INTERIM REMEDIAL MEASURE WORK PLAN

NYSDEC BCP Site # C734108

AOC-4, Celi Drive BCP Site
Town of Dewitt, Onondaga County, New York

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REVISION	DATE	SUMMARY OF REVISION

CERTIFICATION

I, Robert G. Harner, certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measure Work Plan 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).

Robert G. Harner NYS Professional Engineer (#079435)	03/17/2022 Date

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education.

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1.0 INTRODUCTION

1.1 Background and Purpose

This Interim Remedial Measure Work Plan (IRMWP) has been prepared to outline proposed remedial actions to be implemented to address remaining off-site contamination that exists in Area of Concern #4 ("AOC-4") of the Celi Drive BCP Site (the "Site"). The Celi Drive BCP Site is associated with the former General Super Plating Co., Inc. / GSP Holdings, Inc. (collectively, "GSP") facility located at 5762 Celi Drive in the Town of Dewitt, Onondaga County, New York (the "GSP Facility"). The GSP Facility is situated on a +/- 1.45-acre tax parcel identified as Onondaga County Tax Parcel 053.-02-17.2. This parcel is occupied by a +/- 47,098 square foot building that had been used as a metal plating facility from the mid- 1970s until these operations were ceased by GSP in 2015. All related equipment and contents were subsequently removed, and the Site has remained vacant since that time.

An accidental release of wastewater generated by metal-plating operations occurred at the GSP facility on May 10, 2005. This release was subsequently investigated and found to have impacted soil, groundwater, and surface water at the GSP Facility, as well as soil/sediment and surface water within a series of adjacent and downgradient surface drainage features (swales, culverts, catch basins) associated with the Town of Dewitt Bridge Street Drainage District. To address contamination associated with the release, the Site was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) and GSP executed a Brownfield Cleanup Agreement (BCA) with the NYSDEC in January 2008. The Site is identified by NYSDEC Site No. C734108.

Based on the results of the initial investigation performed by Environmental Resources Management (ERM) in 2005, four (4) Areas of Concern (AOCs) were identified. These include:

* AOC-1: Impacted soil that was identified adjacent to and beneath the southeast corner of the manufacturing building on the Site;
* AOC-2: Impacted soil/sediment present within a drainage swale located immediately east of the manufacturing building on the Celi Drive site. For purposes of the BCP, this swale is referred to as "the GSP swale";
* AOC-3: Water and solids within a buried storm water culvert pipe and catch basins associated with the Town of Dewitt Bridge Street Drainage District. This culvert begins at the north end of the GSP swale (AOC #2) and discharges on the north side of Bridge Street.
* AOC-4: Impacted soil / sediment present within a drainage swale located north of Bridge Street.

Remedial activities have occurred at AOC-1, AOC-2, AOC-3, and a small section (southern extent) of the AOC-4 swale (see Figure 5 – Additional Areas of Concern, for the locations/extents of AOC-1, AOC-2, and AOC-3). However, the remedial work at AOC-1 and

AOC-2 was completed prior to NYSDEC's approval of the associated IRMs, and the remediated area included real property that is not part of the current BCP site. Construction Completion Reports for AOC-1 and AOC-2, as well as an amendment to include the additional real property into the BCP site, are forthcoming from the Applicant. This RAWP is intended to address the remaining portions of AOC-4 that have not yet been remediated.

1.2 AOC-4

AOC-4 of the Site corresponds to a drainage swale (Bridge Street swale or AOC-4 swale) located north of Bridge Street. A portion of the Bridge Street swale is part of the Bridge Street Drainage District controlled and maintained by the Town of Dewitt. The Bridge Street swale was impacted by contaminants associated with the 2005 GSP wastewater release after the release entered a drainage ditch/swale located east of the GSP facility (AOC-2, the GSP swale). From the GSP swale, the release drained into the buried culvert located adjacent to and to the North of the GSP Facility (AOC-3), conveyed via the AOC-3 culvert and discharged to the southern end of the AOC-4 swale at the north edge of Bridge Street.

The nature and extent of impacts to the Bridge Street swale were assessed during an initial investigation performed by ERM in 2005, and supplemental data gap sampling subsequently performed by ERM and GHD. The contaminants of concern identified in AOC-4 as a result of these investigation activities include chromium (total), chromium (hexavalent), copper (total), nickel (total), and cyanide (total). The extent of contamination within AOC-4 was evaluated and delineated with respect to concentrations that exceed (1) Unrestricted Soil Cleanup Objectives (SCOs) established in 6 NYCRR Part 375, and (2) Protection of Ecological Resources SCOs established in 6 NYCRR Part 375.

In 2014, an emergency remedial action was conducted to remove impacted soil/sediment and water from AOC-3 and the southern portion of AOC-4. This work was undertaken in connection with the development of the commercial properties at 5805 and 5821 Bridge Street (Tax Parcels 044.-07-15.0 and 044.-07-16.0, respectively). The section of the AOC-4 swale remediated during this work is depicted on attached Figures 1 and 2.

In 2017, a draft Remedial Alternatives Analysis (RAA) Report was prepared for the Site by GHD and submitted to the NYSDEC and the New York State Department of Health (NYSDOH) for review. The remedy proposed for AOC-4 is to excavate/remove impacted soil/sediment from the AOC-4 swale where contaminant concentrations exceed the Protection of Ecological Resources SCOs established in 6 NYCRR Part 375.

According to the draft RAA, approximately 2,800 linear feet of the AOC-4 swale will require remediation. The swale segments within AOC-4 that require remediation, and which will therefore be the subject of the work described herein are depicted on attached Figures 1 to 4, and on the figures contained in Appendix A (excerpts from the GHD draft RAA Report).

Following completion of all planned IRMs, a revised RAA will be submitted to the NYSDEC / NYSDOH for approval. The RAA will identify the IRMs performed and approved by the Departments and address areas of AOC-4 that require remediation based upon current environmental conditions (if any). Since it has been determined that the Site constitutes a Significant Threat to the environment and public health, the final remedy will be selected by the Departments, based upon information provided within the approved RAA.

2.0 REMEDIAL ACTION OBJECTIVES

RAOs are developed in accordance with appropriate, relevant, and applicable requirements. These requirements are known as standards, criteria, and guidance (SCGs), and include the NYSDEC Division of Environmental Remediation (DER) regulations and guidance documents, as well as regulations and guidance from other divisions within the NYSDEC, other State Agencies and Departments, and external agencies such as the U.S. Environmental Protection Agency (USEPA) and the Occupational Safety and Health Agency (OSHA).

The following Remedial Action Objectives are proposed for the AOC-4 IRM:

2.1 Groundwater RAOs

RAOs for Public Health Protection

* Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
* Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

* Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
* Prevent the discharge of contaminants to surface water (if appropriate add sediment).
* Remove the source of ground or surface water contamination.

2.2 Soil RAOs

RAOs for Public Health Protection

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

RAOs for Environmental Protection

* Prevent migration of contaminants that would result in (include all appropriate media: groundwater, surface water, or sediment) contamination.
* Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

2.3 Surface Water RAOs

RAOs for Public Health Protection

* Prevent ingestion of water impacted by contaminants.
* Prevent contact or inhalation of contaminants from impacted water bodies.
* Prevent surface water contamination which may result in fish advisories.

RAOs for Environmental Protection

* Restore surface water to ambient water quality criteria for the contaminant of concern.
* Prevent impacts to biota from ingestion/direct contact with surface water causing toxicity and impacts from bioaccumulation through the marine or aquatic food chain.

2.4 Sediment RAOs

RAOs for Public Health Protection

* Prevent direct contact with contaminated sediments
* Prevent surface water contamination which may result in fish advisories.

RAOs for Environmental Protection

* Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria).
* Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
* Restore sediments to pre-release/background conditions to the extent feasible.

3.0 PROPOSED REMEDY

The current and anticipated future use of AOC-4 is a drainage swale, including a limited number of culverts.

The proposed remedial approach identified as a result of the RAOs is to "*focus on soil/sediment and surface water contaminants and the potential exposures to humans and the environment through direct contact and/or ingestion and the potential migration of contaminants downstream*". Toward that end, the draft RAA identified and compared two (2) potential remedial actions for AOC-4. These included:

* Restoration to pre-disposal conditions or Unrestricted SCOs (Alternative 1), and
* Restoration to Protection of Ecological Resources SCOs (Alternative 2)

The Alternatives were evaluated with respect to nine (9) criteria identified in 6 NYCRR Part 375-1.8(f), including:

* Compliance with SCGs
* Protection of human health and the environment
* Short-term impact and effectiveness
* Long-term impact and effectiveness
* Reduction of toxicity, mobility, or volume of contamination
* Implementability
* Cost effectiveness
* Land use
* Community acceptance

The draft RAA report acknowledged that community acceptance would require further evaluation during public comment periods, but community acceptance is likely to be received since the selected remedial alternative should provide a tangible benefit to the local community by achieving RAOs consistent with the current and reasonably anticipated future use of the AOC.

Based on the evaluation of the above criteria, Alternative 2 (restoration to Protection of Ecological Resources SCOs) was the proposed remedy selected for AOC-4. This serves as the basis for the work proposed herein.

4.0 IRM OVERVIEW

The interim remedial measure proposed for AOC-4 is to remove contaminated soil/sediment within the AOC-4 swale to achieve Protection of Ecological Resources SCOs established in 6 NYCRR Part 375-6.6. Remedial processes similar to those described herein were previously employed in 2014 to address contaminated sediment located at the southern section of the AOC-4 swale. This prior remediation was successful in achieving the Protection of Ecological Resources SCOs for that section of the swale.

The intent of the proposed interim remedial measure will be to remove contaminated soil/sediments, as necessary, to achieve Protection of Ecological Resources SCOs within the remaining contaminated portion of the AOC-4 swale, as delineated during previous investigation activities and identified in the draft RAA report (see Appendix B). The portions of the swale for which interim remedial measures will be necessary to achieve Protection of Ecological Resources SCOs were delineated in the draft RAA report. Copies of the figures from the draft RAA report that depict these portions of the swale are contained in Appendix A.

The interim remedial measure work will begin at the northern extent of the 2014 remediation area (southern, upstream portion of AOC-4), and encompass the remainder of the swale. The following are the key elements of the proposed interim remedial measures, in anticipated sequence of performance (items in "bold" will be provided to NYSDEC for review and approval prior to conducting the AOC-4 IRM):

* Project Planning and Coordination
* **Establish site access agreements with property owners**
* **Establish site access and use agreement with National Grid for access and use of their site as a staging and material handling location**
* **Obtain highway work permits (each contractor) from NYSDOT for work within highway rights-of-way**
* **Coordinate and establish project with the Town of Dewitt**
* **Perform delineation of wetlands and request jurisdictional determination from US Army Corps of Engineers (USACOE)**
* **If applicable, submit Pre-Construction Notification (PCN) to USACOE for Nationwide Permit 38, which may include 401 Water Quality Certification from NYSDEC.**
* Coordinate location and mark-out of buried utilities throughout remediation site to avoid conflicts during remediation
* Coordinate pre-construction survey of remediation site
* Conduct preliminary coordination with prospective waste disposal facilities for project-derived wastes (soil / sediment, water)
* **Preparation of construction documents (plans and specifications)**
* Review of construction documents by NYSDEC and NYSDOH
* Contractor bidding and selection
* Mobilization and Site Preparation
* Coordinate location and mark-out of buried utilities throughout remediation site to avoid
* Construction of stabilized construction entrance and installation of erosion and sediment control measures
* Mobilization of equipment, frac tanks, etc.
* Clearing (if required)
* Identification and coordination with waste disposal facilities
* Remedial Construction
* Soil / sediment removal
* Water management, treatment, and disposal
* Culvert cleaning
* Confirmation Sampling
* Channel backfill / restoration
* Waste transportation and disposal
* Site restoration (including removal of Erosion and Sediment Control measures

once vegetation has been established)

* Demobilization of equipment
* Project Closeout
* Post-remediation survey
* Preparation and submittal of Construction Completion Report

4.1 Project Planning and Coordination

4.1.1 Site Access Authorizations and Permits

The drainage swale associated with AOC-4 extends through several privately-owned commercial parcels and extends into the New York State Department of Transportation Right-of-Way along NYS Route 690. A portion of the swale is also part of the Town of Dewitt Bridge Street Drainage District. As such, completion of the remediation work will require coordination with and establishment of access agreements with the associated landowners and agencies. Figure 2 depicts the layout of the swale with respect to existing property boundaries. The following table contains information relating to the affected properties for which access agreements will be required:

Address	Tax I.D.	Owner of Record[1]	Current Use	Current Zoning[2]
5841 Bridge Street	044.-07-17.0	Amret Management, LLC 4850 Carey Drive Manlius, New York 13104	Retail	Business (B)
Erie Boulevard	044.-07-11.1	Steven Kravec 101 Halton Road Syracuse, New York 13224	Vacant Commercial	Business (B)
Electrical Substation – Bridge Street	053.-01-03.1	National Grid 300 Erie Boulevard West Syracuse, New York 13202	Electrical Substation	Business (B)
Bridge Street	053.-01-01.1	Steven Kravec 101 Halton Road Syracuse, New York 13224	Vacant Commercial	Business (B)
Bridge Street	053.-01-02.1	Champion Bridge St Properties 1992 Penfold Way Baldwinsville, New York 13027	Vacant Commercial	Business (B)
Electrical Substation – Bridge Street	007.-01-01.1	National Grid 300 Erie Boulevard West Syracuse, New York 13202	Electrical Substation	Business (B)
NYS 690 Right-of-Way	Not Applicable	New York State Department of Transportation	Highway Right-of- Way	Not applicable – Public Thoroughfare

- *Current ownership as listed in Onondaga County online real property records and the Syracuse-Onondaga County G.I.S. On The Web portal.*
- *Current zoning as shown on Town of Dewitt Zoning Map (2008).*

It is currently anticipated that the primary access to the remediation area will be through the National Grid parcels (Tax I.D. 007.-01-01.1 and 053.-01-03.1), and that associated equipment and material handling and staging will primarily occur proximal to the swale on the eastern portion of the 053.-01-03.1 parcel. We understand that National Grid has indicated a willingness to provide such access during prior discussions with the current property owner; however, a formal site access and use agreement has not yet been established. Additional coordination with National Grid and establishment of a formal site access and use agreement will be conducted prior to completing the construction plans and specifications and prior to undertaking the remediation activities.

In addition to the above, portions of the work will occur within the NYSDOT right-of-way adjacent to and along the east-bound off-ramp from NYS Route 690 to Bridge Street. Completion of work within the right-of-way will require that highway work permits be obtained from NYSDOT. It is expected that each firm / contractor performing work within the right-of-way will be required to obtain a permit from NYSDOT for their respective activities. Coordination of these permits will occur during the project planning phase.

As the swale is associated with the Town of Dewitt Bridge Street Drainage District, the proposed work will also be coordinated with the Town, to inform of the planned work and to identify any specific channel restoration requirements that may be requested by the Town.

4.1.2 Wetland Delineation and Permit Acquisition

Much of the area along the swale is identified on the NYSDEC Environmental Resource Mapper database as either "State-regulated freshwater wetland" or "State-regulated wetland checkzone". Additionally, the area north of the NYS Route 690 east-bound off-ramp to Bridge Street (at northeastern extent of remediation) is identified on the National Wetland Inventory as being Freshwater Emergent Wetland. Printouts from the Resource Mapper that depict the approximate boundaries of each wetland area are attached as Figures 3 (NYSDEC freshwater wetlands) and 4 (National Wetland Inventory wetlands).

The Environmental Resource Mapper database is intended to show the approximate location of wetlands and does not depict precise wetland boundaries. A field delineation to accurately locate wetland boundaries is required prior to conducting activities that may impact or disturb wetland resources. As such, a field delineation will be performed by a wetland scientist before beginning remediation. Prior to the delineation, the NYSDEC Region 7 Biologist will be contacted to allow for an opportunity to assist in the delineation. The field delineation will encompass all areas that will be impacted by the remediation activities (i.e., swale channel, banks, and peripheral areas; routes of access/egress; equipment and material handling and staging areas). Following completion of the delineation, a request will be submitted to the United States Army Corps of Engineers (USACOE) and the NYSDEC to obtain an Approved Jurisdictional Determination from each agency. This will serve to determine whether the wetlands, if present, fall under the jurisdiction of the Clean Water Act and/or the New York State Freshwater Wetlands Act, and will therefore be subject to permitting requirements by either or both agencies.

It is anticipated that a NYSDEC wetland permit will not be required for the proposed remediation, as remedial projects are exempt from the requirement to obtain NYSDEC-issued permits (subject to certain conditions) under 6 NYCRR Part 375. This exemption, however, does not obviate the need for obtaining federal permits, if applicable. Therefore, in the event that wetlands under federal jurisdiction are identified and confirmed to be present as a result of the Jurisdictional Determination, and the planned work will impact such wetlands, a permit under Section 404 of the Clean Water Act will likely be required. Given the nature of the planned work, it is expected that the activities may be eligible for coverage under Nationwide Permit 38 (*Cleanup of Hazardous and Toxic Waste).* Coverage under Nationwide Permit 38, if applicable, may also likely require a 401 Water Quality Certification to be issued by NYSDEC, if a blanket Water Quality Certification has not been issued.

The wetland delineation, Approved Jurisdictional Determinations, agency coordination, and any required permit acquisition or notification will occur prior to the start of the remediation activities.

4.1.3 Utility Location (Planning Phase)

During the project planning phase, Dig Safely New York will be notified (in the form of a "survey and design request") to request a markout of all utilities within the remediation site that are registered with that organization. Additionally, a third-party independent utility locator will be retained to search for and verify the nature and location of any additional buried utilities that may exist within the remediation site. These mark-outs will serve to identify the nature and location of any buried site utilities, so that any impacts on the proposed remediation scope and methods may be addressed in the project planning phase. The marked locations will be recorded during the pre-construction survey described below.

4.1.4 Pre-Construction Survey

A pre-construction survey will be performed to establish the locations of pertinent site features (swale channel, culverts, marked utilities), pre-work topographic conditions, pre-work channel geometry (depth, width), wetland delineation boundaries (if applicable), and reference stations and elevation reference benchmarks for use during excavation activities. The survey will encompass the swale channel and adjacent area (approximately 25 feet on either side of channel), the planned route of access (anticipated to be via National Grid parcel) and expected staging and lay down areas.

4.1.5 Construction Plans and Specifications and Contractor Bidding

Construction plans and specifications will be prepared to reflect the information developed during the project planning phase and the specific requirements for executing the provisions of this Work Plan. These documents will be submitted to NYSDEC and NYSDOH for review, comment, and approval. Once approved by NYSDEC and NYSDOH, these documents will serve as the basis for obtaining bids from qualified remediation contractor(s) for execution of the work.

4.2 Mobilization and Site Preparation

4.2.1 Utility Clearance (Construction Phase)

Prior to initiating intrusive site work associated with the remediation, the remediation contractor(s) will be required to notify Dig Safely New York to request a current mark-out of all utilities within the remediation site that are registered with that organization.

4.2.2 Construction Access, Staging Areas, and Erosion and Sediment Control

As previously indicated, it is presently anticipated that primary access to the remediation site will occur through the National Grid parcel (subject to execution of a site access and use agreement). A stabilized construction entrance will be installed to minimize impact to and disturbance of native soil, and facilitate access to on-site staging areas by trucks, solid waste receptacles, frac tanks, and other equipment. Additionally, erosion and sediment control measures will be installed to mitigate transport of sediment from the work activities. The site-specific plan and/or specifications prepared for erosion and sediment control will be submitted to NYSDEC for review and approval, prior to finalization and use. Once approved, the construction entrance and erosion and sediment control measures will be installed in general conformance with the specifications contained in the New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC, November 2016). These measures will remain in place until such time as final site restoration is complete and suitable vegetation has been established in the disturbed areas.

4.2.3 Clearing

Based on existing conditions, it is not anticipated that extensive clearing will be required to execute the remediation work. However, limited and isolated clearance of vegetation may be necessary to facilitate the work. The need for such clearing will be reviewed during the project planning phase, and, if necessary, will be discussed with the affected property owners. If necessary and acceptable to the respective property owners, the clearing provisions will be incorporated into the property access agreements.

4.3 Remedial Construction

4.3.1 Soil / Sediment Excavation

The remediation will begin at the northern edge of the 2014 emergency remediation area (west side of 5841 Bridge Street parcel, Tax Parcel 044.-07-17.0) and will progress northward along the course of the swale (i.e., downstream) to the northern, northeastern, and northwestern limits defined by the previous investigations (see Figures 1 and 2, and draft RAA report figures contained in Appendix A). For this work, sections of the swale will be isolated with temporary cofferdams (placed upstream and downstream of the isolated section) to allow management of water, mitigate re-introduction of contaminants from downstream areas, and advance the remediation from upstream to downstream in a controlled manner. The size of each isolated section will be based upon field conditions and will be determined at the time of the work. Following placement of the upstream and downstream cofferdams, the target section of swale will be dewatered, soil/sediment will be excavated, and verification sampling will be performed.

