10'-0.0
10	15	3.2	Wet	Gray fine SAND, trace silt, c-f sand and c-f angular gravel at 14.5-15, no odor	10-12.5' 0.0
					12.5-15' 0.0
15	20	1.4	Wet	Gray fine SAND, and c-f angular GRAVEL, no odor	15-20' 0.0
				BOE: 20'bgs	

Well Screen:		Soil Samples Collected:	Time
Water Sample ID	Time	0-5 ft.-	13:05
		5-10ft.-	13:15
		10-12.5ft.-	13:20
		12.5-15ft.-	13:25
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

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Project: C+F Plating	**Boring I.D.: HRP-SB-4**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 14:15**
Location:	
GPS Coordinates N: -73.74502786 W:42.66335369	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	1.75	5 inches	Dry	Brown silty c-f SAND, little c-f angular gravel, refusal at 1.75 ft. Shoe has hard rock in it- Limestone? Parking lot rises here- They must have never removed the bedrock	0.0
				BOE: 1.75'bgs	

Well Screen:		Soil Samples Collected:	Time
Water Sample ID	Time	0-1.75 ft.-	14:25
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

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Project: C+F Plating	**Boring I.D.: HRP-SB-4A**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 9:40**
Location: 6 ft. west of middle back door	
GPS Coordinates N: -73.74496002 W:42.66333438	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	5	0.8	Dry	Gray to black c-f SAND, some c-f angular gravel, little silt, no odor	0-5' 0.0
5	10	1.6	Dry to Wet	Brown fine sandy CLAY, little c-f gravel, no odor (5-8.5), changing to dark brown silty c-f SAND, some c-f rounded to angular gravel, no odor- Very hard at 9.9, refusal at 10.1	5-10.1' 0.0
				BOE: 10.1 ft.	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	9:50
		5-10.1ft.-	10:00
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-5**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 14:40**
Location:	
GPS Coordinates N: -73.74508208 W:42.66338427	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	4.0	Dry to Moist	Black to brown CLAY, little fine gravel, little c-f sand, no odor (0-3) changing to brown silty fine SAND, no odor, moist	0-5' 0.0
5	10		Wet	Brown to gray c-f SAND, some clay and silt, trace c-f angular gravel, no odor	5-7.5' 0.0
					7.5-10' 0.0
10	15	1.9	Wet	Gray c-f SAND and c-f angular GRAVEL, no odor	10-15' 0.0
15	20	2.2	Wet	Gray c-f angular GRAVEL, some c-f sand, trace clay, no odor	15-20' 0.0
				BOE: 20'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	14:45
		5-7.5ft.-	14:50
		7.5-10ft.-	14:55
		10-15ft.-	15:05
		15-20ft.-	15:15
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-6**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 15:10**
Location:	
GPS Coordinates N: -73.74486663 W:42.66337976	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.0	Dry to Moist	Brown c-f SAND, some silt, little c-f gravel, no odor (0-2) changing to brown CLAY, some c-f sand , no odor (2-5)	0-5' 0.0
5	10	2.3	Moist to Wet	Brown to gray c-f SAND and CLAY, little c-f gravel, no odor	5-7.5' 0.0
					7.5-10' 0.0
10	15	2.1	Wet	Brown to gray c-f SAND, and CLAY, little c-f gravel, no odor	10-15' 0.0
				BOE: 15'bgs	

Well Screen:		Soil Samples Collected:	Time
Water Sample ID	Time	0-5 ft.-	15:15
		5-7.5ft.-	15:20
		5-10ft.-	15:25
		10-15ft.-	15:30
Sampling Method:		FIELD DUPLICATE TAKEN	
Description of Water:			

HRP Engineering, P.C.

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Project: C+F Plating	**Boring I.D.: HRP-SB-7**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 10:15**
Location:	
GPS Coordinates N: -73.74494381 W:42.66329566	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.0	Dry to Wet	Black c-f SAND, some c-f gravel, little silt, no odor (0-1) changing to brown CLAY, little fine sand, little c-f gravel, no odor	0-5' 0.0
5	10	3.1	Wet	Brown to gray c-f SAND, some c-f rounded to angular gravel, little clay, no odor	5-7.5' 0.0
					7.5-10' 0.0
10	15	2.5	Wet	Brown to gray c-f SAND, little c-f angular GRAVEL, little silt, no odor (10-13) changing to gray c-f GRAVEL, some c-f sand, little silt, no odor	10-15' 0.0
15	20	2.0	Wet	Gray c-f angular GRAVEL, little c-f sand, trace silt, no odor	15-20' 0.0
				BOE: 20'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	10:20
		5-7.5ft.-	10:30
		5-10ft.-	10:35
		10-15ft.-	10:40
		15-20ft.-	10:45
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-8**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 14:20**
Location:	
GPS Coordinates N: -73.74485108 W:42.66324095	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	3.0	Dry	Black c-f SAND, some c-f gravel, little silt, no odor (0-1) changing to brown CLAY, little fine sand, little c-f gravel, no odor	0-5' 0.0
5	10	2.6	Dry to Wet	Brown CLAY to 7.5 ft. changing to gray CLAY, no odor	5-10' 0.0
10	15	2.5	Wet	Gray CLAY, some c-f sand, no odor (10-13) changing to c-f SAND, some c-f angular gravel, little clay, no odor	10-15' 0.0
15	20	-	-	No Recovery	-
20	24	1.3	Wet	Gray c-f angular GRAVEL, some c-f sand, little silt, no odor	20-24' 0.0
				BOE: 24'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	
		5-10ft.-	
		10-15ft.-	
		20-24ft.-	
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-9**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 13:30**
Location:	
GPS Coordinates N: -73.74480536 W:42.6632672	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.5	Dry to Moist	Black c-f SAND, some c-f gravel, little silt, no odor (0-1) changing to brown CLAY, no odor	0-5' 0.0
5	10	2.1	Moist to Wet	Alternating layers of brown c-f SAND and c-f GRAVEL and CLAY no odor	5-10' 0.0
10	15	3.2	Wet	Brown c-f SAND, some c-f angular gravel, little silt (10-11.5) changing to gray fine SAND (11.5-15) no odor	10-12.5' 0.0
					12.5-15' 0.0
15	19.25	3.1	Wet	Gray fine SAND at 15 ft. with increasing gravel to gray fine SAND and c-f rounded to angular gravel at 19ft., no odor	15-19.5' 0.0
				BOE: 19.25'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	13:40
		5-10ft.-	13:45
		10-12.5ft.-	13:50
		12.5-15ft.-	13:55
		15-19.25ft.-	14:00
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-10**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 10:55**
Location:	
GPS Coordinates N: -73.74481265 W:42.66334263	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	1.7	Dry to Moist	Black c-f SAND, some c-f gravel, little silt, no odor (0-1) changing to brown CLAY, no odor	0-5' 0.0
5	10	1.8	Wet	Brown c-f SAND and c-f angular GRAVEL, no odor –REFUSAL at 10.35 ft.	5-10' 0.0
				BOE: 10.35'bgs	

Well Screen:		Soil Samples Collected:	Time
Water Sample ID	Time	0-5 ft.-	11:05
		5-10ft.-	11:15
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-10A**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 11:25**
Location:	
GPS Coordinates N: -73.74482958 W:42.66337697	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	1.0	Dry to Moist	Black c-f SAND, some c-f gravel, little silt, no odor (0-1) changing to brown CLAY, no odor	0-5' 0.0
5	10	2.0	Moist to Wet	Brown c-f SAND and c-f angular GRAVEL, no odor –REFUSAL at 10.15 ft.	5-10' 0.0
				BOE: 10.15'bgs	

Well Screen:		Soil Samples Collected:	Time
Water Sample ID	Time	0-5 ft.-	11:30
		5-10ft.-	11:40
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-11**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 14:20**
Location:	
GPS Coordinates N: -73.74485712 W:42.66333353	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	1.7	Dry to Moist	Brown c-f SAND, some c-f rounded to angular gravel, little silt, no odor (0-1.5) dark stained gravel layer (1.5-2.0), no odor, then Brown to Gray CLAY (2-5), no odor	0-5' 0.0
5	10	2.5	Moist to Wet	Brown to gray CLAY, some c-f sand, trace c-f gravel (5-9), changing to gray fine SAND, little c-f gravel, no odor (9-10)	5-7.5' 0.0
					7.5-10' 0.0
10	15	2.0	Wet	Gray c-f SAND, some c-f rounded to angular gravel, little silt, no odor	10-15' 0.0
				BOE: 15'bgs	

Well Screen:		Soil Samples Collected:	Time
Water Sample ID	Time	0-5 ft.-	14:25
		5-7.5ft.-	14:35
		7.5-10ft.-	14:40
		10-15ft.-	14:45
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