The data collected during the previous investigations and the conditions encountered during the 2014 emergency remedial action conducted just upstream of the work proposed herein suggest that removal of approximately 1 to 2 feet of soil/sediment from the bottom and walls of the swale would achieve Protection of Ecological Resources SCOs. Initially, approximately 12 inches of soil/sediment will be removed along the isolated, dewatered section of swale. Initial verification sampling, for the constituents set forth in section 4.3.4 below, will be performed to determine whether Protection of Ecological Resources SCOs have been achieved. If initial verification sampling identifies locations where concentrations of contaminants remain above Protection of Ecological Resources SCOs, additional excavation will be performed in those areas until the Protection of Ecological Resources SCOs are achieved. Once the SCOs are achieved, the section of swale will be backfilled (if deemed necessary or required by USACOE, NYSDEC, Town of Dewitt) and excavation activities will progress to the next downstream section of swale.

The excavated soil/sediment will be transferred to an on-site dewatering containment (refer to section 4.3.2 below).

4.3.2 Water Management

Management of surface water will be necessary during the work to limit sediment and contaminant suspension and downstream transport, limit re-introduction of suspended contaminants into excavated areas from downstream water, limit dispersion of contaminants to uncontaminated soil during handling and on-site transport of excavated sediments, and reduce moisture content in excavation spoils to allow over-the-road transport and disposal at a permitted waste disposal facility. Surface water within the channel will be managed by isolating distinct sections of the swale with temporary cofferdams and evacuating existing surface water to frac tanks to be staged on-site for storage and settling prior to treatment/disposal of the water.

Consistent with the dewatering methods used during the 2014 emergency remediation, excavated soil and sediment will be placed in a dewatering containment. The dewatering containment will be constructed by placing earthen berms to form a perimeter, and lining the interior of the bermed area with two layers of fiber-reinforced polyethylene sheeting. A layer of medium to fine gravel will be placed over the sheeting, and non-woven geotextile will be placed over the gravel bedding. Excavation spoils will be placed onto the surface of the geotextile layer and allowed to drain into the underlying gravel layer. The polyethylene liner will be sloped to promote drainage within the gravel layer to a collection sump installed at the downgradient end of the containment. Water collected in the sump will be transferred to the on-site frac tanks for proper treatment/disposal. Once sufficiently dewatered, the soil/sediment will be staged on-site (either in lined roll-off containers or in a polyethylene-lined staging cell) and sampled for the pre-disposal waste characterization requirement of the selected waste disposal facility.

The locations of the soil/sediment dewatering containment areas will be depicted on drawings submitted as part of the Construction Documents (see Section 4.1.5).

Potential treatment/disposal options for the collected water will be evaluated during the project planning phase.

4.3.3 Culvert Cleaning

Three (3) existing culverts are located along the course of the swale, and a fourth extends beneath the NYS Route 690 east-bound off-ramp to Bridge Street at the northern edge of AOC-4. These culverts will be cleaned of sediment as the remediation progresses along the route of the swale. The sediments will be flushed by jetting each culvert with high-pressure water. Water used to flush the culverts will be captured at the discharge of the culvert and pumped to the frac tanks for management with the evacuated swale water. The flushed sediments will be removed concurrent with the soil/sediment at the discharge end of the culvert, or, if suspended and transferred with the jetting water, captured in the frac tank.

4.3.4 Confirmation Sampling

Confirmation sampling will be conducted pursuant to the Quality Assurance Project Plan (QAPP) included as Appendix E. Sampling will be performed as the soil/sediment removal progresses along the route of the swale. Samples will be collected at transects positioned at fifty (50) feet intervals along the route of the swale. Three (3) grab samples will be collected across the swale profile (one at bottom of channel and one from each bank/sidewall) at each transect location after the initial +/- 12 inches of soil/sediment is excavated. The three (3) samples will be composited to form a single sample representative of the conditions at the given transect location.

These samples will be subjected to laboratory analysis for total chromium, hexavalent chromium, total copper, total nickel, and total cyanide. The analysis results will be compared to the Protection of Ecological Resources SCOs for each compound. If any compound concentration remains above the respective SCO, additional excavation will be performed within that section of swale. Additional excavation, if necessary, will advance in approximately 6 inch depth increments, with additional confirmation sampling at each increment. This iterative process will continue until such time as the concentrations of the target contaminants no longer exceed the Protection of Ecological Resources SCOs.

4.3.5 Waste Characterization, Transportation, and Disposal

All project-generated waste streams will be transported under applicable bills-of-lading/manifest by appropriately permitted waste haulers, and disposed of at appropriately permitted waste disposal facilities. Pre-disposal characterization will be performed for each waste stream as required by the respective disposal facility. The results of pre-disposal characterization analyses, copies of waste manifests/bills of lading (as applicable), disposal facility receipts will be incorporated into the Construction Completion Report for the project.

4.3.6 Site Restoration

The specific scope of site restoration and decisions as to whether the excavated channel will be backfilled will be determined during the planning process, and will reflect input from the Town of Dewitt and/or conditions of the USACOE permit, if required. It is expected that the restoration work will include, at a minimum, grading, seeding, and mulching of all areas of surface disturbance; maintenance of erosion and sediment control measures until suitable vegetation growth has been established to stabilize disturbed soil; and removal of erosion and sediment control measures following establishment of new vegetation. The final restoration plan will be incorporated into the construction design documents.

4.3.7 Imported Fill Materials

Fill materials from off-site sources are expected to be required to construct the stabilized construction entrance, backfill / restore the channel bottom (if deemed necessary or required by USACOE, NYSDEC, or Town of Dewitt), restore the vegetative surface disturbed by construction traffic along the route of the channel, and restore disturbance at the equipment and material handling and staging area(s). These materials may consist of soil- based materials, and / or non-soil materials (i.e., virgin stone material).

Soil materials will be sampled and analyzed prior to arrival at the site, to verify that the materials meet the chemical analysis requirements set forth in NYSDEC's *Technical Guidance for Site Investigation and Remediation (DER-10), dated May 3, 2010,* as amended, and the criteria for emerging contaminants (Per- and Polyfluoroalkyl Substances and 1,4-Dioxane), in accordance with NYSDEC's *Guidelines for Sampling and Analysis for PFAS Under NYSDEC's Part 375 Remedial Programs,* dated June 2021 (NYSDEC 2021 PFAS Guidelines). Sampling type and frequency will be based on quantity of material to be imported, as established in DER-10, as follows:

Contaminant	VOCs	SVOCs, Inorganics & PCBs/Pesticides	
Soil Quantity (CY)	Discrete Samples	Composite Samples	Discrete Samples/Composite
0 - 50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis.
50 - 100	2	1	
100 - 200	3	1	
200 - 300	4	1	
300 - 400	4	2	
400 - 500	5	2	
500 - 800	6	2	
800 - 1000	7	2	
>1000	Add an additional 2 VOC and 1 composite for each additional 1000 cubic yards		

The chemical characterization samples will be analyzed for the specific metals, semi-volatile organic compounds, volatile organic compounds, PCBs, and pesticides listed in Appendix 5 of DER-10. The samples shall also be analyzed for emerging contaminants (Per- and Polyfluoroalkyl Substances and 1,4-Dioxane), in accordance with NYSDEC 2021 PFAS Guidelines. The analysis results shall indicate that all analyte concentrations are below the Allowable Constituent Levels for Imported Fill or Soil for Protection of Ecological Resources established in Appendix 5 of DER-10, and below the soil criteria for emerging contaminants established in the NYSDEC 2021 PFAS Guidelines.

Non-soil fill materials meeting the conditions set forth in Section 5.4(e)5 of DER-10 (gravel, rock, or stone, consisting of virgin material from a permitted mine or quarry, and containing less than 10% by weight of material passing a size 80 sieve) will be exempt from the chemical analysis requirements.

All analysis results and non-soil fill source documentation will be submitted to NYSDEC for review and acceptance prior to selection of the material for on-site use.

4.3.8 Post-Remediation Survey

A post-remediation survey will be performed to establish final site topography, post-excavation channel geometry (depth, width), sample transect locations, and other relevant post-remediation conditions.

4.3.9 Construction Completion Report

Following completion of the work and receipt of all waste disposal documentation, a Construction Completion Report will be prepared and submitted to NYSDEC and NYSDOH for review. The Construction Completion Report will be prepared in accordance with the guidance contained in the NYSDEC's *Program Policy DER-10, Technical Guidance for Site Investigation and Remediation*, dated May 3, 2010 (DER-10), and any applicable updates. As consistent with the guidance contained in DER-10, the Construction Completion Report will document the work completed at the site and all supporting data and documentation. The Construction Completion Report will also contain a certification by a NYS Licensed Professional Engineer that the work was completed in accordance with the NYSDEC-approved Work Plan(s) and construction design documents, and provide detail of any necessary field modifications to the scope that were approved by NYSDEC, if applicable.

The Construction Completion Report will contain:

- A description of completed work, as constructed, pursuant to the NYSDEC-approved Work Plan(s) and construction design documents;
- A description of any problems or field conditions encountered during the work and a description of their resolution;
- A description of any changes to the tasks outlined in the Work Plan, as approved in advance by NYSDEC, and why the changes were necessary;
- Laboratory analysis reports (refer to Appendix E – QAPP, Section 6.2.2 for reporting details) and associated sample custody documentation for confirmation samples and waste characterization samples;
- A Data Usability Summary Report (DUSR) for all confirmation samples;
- Identification and quantities of all waste streams (soil, water, PPE) generated in the course of the work, and documentation of the means of transport and location of disposal for each;
- Copies of waste manifests / Bills of Lading (as applicable), and disposal facility receipt documentation (i.e., "tipping receipts");
- Laboratory analysis data (refer to Appendix E – QAPP, Section 6.2.2 for reporting details) relating to testing of imported fill material, per the requirements of DER-10;

* Data recorded during real-time monitoring of VOC and particulate/dust levels under the Community Air Monitoring Program;
* As-built / Record Drawings showing extent of soil removals, sample collection points, and details relating to site work, bearing a NYS Licensed Professional Engineer stamp and signature.

5.0 GENERAL SITE-SPECIFIC HEALTH AND SAFETY PLAN

A general Site-Specific Health and Safety Plan (SSHASP) sets forth requirements for maintaining the health and safety of persons at the Site. The SSHASP addresses general health and safety issues related to the presence of specific chemical and physical hazards that may be encountered during performance of the work activities at the Site. The SSHASP includes an Emergency Response Plan, which presents the procedures to be followed in the event of an emergency situation.

The general SSHASP for the remediation work is presented as Appendix C. The selected remediation contractor(s) will be required to provide a Contractor Site-Specific Health and Safety Plan (CSSHASP) that applies to their personnel and accounts for specific hazards that may be associated with the means and methods of the work to be completed by the respective contractor. At a minimum, the CSSHASP must incorporate the provisions of the general SSHASP and meet applicable requirements of the United States Occupational Health and Safety Administration (OSHA).

6.0 COMMUNITY AIR MONITORING PROGRAM

The intent of the CAMP is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air. Exceedance of the action levels specified within the Plan requires increased monitoring, corrective actions to abate emissions, and / or work shutdown.

The site-specific CAMP, prepared in accordance with Appendix 1A of DER-10, is presented as Appendix D.

7.0 QUALITY ASSURANCE / QUALITY CONTROL

A Quality Assurance Project Plan (QAPP) describes the manner in which quality assurance / quality control (QA/QC) procedures will be implemented during the RA activities to assure the accuracy and precision of the data collection. Guidance for the selection of QAPP objectives was obtained from NYSDEC's *DER-10 Technical Guidance for Site Investigation and Remediation* (May 2010).

Quality Assurance (QA) refers to the conduct of all planned and systematic actions necessary to perform satisfactorily all task-specific activities and to provide information and data confidence as a result of such activities. The QA for task-specific activities includes the development of procedures, auditing, monitoring, and surveillance of the performance.

Quality Control (QC) refers to the activity performed to determine if the work activities conform to the requirements. This includes activities such as inspections of the work activities in the field. QA is an overview monitoring of the performance of QC activities through audits rather than first time inspections.

The project specific QAPP is presented as Appendix E.

8.0 ANTICIPATED REMEDIATION SCHEDULE

The project schedule will be contingent upon several factors, including, but not limited to the transfer of ownership/title, transfer of the BCA, execution of site access agreements with affected landowners, procurement of environmental permits related to wetlands, and procurement of a highway work permit from NYSDOT. These critical path items are discussed in more detail in the following paragraphs. Given the aquatic nature of the work, it is advantageous to perform this work during the summer to minimize the challenges associated with higher precipitation seasons.

There are several distinct property owners who will be affected by the remediation activities from whom access agreements will need to be obtained. This activity is anticipated to require over a month to complete.

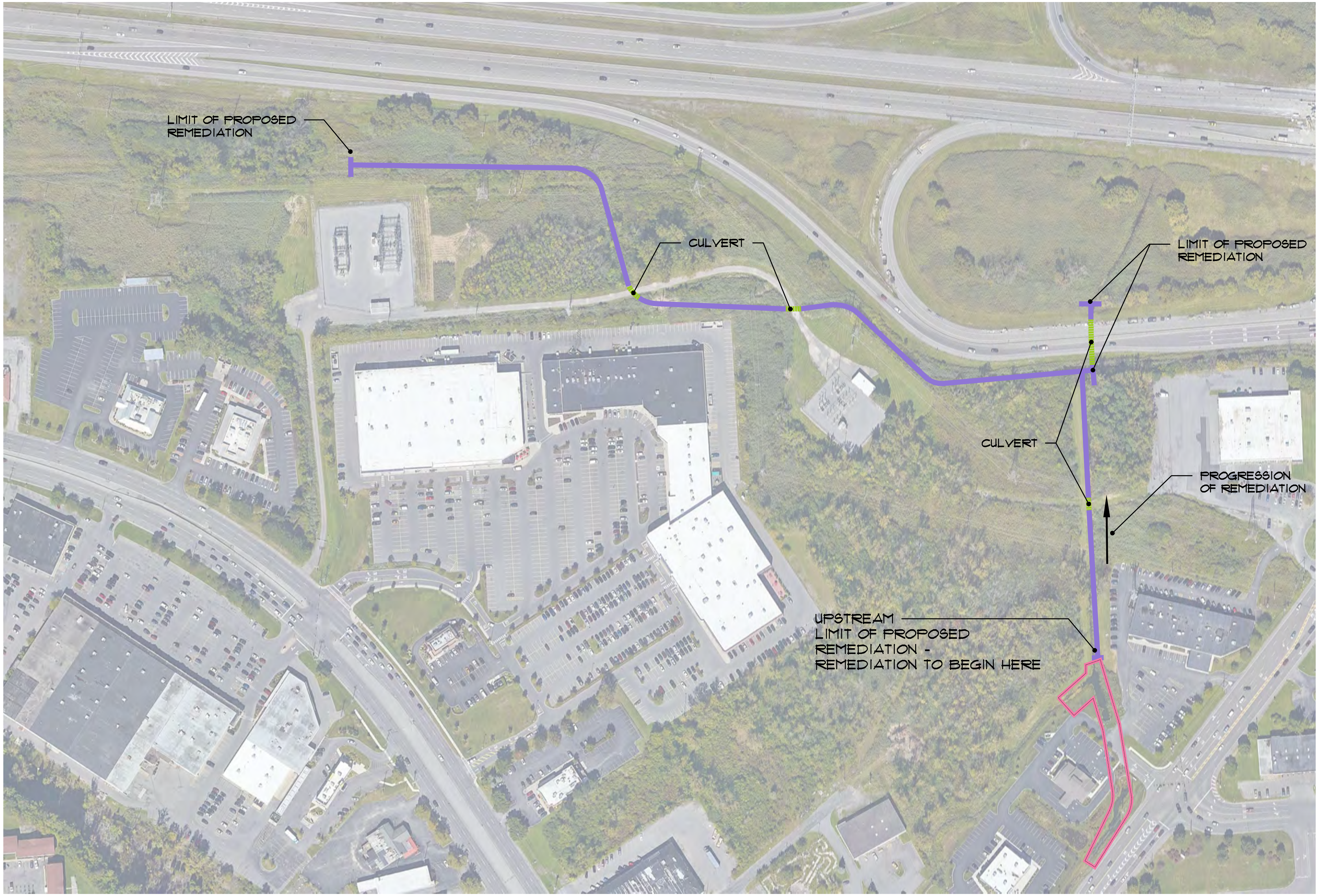
The project is located in an area with both state and federal wetlands and the remediation effort will involve work within an aquatic environment. Therefore, as part of the planning steps for the IRM, a wetland delineation will need to be performed and permits obtained for the work in both the wetlands and the associated drainage areas. USACE and NYSDEC wetland personnel will be consulted during the development of the project design to find ways to minimize the wetland impacts and define restoration requirements for the project. Seasonal limitations associated with performing wetland delineation and obtaining regulatory review of the delineation areas necessitates delaying this work until early spring.

Portions of the project will involve work within the NYSDOT right of way and will, in one instance require work from the roadway. Therefore, a highway use permit will also be required from NYSDOT.

DEC Approval of IRM Work Plan.. January 2022
Procure Access Agreements from Property Owners.............................. February 2022
Procure Highway Work Permit from NYSDOT...................................... March 2022
Conduct Wetland Delineation... May 2022
Submit Environmental Easement Package.. May 2021
Submit Environmental Permit Applications.. May 2022
Finalize Construction Plans.. June 2022

Receive Permits.. June 2022
Submit Executed Environmental Easement Package....................... July 2021
Procure Remediation Contractor.. July 2022
Submit Fact Sheet Announcing Start of Construction........................... July 2022
Begin Construction / Remediation.. July 2022
Complete Remediation (Excavation, restoration.)................................ August 2022
DEC/DOH Review of Draft Site Management Plan................................ September 2022
Submit Site Management Plan... October 2022
DEC/DOH Review of Draft Final Engineering Report............................ October 2022
Submit Final Engineering Report...November 2022

FIGURES



LEGEND:

- SWALE AREA TO BE REMEDIATED
- APPROXIMATE CULVERT LOCATION
- SECTION OF AOC-4 SWALE PREVIOUSLY REMEDIATED (2014)

0 300' 600'
GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057
Phone: (315) 432-9400
Fax: (315) 432-9405
www.aeccgroup.com

AOC - 4 IRM Work Plan
Celi Drive BCP, #4
BCP Site # C734108
Town of Dewitt, Onondaga County, New York

REVISIONS			
no.	date	by	description

Proj. No.	20-107
Date	01-19-21
Proj. Mgr.	HNB
Drawn By	NP

NO ALTERATION PERMITTED HEREON EXCEPT BY THE PROJECT DESIGNER

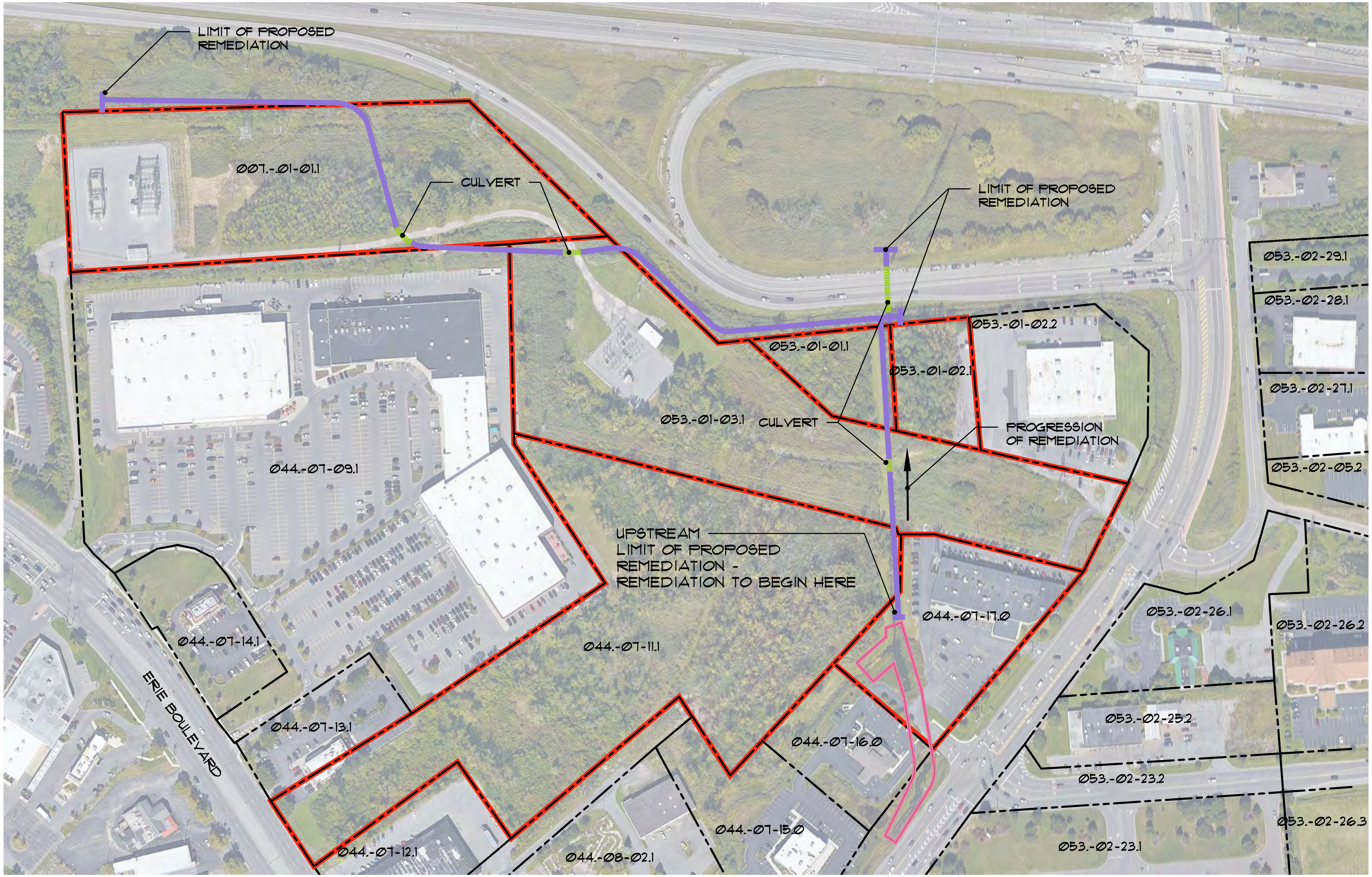
DRAWING TITLE

AOC-4

Location Plan

DRAWING NO.