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Project: C+F Plating	**Boring I.D.: HRP-MW-6**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 9:30**
Location: American Boiler Parking Lot	
GPS Coordinates N: -73.74555281 W:42.66349536	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	3.0	Dry to Moist	Gray to brown silty SAND, little rounded to angular c-f gravel, black soil from 4.5-5.0 ft., little odor	0-5' 13.1
5	10	-	Moist to Wet	Black silty m-f SAND, little brick fragments, gray clay and 7.5 ft. changing to fine sandy CLAY (9.5-10), heavy petroleum odor at 9.5-10ft.	5-7.5' 1.9
					7.5-10' 126.7
10	15	-	Wet	Gray silty fine SAND, some peat in bottom of spoon-fill material, heavy petroleum odor	10-12.5' 637
					12.5-15' 410
15	20	-	Wet	Gray fine SAND, little silt, little to no odor	15-17.5' 55.3
					17.5-20' 1.7
				BOE: 20'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	9:30
		5-7.5ft.-	9:40
		7.5-10ft.-	9:45
		10-12.5ft.-	9:55
		12.5-15ft.-	10:00
		15-17.5ft.-	10:10
		17.5-20ft.-	10:15
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-MW-7**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 13:45**
Location: Northwest corner of property	
GPS Coordinates N: -73.74508953 W:42.66327515	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	3.1	Dry to moist	Gray to brown silty c-f SAND, little c-f gravel, little clay, no odor, clay at 2.5 to 4.5 ft.	0-5' 0.0
5	9.45	3.5	Moist to wet	Brown to gray silty fine SAND, trace clay, trace c-f angular gravel, no odor, refusal at 9.45 ft.- Move 3 ft. north and get refusal at 10.15 ft. Appears to be weathered bedrock	5-7.5' 0.0 7.5-10' 0.0
				BOE: 10.15'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	13:50
		5-7.5 ft.-	13:55
		7.5-9.5 ft.-	14:00
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-MW-8**
Job Number: NEW9627.RA	**Date: 12/5/11**
Drilling Company: Aztech Drilling	**Time: 15:30**
Location:	
GPS Coordinates N: -73.74500505 W:42.66344732	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.8	Dry to moist	Black c-f SAND, little silt, little c-f gravel, no odor (0-2), changing to brown clayey fine SAND, trace c-f gravel, no odor (2-5)	0-5' 0.0
5	10	3.2	Wet	Brown fine sandy CLAY, no odor (5-9), changing to brown to gray c-f SAND and c-f angular GRAVEL, no odor (9-10)	5-7.5' 0.0 7.5-10' 0.0
10	15	4.0	Wet	Brown m-f SAND, little silt, trace c-f gravel (10-12) changing to gray m-f SAND, little silt, trace c-f gravel, no odor (12-14) changing to c-f SAND and c-f GRAVEL, little silt, no odor	10-12.5' 0.0 12.5-15' 0.0
15	20	2.4	Wet	Gray c-f GRAVEL, some c-f sand, little silt and clay, no odor	15-20' 0.0
				BOE: 20'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	15:30
		5-7.5ft.-	15:35
		7.5-10ft.-	15:40
		10-12.5ft.-	15:45
		12.5-15ft.-	15:50
		15-20ft.-	16:00
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

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Project: C+F Plating	**Boring I.D.: HRP-MW-9**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 9:00**
Location:	
GPS Coordinates N: -73.74492148 W:42.66338044	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.0	Dry to moist	Brown to dark brown silty c-f SAND, little c-f gravel, trace clay, trace brick fragments, no odor	0-5' 0.0
5	10	3.0	Moist to wet	Brown fine sandy CLAY, trace c-f gravel, no odor (5-8) changing to brown to gray c-f SAND, some silt, little c-f gravel, no odor	5-7.5' 0.0 7.5-10' 0.0
10	15	2.8	Wet	Brown to gray c-f SAND and c-f angular GRAVEL, some silt, no odor	10-15' 0.0
15	17.9	2.1	Wet	Brown c-f SAND and c-f GRAVEL, Some Silt, no odor (15-17), changing to gray c-f GRAVEL, little c-f sand, little silt, no odor (17-20)	15-17.9 0.0
				BOE: 17.9'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	9:05
		5-7.5 ft.-	9:10
		7.5-10 ft.-	9:15
		10-15 ft.-	9:25
		15-17.9 ft.-	9:30
Sampling Method:			
Description of Water:			

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Project: C+F Plating	**Boring I.D.: HRP-MW-10**
Job Number: NEW9627.RA	**Date: 12/6/11**
Drilling Company: Aztech Drilling	**Time: 12:45**
Location:	
GPS Coordinates N: -73.74477299 W:42.66331988	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	Bottom				
0	5	2.0	Dry to moist	Brown c-f SAND, little c-f gravel, little silt, no odor (0-1) changing to brown CLAY, no odor (1-5)	0-5' 0.0
5	10	2.0	Moist to wet	Brown c-f SAND, Some c-f angular to rounded Gravel, little silt, no odor	5-10' 0.0
10	15	3.1	Wet	Similar to 5-10 sample (10-12.5) changing to brown fine SAND, no odor (12.5-15)	10-12.5' 0.0 12.5-15' 0.0
15	20	0.4	Wet	May be outwash material	15-20' 0.0
20	24	0.6	Wet	Gray c-f GRAVEL, Some c-f Sand, trace silt, no odor, minimal recovery	5-7.5'
					0.0
				BOE: 24'bgs	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time	0-5 ft.-	12:50
		5-10 ft.-	12:55
		10-12.5 ft.-	13:00
		12.5-15 ft.-	13:05
		15-20 ft.-	13:10
		20-24 ft.-	13:20
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-MW-11**
Job Number: NEW9627.RA	**Date: 4/18/12**
Drilling Company: Aztech Drilling	**Time: 8:00**
Location: Offsite	
GPS Coordinates N: -73.74435794 W:42.66301563	