1



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LEGEND:

- PARCEL AFFECTED BY WORK (SITE ACCESS AGREEMENTS REQUIRED)
- SECTION OF AOC-4 SWALE PREVIOUSLY REMEDIATED (2014)

LEGEND:

- APPROXIMATE PROPERTY LINE
- SWALE AREA TO BE REMEDIATED
- APPROXIMATE CULVERT LOCATION

0 300' 600'

GRAPHIC SCALE

AECC
ENVIRONMENTAL CONSULTING

Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057
Phone: (315) 432-9400
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www.aeccgroup.com

AOC - 4 IRM Work Plan

Celi Drive BCP, #4
BCP Site # C734108
Town of Dewitt, Onondaga County, New York

REVISIONS

no.	date	by	description

Proj. No.	20-107
Date	01-19-21
Proj. Mgr.	HNB
Drawn By	NP

NO ALTERATION PERMITTED HEREON EXCEPT BY THE PROJECT DESIGNER

DRAWING TITLE

Tax Parcel Layout

DRAWING NO.

2

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AOC - 4 IRM Work Plan
Celi Drive BCP, #4
BCP Site # C734108
Town of Dewitt, Onondaga County, New York

REVISIONS			
no.	date	by	description

Proj. No.	20-107
Date	01-19-21
Proj. Mgr.	HNB
Drawn By	NP

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DRAWING TITLE
NYSDEC Freshwater Wetland Map

DRAWING NO.
3

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LEGEND:
- STATE-REGULATED FRESHWATER WETLAND
- STATE-REGULATED WETLAND CHECKZONE

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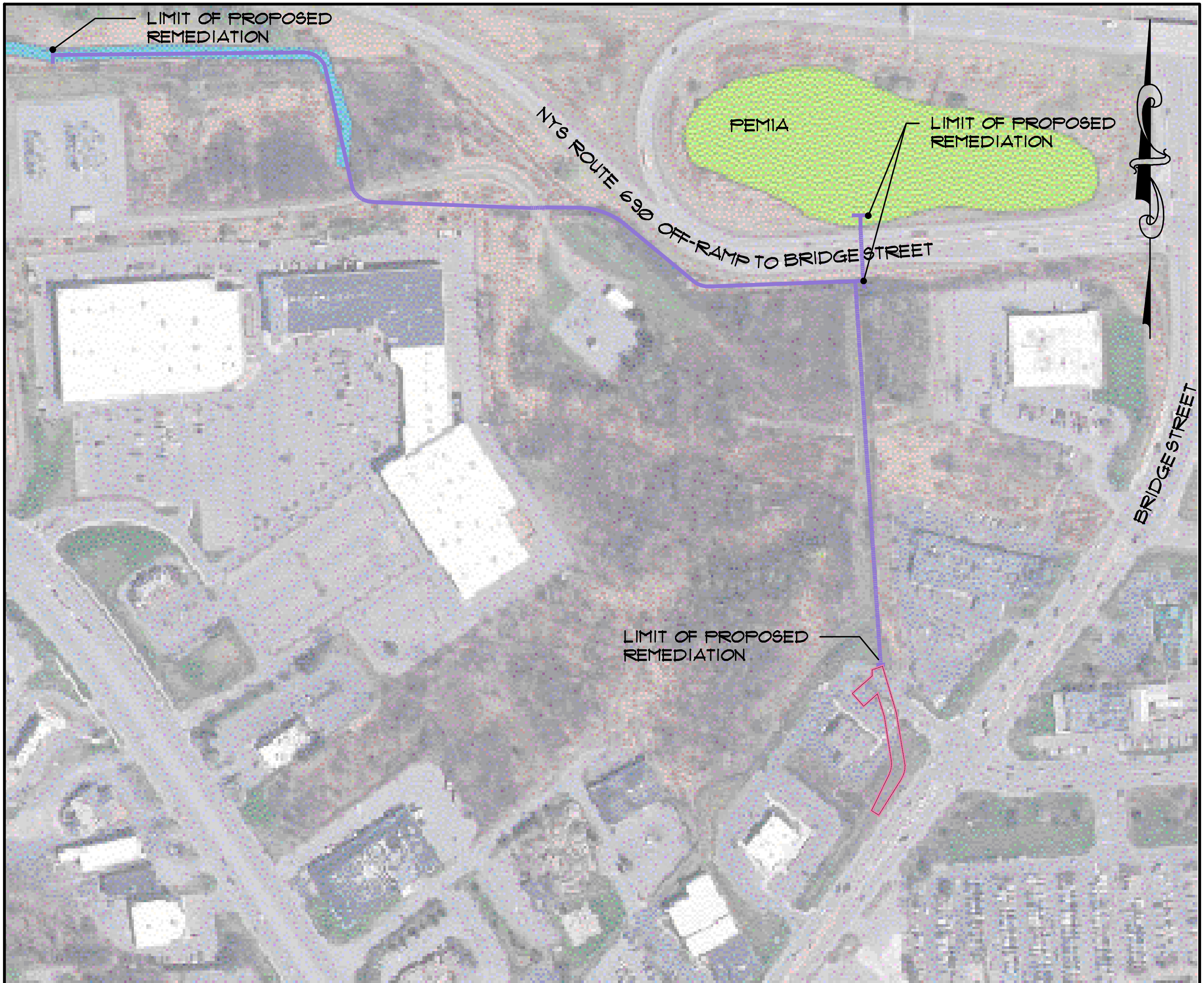
GRAPHIC SCALE



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AOC - 4 IRM Work Plan

Celi Drive BCP, #4
BCP Site # C734108
Town of Dewitt, Onondaga County, New York

REVISIONS			
no.	date	by	description

Proj. No.	20–107
Date	01–19–21
Proj. Mgr.	HNB
Drawn By	NP

NO ALTERATION PERMITTED HEREON EXCEPT BY THE PROJECT DESIGNER

DRAWING TITLE
National Wetland Inventory Map

DRAWING NO.
4

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LEGEND:

FEDERAL FRESHWATER EMERGENT WETLAND

PEMIA PALUSTRINE EMERGENT PERSISTENT TEMPORARY FLOODED

0 128' 256'
GRAPHIC SCALE

THE INFORMATION INCLUDED ON THIS GRAPHIC REPRESENTATION HAS BEEN COMPILED FROM A VARIETY OF SOURCES AND IS SUBJECT TO CHANGE WITHOUT NOTICE. AECC MAKES NO WORK REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, AS TO ACCURACY, COMPLETENESS, TIMELINESS, OR RIGHTS TO THE USE OF SUCH INFORMATION. THE USE OR MISUSE OF THE INFORMATION CONTAINED ON THIS GRAPHIC REPRESENTATION IS AT THE SOLE RISK OF THE PARTY USING OR MISUSING THE INFORMATION.

0 128' 256'
GRAPHIC SCALE

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ENVIRONMENTAL CONSULTING
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AOC - 4 IRM Work Plan
Celi Drive BCP, #4
BCP Site # C734108
Town of Dewitt, Onondaga County, New York

REVISIONS			
no.	date	by	description

Proj. No.	20-107
Date	01-19-21
Proj. Mgr.	HNB
Drawn By	NP

NO ALTERATION PERMITTED HEREON EXCEPT BY THE PROJECT DESIGNER

DRAWING TITLE

BCP Area and AOC's - 1,2,3 Location Plan

DRAWING NO.

5

APPENDIX A

Figures from Remedial Alternatives Analysis Report

LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Area Requiring Excavation from 0' to 1' to Meet Protection of Ecological Resources SCOs (Approximate)
- Area Requiring Excavation from 0' to 2' to Meet Protection of Ecological Resources SCOs (Approximate)

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Area of Remediation to Meet Protection of Eco. Resources SCOs in AOC-4

GHD
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Job Number	37-11082
Revision	A
Date	06.06.2014

Figure 7-4a

LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Area Requiring Excavation from 0' to 2' to Meet Protection of Ecological Resources SCOs (Approximate)

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Area of Remediation to Meet Protection of Eco. Resources SCOs in AOC-4

Job Number	37-11082
Revision	A
Date	06.06.2014

Figure 7-4b

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

APPENDIX B

2017 Remedial Alternatives Analysis Report (GHD)

GSP Holdings, Inc.

Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

September 2017

Table of Contents

Figure Index

Table Index

Attachments

1. Introduction

1.1 Site Description

GSP Holdings, Inc. (formerly known as GSP, Inc.; or GSP) is investigating and remediating a historic accidental release under the New York State Brownfield Cleanup Program (BCP, Index #B7-0713-06-03 effective March 27, 2008, Site #C734108). The facility is located at 5762 Celi Drive in the Town of Dewitt, Onondaga County, New York (the 'Site', Figure 1-1). The Site is identified as Tax Parcel 053.-02-17.2 on the Onondaga County Real Property Tax Map (Attachment A). The Site consists of approximately 1.45-acres of land with an approximately 47,098-square foot building (Figure 1-2). The remainder of the Site is covered by either asphalt pavement parking areas and driving lanes or minor landscaping areas. The Site is located in a mixed commercial and industrial use area north of Towpath Road, east of Celi Drive, south of adjacent commercial properties, and west of Whirlybird Lane.

The Site is generally flat with a slight slope to the north and is at an elevation of approximately 410 feet above mean sea level, according to the United States Geological Survey (USGS) 7.5-Minute Topographic Map Series for the Syracuse East, New York Quadrangle (USGS, 2016). Surface runoff drains to the north via a drainage swale constructed along the east side of the Site building.

The Site was historically used primarily for processes related to chrome, nickel, and copper plating of plastic and metal substrates, and consisted of plating areas, storage and staging areas, a waste water treatment system, and associated office areas. The Site tenant's operations ceased in 2015, all equipment and materials/products were removed, and the Site is currently vacant and listed for sale.

Under the BCP, a Remedial Investigation (RI) was completed by ERM Consulting and Engineering, Inc. (ERM) between 2005 and 2012. The RI consisted of initial Site investigation and abatement activities performed in direct response to the accidental release (summarized in the *Comprehensive Site Investigation Report*, ERM, 2005) and subsequent investigations performed in connection with the Site (summarized in the *Data Gap Investigation Report,* ERM, 2012). These reports identified four (4) areas of concern (AOCs) for the Site, including:

- AOC-1: Affected soil and groundwater located adjacent to and beneath the southeast corner of the manufacturing building (Figure 2 in Attachment B-3);
- AOC-2: Affected soil/sediment and groundwater located in the drainage swale immediately east of the manufacturing building (Figure 2 in Attachment B-3);
- AOC-3: Residual solids in the buried stormwater culvert pipe (Town of DeWitt Bridge Street Drainage District) beginning at the north end of the GSP Swale and terminating at Bridge Street and soil located at the culvert discharge into the Bridge Street drainage swale (Figure 2 in Attachment B-3); and
- AOC-4: Affected soil/sediment and surface water located in the drainage swale on the north side of Bridge Street (Figure 4 in Attachment B-2). The initial section of the swale is controlled by the Town of DeWitt as part of the Bridge Street Drainage District (Area 1). The Extension of the swale from the confluence of the Bridge Street swale and the NYS Route 690 drainage swale to areas downstream (Area 2) is reportedly part of a Right of Way (R.O.W.) controlled and maintained by the NYS Department of Transportation (NYSDOT).

Portions of the swale are located on National Grid property which the Town of DeWitt easement crosses.

1.2 Purpose

This Remedial Alternatives Analysis (RAA) has been prepared by GHD Consulting Services Inc. (GHD) to evaluate remedial alternatives based on the findings of the RI and subsequent environmental investigations. This RAA relies on these previous findings as a basis for the screening and selecting of an appropriate remedial alternative to be protective of human health and the environment. This RAA identifies and evaluates remedial alternatives for each of the four (4) AOCs for the Site, and recommends a remedy for each AOC.

1.3 Scope and Limitations

This report: has been prepared by GHD for GSP Holdings, Inc. and may only be used and relied on by GSP Holdings, Inc. for the purpose agreed between GHD and GSP Holdings, Inc. as set out in section 1.2 of this report. GHD otherwise disclaims responsibility to any person other than GSP Holdings, Inc. arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by GSP Holdings, Inc. and others who provided information to GHD, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

GHD has prepared the preliminary Cost Estimates set out in Sections 4, 5, 6 and 7 of this report ("Costs") using information reasonably available to GHD, who prepared this report; and based on assumptions and judgments made by GHD.

The Cost Estimates have been prepared for the purpose of the assessment of remedial alternatives and must not be used for any other purpose.

The Cost Estimates are preliminary estimates only. Actual prices, costs and other variables may be different to those used to prepare the Cost Estimate and may change. Unless as otherwise specified in this report, no detailed quotation has been obtained for actions identified in this report. GHD does not represent, warrant or guarantee that the project can or will be undertaken at a cost which is the same or less than the Cost Estimates.

Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected as the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate. The confidence level considered to be most appropriate for planning purposes will vary depending on the conservatism of the user and the nature of the project. The user should therefore select appropriate confidence levels to suit their particular risk profile.

The opinions, conclusions and any recommendations in this report are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this report if the site conditions change.

1.4 Assumptions

GHD has prepared this report in part on the basis of information provided by GSP Holdings, Inc. and others who provided information to GHD, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information. The information provided includes site investigation results and findings completed by others (including ERM) on behalf of GSP and as provided by GSP to GHD.

In addition, the assessment of alternatives for AOC-2 includes the prospective purchase of land that encompasses the GSP swale to the east of the GSP buildings. The proposed purchase of land will encompass the swale from the top of bank to the east to the current GSP property line adjacent to the building. The purchase of land will facilitate the proposed remedial approach and allow for appropriate institutional controls to be placed on the area of concern.

2. Summary of Previous Investigations

The results of previous investigations, along with figures, analytical data tables, and laboratory analytical reports, were provided in the following reports:

- Comprehensive Site Investigation Report, ERM, October 2005
- Data Gap Investigation Report, ERM, June 2012
- Work Plan to Address Areas of Concern 1, 2, & 3, ERM, November 2012
- Monthly Progress Report – October 2012, ERM, November 9, 2012
- Emergency Remedial Work Plan, GHD, June 2013
- Background Sediment Sampling Letter Report, GHD, October 2013
- Groundwater Sampling Letter Report, GHD, April 16, 2014
- Construction Completion Report – AOC-3 and AOC-4, GHD, January 2016
- Supplemental Sampling Activities Summary Letter Report, GHD, October 3, 2016.

This section of the RAA provides a general summary of the results of previous investigations and remedial measures. Results discussed below are summarized in Tables in Attachments B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, and B-9. Locations discussed are shown on Figures in Attachments B-1, B-2, B-3, B-4, B-5, B-6, B-7, B-8, and B-9.

2.1 Comprehensive Site Investigation Report

The New York State Department of Environmental Conservation (NYSDEC) notified GSP of a potential release from their facility on May 10, 2005. NYSDEC and GSP personnel walked the Site to identify potential sources of the release. Stagnant water was observed in the roof drain area located immediately east of the manufacturing building along the GSP Swale. NYSDEC requested that soil and groundwater samples be collected from the area for laboratory analysis. As a result, GSP contracted ERM to assist with investigation and remediation of the release. The initial phase of Site investigation and remediation summarized in this report was conducted immediately following discovery of the accidental release, prior to the Site's entry into the BCP.

2.1.1 Response to the Release

GSP and ERM conducted an inspection and testing program to identify the source of the release and the extent of the impacts. Based on inspection of water collection areas within the manufacturing building, it was determined that the plastic plating line wastewater equalization tank was the source of the release as the result of the negligent installation of the tank lining by a third party. GSP constructed a tank within a tank to contain wastewater, which prevented further release of potentially contaminated water.

During June 2005, Environmental Products and Services (EPS) pumped ponded water from the roof drain area and GSP Swale to a temporary storage tank located at the GSP Facility. The water was treated and released with authority to the Onondaga County Waste Water Treatment Facility. EPS constructed a temporary earthen berm around the area to prevent further release. The berm was lined with polyethylene sheeting and surrounded by temporary fencing. The roof drain leader was plugged to prevent release of additional rain water into the area. Water entering the roof drain area was pumped into temporary storage tanks located at the GSP Facility.

Water samples were taken from the GSP Swale Area, and Bridge Street Swale by Upstate Laboratories, Inc. (Upstate) and ERM personnel. Laboratory analytical results of the samples indicated that water in the Bridge Street Swale contained some metals similar to those identified at the GSP facility that were associated with the release. As a result, EPS removed approximately 67,000-gallons of water from the Bridge Street Swale and staged it in temporary storage tanks located at the GSP Facility. The water was treated and released with authority to the Onondaga County Waste Water Treatment Facility.

Based on observations made during the initial response to the release, it was determined necessary to conduct a Site investigation to determine the full extent of impacts from the release.

2.1.2 Site Investigation Sampling

Soil, sediment, ponded water, and groundwater samples were taken from the GSP Swale Area and Bridge Street Swale as follows:

- **May 2005:**
  - GSP personnel collected a soil sample (sample GSP-1 on Table 5-1 and Figure 4-1 in Attachment B-1) and a water sample (sample GSP-2 on Table 5-7 and Figure 4-1 in Attachment B-1) from the GSP Swale Area, as requested by NYSDEC, on May 10, 2005. The soil sample was analyzed for cadmium, total chromium, copper, lead, nickel, silver, and zinc. The water sample was analyzed for cadmium, total chromium, copper, lead, nickel, silver, and zinc;
  - Upstate personnel collected and analyzed soil samples (samples Drain Point and Ditch on Table 5-1 and Figure 4-1 in Attachment B-1) from the GSP Swale Area, and water samples from the GSP Swale Area (sample Drain Point on Table 5-7 and Figure 4-1 in Attachment B-1) and from the Bridge Street Swale (sample Bridge Street Swale on Table 5-9 and Figure 4-3 in Attachment B-1), as requested by NYSDEC, on May 18, 2005. The soil samples were analyzed for metals (arsenic, barium, cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, zinc, total cyanide, and hexavalent chromium), Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), ignitability, pH, reactive cyanide, and reactive sulfide. The water sample was analyzed for metals (arsenic, barium, cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, zinc, total cyanide, and hexavalent chromium), TCL VOCs, TCL SVOCs, ignitability, pH, reactive cyanide, and reactive sulfide;
  - ERM personnel collected grab soil samples from the near surface (6- to 8-inch interval) and the shallow subsurface (16- to 18-inch interval) from fourteen (14) locations on May 27, 2005 (samples GSP-001 through GSP-014 on Table 5-2 and Figure 4-1 in Attachment B-1). The samples were analyzed for total chromium, copper, nickel, zinc, and total cyanide;
  - ERM personnel collected two (2) composite soil samples (samples GSP-COMP1(1) and GSP-COMP2(1) on Table 5-3 and Figure 4-1 in Attachment B-1) from approximately 1-foot bgs in the GSP Swale Area for Toxicity Characteristic Leaching Procedure (TCLP) analysis on May 27, 2005;
  - ERM personnel collected four (4) soil samples (samples GSP-020A@4', GSP-021A@6"-1', GSP-022A@6"-1', and GSP-023A@(DUPE) on Table 5-3a and Figure 4-1 in Attachment B-1) from the Roof Drain Area and GSP Swale on May 31, 2005 to confirm

reports of volatile organic compounds (VOCs) detected in Upstate's soil samples. The Roof Drain Area sample was taken from approximately 4-feet bgs, and the GSP Swale samples were taken from 0.5-feet to 1-foot bgs; and

- ERM personnel collected two (2) soil samples (samples GSP-024A@6"-1' and GSP-025A@6"-1' on Table 5-3a and Figure 4-1 in Attachment B-1) from the 6-inch to 1-foot interval of the GSP Swale Area for total cyanide analysis on May 31, 2005, at the request of NYSDEC.

- **June 2005:**
  - ERM collected surface water samples (samples Swale-101 through Swale-105 and BSS-Swale-01 through BSS-Swale-06 on Table 5-10 and Figure 4-3 in Attachment B-1) from the Bridge Street Swale on June 2, and June 9, 2005. Samples were analyzed for total chromium, copper, nickel, zinc, total cyanide, and hexavalent chromium;
  - ERM collected soil samples from twenty-two (22) locations along the Bridge Street Swale on June 3, 2005. Samples were taken from the near surface (3- to 6-inch bgs) and the shallow subsurface (13- to 16-inch bgs) intervals, for a total of thirty-four (34) samples for laboratory analysis (samples GSP-200 through GSP-221 on Table 5-5 and Figure 4-3 in Attachment B-1). Each sample was analyzed for total chromium, copper, nickel, zinc, and total cyanide;
  - ERM collected four (4) soil samples (samples CON-001, CON-001A, CON-002, and CON-003 on Table 5-4 and Figure 4-1 in Attachment B-1) from an excavation completed in the Roof Drain Area by EPS on June 7, 2005. Three (3) soil samples were taken from 3-feet bgs and one (1) soil sample was taken from 4.5-feet bgs. Each sample was analyzed for total chromium, copper, nickel, zinc, and total cyanide;
  - ERM collected soil samples from thirteen (13) locations along the GSP Swale Area on June 9, 2005 to further delineate the extent of metals impacts. Soil samples were taken from 1- to 3-inches bgs and 13- to 15-inches bgs from each location, for a total of twenty-six (26) soil samples for laboratory analysis (samples GSP-SWALE-015 through GSP-SWALE-027 on Table 5-2 and Figure 4-1 in Attachment B-1). Each sample was analyzed for total chromium, copper, nickel, zinc, and total cyanide;
  - ERM collected soil samples from eleven (11) locations along the Bridge Street Swale on June 10, 2005. Samples were taken from the near surface (1- to 3-inch bgs) and the shallow subsurface (13- to 15-inch bgs) intervals, for a total of nineteen (19) samples for laboratory analysis (samples BSS-S-222 through BSS-S-232 on Table 5-5 and Figure 4-3 in Attachment B-1). Each sample was analyzed for chromium, copper, nickel, zinc, and total cyanide;
  - ERM collected soil samples from four (4) test pits completed by EPS along the east wall of the GSP Facility on June 14, 2005. Two (2) samples were taken from each test pit for a total of eight (8) soil samples (samples TP-1 through TP-4 on Table 5-4 and Figure 4-2 in Attachment B-1). The soil samples were taken from various locations between 2- to 7-feet bgs and were analyzed for total chromium, copper, nickel, zinc, and total cyanide; and
  - ERM collected groundwater samples (samples TPW-1 through TPW-4 on Table 5-11 and Figure 4-2 in Attachment B-1) from temporary groundwater monitoring wells installed along the east side of the Site building on June 17, 2005. Each sample was analyzed for total chromium, copper, nickel, zinc, and total cyanide.

- **July 2005:**
    - ERM collected soil samples from twelve (12) sub-slab soil borings completed throughout the manufacturing building during the week on July 6, 2005. Two (2) samples were taken from each boring, one (1) from immediately below the concrete slab and one (1) from the 12- to 18-inch bgs interval, for a total of twenty-four (24) soil samples (samples B-1 through B-12 on Table 5-6 and Figure 4-5 in Attachment B-1). Each sample was analyzed for total chromium, copper, nickel, zinc, and total cyanide. One (1) sample (B-4 on Table 5-6a) was also analyzed for TCL VOCs, TCL SVOCs, PCBs, metals (arsenic, barium, cadmium, total chromium, copper, lead, mercury, nickel, selenium, silver, zinc, total cyanide, and hexavalent chromium), ignitability, pH, reactive cyanide, and reactive sulfide; and
    - ERM collected four (4) groundwater samples (samples TW-1 through TW-4 on Table 5-8 and Figure 5-4 in Attachment B-1) from temporary groundwater monitoring wells installed in the sub-slab soil borings discussed above on July 8, 2005. Each sample was analyzed for total chromium, copper, nickel, zinc, and total cyanide.
- **August 2005:**
    - ERM installed three (3) groundwater monitoring wells to an approximate depth of 16-feet bgs on August 18, 2005; and
    - ERM collected groundwater samples (samples GSP-MW-1 through GSP-MW-3 on Table 5-12 and Figure 5-9 in Attachment B-1) from the previously installed wells on August 22, 2005. Each sample was analyzed for total chromium, copper, nickel, zinc, total cyanide, and hexavalent chromium.

In total, 158 soil samples, 14 ponded/surface water samples, and 12 groundwater samples (including quality assurance/quality control duplicate samples) were taken during Site Investigation activities.

2.1.3 Site Investigation Results

Results of the 2005 Site Investigation sampling identified the following:

- **GSP Swale Area:**
    - Soil impacted with metals contamination from the ground surface to a maximum depth of 6-feet bgs, specifically the following analytes compared to 6 NYCRR Subpart 375-6 Remedial Program Soil Clean-up Objectives (SCOs):

Analyte	Lowest Identified Concentration (mg/kg)	Highest Identified Concentration (mg/kg)	Total Number of Samples Taken	Unrestricted Use SCO (mg/kg)	Commercial Use SCO (mg/kg)
Cadmium	Non-Detect	4.7	3	2.5	9.3
Total Chromium	8.47	4,100	69	31	1,900
Copper	7.8	13,000	69	50	270
Nickel	7.6	3,720	69	30	310

Analyte	Lowest Identified Concentration (mg/kg)	Highest Identified Concentration (mg/kg)	Total Number of Samples Taken	Unrestricted Use SCO (mg/kg)	Commercial Use SCO (mg/kg)
Selenium	3.5	4.7	2	3.9	1,500
Zinc	11.8	2,340	69	109	10,000
Cyanide	Non-Detect	903	50	27	27

- o Ponded water samples identified the following contaminant of concern concentrations that are compared to New York State Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards:

Analyte	TOGS Standard or Guidance (G) Value (ug/L)	Lowest Identified Concentration (ug/L)	Highest Identified Concentration (ug/L)	Total Number of Samples Taken
Acetone	50 (G)	100	100	1
Total Chromium	50	26,000	55,000	2
Copper	200	110,000	110,000	2
Nickel	100	110,000	120,000	2
Zinc	2,000 (G)	180	680	2
Hexavalent Chromium	50	57,000	57,000	1
Cyanide	200	Non-Detect	Non-Detect	1

The impacted water was pumped from the swale, treated, and discharged to the Onondaga County Waste Water Treatment Facility.

- **Bridge Street Swale:**
  - o Soil impacts were identified from Bridge Street to the Interstate 690 off-ramp and points west with the following metals concentrations, which are compared to 6 NYCRR Subpart 375-6 SCOs:

Analyte	Lowest Identified Concentration (mg/kg)	Highest Identified Concentration (mg/kg)	Total Number of Samples Taken	Protection of Ecological Resources SCO (mg/kg)	Unrestricted Use SCO (mg/kg)	Commercial Use SCO (mg/kg)
Total Chromium	5.51	966	53	42	31	1,900

Analyte	Lowest Identified Concentration (mg/kg)	Highest Identified Concentration (mg/kg)	Total Number of Samples Taken	Protection of Ecological Resources SCO (mg/kg)	Unrestricted Use SCO (mg/kg)	Commercial Use SCO (mg/kg)
Copper	5.47	7,170	53	50	50	270
Nickel	6.32	2,330	53	30	30	310
Zinc	30.6	473	19	109	109	10,000
Cyanide	Non-Detect	15.7	53	No Standard	27	27

The majority of soil impacts occur along the central axis of the swale;

- o The surface water sample analytical results identified the following analytes, which are compared to New York State TOGS 1.1.1 Ambient Water Quality Standards:

Analyte	TOGS Standard or Guidance (G) Value (ug/L)	Identified Concentration (ug/L)
Acetone	50	62
Total Chromium	50	6,400
Copper	200	23,000
Nickel	100	12,000
Zinc	2,000 (G)	120
Hexavalent Chromium	50	Matrix interference prevented quantification
Cyanide	200	Non-Detect

The impacted water was pumped from the swale, treated, and discharged to the Onondaga County Waste Water Treatment Facility.

- o After pumping out the impacted water, additional surface water sampling identified the following analytes, which are compared to New York State TOGS 1.1.1 Ambient Water Quality Standards:

Analyte	TOGS Standard or Guidance (G) Value (ug/L)	Lowest Identified Concentration (ug/L)	Highest Identified Concentration (ug/L)	Total Number of Samples Taken
Total Chromium	50	Non-Detect	650	13
Copper	200	Non-Detect	1,920	13

Analyte	TOGS Standard or Guidance (G) Value (ug/L)	Lowest Identified Concentration (ug/L)	Highest Identified Concentration (ug/L)	Total Number of Samples Taken
Nickel	100	Non-Detect	962	13
Zinc	2,000 (G)	Non-Detect	120	6
Hexavalent Chromium	50	Non-Detect	630	6
Cyanide	200	Non-Detect	12	12

- **Sub-Slab Area:**
  - Soil samples were identified as impacted with the following metals concentrations, which are compared to 6 NYCRR Subpart 375-6 SCOs:

Analyte	Lowest Identified Concentration (mg/kg)	Highest Identified Concentration (mg/kg)	Total Number of Samples Taken	Unrestricted Use SCO (mg/kg)	Commercial Use SCO (mg/kg)
Total Chromium	7.3	1,300	25	31	1,900
Copper	11.9	87,400	24	50	270
Nickel	10.5	5,780	24	30	310
Zinc	Non-Detect	745	24	109	10,000
Cyanide	Non-Detect	2.82	25	27	27

- **Groundwater:**
  - Groundwater samples were impacted with analytes at concentrations that are compared to New York State TOGS 1.1.1 Ambient Water Quality Standards, as follows:

Analyte	TOGS Standard or Guidance (G) Value (ug/L)	Lowest Identified Concentration (ug/L)	Highest Identified Concentration (ug/L)	Total Number of Samples Taken
Total Chromium	50	Non-Detect	389,000	19
Copper	200	Non-Detect	22.6	19
Nickel	100	Non-Detect	1,880	19
Zinc	2,000 (G)	Non-Detect	371	19

Analyte	TOGS Standard or Guidance (G) Value (ug/L)	Lowest Identified Concentration (ug/L)	Highest Identified Concentration (ug/L)	Total Number of Samples Taken
Hexavalent Chromium	50	Non-Detect	14.0	14
Cyanide	200	Non-Detect	93.8	19

- o Impacted groundwater was identified in samples taken adjacent to the east wall of the GSP Facility, both in the GSP Swale Area and in the Sub-Slab Area, where the release originated.

2.1.4 Summary and Recommendations

The contaminants of concern for the Site were determined to be chromium, copper, nickel, and zinc. It was noted by GSP that although zinc was detected in soil samples above Unrestricted SCOs, zinc was not identified as one of the metals used in the GSP process and was not associated with the release. These contaminants occur in on-Site and off-Site soil, sediment, and surface water, and in discrete areas of on-Site groundwater. The Comprehensive Site Investigation Report (ERM, 2005) recommended that additional investigation and remediation of soil and groundwater be completed in the Sub-Slab Area and GSP Swale, and that additional investigation and remediation of soil, sediment, and surface water be completed in the Bridge Street Swale.

2.2 Data Gap Investigation Report

The *Comprehensive Site Investigation Report* (ERM, 2005) was submitted to the NYSDEC along with a Brownfield Cleanup Program (BCP) Application for the Site on November 29, 2005. The Site was admitted into the BCP on March 27, 2008, at which time a Remedial Investigation (RI) was required. The *Data Gap Investigation Report* (ERM, June 2012), in conjunction with the *Site Investigation Report* (ERM, 2005), satisfied the requirements for an RI under the BCP and was approved by the NYSDEC (September 23, 2013). The Data Gap Investigation activities were completed in 2010, and included the following activities.

2.2.1 AOC-1 – Sub-Slab Area

To further delineate sub-slab soil exceedances identified during the initial investigation in 2005, four (4) sub-slab soil borings (B-340, B-341, B-342, and B-343 on Figure 5 in Attachment B-2) were completed in the southeast corner of the manufacturing building. Soil borings B-340 and B-341 were completed vertically using a hand auger and soil borings B-342 and B-343 were completed horizontally using a hand auger. A soil sample was taken from each boring and analyzed for total chromium, copper, nickel, zinc, total cyanide, and hexavalent chromium (Table 1 in Attachment B-2).

Sub-slab soil sample laboratory analytical results from the initial Site investigation and data gap investigation indicated that soils samples exceed Industrial Use Soil Cleanup Objectives (SCOs) for copper and nickel. Based on analytical results, the extent of impacts appear to be well defined, and is bound by soil boring B-343 to the north, the exterior foundation wall to the east and south, and soil boring B-340 to the west (Figure 10 in Attachment B-2).

2.2.2 AOC-2 – GSP Swale

To further delineate impacts identified during the initial investigation in 2005, fourteen (14) direct push soil borings (B-307 through B-320 on Figure 11 in Attachment B-2) were completed to a depth of 8-feet bgs within, and in proximity to, the GSP Swale. Two (2) soil samples were taken from each boring, one (1) from the 4- to 6-foot interval and one (1) from the 6- to 8-foot interval, for a total of twenty-eight (28) samples. Each soil sample was analyzed for total chromium, copper, nickel, zinc, total cyanide, and hexavalent chromium (Table 2 in Attachment B-2).

Two (2) additional soil borings (B-316 and B-350 on Figure 11 in Attachment B-2) were completed to the east of the GSP Swale. A groundwater monitoring well (MW-8) was completed in soil boring B-316. Soil boring B-350 was completed to 4-feet bgs and one (1) sample was taken from the 1- to 1.5-feet bgs interval. The soil sample was analyzed for total chromium, copper, nickel, zinc, total cyanide, hexavalent chromium, acetone (select samples), and methylene chloride (select samples) (Table 2 in Attachment B-2).

In addition, surface soil samples were taken from the upper 4-inches of soil at the four (4) borings closest to the roof drain area (borings B-313, B-315, B-316, and B-317 on Figure 11 in Attachment B-2). Each soil sample was analyzed for total chromium, copper, nickel, zinc, total cyanide, hexavalent chromium, acetone, and methylene chloride (Table 2 in Attachment B-2).

GSP Swale soil sample laboratory analytical results from the initial Site investigation and the data gap investigation identified exceedances of Commercial Use SCOs in the following samples:

Sample ID (Depth Interval)	Analyte	Commercial Use SCO (mg/kg)	Identified Concentration (mg/kg)
GSP-006 (16- to 18-inches bgs)	Copper	270	635
GSP-010 (6- to 8-inches bgs)	Total Chromium Copper	1,900 270	3,830 11,900
GSP-010 (16- to 18-inches bgs)	Total Chromium Copper	1,900 270	2,700 13,000
GSP-012 (16- to 18-inches bgs)	Copper	270	672
GSP-013 (6- to 8-inches bgs)	Copper	270	1,310
GSP-013 (16- to 18-inches bgs)	Copper	270	1,830
GSP-SWALE-024 (13- to 15-inches bgs)	Copper	270	477

Based on these results, ERM concluded in their report that soil contamination due to contaminants of concern is limited to shallow soil in the GSP Swale (Figure 11 in Attachment B-2). Of particular note is that only one sample exceeded Industrial SCOs and only for copper.

2.2.3 AOC-3 – Buried Culvert Pipe

In order to assess soil conditions in proximity to the buried culvert pipe, six (6) soil borings were advanced adjacent to the pipe (GSP-344 through GSP-349 on Figure 12 in Attachment B-2). Each boring was completed using direct push drilling methods. One (1) soil sample was taken from the bottom of five (5) of the soil borings (GSP-344, GSP-345, GSP-346, GSP-347, and GSP-348 on Table 3 in Attachment B-2) and analyzed for total chromium, copper, nickel, zinc, total cyanide, and hexavalent chromium. Two (2) soil samples were taken from soil boring GSP-349, one (1) from the 2- to 2.5-feet bgs interval and one (1) from the 5- to 5.5-feet bgs interval, and analyzed for total chromium, copper, nickel, zinc, total cyanide, and hexavalent chromium (Table 3 in Attachment B-2).

Data collected during the RI indicate that one (1) subsurface soil sample(GSP-348) in proximity to AOC-3, and, in an area adjacent to Bridge Street and other commercial businesses, exceeded the Commercial Use SCOs for copper and nickel; and zinc and total chromium for Unrestricted SCOs at approximately 5.5- to 6.5-feet bgs. In addition, one other sample (GSP-349) had an exceedance of Unrestricted SCOs for hexavalent chromium (1.12 versus 1 mg/kg) and for zinc at a depth of 5-5.5 feet bgs. All other soil samples collected associated with AOC-3 were below Unrestricted SCOs.

2.2.4 AOC-4 – Bridge Street Swale

Eight (8) soil borings (soil borings GSP-321 through GSP-328 on Figures 13A and 13B in Attachment B-2) were completed in the Bridge Street Swale using a hand auger or manually operated soil coring device. Each soil sample was taken from the soil/water interface and analyzed for total chromium, copper, nickel, zinc, total cyanide, hexavalent chromium, acetone (select samples), and methylene chloride (select samples) (Table 4 in Attachment B-2).

Eleven (11) soil borings (soil borings GSP B-329 through GSP-B-339 on Figures 13A and 13B in Attachment B-2) were completed adjacent to the Bridge Street Swale. Three (3) soil samples were taken from each boring, one (1) from the 0- to 2-inch bgs interval, one (1) from the 12- to 14-inch bgs interval, and one (1) from the 22- to 24-inch bgs interval, for a total of thirty-three (33) soil samples for laboratory analysis. Each soil sample was analyzed for total chromium, copper, nickel, zinc, total cyanide, hexavalent chromium, acetone (select samples), and methylene chloride (select samples) (Table 4 in Attachment B-2).

At the request of the NYSDEC, one (1) surface water sample was taken from the Bridge Street Swale to further assess detections of acetone and methylene chloride from the initial Site investigation. The sample was analyzed for acetone and methylene chloride (sample GSP-Surface Water).

The sediment sample laboratory analytical results reported by ERM indicate that contaminants of concern, mainly copper and nickel, exceeded Commercial Use SCOs along the Bridge Street Swale in two (2) locations: along the north-south trending portion, from its intersection with Bridge Street for a distance approximately 800-feet north; and along the approximately east-west trending portion from sample location GSP-325 to sample location GSP-233 (Figures 13A and 13B in Attachment B-2).

Surface water sample laboratory analytical results indicate that methylene chloride was not detected above laboratory detection limits and acetone was identified at a concentration of 11.2 ug/L, which is below the New York State TOGS 1.1.1 Ambient Water Quality guidance value (50 ug/L). Neither of these contaminants is considered contaminants of concern.

2.2.5 Groundwater

Based on detections identified during the initial Site investigation in 2005, five (5) additional groundwater monitoring wells were installed in 2010 (groundwater monitoring wells MW-4 through MW-8 on Figure 9 in Attachment B-2). Groundwater monitoring well MW-8 is located east of the

GSP Swale, on an adjacent property. Groundwater samples were taken from each of the groundwater monitoring wells and analyzed for total chromium, copper, nickel, zinc, total cyanide, hexavalent chromium, acetone, and methylene chloride (Table 5 in Attachment B-2).