Sample Interval (ftbg) Top	Sample Interval (ftbg) Bottom	Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
0	5	3	Dry	SAND, medium to coarse; some coarse gravel; trace silt; brick; tan-brown; loose; no odor no staining.	0.0
5	10	3	Wet at 7'	5 to 6: SAND, medium to coarse; some coarse gravel; trace silt; brick; tan-brown; loose; no odor no staining. 6 to 8: SAND, fine; some silt; some gravel; trace pottery; brown-grey; loose; no odor or staining. 8 to 10: SAND, fine and SILT; little gravel; loose; red-brown; no odor or staining	0.0 0.0 0.0
10	15	2	Moist	SAND, medium to coarse; some gravel; loose; brown; no staining; no odor.	0.0
15	20	3	Moist Wet Moist	15 to 18: SAND, medium to coarse; some gravel; loose; brown; no staining; no odor. 18 to 19: SAND, coarse and GRAVEL, fine; loose; brown; no odor or staining. 19 to 20: CLAY; some silt; medium compact; grey; no odor or staining.	0.0 0.0 0.0
	20			End of boring.	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time		
		Samples collected every 2 feet.	
Sampling Method:			
Description of Water:			

HRP Engineering, P.C.

Creating the Right Solutions Together

Project: C+F Plating	**Boring I.D.: HRP-SB-12**
Job Number: NEW9627.RA	**Date: 4/18/12**
Drilling Company: Aztech Drilling	**Time: 8:00**
Location: Offsite	
GPS Coordinates N: -73.74441352 W:42.66294816	

Sample Interval (ftbg)		Recovery (ft)	Moisture	Description (grain size, color, compaction, staining, odor)	PID (PPM)
Top	**Bottom**				
0	5	4.0	Moist	0 to 2: SAND, fine; some silt; grey; loose; no odor; no staining.	0.0
			Dry	2 to 4: SAND, fine; some silt; trace gravel; grey; compact; no odor; no staining.	0.0
			Dry	4 to 5: SAND, medium; some gravel; little brick; dark grey; no odor; no staining.	0.0
5	10	3.0	Dry	5 to 7: SAND, medium; some gravel; little brick; dark grey; no odor; no staining.	0.0
			Dry	7 to 8: Brick	0.0
			Moist	8 to 10: SAND, fine; some silt; little clay; dark grey; medium compact; no odor; no staining.	0.0
10	15	3.5	Moist	SAND, medium to coarse; some gravel; loose; dark brown; no odor; no staining.	0.0
15	20	4.0	Wet	15 to 17: SAND, coarse and GRAVEL, fine; loose; brown; no odor; no staining.	
				17 to 20: CLAY; some silt; medium compact; grey; no odor or staining.	
	20			End of boring.	

Well Screen:		**Soil Samples Collected:**	**Time**
Water Sample ID	Time		
		Samples collected every 2 feet.	
Sampling Method:			
Description of Water:			

MONITORING WELL CONSTRUCTION LOG

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

PROJECT: C+F Plating
WA #: D006130-26
LOCATION: 406 North Pearl St, Albany, NY

DRILLING CO.: Aztech Drilling
DRILLED BY: Ray Hammond
INSPECTED BY: Jamey Charter

BORING NO. HRP-MW-6
PAGE 1 OF 1_
DATE STARTED: 12/7/2011
DATE FINISHED: 12/7/2011
SURFACE ELEVATION: 38.88
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
	8.89

CASING
TYPE: PVC
SIZE I.D.: 2 inch

SAMPLER
J. Charter

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)
							See Boring Logs	See Boring Logs
10'								
20'								
30'								
40'								

WELL CONSTRUCTION DATA:
Well bottom set at _16.9_' bgs
Borehole diameter_4.25_"
Well Screen Interval _16.9_' to _11.9_' bgs (_5'_screen length)
Well Screen Slot Size _0.010_ Material_PVC_Diameter _2_"
Sand Filter Pack Interval _16.9'_to _10'_ bgs
Sand Size_01_ Quantity_3 bags_(bags, lbs, gallons)
Well Riser Interval _11.9_' to _0_' bgs (_11.9'_riser length)
Well Riser Diameter_2"_Material_PVC_
Bentonite Seal Above Fitler Pack _10'_to _8_' bgs
Backfill Interval _8'_to _1_' bgs
Backfill Material_Soil Cuttings_
Portland Type 1 Top/Ground Surface Seal
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
Top of riser

GENERAL REMARKS:
1) ~_____ gallons of water was purged from following installation on _____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring_____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
1.5 inch or 2 inch riser
Screen

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: C+F Plating
WA #: D006130-26
LOCATION: 406 North Pearl St, Albany, NY

DRILLING CO.: Aztech Drilling
DRILLED BY: Ray Hammond
INSPECTED BY: Jamey Charter

BORING NO. HRP-MW-7
PAGE 1 OF 1
DATE STARTED: 12/9/2011
DATE FINISHED: 12/9/2011
SURFACE ELEVATION: 31.96
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
	6.85