Groundwater sample laboratory analytical results indicate that nickel was detected above New York State TOGS 1.1.1 Ambient Water Quality standards in samples MW-3 and MW-4 (Figure 14 in Attachment B-2). Hexavalent chromium was detected above TOGS 1.1.1 standards in the sample from groundwater monitoring well MW-3 during the initial Site investigation, but was not detected during data gap investigation sampling. ERM concluded in their report that groundwater impacts are limited to a small area proximal to the southeast corner of the building, where the initial release occurred.

2.3 Bridge Street Swale Dredging

Town of Dewitt personnel excavated material from a portion of the Bridge Street Swale on March 8, 2012 using a track-mounted excavator. The excavated material was reportedly placed on the ground near the eastern and western edges of the Bridge Street Swale, within the swing radius of the excavator. ERM personnel discovered the excavation activity on March 8, 2012 and notified GSP and NYSDEC. GSP subcontracted EPS to cover the excavated materials with polyethylene sheeting.

ERM personnel collected four (4) composite soil samples from the excavated materials on March 9, 2012, for disposal characterization purposes. Each of the composite samples was analyzed for the following:

- Extractable petroleum hydrocarbons;
- Toxicity characteristics leaching procedure (TCLP) metals;
- Percent solids;
- pH;
- Free liquids: and
- Ignitability.

The excavated material was loaded into roll-off containers and transported off-Site for disposal as non-hazardous waste. In total, approximately 166.5 tons of material was transported for disposal at the Seneca Meadows Landfill in Seneca Falls, New York in October 2012. ERM personnel collected three (3) confirmatory soil samples from the excavated portion of the Bridge Street Swale and had them analyzed for chromium, copper, nickel, zinc, and cyanide (Table 1 in Attachment B-4). Laboratory analytical results, as reported by ERM, identified one (1) copper concentration in excess of the Commercial Use SCO (545 mg/kg in sample 402, Figure 1 in Attachment B-4). All other identified concentrations were below the Unrestricted Use SCOs, except:

Sample Identification	Analyte	Unrestricted Use SCO (mg/kg)	Identified Concentration (mg/kg)
401	Copper	50	50.8
	Zinc	109	166

Sample Identification	Analyte	Unrestricted Use SCO (mg/kg)	Identified Concentration (mg/kg)
402	Chromium	31	143
	Copper	50	545
	Nickel	30	202
	Zinc	109	401

2.4 Background Sediment Sampling

On September 3, 2013, GHD personnel completed background sediment sampling at five (5) locations (locations A, B, C, D, and E on Figure 2 in Attachment B-6) that appeared similar in character to the Bridge Street Swale (AOC-4 of the Site). The objectives of the background sediment sampling were to establish background reference values for comparison to Bridge Street Swale conditions. Sediment samples were taken from three (3) intervals at each sample location: one (1) sample from the 0- to 6-inch bgs interval, one (1) sample from the 12- to 14-inch bgs interval, and one (1) sample from the 22- to 24-inch bgs interval, for a total of fifteen (15) samples for laboratory analysis. Each sediment sample was analyzed for total chromium, hexavalent chromium, total copper, total cyanide, total nickel, and total zinc.

Background sediment sample laboratory analytical results were summarized and compared to Unrestricted Use, Commercial Use, and Protection of Ecological Resources SCOs (Table 2 in Attachment B-6). Total cyanide and hexavalent chromium were not detected above laboratory detection limits in any of the background sediment samples. Total nickel was detected in all of the background sediment samples; however, the detected concentrations did not exceed the Unrestricted Use SCO.

Laboratory analytical results indicated that ten (10) of the fifteen (15) background sediment samples exceed the Unrestricted Use SCOs for at least one analyte, as follows:

Analyte	Sample Identification	Concentration (mg/kg)
Total Chromium Protection of Ecological Resources SCO – 42 mg/kg Unrestricted Use SCO – 31 mg/kg Commercial Use SCO – 1,900 mg/kg	Background C1	80
	Background C2	48
	Background D1	40
	Background D2	48
	Background D3	31
Total Copper Protection of Ecological Resources SCO – 50 mg/kg Unrestricted Use SCO – 50 mg/kg Commercial Use SCO – 270 mg/kg	Background A2	67
	Background B1	60
	Background C3	51

Analyte	Sample Identification	Concentration (mg/kg)
Total Zinc Protection of Ecological Resources SCO – 109 mg/kg Unrestricted Use SCO – 109 mg/kg Commercial Use SCO – 10,000 mg/kg	Background A2	300
	Background B1	140
	Background C2	120
	Background D1	140
	Background E1	290
	Background E2	130

Each of these concentrations also exceed the Protection of Ecological Resources SCOs, with the exception of total chromium in Background D1 and Background D3.

Based on laboratory analytical results, it was concluded that background concentrations of copper and zinc exceed Protection of Ecological Resources SCOs over a wide area. Exceedances of total chromium were also identified; however, they were limited to two (2) sample locations, both of which were from the same drainage feature.

2.5 Groundwater Sampling 2014

GHD personnel conducted sampling of seven (7) of the eight (8) permanent groundwater monitoring wells (MW-1 through MW-7 on Figure 2 in Attachment B-7) on January 31, 2014. The objectives of the groundwater sampling were to obtain more recent groundwater data that could be used to further refine the Remedial Alternatives Analysis relative to groundwater contamination and to confirm the groundwater flow direction.

Groundwater samples were taken from each of the groundwater monitoring wells utilizing low flow purging and sampling techniques, after depth to water measurements were recorded. Wells were purged until field parameters (i.e., temperature, conductivity, salinity, dissolved oxygen, pH, oxidation reduction potential, and turbidity) stabilized, at which point the groundwater sample was taken. Since groundwater samples were analyzed for metals, an effort was made to reduce the turbidity of the sample water to less than 50 Nephelometric Turbidity Units (NTUs). Turbidity of the sample water was less than 50 NTUs for each sample, except samples MW-4 and MW-5. Extended purging of these two wells did not achieve a turbidity of less than 50 NTUs; therefore, the samples were taken after achieving a reasonable purge volume. In addition to the seven (7) groundwater samples, one (1) duplicate sample, one (1) matrix spike sample, and one (1) matrix spike duplicate sample were also taken for quality assurance/quality control purposes, for a total of ten (10) samples for laboratory analysis. Each groundwater sample was analyzed for total chromium, total copper, total nickel, total zinc, hexavalent chromium, and total cyanide,

Permanent groundwater monitoring well samples laboratory analytical results were summarized and compared to the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) Class GA ambient water quality standards or guidance values (Table 3 in Attachment B-7). Laboratory analytical results of groundwater samples did not identify hexavalent chromium or total cyanide at concentrations above laboratory detection limits in any of the groundwater samples analyzed. Laboratory analytical results did identify detections of total chromium, total copper, total nickel, and total zinc in each of the groundwater samples analyzed. Of these detections, only nickel exceeded the applicable Class GA standards or guidance values in samples taken from two (2) of the groundwater monitoring wells (samples MW-3 and MW-4). These results are similar to the previous data for samples collected in March 2010.

Based on laboratory analytical results, it was concluded that metals were below Class GA standards or guidance values, except for nickel concentrations in two (2) groundwater samples. It was also concluded that it appears that the extent of groundwater contamination is limited to the drainage swale area east of the GSP facility building, based on laboratory analytical results obtained during this, and past, groundwater sampling events and the presumed groundwater flow direction.

2.6 Construction Completion Report

An Emergency Remedial Work Plan (Work Plan, June 2013) was prepared by GHD to address certain work associated with the excavation and removal of soils from the existing Bridge Street Swale in connection with the development of the area by others. The Work Plan outlined necessary activities that needed to be implemented during development of the area by others in order to satisfy the Brownfield Cleanup Agreement. The Work Plan pertained to the Bridge Street Swale from the area immediately adjacent to Bridge Street and extending north approximately 500 feet.

The Work Plan provided details on survey requirements, buried culvert cleaning, swale excavation techniques, work sequencing, backfilling requirements, and required project documentation among others. The Work Plan stated that work was to be completed in accordance with an approved health and safety plan and in accordance with a community air monitoring plan. The Work Plan was approved by the NYSDEC on June 12, 2013. Applicable excerpts from the Work Plan are included in Attachment B-5.

The emergency remedial actions were completed in accordance with the NYSDEC-approved Emergency Remedial Work Plan during the spring and summer of 2014. A Construction Completion Report, which documented the emergency remedial activities, was prepared by GHD in January 2016 and applicable excerpts are included in Attachment B-8.

Emergency remedial actions included:

- cleaning and flushing of the existing buried culvert (AOC-3) located south ("up-stream") of AOC-4
- excavating contaminated soil/sediment in the Bridge Street Swale, the Main Swale, and the Chimney Plaza Swale
- backfilling the swales with structural fill to grades required by the development activities.

Culvert flushing and cleaning activities began at the southern end of the buried culvert pipe adjacent to the GSP facility and progressed to the north from one catch basin to the next. As the pipe cleaning progressed, jetting water and sediment were removed at each catch basin via a vacuum truck. A buried box culvert, which receives discharges from stormwater drains along Bridge Street as well as the culvert pipe associated with AOC-3, is located immediately adjacent to Bridge Street. The box culvert's discharge pipe discharges into the Bridge Street Swale on the north side of Bridge Street. The sediment accumulated in this box culvert was also removed and the box culvert flushed with clean water that was collected via the vacuum truck. Recovered water and suspended solids were placed in two (2) frac tanks staged at the development site adjacent to Bridge Street, and recovered sediment was placed in an isolated portion (i.e., coffer dams) of the Main Swale to be removed with subsequent swale excavation activities. In total, approximately 31,255 gallons of water, including jetting water, was removed from the culvert pipe and catch basins. The water was characterized and appropriately disposed of off-site. Approximately 20 cubic yards (approximately 15 tons) of residual solids were removed from the bottom of the frac tank, placed in a lined roll-off container, characterized, and appropriately disposed of off-site.

Excavation of the swales began at the discharge of the buried culvert pipe and progressed parallel to Bridge Street and then north ("downstream") to the edge of the proposed development site. Discrete areas of the swales were isolated from the remainder of the swales by placing earthen coffer dams across the swales to the north and west. The area was dewatered by pumping water from the area into the Main Swale and soil was excavated from the swale and transported via off-road dump truck to the dewatering/containment area on-site. Following excavation, end-point soil samples were taken and analyzed for chromium (total and hexavalent), copper (total), cyanide (total), and nickel (total). Following the completion of excavation activities, none of the end-point soil samples identified contaminants of concern at concentrations above Protection of Ecological Resources SCOs, with the exception of one (1) isolated exceedance for hexavalent chromium, and backfilling of the swales to allow for the development activities to proceed was approved by the NYSDEC.

Excavated materials were staged in an on-site containment/dewatering area, were characterized, and were transported for off-site disposal at a permitted facility. In total, approximately 1,000 tons of contaminated soil/sediment was taken to Seneca Meadows landfill for disposal.

2.7 Supplemental Sampling Activities

GHD personnel conducted installation and development of a replacement groundwater monitoring well for MW-8, sampling of seven (7) of the eight (8) permanent groundwater monitoring wells (MW-1 through MW-5 and MW-7 and MW-8), inspection of AOC-3 stormwater catch basins, sediment sampling in the Bridge Street Swale, and sediment sampling in the AOC-4 swale in 2016 in accordance with the NYSDEC approved Work Plan (GHD, July 15, 2016) The objectives of the supplemental sampling activities were to further refine the nature and extent of soil/sediment and groundwater contamination in order to develop appropriate remedial actions. The methods and findings of the supplemental sampling were submitted to the NYSDEC in the Supplemental Sampling Activities Summary Letter Report (GHD, October 3, 2016).

2.7.1 Groundwater

Groundwater samples were analyzed for the full list of contaminants identified in the BCP. The groundwater analytical results indicated there were no identified volatile organic compounds (VOC's),or semi-volatile organic compounds (SVOCs) that were considered contaminants of concern for the Site (see Figures and Tables in Attachment B-9). For the contaminants of concern, there were no exceedances for copper, total chromium, hexavalent chromium or cyanide.

The following analytes were identified at concentrations that exceed applicable groundwater standards or guidance values:

- Arsenic (MW-7)
- Barium (MW-1 and MW-4)
- Iron (all samples)
- Magnesium (MW-1, MW-2, MW-3, MW-8, and Duplicate)
- Manganese (MW-2, MW-3, MW-4, MW-7, and Duplicate)

- Nickel (MW-3, MW-4, and Duplicate)
- Sodium (all samples)
- Total PCBs (MW-4)

The detected iron, magnesium, manganese, and sodium concentrations are likely naturally occurring earth metals based on the widespread occurrence at the Site. The remainder of the data is similar to historical sampling events and indicates that migration of metals contaminants of concern from the historic release area via groundwater is limited. Additional groundwater and soil sampling was recommended to assess the occurrence of arsenic in the groundwater sample taken from off-site well MW-7; PCB detected in the groundwater sample from off-site well MW-4; and the continued elevated nickel concentrations in on-Site well MW-3 (considered the upgradient monitoring well).

2.7.2 Soil/Sediment

The inspection of the catch basins associated with AOC-3 during the supplemental sampling activities completed during August 2016 did not identify any appreciable accumulation of sediment in the sump of the catch basins.

A representative sediment sample was taken in the vicinity of the discharge of the stormwater pipe on the north side of Bridge Street (within the area excavated during the Community Bank development) by compositing three (3) grab samples taken across the width of the swale. The three (3) grab samples consisted of the upper 6 inches of sediment and were composited into a single sample for laboratory analysis.

The composite sample was analyzed for total chromium, total copper, total nickel, hexavalent chromium, and total cyanide. Laboratory analytical results for the Bridge Street Swale sediment sample were compared to the Protection of Ecological Resources SCOs. One analyte, total chromium (55 mg/kg), was identified at a concentration that exceeded the applicable Protection of Ecological Resources SCO of 41 mg/kg.

The detected concentration in the composite sample is similar to total chromium concentrations detected in background samples taken in proximity to the site as identified in the Background Sediment Sampling Letter Report (GHD, October 24, 2013). This portion of the Bridge Street Swale was previously excavated during the Community Bank development activities (Construction Completion Report-AOC-3 and AOC-4, GHD, January 2016).

In addition, three (3) sediment samples were taken from the upper 6 inches of sediment at each of seven (7) sample transects spaced at approximately 100-foot intervals along the portion of the main swale extending north from the Community Bank development to the intersection of the Interstate 690 right-of-way. The three (3) samples taken along each transect for laboratory analysis consisted of one (1) from just below the edge of water on each side of the swale (as determined at the time of sampling) and one (1) from the bottom of the swale at the approximate mid-point of the width at each location. A total of twenty-three (23) sediment samples, which includes two (2) blind field duplicate samples for QA/QC purposes, were analyzed for total chromium, total copper, total nickel, hexavalent chromium, and total cyanide.

Laboratory analytical results for the Downstream Swale sediment samples were compared to the Protection of Ecological Resources SCOs. Hexavalent chromium and cyanide were not detected at concentrations that exceed applicable Protection of Ecological Resources SCOs in any of the 23 samples taken. Total chromium, total copper, and total nickel were identified at concentrations that exceed applicable Protection of Ecological Resources SCOs. The sample analytical results identified exceedances of Protection of Ecological Resources SCOs at each sample transect for at least one contaminant of concern. The concentrations are similar to those previously identified in this area by ERM during remedial investigation activities.

2.8 Summary of Remaining Contamination

Soil sample analytical results are compared to Unrestricted Use SCOs and groundwater, surface water, and release water sample analytical results are compared to New York State TOGS 1.1.1 Class GA Ambient Water Quality Standards or Guidance Values in accordance with DER-10. The following summary table only includes the lowest and highest identified concentrations for each analyte with a concentration detected above laboratory detection limits in at least one sample; see tables in the Attachments for a complete summary of laboratory analytical results.

Based on findings of the Remedial Investigation and subsequent investigations, contaminants that exceed identified standards for the Site, and the frequency of the exceedance relative to the number of samples taken and analyzed, are as follows:

AOC	Contaminant of Concern	Affected Media	Lowest Identified Concentration	Highest Identified Concentration	Number of Samples Exceeding Standards
AOC-1	Total Chromium	Soil	7.3 mg/kg	1,300 mg/kg	13 of 29
		Groundwater[1]	9.1 ug/L	181,000 ug/L	1 of 4
	Copper	Soil	11.9 mg/kg	87,400 mg/kg	21 of 28
		Groundwater[1]	6.8 ug/L	15.5 ug/L	0 of 4
	Nickel	Soil	10.5 mg/kg	10,700 mg/kg	18 of 28
		Groundwater[1]	74 ug/L	884 ug/L	2 of 4
	Zinc	Soil	Non-Detect	745 mg/kg	2 of 28
		Groundwater[1]	Non-Detect	238 ug/L	0 of 4
	Hexavalent Chromium	Soil	0.735 mg/kg	8.79 mg/kg	3 of 4
	Cyanide	Soil	Non-Detect	2.82 mg/kg	0 of 29
		Groundwater[1]	Non-Detect	78.2 ug/L	0 of 4
AOC-2	Total Chromium	Soil	8.47 mg/kg	4,100 mg/kg	57 of 99
		Release Water[2]	26,000 ug/L	55,000 ug/L	2 of 2
		Groundwater[3]	Non-Detect	389,000 ug/L	2 of 4

AOC	Contaminant of Concern	Affected Media	Lowest Identified Concentration	Highest Identified Concentration	Number of Samples Exceeding Standards
AOC-2	Hexavalent Chromium	Soil Release Water[2]	Non-Detect 57,000 ug/L	140 mg/kg 57,000 ug/L	16 of 31 1 of 1
	Copper	Soil Release Water[2] Groundwater[3]	7.8 mg/kg 110,000 ug/L Non-Detect	13,000 mg/kg 110,000 ug/L 20 ug/L	44 of 99 1 of 2 0 of 4
	Cyanide	Soil Groundwater[3]	Non-Detect Non-Detect	903 mg/kg 93.8 ug/L	2 of 83 0 of 4
	Nickel	Soil Release Water[2] Groundwater[3]	7.6 mg/kg 110,000 ug/L Non-Detect	3,720 mg/kg 120,000 ug/L 1,880 ug/L	62 of 99 2 of 2 3 of 4
	Zinc	Soil Release Water[2] Groundwater[3]	11.8 mg/kg 180 ug/L Non-Detect	2,340 mg/kg 680 ug/L 371 ug/L	17 of 70 0 of 2 0 of 4
AOC-3	Total Chromium	Soil	12.9 mg/kg	207 mg/kg	1 of 7
	Hexavalent Chromium	Soil	Non-Detect	1.12 mg/kg	1 of 7
	Copper	Soil	17.3 mg/kg	543 mg/kg	1 of 7
	Cyanide	Soil	Non-Detect	0.896 mg/kg	0 of 7
	Nickel	Soil	12.5 mg/kg	375 mg/kg	1 of 7
	Zinc	Soil	31.1 mg/kg	342 mg/kg	2 of 7
AOC-4[4]	Total Chromium	Soil Surface Water[5]	5.51 mg/kg Non-Detect	1,080 mg/kg 650 ug/L	57 of 121 8 of 13
	Hexavalent Chromium	Soil Surface Water[5]	Non-Detect Non-Detect	22 mg/kg 630 ug/L	23 of 68 3 of 6

AOC	Contaminant of Concern	Affected Media	Lowest Identified Concentration	Highest Identified Concentration	Number of Samples Exceeding Standards
AOC-4(4)	Copper	Soil Surface Water(5)	5.47 mg/kg Non-Detect	7,170 mg/kg 1,920 ug/L	64 of 121 9 of 13
	Cyanide	Soil Surface Water(5)	Non-Detect Non-Detect	22.7 mg/kg 12 ug/L	0 of 121 0 of 12
	Nickel	Soil Surface Water(5)	6.32 mg/kg Non-Detect	2,330 mg/kg 962 ug/L	55 of 121 8 of 13
	Zinc	Soil Surface Water(5)	30.6 mg/kg Non-Detect	981 mg/kg 120 ug/L	23 of 63 0 of 6
Site-Wide Groundwater Quality Monitoring Network	Total Chromium	Groundwater	Non-Detect	29 ug/L	0 of 28
	Hexavalent Chromium	Groundwater	Non-Detect	14 ug/L	0 of 28
	Copper	Groundwater	Non-Detect	93 ug/L	0 of 28
	Nickel	Groundwater	Non-Detect	680 ug/L	8 of 28
	Zinc	Groundwater	Non-Detect	23 ug/L	0 of 28
	Arsenic	Groundwater	Non-Detect	63 ug/L	1 of 8
	Barium	Groundwater	91 ug/L	1,400 ug/L	2 of 8
	Iron	Groundwater	3,600 ug/L	15,300 ug/L	8 of 8
	Magnesium	Groundwater	28,400 ug/L	101,000 ug/L	5 of 8
	Manganese	Groundwater	54 ug/L	1,200 ug/L	5 of 8
	Sodium	Groundwater	94,500 ug/L	319,000 ug/L	8 of 8
	Total PCBs	Groundwater	Non-Detect	4.6 ug/L	1 of 8
	Methyl tert-butyl ether (MTBE)	Groundwater	Non-Detect	1.2 ug/L	0 of 8

(1) - AOC-1 groundwater results represent results of grab groundwater samples taken from temporary groundwater monitoring wells installed through the concrete slab of the building and do not represent Site-wide groundwater quality.

(2) - Release Water indicates samples taken from water ponded in the area of the initial release from the building and do not represent Site-wide surface water or groundwater quality.

(3) - AOC-2 groundwater samples represent results of grab groundwater samples taken from temporary groundwater monitoring wells installed in test pits dug along the exterior wall of the building in the vicinity of the release and do not represent Site-wide groundwater quality.

(4) - Since the Site investigations were completed, a portion of AOC-4 was remediated under the NYSDEC-approved Emergency Remedial Work Plan (GHD, June 2013). As a result, some of the concentrations identified above may no longer be present in AOC-4.

(5) - Surface Water results represent results of surface water samples taken from the Bridge Street Swale area after the water impacted by the initial release, which identified much higher concentrations on contaminants of concern, was pumped out and treated for off-site disposal.

2.9 Fish and Wildlife Resources Impact Analysis

The purpose of conducting a Fish and Wildlife Resources Impact Analysis (FWRIA) on-Site was to identify, describe, and evaluate existing or predicted fish and wildlife resources associated with the Site and its surroundings, and assess what impacts, if any, may originate from or result from the disturbance of the Site. The FWRIA for the Site was conducted by ERM.

Results of the FWRIA indicated that there are seven (7) cover types within ½-mile of the Site. These cover types include:

- Urban land;
- Mowed roadside/pathway;
- Mowed lawns with trees;
- Paved roadways;
- Forested wetland;
- Ditch/Artificial intermittent stream;
- Stream banks; and
- Riparian zone.

Results also indicated that most precipitation will leave the Site as runoff that flows to the GSP Swale and/or Bridge Street Swale, which ultimately connects to the NYS Route 690 swale north of the Site. No obvious signs of contaminant-induced stress were observed at the Site. The FWRIA concluded that a biologically driven migration/exposure pathway exists since fish and wildlife under current conditions are potentially exposed to affected media in AOC-2 and AOC-4. The pathway consists of the potential for uptake of contaminants through direct contact and ingestion, which includes the possibility of bioaccumulation. This pathway has not been verified at the Site, but the potential exists. Although AOC-4 was identified as having the potential for fish and wildlife habitat the area is periodically altered and disturbed during routine maintenance of the drainage swale that can entail removal of standing water and dredging of soils/sediment.

Fish and wildlife resources were determined to be minimal at and in the areas immediately surrounding the Site. Concentrations in excess of Protection of Ecological Resources SCOs in AOC-4 and Commercial Use SCOs in AOC-2 were identified in soil samples taken from AOC-2 and AOC-4. As a result, it was proposed by ERM that soil in AOC-2 and AOC-4 be excavated to preclude the potential exposure scenario outlined above and to eliminate potential future migration of, and exposure to, contaminants of concern.

2.10 Qualitative Human Health Exposure Assessment

The potential for human receptors to be exposed to contaminants that exist on-Site is based on current and reasonably anticipated future Site uses. As previously discussed, based on the historic release chromium, copper, cyanide, nickel, and zinc have been identified as the contaminants of concern (COCs) at the Site.

Under existing Site conditions, a potentially complete exposure pathway exists for Site soils based on direct contact, ingestion, and inhalation. Based on current Site conditions, possible on-Site receptors include current and future employees (currently limited as there are no ongoing operations), developers/Site users, public and private utility workers, maintenance workers, trespassers, and remedial contractors. Future on-Site exposure pathways and receptors are the same, if no remedial action is performed in these areas.

If remedial action is performed, exposure pathways will likely increase for a short duration during remedial action, after which they can be greatly reduced or eliminated. To limit exposure during remedial action, all work would be performed in accordance with a Site-specific health and safety plan and a community air monitoring plan.

Under existing Site conditions, a potentially complete exposure pathway does not exist for Site groundwater based on direct contact and ingestion. Based on current Site conditions, possible on-Site receptors include current or future employees (currently limited as there are no ongoing operations), developers/Site users, public and private utility workers, maintenance workers, trespassers, and remedial contactors; however, there is minimal potential for contact with, or ingestion of, contaminated groundwater due to the limited area of groundwater impacts and the fact that there are no groundwater users or water supply wells at, or in the vicinity of, the Site.

Future on-Site exposure to groundwater could potentially occur during ground intrusive work through contact with, or ingestion of, contaminated groundwater. Possible future on-Site receptors would include Site construction and/or remedial workers during remedial action, public and private utility workers, and future developers. To limit exposure during remedial action, all work would be performed in accordance with a Site-specific health and safety plan and a community air monitoring plan. It is unlikely that future groundwater users or water supply wells would be present at the Site since the Site and surrounding areas are serviced by a public water supply system.

3. Remedial Goals and Remedial Action Objectives

3.1 Overview

The review of remedial goals and action objectives are based on the identified contaminants of potential concern, which are primarily heavy metals, including total chromium, hexavalent chromium, copper, and nickel. In addition, zinc, which was not identified as a metal directly associated with the release, and cyanide were requested by the NYSDEC to be included as contaminants of potential concern based on the initial findings of the RI. Because these are inorganic compounds, the potential exposure via soil gas or vapors is precluded. The remedial goals and action objectives are focused on exposure pathways associated with groundwater, soil/sediment, and surface water. The following sections provide an overview of each AOC's remedial goals and remedial action objectives.

3.2 AOC-1

The overall remedial goal for AOC-1 – Sub-Slab Area (Figure 2 in Attachment B-3) is to protect human health and the environment from AOC-related contamination in a manner that is consistent with current, intended, and reasonably anticipated future uses of the AOC. The appropriate remedial action to meet these goals depends on the nature and extent of contamination, the planned future uses of the AOC, and the existence of exposure pathways to contamination relative to the planned uses. Based on previous uses and current zoning of the Site, the reasonable anticipated future use of this AOC is for commercial or industrial use. There is no identified surface water located within AOC-1 and therefore is not included in the RAO goals. In addition, the identified contaminants of concern do not include VOCs or SVOCs and therefore the potential for exposure to soil vapor is precluded as there is no identified source. As such RAOs for soil vapor are not considered for AOC-1.

In order to achieve AOC-1 remedial goals, the following Remedial Action Objectives (RAOs) have been identified:

- Groundwater
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated groundwater with contaminant levels that exceed New York State drinking water standards or guidance values.
  - RAOs for Environmental Protection
    - Restore groundwater to pre-disposal or pre-release conditions, to the extent practicable.
- Soil
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated soils that exceed Commercial Use SCOs.
  - RAOs for Environmental Protection

        - Prevent migration of contaminants that would result in groundwater or surface water contamination
        - Prevent impacts to biota from ingestion and/or direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Remedial alternatives are evaluated in this RAA to review if they achieve the identified RAOs. Because AOC-1 remedial objectives are related to contaminants in soil and groundwater, the alternatives evaluated include:

- Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1, Figure 4-1)
- Restoration to Commercial Uses with Site Management via Soil Cover Engineering Controls (ECs) and Institutional Controls (ICs) (Alternative 2, Figure 4-2).

Restoration to Pre-Disposal or Unrestricted Conditions allows for all potential uses to occur in AOC-1.

The Restoration to Commercial Uses with Site Management alternative will allow for the following commercial uses of AOC-1, or higher industrial uses if allowed by local zoning, in accordance with *DER-10 Technical Guidance for Site Investigation and Remediation* (NYSDEC, May 2010):

- The commercial use category anticipates use by businesses with the primary purpose of buying, selling, or trading of merchandise or services. The commercial use category:
    - Restricts the use to commercial activities including the buying and/or selling of goods or services, or other uses identified below
    - Requires a SMP to manage remaining soil contamination and institutional/engineering controls at the site
    - Is the appropriate use category for the following site uses:
        - Health care facilities, including hospitals, clinics, etc.
        - College academic and administrative facilities
    - Allows for passive recreational, which includes recreational uses with limited potential for soil contact, such as:
        - Artificial surface fields
        - Outdoor tennis or basketball courts
        - Other paved recreational facilities used for roller hockey, roller skating, shuffle board, etc.
        - Outdoor pools
        - Indoor sports or recreational facilities
        - Golf courses
        - Paved (raised) bike or walking paths.

3.3 AOC-2

The overall remedial goal for AOC-2 – GSP Swale (Figure 2 in Attachment B-3) is to protect human health and the environment from AOC-related contamination in a manner that is consistent with current, intended, and reasonably anticipated future uses of the AOC. The appropriate remedial action to meet these goals depends on the nature and extent of contamination, the planned future uses of the AOC, and the existence of exposure pathways to contamination relative to the planned uses. Based on previous uses and current zoning of the Site, the future contemplated use of AOC-2 is for commercial or industrial use, which is consistent with its current function as a stormwater conveyance swale that directs stormwater into the Town of DeWitt stormwater collection system (Bridge Street Drainage District).

Currently a portion of AOC-2 is located on the adjacent property not owned by GSP. GSP and the adjacent property owner have executed a Letter of Intent (LOI) to acquire the land that encompasses AOC-2. It is planned to incorporate the additional property into the BCP Site to be subject to an environmental easement, which will allow for placement of engineering and institutional controls.

In addition, the identified contaminants of concern do not include VOCs or SVOCs and therefore the potential for exposure to soil vapor is precluded as there is no identified source. As such RAOs for soil vapor media are not considered for AOC-2.

In order to achieve AOC-2 remedial goals, the following RAOs have been identified:

- Groundwater
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated groundwater with contaminant levels that exceed New York State drinking water standards or guidance values.
  - RAOs for Environmental Protection
    - Restore groundwater to pre-disposal or pre-release conditions, to the extent practicable.
- Soil/Sediment
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated soils that exceed Commercial Use SCOs.
  - RAOs for Environmental Protection
    - Prevent migration of contaminants that would result in groundwater or surface water contamination
    - Prevent impacts to biota from ingestion and/or direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Surface Water
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated surface water that exceeds New York State Ambient Water Quality Standards or guidance values.
  - RAOs for Environmental Protection
    - Prevent migration of contaminants that would result in groundwater, surface water, or sediment contamination

      - Prevent impacts to biota from ingestion and/or direct contact with surface water causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Remedial alternatives are evaluated in this RAA to review if they achieve these RAOs. Because AOC-2 remedial objectives are related to contaminants in soil/sediment, groundwater, and surface water, the alternatives evaluated include:

- Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1, Figures 5-1 and 5-2)
- Restoration to Commercial Uses with Site Management via Soil Cover ECs and ICs (Alternative 2, Figures 5-3 and 5-4).

Restoration to Pre-Disposal or Unrestricted Conditions allows for all potential uses to occur in AOC-2.

Restoration to Commercial Uses with Site Management will allow for the following commercial uses of AOC-2, or higher industrial uses if allowed by local zoning, in accordance with *DER-10 Technical Guidance for Site Investigation and Remediation* (NYSDEC, May 2010):

- The commercial use category anticipates use by businesses with the primary purpose of buying, selling, or trading of merchandise or services. The commercial use category:
  - Restricts the use to commercial activities including the buying and/or selling of goods or services, or other uses identified below
  - Requires a SMP to manage remaining soil contamination and institutional/engineering controls at the site
  - Is the appropriate use category for the following site uses:
    - Health care facilities, including hospitals, clinics, etc.
    - College academic and administrative facilities
  - Allows for passive recreational, which includes recreational uses with limited potential for soil contact, such as:
    - Artificial surface fields
    - Outdoor tennis or basketball courts
    - Other paved recreational facilities used for roller hockey, roller skating, shuffle board, etc.
    - Outdoor pools
    - Indoor sports or recreational facilities
    - Golf courses
    - Paved (raised) bike or walking paths.

3.4 AOC-3

The overall remedial goal for AOC-3 – Buried Culvert Pipe (Figure 2 in Attachment B-3) is to protect human health and the environment from AOC-related contamination in a manner that is consistent with current, intended, and reasonably anticipated future uses of the AOC. The appropriate remedial action to meet these goals depends on the nature and extent of contamination, the planned future uses of the AOC, and the existence of exposure pathways to contamination relative to the planned uses. The primary media of concern is the residual solids that may have been transported via stormwater from AOC-2 and collected in the stormwater pipe. The future contemplated use of this AOC is for commercial uses, based on current zoning of the property and its use for stormwater management and conveyance to the Town of DeWitt Bridge Street Drainage District.

There is no identified surface water body located within AOC-3 and therefore is not included in the RAO goals. Based on Site groundwater data, the contaminants of potential concern do not appear to be migrating from the BCP Site and therefore, RAOs for groundwater are not included for AOC-3. In addition, the identified contaminants of concern do not include VOCs or SVOCs and therefore the potential for exposure to soil vapor is precluded as there is no identified source associated with the Site. As such RAOs for soil vapor are not considered for AOC-3.

In order to achieve AOC-3 remedial goals, the following RAOs have been identified:

- Soil
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated soils.
  - RAOs for Environmental Protection
    - Prevent migration of contaminants that would result in groundwater, surface water, or sediment contamination
    - Prevent impacts to biota from ingestion and/or direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Residual Solids in Buried Culvert Pipe
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated solids
    - Prevent migration of potentially contaminated solids that could result in groundwater, surface water, or downgradient sediment contamination.
  - RAOs for Environmental Protection
    - Prevent migration of contaminants that could result in groundwater, surface water, or downgradient sediment contamination
    - Prevent impacts to biota from ingestion and/or direct contact with solids causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Remedial alternatives are evaluated in this RAA to review if they achieve these RAOs. Because AOC-3 remedial objectives are related to contaminants in soil and residual solids in the culvert pipe, the alternatives evaluated include:

- Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1, Figure 6-1)
- No Further Action (Alternative 2).

Restoration to Pre-Disposal or Unrestricted Conditions allows for all potential uses to occur in AOC-3.

The No Further Action alternative would allow for the current use of the AOC as a stormwater conveyance pipe. The Emergency Remedial Work Plan (GHD, June 2013) included the flushing and removal of sediment from the drainage culvert from the GSP swale to the discharge at Bridge Street. This work was associated with the development of a Community Bank facility adjacent to the Bridge Street Swale and was completed in the spring of 2014. Work activities were documented in a Construction Completion Report (CCR), which was submitted to the NYSDEC for their review.

3.5 AOC-4

The overall remedial goal for AOC-4 – Bridge Street Swale (Figure 4 in Attachment B-2) is to protect human health and the environment from AOC-related contamination in a manner that is consistent with current, intended, and reasonably anticipated future uses of the AOC. The appropriate remedial action to meet these goals depends on the nature and extent of contamination, the planned future uses of the AOC, and the existence of exposure pathways to contamination relative to the planned uses. The future contemplated use of this AOC is, based on current zoning of the property and the use of the swale for stormwater management by the Town of DeWitt (Bridge Street Drainage District), National Grid, and the NYSDOT ROW. The NYSDEC approval of the Emergency Remedial Work Plan (GHD, June 2013) included a NYSDEC request to achieve Protection of Ecological Resources SCOs in those areas of the swale that were not being backfilled as part of the Community Bank development, as well as portion further "downstream" (NYSDEC, June 12, 2013).

In order to achieve AOC-4 remedial goals, the following RAOs have been identified:

- Soil/Sediment
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated soils that exceed Protection of Ecological Resources SCOs.
  - RAOs for Environmental Protection
    - Prevent migration of contaminants that would result in groundwater or surface water contamination
    - Prevent impacts to biota from ingestion and/or direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Surface Water
  - RAOs for Public Health Protection
    - Prevent ingestion and/or direct contact with potentially contaminated surface water that exceeds New York State Ambient Water Quality Standards or guidance values.
  - RAOs for Environmental Protection
    - Prevent migration of contaminants that would result in groundwater or surface water contamination
    - Prevent impacts to biota from ingestion and/or direct contact with surface water causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Remedial alternatives are evaluated in this RAA to review if they achieve these RAOs. Because AOC-4 remedial objectives are related to inorganic contaminants in soil/sediment and surface water, the alternatives evaluated include:

- Restoration to Pre-Disposal or Unrestricted SCO Conditions (Alternative 1, Figures 7-1a, 7-1b, 7-2a, and 7-2b)
- Soil/Sediment removal from the swale to Protection of Ecological Resources SCOs (Alternative 2, Figures 7-3a, 7-3b, 7-4a, and 7-4b).

Restoration to Pre-Disposal or Unrestricted SCO Conditions (Alternative 1) and Restoration to Protection of Ecological Resources SCO Conditions (Alternative 2) would both allow for all potential uses to occur in AOC-4 and would be protective of fish and wildlife.

4. AOC-1

4.1 Remedial Alternatives Analysis

As identified in the RAOs, the remedial approach for AOC-1 is focused on soil and groundwater contaminants and the potential exposures to humans and the environment through direct contact and/or ingestion. Data collected during the RI indicate that samples taken from eight (8) sub-slab soil borings exceed the Commercial Use SCO for copper (soil boring samples B-4, B-8, B-12, B-341, B-342, and B-343) and nickel (soil boring sample B-1, B-4, B-8, B-10, B-12, B-341, B-342, and B-343). The exceedances occur from just beneath the bottom of the slab to a depth of approximately 3-feet bgs. Potential for direct contact and/or ingestion of these soils is limited by the fact that they occur under the building's concrete slab.

No specific remedial actions are proposed relative to groundwater for this AOC, since RI data indicate that groundwater impacts are likely limited to an isolated area of AOC-1 and AOC-2. In addition, on-Site and off-Site contact with groundwater is effectively preempted by the fact that the Site, and surrounding areas, are serviced by a municipal water supply.

This RAA identifies and compares potential AOC specific remedies. In accordance with DER-10, the alternatives to be evaluated for AOC-1 are: Restoration to Pre-Disposal or Unrestricted Conditions, and Restoration to Commercial Uses with Site Management.

The proposed alternatives are each evaluated and compared in terms of nine (9) specific criteria identified in 6 NYCRR Part 375-1.8(f), including:

- Compliance with standards, criteria, and guidance (SCGs)
- Protection of human health and the environment
- Short-term impact and effectiveness
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of contamination
- Implementability
- Cost effectiveness
- Land use
- Community acceptance.

The ninth criterion, community acceptance, will be further evaluated during public comment periods when feedback may be provided in relation to the proposed remedial alternative. The selected remedial alternative should produce a tangible benefit to the local community by achieving RAOs consistent with the current and reasonably anticipated future use of AOC-1.

The following is an overview and a comparative evaluation of the two (2) alternatives for AOC-1, with respect to the nine (9) evaluation criteria.

4.1.1 Restoration to Pre-Disposal or Unrestricted Conditions Alternative

A Restoration to Pre-Disposal or Unrestricted Conditions alternative would maximize the range of potential land use scenarios for AOC-1. This alternative would require a remedial approach that would result in no further restrictions to AOC-1 use (i.e. the level of cleanup should permit all types of future reuse scenarios) and no institutional/engineering controls to address exposure and achieve the RAOs. However, it would allow for short-term groundwater use restrictions to be placed on AOC-1.

A Restoration to Pre-Disposal or Unrestricted Conditions alternative requires that AOC-1 remediation be completed to meet Unrestricted Use SCOs, thereby meeting SCGs for soils. This would permanently remove the volume of contaminated soils that exists in AOC-1 by requiring excavation of soil across the majority of the AOC to achieve Unrestricted Use SCOs, an estimated depth of 1.5- to 4-feet (Figure 4-1). This would require that a remedial design be prepared for the AOC and submitted to NYSDEC for review and acceptance, as well as preparation of contract documents and selection of a contractor. To accomplish this alternative, the building would need to be razed, groundwater would need to be managed, excavated soils would need to be transported and disposed of off-Site, an equivalent amount of off-Site soil would need to be imported to reestablish grades, and the building would have to be replaced in order to allow for commercial activities to occur in the AOC. It is assumed that the backfill soil would include general soil fill overlain by 6- to 12-inches of gravel sub-base, which would be covered by a minimum of 6-inches of concrete. The general soil fill must meet the following criteria:

- Requirements set forth in 6 NYCRR Part 375-6.7(d) and DER-10 Section 5.4(e)
- Be free of extraneous debris or solid waste
- Consist of soil or other unregulated material as set forth in 6 NYCRR Part 360
- Will not exceed the allowable constituent levels for imported fill or soil for the use of the AOC (Unrestricted Use SCOs).