CASING
TYPE: PVC
SIZE I.D.: 1.5 inch

SAMPLER
J. Charter

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)
							See Boring Logs	See Boring Logs
10'								
20'								
30'								
40'								

WELL CONSTRUCTION DATA:
Well bottom set at _17.4_' bgs
Borehole diameter_3.25_"
Well Screen Interval **_17.4_**' to _2.4_' bgs (_15'_screen length)
Well Screen Slot Size _0.010-Pre-packed_ Material_PVC_Diameter _2.5_"
Sand Filter Pack Interval _17.4_to _2_ bgs
Sand Size_01_ Quantity_3 bags_(bags, lbs, gallons)
Well Riser Interaval _2.4_' to _0_' bgs (_2.4'_riser length)
Well Riser Diameter_1.5"_Material_PVC_
Bentonite Seal Above Fitler Pack _2_to _1_' bgs
Backfill Interval _1_to _0_' bgs
Backfill Material_Type 1 Portland Cement_
Bentonite Top/Ground Surface Seal
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
Top of riser

GENERAL REMARKS:
1) ~_____ gallons of water was purged from following installation on _____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring_____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
1.5 inch or 2 inch riser
Screen

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: C+F Plating
WA #: D006130-26
LOCATION: 406 North Pearl St, Albany, NY

DRILLING CO.: Aztech Drilling
DRILLED BY: Ray Hammond
INSPECTED BY: Jamey Charter

BORING NO. HRP-MW-8
PAGE 1 OF 1
DATE STARTED: 12/9/2011
DATE FINISHED: 12/9/2011
SURFACE ELEVATION: 31.33
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
	6.84

CASING
TYPE: PVC
SIZE I.D.: 1.5 inch

SAMPLER
J. Charter

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)
							See Boring Logs	See Boring Logs
10'								
20'								
30'								
40'								

WELL CONSTRUCTION DATA:

Well bottom set at _18.8_' bgs
Borehole diameter_3.25_"
Well Screen Interval _18.8_' to 3.8_' bgs (_15' screen length)
Well Screen Slot Size _0.010-Pre-packed_ Material_PVC_Diameter _2.5_"
Sand Filter Pack Interval _18.8_to _3_ bgs
Sand Size_01_ Quantity_3 bags_(bags, lbs, gallons)
Well Riser Interaval _3.8_' to _0_' bgs (_3.8'_riser length)
Well Riser Diameter_1.5"_Material_PVC_
Bentonite Seal Above Fitler Pack _3_to _1_' bgs
Backfill Interval _1_to _0_' bgs
Backfill Material_Type 1 Portland Cement_
Bentonite Top/Ground Surface Seal
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
Top of riser

GENERAL REMARKS:

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

KEY:

Well	Filter Sand	Indication of where groundwater begins
	Bentonite	
	Grout	Roadbox
Strata	Native soil	
	Bedrock	1.5 inch or 2 inch riser
		Screen

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: C+F Plating
WA #: D006130-26
LOCATION: 406 North Pearl St, Albany, NY

DRILLING CO.: Aztech Drilling
DRILLED BY: Ray Hammond
INSPECTED BY: Jamey Charter

BORING NO. HRP-MW-9
PAGE 1 OF 1
DATE STARTED: 12/8/2011
DATE FINISHED: 12/8/2011
SURFACE ELEVATION: 31.01
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
	6.95

CASING
TYPE: PVC
SIZE I.D.: 1.5 inch

SAMPLER
J. Charter

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)
							See Boring Logs	See Boring Logs
10'								
20'								
30'								
40'								

WELL CONSTRUCTION DATA:
Well bottom set at _19.1_' bgs
Borehole diameter_3.25_"
Well Screen Interval **_19.1_**' to _4.1_' bgs (_15'_screen length)
Well Screen Slot Size _0.010-Pre-packed_ Material_PVC_Diameter _2.5_"
Sand Filter Pack Interval _19.1_to _3_ bgs
Sand Size_01_ Quantity_3 bags_(bags, lbs, gallons)
Well Riser Interaval _4.1_' to _0_' bgs (_4.1'_riser length)
Well Riser Diameter_1.5"_Material_PVC_
Bentonite Seal Above Fitler Pack _3_to _1_' bgs
Backfill Interval _1_to _0_' bgs
Backfill Material_Type 1 Portland Cement_
Bentonite Top/Ground Surface Seal
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
Top of riser

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

KEY:

Well	Filter Sand	Indication of where groundwater begins
	Bentonite	
	Grout	Roadbox
Strata	Native soil	
	Bedrock	1.5 inch or 2 inch riser
		Screen

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: C+F Plating
WA #: D006130-26
LOCATION: 406 North Pearl St, Albany, NY

DRILLING CO.: Aztech Drilling
DRILLED BY: Ray Hammond
INSPECTED BY: Jamey Charter

BORING NO. HRP-MW-10
PAGE 1 OF 1
DATE STARTED: 12/7/2011
DATE FINISHED: 12/8/2011
SURFACE ELEVATION: 30.43
BOTTOM OF BORING ELEVATION:
GROUNDWATER REFERENCE ELEVATION:

GROUNDWATER OBSERVATIONS

DEPTH	Post-Development
	7.75

CASING
TYPE: PVC
SIZE I.D.: 1.5 inch

SAMPLER
J. Charter

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)
							See Boring Logs	See Boring Logs
10'								
20'								
30'								
40'								

WELL CONSTRUCTION DATA:
Well bottom set at _24.7_' bgs
Borehole diameter_3.25_"
Well Screen Interval _24.7_' to _4.7_' bgs (_15'_screen length)
Well Screen Slot Size _0.010-Pre-packed_ Material_PVC_Diameter _2.5_"
Sand Filter Pack Interval _24.7_ to _3_ bgs
Sand Size_01_ Quantity_4 bags_(bags, lbs, gallons)
Well Riser Interaval _4.7_' to _0_' bgs (_4.7'_riser length)
Well Riser Diameter_1.5"_Material_PVC_
Bentonite Seal Above Fitler Pack _3_ to _1_' bgs
Backfill Interval _1_ to _0_' bgs
Backfill Material_Type 1 Portland Cement_
Bentonite Top/Ground Surface Seal
Finishing/Well Protector: Flush-Mounted
Surface Finishing notes:_____
Groundwater Reference Point Description: (Top of Riser, Standpipe, other)
Top of riser

GENERAL REMARKS:
1) ~_____ gallons of water was purged from following installation on _____2011
2) SAA = Same as Above / NA = Not Available
3) bgs = Below Ground Surface
4)Soil Boring_____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
1.5 inch or 2 inch riser
Screen

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. 1 Fairchild Square, Suite 110 Clifton Park, NY 12065 (518) 877-7101	GROUNDWATER MONITORING WELL PURGE FORM	

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-6	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/21/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 16:45	Well Diameter (in): 2 inch

Purge Date:	12/21/2011	Purge Time:	9:30
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 16.90	4) Well Diameter (in): 2 inch	7) Five Well Volumes (gal): 7.35
2) Depth to Water (ft): 7.88	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.163	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 9.02	6) Total Well Volume (gal) (3x5): 1.47	Pump Type: Whale Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (pH units)	ORP (mV)	remperatur (oC)	Gonductivit: (uS/cm)	DO (ug/L)	Turbidity (ntu)
No Horiba Readings- Visual Inspection									

Total Quantity of Water Removed (gal):	25 gal	Sampling Time:	NA
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	NA	Sample Type:	NA

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-7	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/16/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 14:35	Well Diameter (in): 1.5 inch

Purge Date:	12/16/2011	Purge Time:	14:44
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 17.42	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): 4.89
2) Depth to Water (ft): 6.78	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 10.64	6) Total Well Volume (gal) (3x5): .978	Pump Type: Whale Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (pH units)	ORP (mV)	remperatur (oC)	Gonductivit: (uS/cm)	DO (ug/L)	Turbidity (ntu)
14:46		3 gal		9.18	-36	14.13	1.52	2.02	>800
14:51		8 gal		9.11	-40	14.15	1.55	6.74	>800
14:56		13 gal		8.87	-44	14.51	1.55	4.42	907
15:01		18 gal		8.93	-53	14.42	1.56	3.51	466
15:06		23 gal		8.78	-54	14.54	1.52	7.36	381

Total Quantity of Water Removed (gal):	28 gal	Sampling Time:	NA
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	NA	Sample Type:	NA

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-8	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/21/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 16:00	Well Diameter (in): 1.5 inch

Purge Date:	12/21/2011	Purge Time:	16:10
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 18.78	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): 5.44
2) Depth to Water (ft): 6.96	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 11.82	6) Total Well Volume (gal) (3x5): 1.09	Pump Type: Whale Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (pH units)	ORP (mV)	remperatur (oC)	Gonductivit: (uS/cm)	DO (ug/L)	Turbidity (ntu)
No Horiba Readings- Visual Inspection									

Total Quantity of Water Removed (gal):	25 gal	Sampling Time:	NA
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	NA	Sample Type:	NA

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-9	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/16/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time:	Well Diameter (in): 1.5 inch

Purge Date:	12/16/2011	Purge Time:	15:01
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 19.08	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): 5.66
2) Depth to Water (ft): 6.77	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 12.31	6) Total Well Volume (gal) (3x5): 1.13	Pump Type: Whale Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (pH units)	ORP (mV)	remperatur (oC)	Gonductivit: (uS/cm)	DO (ug/L)	Turbidity (ntu)
15:54		4 gal		8.95	6	13.04	1.30	4.53	>800
15:59		9 gal		8.61	-8	13.36	1.33	1.57	>800
16:04		14 gal		8.64	-10	13.46	1.33	1.59	>800
16:09		19 gal		8.68	-0	13.51	1.33	1.88	930
16:14		24 gal		8.53	-8	13.45	1.34	1.75	741
16:19		29 gal		8.55	-9	13.74	1.34	2.111	525