Once the remedial action is completed, a Final Engineering Report (FER) would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Work Plan or Remedial Design Document. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State.

This alternative would eliminate the potential risk associated with direct human contact with contaminated soil, and would provide a benefit in relation to potential wildlife exposure by removing contaminated media from the AOC.

This remedy would create short-term risks associated with soil excavation, off-Site transport and disposal of contaminated soil, and transport of clean soil fill to the AOC; however, long-term risk associated with site contamination would be minimal. For this remedy, excavated soil would need to be transported to a facility permitted to receive and manage the soil, which would generate increased truck traffic on local roadways. An equivalent amount of off-Site soil would need to be hauled to the AOC to backfill the excavation, which would add to the increased truck traffic.

It is determined that the Restoration to Pre-Disposal or Unrestricted Conditions alternative is cost prohibitive and not feasible for the Site due to the presence of the Site building, and the costs associated with razing the building, remediating the AOC, and rebuilding the building to allow for future commercial use of the AOC.

4.1.2 Commercial Uses with Site Management Alternative

The remedial approach for Commercial Uses with Site Management alternatives would allow for commercial or industrial use of AOC-1. This alternative would require a remedial approach that would meet Commercial Use SCOs in AOC-1 and would allow for institutional/engineering controls to address potential exposure and achieve the RAOs. It would also allow a groundwater use restriction to be placed on AOC-1.

This alternative for AOC-1 would include the following controls:

- Engineering Controls – Engineering controls for the AOC would include a soil cover system to protect against potential human contact with contaminated soils remaining in place. A soil cover currently exists in AOC-1 in the form of the building's concrete slab. The requirements for maintaining the engineering control (i.e. soil cover) will be described in a SMP, which will be referenced in the Environmental Easement. The Environmental Easement and SMP will require on-going annual certification of the engineering controls effectiveness, unless otherwise provided in writing by the NYSDEC. The annual certification will be signed by a Professional Engineer or by a qualified environmental professional as approved by the NYSDEC. For purposes of this RAA, the assumed life span of the engineering controls is 30 years.
- Institutional Controls – Institutional controls recorded in the form of an Environmental Easement for the controlled property would include:
    - Requirements that the remedial party or Site owner complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3)
    - Allowing the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws
    - Restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or County Department of Health
    - Prohibiting agriculture or vegetable gardens on the controlled property
    - Requiring compliance with the Department approved SMP.
- Site Management Plan - As part of the Environmental Easement, a SMP would be prepared to address how AOC-1 soil and groundwater would be characterized and handled for any future ground intrusive work that takes place in AOC-1 after the remedial action is complete. The SMP would also specify how the engineering controls (i.e. soil cover) are to be periodically inspected and maintained to preclude potential exposure to AOC-1 contaminants.
- These engineering/institutional controls will be identified in the Environmental Easement filed with the Onondaga County Clerk's Office within 30 days of the NYSDEC's acceptance of the Environmental Easement. A copy will be provided to NYSDEC certifying that the Environmental Easement was recorded by the County Clerk.

The combination of engineering and institutional controls would meet the stated RAOs for this AOC and support the current, intended, and reasonably anticipated future uses of the Site.

Once the remedial action is completed, a FER would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Work Plan or Remedial Design Document. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State. A SMP and Environmental Easement would also need to be prepared, which outline ongoing Site inspection, maintenance, and reporting requirements and use restrictions.

This alternative would mitigate the potential risk associated with direct human contact and/or ingestion of contaminated soil by preventing future exposure through placement of a soil cover engineering control and implementation of institutional controls via an Environmental Easement.

This remedy would have no short-term risks associated with groundwater management, soil excavation, off-Site transport and disposal of contaminated soil, and transport of clean soil fill. Long-term risk due to potential contact with contaminated soil would be managed by maintaining the engineering controls and institutional controls.

It is estimated that the alternative for Commercial Uses with engineering and institutional controls with a SMP would have a capital cost of approximately $20,000 (Table 4-1) to implement and an ongoing annual cost of approximately $5,000 (Table 4-1) to maintain, inspect, and report on the soil cover engineering control. Based on these estimates, the Present Worth of this alternative would be approximately $121,000, based on an estimated 30-year operating life of the engineering controls (Table 4-1).

4.2 Evaluation of Remedial Alternatives

This evaluation of alternatives compares the Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1), and the Commercial Uses with Site Management (Alternative 2) alternatives.

In accordance with BCP guidance, the selected remedy will provide protection of public health and the environment, taking into account the current, intended, and reasonably anticipated future land uses of the AOC.

An evaluation has been prepared to identify a suitable remedial action in accordance with 6 NYCRR Part 375-1.10(c)(1-6). In the specific context of the contemplated end use of the AOC, the selected remedy should be:

- Consistent with applicable SCGs
- Protective of public health and the environment
- Effective for both short-term and long-term
- Able to reduce toxicity, mobility, and volume of the hazardous constituents
- Feasible from implementability and cost effectiveness perspectives
- Reasonably anticipated to be acceptable to the local community.

4.2.1 Compliance with Standards, Criteria, and Guidance

A review of the SCGs documents pertinent to AOC specific conditions has been completed. The SCGs for soil are the 6 NYCRR Part 375-6.8(b) Unrestricted Use SCOs for Alternative 1 and the Commercial Use SCOs for Alternative 2.

Alternative 1 will meet the SCGs for all soil within the AOC boundary. Alternative 2 will comply with soil SCGs for the designated commercial use of the AOC even though copper in six (6) sub-slab soil samples and nickel in eight (8) sub-slab soil samples exceeded Commercial Use SCOs in the subsurface soils. These exceedances will be managed via a soil cover engineering control and Environmental Easement, which will preclude potential human contact with remaining contamination.

Since RI analytical data indicate groundwater quality is not significantly impacted outside of AOC-1 and/or AOC-2, it is unlikely that the soil removal required to meet Unrestricted Use SCOs would provide a measurable improvement in groundwater quality compared to the soil cover engineering controls required by Alternative 2. In addition, Alternative 2 would restrict groundwater use at the AOC to eliminate any potential direct human exposure to groundwater impacts, which makes it equally protective.

4.2.2 Protection of Human Health and the Environment

Each of the alternatives is protective of human health and the environment. Alternative 1 would remove soil contamination to meet soil SCGs, whereas Alternative 2 would leave some subsurface soils in place above Unrestricted Use SCOs below engineering controls, where it will not be accessible to humans. The SMP under Alternative 2 will provide further protection if soils are encountered during future intrusive activities in the AOC.

Each of the alternatives permit groundwater use restrictions and are equally protective of human health relative to groundwater exposure. As previously noted, AOC-1 groundwater is marginally impacted by the release with no significant off-site migration identified, so the significant soil removal required to meet Unrestricted Use SCOs is not likely to produce a measurable improvement to groundwater quality compared to Alternative 2.

4.2.3 Short-Term Effectiveness

Alternative 1 would require removal of the existing building and concrete slab, excavation of soils that exceed Unrestricted Use SCOs, placement of clean fill to return the area to original grade, and replacement of the building and concrete slab. Alternative 2 would require maintaining the existing concrete building slab as an engineering control to preclude direct contact with potentially contaminated sub-slab soils. Future construction activities, if any, could potentially involve excavation and disturbance of subsurface soils or fill material that are left in place under Alternative 2.

Alternative 1 has a greater potential for short-term exposure to workers and the community due to the volume and duration of soil disturbance associated with the soil excavation, transport, and disposal of soil and building materials. There also exists a potential for airborne contamination (i.e. dust) to be released from AOC-1 under Alternative 1.

Each proposed alternative would include a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) to identify requirements for action levels, personal protective equipment, and emergency procedures to address potential short-term impacts during remedial activities, which makes them both equally effective over the short-term. The SMP required under Alternative 2 will ensure that if ground intrusive work were completed in the future, soil and groundwater encountered in the AOC is properly characterized and managed in order to address potential exposure issues to AOC contaminants, and would also require implementation of a HASP and CAMP during future ground intrusive activities in the AOC.

Another short-term impact under Alternative 1 would be the increase in truck traffic on local roads as a result of hauling excavated soil from the AOC and hauling clean fill to the AOC. The increased truck traffic required by Alternative 1 could have a negative impact on local roadways and the local community. Alternative 2 would have no impact on truck traffic on local roads due to the fact that no soils would need to be removed from, or transported to, the AOC.

4.2.4 Long-Term Effectiveness and Performance

Alternative 1 and Alternative 2 each provide a long-term and effective solution to potential AOC contamination in soil and groundwater, and will reduce human and environmental exposure to contaminants of potential concern (COPCs). Alternative 1 would provide a permanent solution due to the removal of all soils that do not meet Unrestricted Use SCOs.

Alternative 2 will require engineering/institutional controls to be recorded with the deed to the property via an Environmental Easement. These remedies are considered equally as effective and permanent as an Unrestricted Use remedy for the AOC based on the current, intended, and reasonably anticipated future commercial or industrial use of the Site. The SMP will be referenced in the Environmental Easement and will require annual certifications of all engineering and institutional controls and implementation of the SMP during future Site activities.

4.2.5 Reduction of Toxicity, Mobility, and Volume

Alternative 1 would result in a greater reduction in the volume of soil COPCs in the AOC compared to Alternative 2 but it may not have a measurable effect on toxicity of soil COPCs compared to Alternative 2 since each alternative effectively mitigates exposure. During implementation of Alternative 1 the mobility of soil COPCs may be temporarily higher than that for Alternative 2 since Alternative 1 will require more extensive excavation and transportation of soils. Although Alternative 1 removes the potentially contaminated soil from the Site for off-site disposal, it does not effectively reduce the toxicity or volume of the inorganic contaminants, especially as they will likely be landfilled. Following implementation, there is not likely to be a difference in toxicity of AOC contaminants between the alternatives based on the current, intended, and reasonably anticipated future uses of the AOC.

Based on RI data, the soil COPCs have not significantly impacted groundwater as evidenced by concentrations detected in Site groundwater monitoring wells. As a result, neither alternative would likely have a significant impact on the toxicity or volume of COPCs identified in groundwater.

4.2.6 Implementability

Technical and administrative tasks required to implement the alternatives are all technically achievable. The implementation of Alternative 1 would likely not be cost-effective for the planned end use of the AOC, due to costs associated with demolishing the Site building and handling, transporting, treating, and disposing of large volumes of soil. The total removal of potentially impacted soil is likely to be restricted by the presence of underground utilities resulting in some impacted soils being left behind. More significant short-term exposures are also created by the implementation of Alternative 1.

Alternative 1 would support the widest range of future AOC uses. Alternative 2 will not prevent or interrupt the productive use of the Site that is anticipated to be present in the foreseeable future. Installation and maintenance of the engineering/institutional controls under Alternative 2 are all readily implemented.

4.2.7 Costs

Alternative 1 would involve removing from the AOC a significant quantity of soil to meet Unrestricted Use SCOs. Alternative 1 is determined unfeasible based on having to demolish the building in order to implement the remedy. As a result, no cost estimate was developed for this alternative. Implementation of Alternative 2 is estimated to have a capital cost of approximately $20,000 and an annual cost of approximately $5,000 (Table 4-1). The Present Worth cost for Alternative 2 is approximately $121,000 (Table 4-1), based on an estimated 30 year operating life span for the engineering controls (i.e. soil cover system).

Alternative	Capital Cost (A)	Annual Cost	Present Worth Annual Cost (B)	Present Worth (C)
Alternative 2 – Restoration to Commercial Uses with Site Management via Soil Excavation	$20,000	$5,000	$100,942	$121,000

Notes:
Estimated Present Worth (C) = A + B
Estimated Present Worth values rounded to the nearest $1,000.

4.2.8 Land Use

Alternative 1 would allow for all uses including higher uses (i.e. residential) that are not consistent with current zoning or neighboring land uses. Alternative 2 commercial or industrial uses are consistent with the current zoning and neighboring land uses. Current and foreseeable future neighboring land uses are consistent with commercial and industrial uses.

4.2.9 Community Acceptance

Alternative 1 would provide a level of cleanup that exceeds what is necessary to support the AOC's intended commercial or industrial use, such that the additional work required to achieve the necessary cleanup may potentially reduce public acceptance. Alternative 1 would increase the duration of remediation work to excavate soils, cause an increase in construction traffic and noise, and create additional truckloads of soil to be hauled to and from the AOC. These potential nuisances would not be present during implementation of Alternative 2.

Alternative 2 coupled with current, intended, and reasonably anticipated future Site uses is aligned with community development interests.

In order to obtain the necessary community acceptance, the selected approach will be made available for public review and comment prior to initiating remedial activities.

5. AOC-2

5.1 Remedial Alternatives Analysis

As identified in the RAOs, the remedial approach for AOC-2 is focused on groundwater, soil and surface water contaminants and the potential exposures to humans and the environment through direct contact and/or ingestion and the potential migration of contaminants. A portion of AOC-2 is currently in the process of being acquired by GSP and incorporated into the BCP Site. This evaluation of alternatives for AOC-2 is based on the premise that the property will be purchased and incorporated into the BCP Site.

No specific remedial actions are proposed relative to groundwater for this AOC, since RI data and subsequent groundwater monitoring indicate that groundwater impacts are likely limited to the area of AOC-1 and AOC-2. In addition, on-Site and off-Site contact with groundwater is effectively preempted by the fact that the Site, and surrounding areas, are serviced by a municipal water supply.

Data collected during the RI indicate that soils that exceed the applicable Commercial Use SCOs occur throughout AOC-2 ranging from 0- to 6-feet bgs (Table 5-1 and Table 5-4 in Attachment B-1, Table 2 in Attachment B-2, and Figure 4 in Attachment B-3). COPCs in this area are primarily copper and nickel, but total chromium exceeds the applicable SCO in several samples adjacent to the area of release. Potential for direct contact and/or ingestion of these soils is limited due to the current use of this area and limited access due to fencing that surrounds AOC-2; however, remedial action to deal with the area is warranted to meet the remedial goals for AOC-2 to further limit potential exposure and/or migration via surface soils transported in stormwater flows.

Data collected during the RI also indicated that ponded stormwater in the GSP Swale Area previously exceeded applicable New York State Ambient Water Quality standards for total chromium, copper, nickel, and hexavalent chromium (Table 5-7 in Attachment B-1). Once identified, the impacted water was removed from the swale, treated, and discharged to the Onondaga County Waste Water Treatment Facility. The focus is on the mitigation of the potential for contaminated soils to migrate via stormwater flows in the swale and be transported downstream to other areas.

This RAA identifies and compares two (2) potential AOC remedies. In accordance with DER-10, the alternatives to be evaluated are: Restoration to Pre-Disposal or Unrestricted Conditions, and Restoration to Commercial Use with Site Management, which would allow for a commercial or industrial use of the AOC.

The proposed alternatives are each evaluated and compared in terms of nine (9) specific criteria identified in 6 NYCRR Part 375-1.8(f), including:

- Compliance with SCGs
- Protection of human health and the environment
- Short-term impact and effectiveness
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of contamination
- Implementability
- Cost effectiveness

- Land use
- Community acceptance.

The ninth criterion, community acceptance, will be further evaluated during public comment periods when feedback may be provided in relation to the proposed remedial alternative. The selected remedial alternative should produce a tangible benefit to the local community by achieving RAOs consistent with the current and reasonably anticipated future use of the AOC. The following is an overview of each alternative and a comparative evaluation of the two (2) alternatives for the AOC, with respect to the nine (9) evaluation criteria.

5.1.1 Restoration to Pre-Disposal or Unrestricted Conditions Alternative

A Restoration to Pre-Disposal or Unrestricted Conditions alternative would maximize the range of potential land use scenarios for AOC-2. This alternative would require a remedial approach that would result in no further restrictions to AOC-2 use (i.e. the level of cleanup should permit all types of future reuse scenarios) and no institutional/engineering controls to address exposure and achieve the RAOs. However, it would allow for short-term groundwater use restrictions to be placed on AOC-2.

A Restoration to Pre-Disposal or Unrestricted Conditions alternative requires that AOC-2 remediation be completed to meet Unrestricted Use SCOs, thereby meeting SCGs for soils. This would permanently remove the volume of contaminated soils that exists in AOC-2 by requiring excavation of soil to an estimated depth of 0.5- to 8-feet bgs (Figure 5-1) across the majority of the AOC to achieve Unrestricted Use SCOs. The excavation of soils from this area would entail removal of approximately 2,700 cubic yards of soils. This would require that a remedial design be prepared for the AOC and submitted to NYSDEC for review and acceptance, as well as preparation of contract documents and selection of a contractor. To accomplish this alternative, groundwater and surface water would need to be managed, excavated soils would need to be transported and disposed of off-site, and an equivalent amount of off-site soil would need to be imported to the AOC to reestablish grades and promote drainage. It is assumed that the backfill soil would include general soil fill overlain by 4-inches of topsoil, which would be seeded to establish vegetative cover in areas that will not be underwater. The general soil fill must meet the following criteria:

- Requirements set forth in 6 NYCRR Part 375-6.7(d) and DER-10 Section 5.4(e)
- Be free of extraneous debris or solid waste
- Consist of soil or other unregulated material as set forth in 6 NYCRR Part 360
- Will not exceed the allowable constituent levels for imported fill or soil for the use of the AOC (Unrestricted Use SCOs).

Once the remedial action is completed, a FER would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Work Plan. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State.

This alternative would eliminate the potential risk associated with ingestion and/or direct human contact with contaminated soil by removing contaminated media from the AOC.

For this remedy, groundwater and surface water would need to be managed during excavation. Excavated soil would need to be transported to a facility permitted to receive and manage the soil, which would generate increased truck traffic on local roadways. An equivalent amount of off-site soil would need to be hauled to the AOC to backfill the excavation, which would add to the increased truck traffic.

This remedy would create short-term potential exposure risks associated with groundwater and surface water management, soil excavation, off-site transport and disposal of contaminated soil, and transport of clean soil fill to the AOC; however, long-term risks would be mitigated.

It is estimated that the Restoration to Pre-Disposal or Unrestricted Conditions alternative would have a capital cost of approximately $763,000 (Table 5-1) to implement and no ongoing annual costs (Table 5-1) associated with the AOC once this alternative is completed. Therefore, the Present Worth of this alternative would be approximately $763,000, based on an estimated 30-year operating life (Table 5-1).

5.1.2 Restoration to Commercial Uses with Site Management Alternative

The Restoration to Commercial Uses with Site Management alternative requires that AOC-2 remediation be completed to meet Commercial Use SCOs with the placement of soil cover engineering controls, thereby meeting SCGs for soils. Because the AOC-2 area has exceedances of Commercial Use SCOs in the top 1 foot of soil (Figure 5-3), it is proposed to remove the top 1 foot of soil and replace it with clean off-site fill to preclude the potential for migration of potentially impacted surface soils via stormwater flows. This alternative would require that a remedial design be prepared for the AOC and submitted to NYSDEC for review and acceptance, as well as preparation of contract documents and selection of a contractor.

This alternative would remove the top 1 foot of soil from the majority of AOC-2 (Figure 5-4). The excavation of soils from this area would entail removal of approximately 500 cubic yards of soil. Stormwater and groundwater, if encountered, would need to be managed during excavation. Because of the shallow excavation (1 foot), it is less likely that groundwater will be encountered based on measured depths to groundwater in monitoring wells at the Site. Excavated soils would need to be disposed of off-site at a facility permitted to accept the material. A soil cover engineering control would be placed over the excavated area to a depth of 1 foot. Backfill would include placement of a demarcation layer overlain by either 1 foot of granular stone material as a drainage layer or 1 foot of general soil fill including a minimum of 4-inches of topsoil, which would be seeded to promote vegetative cover. The soil cover would be graded to promote positive drainage towards the existing catch basin inlet. The soil cover fill material must meet the following criteria:

- Requirements set forth in 6 NYCRR Part 375-6.7(d) and DER-10 Section 5.4(e)
- Be free of extraneous debris or solid waste
- Consist of soil or other unregulated material as set forth in 6 NYCRR Part 360
- Will not exceed the allowable constituent levels for imported fill or soil for the use of the AOC (Restricted-Residential Use SCOs).