Total Quantity of Water Removed (gal):	30 gal	Sampling Time:	NA
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	NA	Sample Type:	NA

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-10	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/16/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time:15:17	Well Diameter (in): 1.5 inch

Purge Date:	12/16/2011	Purge Time:	15:20
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 24.71	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): 7.61
2) Depth to Water (ft): 8.16	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 16.55	6) Total Well Volume (gal) (3x5): 1.52	Pump Type: Whale Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (pH units)	ORP (mV)	remperatur (oC)	Gonductivit: (uS/cm)	DO (ug/L)	Turbidity (ntu)
15:23		3 gal		9.48	-78	12.911	1.25	4.20	>800
15:28		8 gal		9.24	-65	13.19	1.28	5.85	>800
15:33		13 gal		9.06	-65	13.22	1.35	2.38	>800
15:40		18 gal		8.84	-66	13.24	1.29	8.27	401

Total Quantity of Water Removed (gal):	23 gal	Sampling Time:	NA
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	NA	Sample Type:	NA

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-6	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/29/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 11:40	Well Diameter (in): 2 inch

Purge Date:	12/28/2011	Purge Time:	:
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 16.90	4) Well Diameter (in): 2 inch	7) Five Well Volumes (gal): N/A
2) Depth to Water (ft): 8.89	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.163	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 8.01	6) Total Well Volume (gal) (3x5): 1.30	Pump Type: Peristaltic Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (SU units)	ORP (mV)	temperature (oC)	Conductivity: (uS/cm)	DO (ug/L)	Turbidity (ntu)
11:50	9.66	1		7.01	32	5.01	1.21	6.0	61.4
11:55	9.65	2.5		6.81	11	5.31	1.27	0.08	65.2
12:00	9.65	4.0		6.77	-2	5.77	1.29	0.0	49.1
12:05	9.65	5.5		6.71	-32	6.38	1.35	0.0	44.5
12:10	9.64	7.0		6.70	-41	6.59	1.39	0.0	43.6
12:15	9.64	8.5		6.69	-61	6.85	1.42	0.0	41.5

Total Quantity of Water Removed (gal):	9.5 Liters	Sampling Time:	12:20
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	12/29/2011	Sample Type:	GW

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-7	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/29/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 9:00	Well Diameter (in): 1.5 inch

Purge Date:	12/28/2011	Purge Time:	:
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 17.42	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): N/A
2) Depth to Water (ft): 6.85	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 10.57	6) Total Well Volume (gal) (3x5): 0.97	Pump Type: Peristaltic Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (SU units)	ORP (mV)	temperature (oC)	Conductivity: (uS/cm)	DO (ug/L)	Turbidity (ntu)
9:30	6.90	1		6.89	-44	5.95	1.46	0.0	44.5
9:35	6.90	2.5		6.81	-45	7.56	1.38	0.0	37.0
9:40	6.90	4.0		6.77	-49	8.24	1.37	0.0	31.0
9:45	6.90	5.5		6.83	-53	8.44	1.48	0.0	31.0
9:50	6.90	7.0		6.84	-57	8.51	1.48	0.0	28.0
9:55	6.90	8.5		6.84	-59	8.51	1.49	0.0	23.3

Total Quantity of Water Removed (gal):	8.5 Liters	Sampling Time:	10:05
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	12/29/2011	Sample Type:	GW

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-8	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/28/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 14:40	Well Diameter (in): 1.5 inch

Purge Date:	12/28/2011	Purge Time:	:
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 18.78	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): N/A
2) Depth to Water (ft): 6.84	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 11.94	6) Total Well Volume (gal) (3x5): 1.10	Pump Type: Peristaltic Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (SU units)	ORP (mV)	temperature (oC)	Conductivity: (uS/cm)	DO (ug/L)	Turbidity (ntu)
14:50	6.88	2		6.74	-24	10.25	0.867	0.98	57.0
15:00	6.89	4		6.64	-41	10.43	0.871	0.0	43.5
15:03	6.89	5		6.68	-46	10.54	0.869	0.0	25.6
15:06	6.89	6		6.68	-51	10.77	0.869	0.0	21.8
15:09	6.87	7		6.68	-53	10.81	0.868	0.0	19.3
15:12	6.89	8		6.68	-54	10.84	0.868	0.0	16.0

Total Quantity of Water Removed (gal):	9 Liters	Sampling Time:	13:20
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	12/28/2011	Sample Type:	GW

COMMENTS AND OBSERVATIONS:	MS/MSD taken here

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-9	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/29/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 10:25	Well Diameter (in): 1.5 inch

Purge Date:	12/28/2011	Purge Time:	:
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 19.08	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): N/A
2) Depth to Water (ft):6.95	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 12.13	6) Total Well Volume (gal) (3x5): 1.12	Pump Type: Peristaltic Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (SU units)	ORP (mV)	temperature (oC)	Conductivity: (uS/cm)	DO (ug/L)	Turbidity (ntu)
10:45	7.05	1		7.04	-27	8.22	1.29	7.38	117
10:50	7.05	2.5		6.82	-16	9.48	1.25	0.17	113
11:00	7.05	4.0		6.78	-15	9.91	1.25	0.0	46.3
11:05	7.05	5.5		6.74	-18	10.66	1.25	0.0	21.6
11:10	7.05	7.0		6.71	-19	10.81	1.24	0.0	14.0
11:15	7.05	8.5		6.69	-19	10.99	1.24	0.0	11.5

Total Quantity of Water Removed (gal):	9 Liters	Sampling Time:	11:20
Samplers:	J.Charter	Split Sample With:	NA
Sampling Date:	12/29/2011	Sample Type:	GW

COMMENTS AND OBSERVATIONS:	

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: J.Charter
Location: 406 N. Pearl St.	Well ID.: HRP-MW-10	Weather: Cloudy 40 F
Sounding Method: Water Level Meter	Gauge Date: 12/28/11	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 11:00	Well Diameter (in): 1.5 inch

Purge Date:	12/28/2011	Purge Time:	:
Purge Method:	Whale Pump	Field Technician:	J.Charter

1) Well Depth (ft): 24.71	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): N/A
2) Depth to Water (ft): 7.75	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft): 16.96	6) Total Well Volume (gal) (3x5): 1.56	Pump Type: Peristaltic Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (SU units)	ORP (mV)	Temperature (oC)	Conductivity: (uS/cm)	DO (ug/L)	Turbidity (ntu)
11:20	7.80	2		7.80	48	12.00	0.936	5.82	361
11:30	7.79	4		6.70	47	10.93	0.938	0.0	215
11:35	7.80	5		6.68	4	10.81	0.947	0.0	130
11:40	7.79	6		6.68	1	10.80	0.948	0.0	89.0
11:45	7.80	7		6.70	-2	10.60	0.954	0.0	92.7
11:48	7.80	8		6.71	-4	10.59	0.956	0.0	84.3
11:51	7.80	9		6.71	-5	10.58	0.958	0.0	82.1

Total Quantity of Water Removed (gal):	10 Liters	Sampling Time:	11:55
Samplers:	J.Charter	Split Sample With:	Duplicate (12/28/2011)
Sampling Date:	12/28/2011	Sample Type:	GW

COMMENTS AND OBSERVATIONS:	Duplicate sample taken here

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

Project: C+F Plating	WAS #: D006130-26	Field Personnel: Mark Wright
Location: 406 N. Pearl St.	Well ID.: HRP-MW-11	Weather: Cloudy 60 F
Sounding Method: Water Level Meter	Gauge Date: 5/1/12	Measurement Ref: Black Mark on Top of Riser
Stick Up/Down (ft): Flush Mount	Gauge Time: 12.57	Well Diameter (in): 1.5 inch

Purge Date:	5/1/2012	Purge Time:	:
Purge Method:	Whale Pump	Field Technician:	Mark Wright

1) Well Depth (ft): 20.00	4) Well Diameter (in): 1.5 inch	7) Five Well Volumes (gal): N/A
2) Depth to Water (ft): 16.20	5) Well Volume / Foot (gal) (d^2x.0.0408): 0.092	Depth/Height of Top of PVC: NA
3) Height of H_2O Column (1-2) (ft):	6) Total Well Volume (gal) (3x5): 1.56	Pump Type: Peristaltic Pump

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (mL/m)	pH (SU units)	ORP (mV)	Temperature (oC)	Conductivity: (uS/cm)	DO (ug/L)	Turbidity (ntu)
1257	16.20			7.11	1230	21.38	2.02	17.91	21.35
1300	NA			6.87	145	21.36	2.03	3.06	21.30
1303	NA			6.84	151	20.61	2.06	5.56	20.61
1306	NA			6.85	156	19.96	2.09	2.30	19.96
1309	NA			6.85	159	19.42	2.12	1.93	19.42
1312	NA			6.84	161	19.42	2.13	1.70	19.24
1315	NA			8.85	153	19.24	2.14	1.65	18.96
1318	NA			6.84	154	18.96	2.15	1.7	18.57
1321	NA			6.84	154	18.57	2.18	1.25	18.18
1324	NA			6.84	153	18.18	2.18	1.22	18.11
1327	NA			6.84	163	18.11	2.19	1.21	18.11

Total Quantity of Water Removed (gal):	10 Liters	Sampling Time:	1330
Samplers:	Mark Wright	Split Sample With:	NA
Sampling Date:	5/1/2012	Sample Type:	GW

COMMENTS AND OBSERVATIONS:	

APPENDIX B

QA/QC EVALUATION RESULTS (DUSRs)

APPENDIX C

ANALYTICAL DATA