This alternative for AOC-2 would also include the following:

- Engineering Controls – Engineering controls for the AOC would include the soil cover engineering control to preclude potential human and wildlife contact with contaminated soils that may remain in place (Figure 5-5). The soil cover engineering control will consist of a demarcation layer overlain by a minimum of 1-foot of clean soil. The requirements for maintaining the engineering control (i.e. soil cover) will be described in a SMP, which will be referenced in the Environmental Easement. The Environmental Easement and SMP will require on-going annual certification of the engineering controls effectiveness, unless otherwise provided in writing by the NYSDEC. The annual certification will be signed by a Professional Engineer or by a qualified environmental professional as approved by the NYSDEC. For purposes of this RAA, the assumed life span of the engineering control is 30 years.

- Institutional Controls – Institutional controls recorded in the form of an Environmental Easement for the controlled property would:
  - Require that the remedial party or Site owner complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8(h)(3)
  - Allow the use and development of the controlled property for commercial or industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws
  - Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County Department of Health
  - Prohibit agriculture or vegetable gardens on the controlled property
  - Require compliance with the Department approved SMP.
- Environmental Easement - As part of the Environmental Easement, a SMP would be prepared to address how AOC-2 remaining soil and groundwater would be characterized and handled for any future ground intrusive work that takes place in the AOC after the remedial action is complete. The SMP would also specify how the engineering controls (i.e. soil cover) are to be periodically inspected, maintained, and certified to preclude potential exposure to AOC contaminants.
- These engineering/institutional controls will be identified in the Environmental Easement filed with the Onondaga County Clerk's Office within 30 days of the NYSDEC's acceptance of the Environmental Easement. A copy will be provided to NYSDEC certifying that the Environmental Easement was recorded by the County Clerk.

The combination of soil excavation and implementation of engineering/institutional controls would meet the stated RAOs for this AOC and support the current, intended, and reasonably anticipated future uses of the AOC.

Once the remedial action is completed, an FER would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Work Plan. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State. A SMP would also need to be prepared that outlines ongoing AOC inspection, maintenance, and reporting requirements.

This alternative would mitigate the potential risk associated with direct human contact and/or ingestion of contaminated soil by removing a portion of the volume of contamination, placement of a soil cover engineering control, and implementation of an Environmental Easement. This alternative would also provide a benefit in relation to potential wildlife exposure by removing a portion of the contaminated media from the AOC and installing a soil cover engineering control.

For this remedy, stormwater would need to be managed during excavation. Groundwater could be encountered and will need to be managed as needed. Excavated soil would need to be transported to a facility permitted to receive and manage the soil, which would generate increased truck traffic on local roadways. An equivalent amount of off-site soil would need to be imported to the AOC to backfill the excavation, which would further add to the increased truck traffic. However, these impacts would be greatly reduced for this alternative compared to the Restoration to Pre-Disposal or Unrestricted Conditions alternative based on the lesser volume of material that would need to be managed and disposed of and brought on-Site.

This remedy would create short-term risks associated with groundwater and surface water management, soil excavation, off-site transport and disposal of contaminated soil, and transport of clean soil fill to the AOC. However, these risks would be greatly reduced compared to Alternative 1 and long-term risk due to potential contact with contaminated soil would be effectively mitigated.

It is estimated that the Restoration to Commercial Uses with Site Management alternative would have a capital cost of approximately $260,000 (Table 5-1) to implement and an ongoing annual cost of approximately $31,000 (Table 5-1) to maintain, inspect, and report on the soil cover engineering control. Based on these estimates, the Present Worth of this alternative would be approximately $484,000 (Table 5-1).

5.2 Evaluation of Remedial Alternatives

This evaluation of alternatives compares the Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1) and the Restoration to Commercial Uses with Site Management (Alternative 2) alternatives.

In accordance with BCP guidance, the selected remedy will provide protection of public health and the environment, taking into account the current, intended, and reasonably anticipated future land uses of the Site.

An evaluation has been prepared to identify a suitable remedial action in accordance with 6 NYCRR Part 375-1.10(c)(1-6). In the specific context of the contemplated end use of the AOC, the selected remedy should be:

- Consistent with applicable SCGs
- Protective of public health and the environment
- Effective for both short-term and long-term
- Able to reduce toxicity, mobility, and volume of the hazardous constituents
- Feasible from implementability and cost effectiveness perspectives
- Reasonably anticipated to be acceptable to the local community.

5.2.1 Compliance with Standards, Criteria, and Guidance

A review of the SCGs documents pertinent to AOC specific conditions has been completed. The SCGs for soil are the 6 NYCRR Part 375-6.8(b) Unrestricted Use SCOs for Alternative 1 and the Commercial Use SCOs for Alternative 2. Alternative 1 will meet the SCGs for all soil within the AOC boundary. Alternative 2 will comply with soil SCGs for the designated use of the AOC.

Since RI analytical data indicate groundwater quality is not significantly impacted by the release, it is unlikely that additional soil removal required to meet Unrestricted Use SCOs would provide a measurable improvement in groundwater quality compared to the soil removal required by Alternative 2. In addition, both Alternative 1 and Alternative 2 can restrict groundwater use at the AOC to eliminate any potential human exposure to groundwater impacts, which makes them equally protective, and the Site and surrounding areas are serviced by a municipal water supply.

5.2.2 Protection of Human Health and the Environment

Both Alternative 1 and Alternative 2 are protective of human health and the environment. Alternative 1 would remove soil contamination to meet soil SCGs, whereas Alternative 2 would leave some subsurface soils in place above Unrestricted Use SCOs below engineering controls, where it will not be readily accessible to humans or wildlife. The SMP under Alternative 2 will provide further protection during potential future intrusive activities in the AOC against exposure to potentially contaminated soil and groundwater.

Both Alternative 1 and Alternative 2 permit groundwater use restrictions and are equally protective of human health relative to groundwater exposure. As previously noted, AOC-2 groundwater is impacted by the release in an isolated area of AOC-2, so the significant soil removal required to meet Unrestricted Use SCOs is not likely to produce a measurable improvement to groundwater quality compared to the soil removal required by Alternative 2 coupled with restrictions on groundwater use. In addition, groundwater is not used on-Site since the Site and surrounding area are serviced by a municipal water supply.

5.2.3 Short-Term Effectiveness

Alternative 1 would require management of groundwater and surface water, excavation of soils that exceed Unrestricted Use SCOs, and placement of clean fill to return the area to original grade and promote drainage. Alternative 2 would require management of groundwater and surface water, excavation of soils from the top 1 foot, placement of a demarcation layer, and placement of clean fill to return the area to original grade and promote drainage.

Future construction activities, if any, could potentially involve contact with groundwater and surface water and excavation and disturbance of subsurface soils or fill material that are left in place under Alternative 2. However, this alternative has less potential for short-term exposure to workers and the community than Alternative 1 due to the reduced volume and duration of soil excavation required to implement the remedy.

The risk of future exposure would be lower after remediation under Alternative 1 than Alternative 2. However, this is offset by a relatively greater exposure risk during implementation of Alternative 1 since more soil would need to be excavated and transported off-site for disposal at a solid waste permitted facility under this alternative. Each proposed alternative would include a HASP and CAMP to identify requirements for action levels, personal protective equipment, and emergency procedures to address potential short-term impacts during soil excavation and backfilling, which makes them both equally protective of workers over the short-term. The SMP under Alternative 2 will ensure during potential future ground intrusive activities, if any, that encounter soil, groundwater, and surface water in the AOC is properly characterized and managed in order to address potential exposure issues to AOC contaminants, and would also require implementation of the HASP and CAMP during future ground intrusive activities in the AOC.

The potential exists for airborne contamination to be released from the AOC under both the alternatives; however, the potential for airborne release is greater under Alternative 1 than Alternative 2 since the amount of excavation would be more extensive and occur over a longer period of time.

Airborne release potentially includes particulate (i.e. dust). During excavation activities, under either of the alternatives, potential airborne releases will be mitigated by control measures put in place. Dust control measures may include wetting of travel areas that are exposed to soil surfaces that are prone to produce airborne dust. Under both alternatives, the implementation of a CAMP during excavation activities would monitor airborne dust that could potentially migrate beyond the AOC and provide a means to identify controls that need to be implemented, if any.

Another short-term impact under both alternatives would be the increase in truck traffic on local roads as a result of hauling excavated soil from the AOC and hauling clean fill to the AOC. This impact would be of a lesser extent under Alternative 2 than Alternative 1. The increased truck traffic required by Alternative 1 could have a negative impact on local roadways and community acceptance.

5.2.4 Long-Term Effectiveness and Performance

Both Alternative 1 and Alternative 2 provide a long-term and effective solution to AOC contamination, and will reduce human and environmental exposure to COPCs. Alternative 1 would provide a permanent solution due to the removal of all soils that do not meet Unrestricted Use SCOs.

Alternative 2 will require engineering/institutional controls to be recorded with the deed to the property via an Environmental Easement. This remedy is considered equally as effective and permanent as an Unrestricted Use remedy for the AOC based on the current, intended, and reasonably anticipated future commercial use. The SMP will be referenced in the Environmental Easement and will require annual certifications of all controls and implementation of the SMP.

5.2.5 Reduction of Toxicity, Mobility, and Volume

Alternative 1 would result in a greater reduction in the volume of soil COPCs in the AOC compared to Alternative 2, but it may not have a measurable effect on toxicity of soil COPCs since both alternatives effectively mitigate exposure. Although Alternative 1 removes the potentially contaminated soil from the AOC for off-site disposal, it does not effectively reduce the toxicity or volume of the inorganic contaminants, especially as they will likely be landfilled. During implementation of Alternative 1 the mobility of soil COPCs may be temporarily higher than that for Alternative 2 since it will require more extensive excavation and transportation of soils. Following implementation of Alternative 1, mobility of AOC contaminants at the Site will be lower than under Alternative 2 since all contaminants will be removed to Unrestricted Use SCOs.

Based on RI data, the soil COPCs have not significantly impacted groundwater as evidenced by concentrations detected in groundwater monitoring wells. Groundwater quality may improve further following soil removal; however, neither alternative would likely have a significant impact on the toxicity or volume of COPCs identified in groundwater.

5.2.6 Implementability

Technical and administrative tasks required to implement both the alternatives are all achievable. However, the implementation of Alternative 1 is not cost-effective relative to the primary use of AOC-2 as a stormwater drainage swale relative to the elevated costs and extensive amount of time associated with handling, transporting, treating, and disposing of groundwater, stormwater, and soil. Alternative 1 is also more difficult to implement than Alternative 2 owing to more extensive remedial activity that would likely be required to meet SCOs and potential impacts to the local community (i.e. truck traffic, noise, etc.). The removal of all potentially impacted soil may also be restricted by proximity to the buildings foundation, proximity to the property boundary, and presence of underground utilities. Excavations beyond four feet in depth along the entire length of the building, as proposed for Alternative 1, could have the potential to undermine or structurally compromise the building during remedial excavation activities. Management of groundwater and surface water, excavation of soils, and installation and maintenance of the engineering/institutional controls under Alternative 2 are all readily implemented.

Alternative 1 would support the widest range of future AOC uses. Under Alternative 2 institutional controls will apply, but will not prevent the productive end use of the AOC that is currently anticipated. GSP will have to acquire the property that encompasses AOC-2 and incorporate the property into the BCP Site. This process is feasible and is underway with the anticipated purchase of the property prior to implementation of the AOC-2 remedy.

5.2.7 Costs

Alternative 1 would involve removing from the AOC approximately 2,700 cubic yards of soil compared to Alternative 2, which will require removal of approximately 459 cubic yards of soil to meet Commercial Use SCOs. There would be no annual maintenance costs associated with Alternative 1; however, there would be a significant capital cost of approximately $763,000, which means the estimated Present Worth cost is approximately $763,000 (Table 5-1). Alternative 2 is estimated to have a capital cost of approximately $260,000 to implement and an annual cost of approximately $31,000 to monitor, inspect, maintain, and certify the engineering controls (Table 5-1). The Present Worth cost for Alternative 2 is estimated to be approximately $484,000 (Table 5-1), based on an estimated 30 year operating life span for the engineering controls (i.e. soil cover system).

Alternative	Capital Cost (A)	Annual Cost	Present Worth Annual Cost (B)	Present Worth (C)
Alternative 1 – Restoration to Pre-Disposal or Unrestricted Conditions	$763,000	$0	$0	$763,000
Alternative 2 – Restoration to Commercial Uses with Site Management	$260,000	$31,000	$224,000	$484,000

Notes:
Estimated Present Worth (C) = A + B
Estimated Present Worth values rounded to the nearest $1,000.

5.2.8 Land Use

Alternative 1 would support an end use (i.e. residential) that is not consistent with current zoning or neighboring land uses. Alternative 2 has an end use that is consistent with the current zoning and neighboring land uses. Neighboring land uses are consistent with commercial and industrial uses and the majority of the AOC is associated with stormwater conveyance.

5.2.9 Community Acceptance

Alternative 1 would provide a level of cleanup that exceeds what is necessary to support the AOC's intended use, such that the additional work required to achieve the necessary cleanup may potentially reduce public acceptance. Alternative 1 would increase the duration of remediation work to manage groundwater and surface water and to excavate soils, cause an increase in construction traffic and noise, and create additional truckloads of soil to be hauled to and from the AOC. These potential nuisances would be to a significantly lesser degree and have a shorter duration for Alternative 2.

Alternative 2 coupled with current, intended, and reasonably anticipated future AOC uses is aligned with community development interests. It is therefore anticipated that a commercial use with institutional and engineering controls will receive a favorable response from the local community. In order to obtain the necessary community acceptance, the selected approach will be made available for public review and comment prior to initiating.

6. AOC-3

6.1 Remedial Alternatives Analysis

As identified in the RAOs, the remedial approach for AOC-3 is focused on soil and sediment contaminants and the potential exposures to humans and the environment through direct contact and/or ingestion. Data collected during the RI indicate that one (1) subsurface soil sample at approximately 5.5- to 6.5-feet bgs (GSP-348) in proximity to AOC-3 and in an area adjacent to Bridge Street exceeded the Commercial Use SCOs for copper and nickel and the Unrestricted Use SCOs for copper, nickel, zinc, and total chromium. In addition, one other sample at a depth of 5-5.5 feet bgs in the same general vicinity (GSP-349) had an exceedance of the Unrestricted Use SCOs for hexavalent chromium (1.12 mg/kg versus the SCO of 1 mg/kg) and for zinc. Other soil samples collected associated with AOC-3 were below Unrestricted Use SCOs. As mentioned previously, zinc was not identified as a metal directly associated with the GSP release. Potential for direct contact and/or ingestion of these residual solids associated with AOC-3 is limited by the fact that they occur in the subsurface and are contained in a stormwater conveyance pipe. However, the potential for transport of contaminants adsorbed to soil particles in the pipe and discharge into the Bridge Street Swale is a potential mechanism for contaminants to migrate to areas where potential exposure could occur (AOC-4).

Based on the isolated soil sample, which was not immediately adjacent to AOC-3 stormwater pipe, with exceedances of copper and nickel no remedial actions relative to AOC-3 soil or groundwater are proposed. The remedial alternatives will focus on the residual solids that have settled in the stormwater pipe and catch basins associated with AOC-3. . This RAA identifies and compares potential AOC remedies. In accordance with DER-10, the alternatives to be evaluated are: Restoration to Pre-Disposal or Unrestricted Conditions and No Further Action, which would allow for the ongoing current Use of this AOC as a stormwater conveyance. The Emergency Remedial Work Plan (GHD, June 2013) included the flushing and removal of solids from the catch basins and culvert pipe from the GSP swale catch basin to the Bridge Street discharge. The summary of the emergency remedial activities were documented in a Construction Completion Report (GHD, January 2016) that was submitted to the NYSDEC and NYSDOH for review and approval. The inspection of the catch basins during the supplemental sampling activities completed during August 2016 did not identify any appreciable accumulation of sediment in the sump of the catch basins.

The proposed alternatives are each evaluated and compared in terms of nine (9) specific criteria identified in 6 NYCRR Part 375-1.8(f), including:

- Compliance with SCGs
- Protection of human health and the environment
- Short-term impact and effectiveness
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of contamination
- Implementability
- Cost effectiveness
- Land use
- Community acceptance.

The ninth criterion, community acceptance, will be further evaluated during public comment periods when feedback may be provided in relation to the proposed remedial alternative. The selected remedial alternative should produce a tangible benefit to the local community by achieving RAOs consistent with the current and reasonably anticipated future use of the AOC.

The following is an overview of each alternative and a comparative evaluation of the two (2) alternatives for the AOC, with respect to the nine (9) evaluation criteria.

6.1.1 Restoration to Pre-Disposal or Unrestricted Conditions Alternative

A Restoration to Pre-Disposal or Unrestricted Conditions alternative would maximize the range of potential land use scenarios for AOC-3. This alternative would require a remedial approach that would result in no restrictions to AOC-3 use (i.e. the level of cleanup should permit all types of future reuse scenarios) and no institutional/engineering controls to address exposure and achieve the RAOs.

A Restoration to Pre-Disposal or Unrestricted Conditions alternative requires that AOC-3 remediation be completed to meet Unrestricted Use SCOs, thereby meeting SCGs for soils. This would permanently remove soils that exists in AOC-3 to achieve Unrestricted Use SCOs, to an estimated depth of 6.5-feet bgs (Figure 6-1). This would require that a remedial design be prepared for the AOC and submitted to NYSDEC for review and acceptance, as well as preparation of contract documents and selection of a contractor. To accomplish this alternative, access to off-site properties would need to be obtained, stormwater and groundwater would need to be managed, excavated soil would need to be transported and disposed of off-site, and an equivalent amount of off-site soil would need to be imported to the AOC to reestablish grades and promote drainage. The general soil fill must meet the following criteria:

- Requirements set forth in 6 NYCRR Part 375-6.7(d) and DER-10 Section 5.4(e)
- Be free of extraneous debris or solid waste
- Consist of soil or other unregulated material as set forth in 6 NYCRR Part 360
- Will not exceed the allowable constituent levels for imported fill or soil for the use of the AOC (Unrestricted Use SCOs).

This alternative would also require that the buried culvert pipe and associated catch basins be cleaned to remove potentially impacted sediments and water. It is anticipated that the cleaning process would begin at the southern end of the buried culvert pipe (northern edge of AOC-2) and progress north from one catch basin to the next. The culvert pipe and catch basins would be cleaned by pressure washing until sediment is removed and water reaches an acceptable turbidity, as determined by visual inspection in the field. Water and sediments would be pumped from the catch basins with a vacuum truck and staged in containers awaiting characterization and proper off-site disposal and/or treatment. Following cleaning of the buried culvert pipe and catch basins, the southern-most catch basin (located within AOC-2) would be replaced since it is currently in a state of disrepair (Catch Basin 1 on Figure 4 in Attachment B-3). The replacement of the catch basin could be completed during excavation activities being proposed as an element of the remedy associated with AOC-2.

Once the remedial action is completed, a FER would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Work Plan. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State.

This alternative would eliminate the potential risk associated with ingestion and/or direct human contact with contaminated soil and residual solids, and would provide a benefit in relation to potential wildlife exposure by removing contaminated media from the AOC.

For this remedy, excavated soil, staged stormwater and groundwater, and staged sediment would need to be transported to a facility permitted to receive and manage the material, which would generate increased truck traffic on local roadways. An equivalent amount of off-site soil would need to be hauled to the AOC to backfill the excavation, which would add to the increased truck traffic.

This remedy would create short-term risks associated with stormwater and groundwater management, soil excavation, cleaning the buried culvert pipe and catch basins, off-site transport and disposal of contaminated soil, water, and sediment, and transport of clean soil fill to the AOC; however, long-term risks would be mitigated.

It is estimated that the Restoration to Pre-Disposal or Unrestricted Conditions alternative would have a capital cost of approximately $559,000(Table 6-1) to implement; however, there would be no ongoing annual costs associated with the AOC once this alternative is completed. Therefore, the Present Worth of this alternative would be approximately $559,000.

6.1.2 No Further Action Alternative

The No Further Action alternative would allow for the current and continued use of the AOC as a stormwater conveyance feature and would be protective of human health and the environment since the buried culvert pipe and catch basins were already flushed of their residual solids during the Emergency Remedial Measures previously complete.

The previous cleaning of the buried culvert pipe and catch basins meets the stated RAOs for this AOC and supports the current, intended, and reasonably anticipated future uses of the AOC as a stormwater conveyance pipe maintained by the Town of DeWitt.

An FER needs to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Work Plan (Emergency Remedial Work Plan, GHD, June 2013). The FER would summarize the remedial activities as documented in the Construction Completion Report, (GHD January 2016) and would be certified by a Professional Engineer licensed in New York State.

This alternative would mitigate the potential risk associated with direct human contact and/or ingestion of contaminated residual solids. This alternative also provides a benefit in relation to potential fish and wildlife exposure as the potentially contaminated media from the buried culvert pipe and catch basins were flushed and removed from the pipe.

The No Further Action alternative would have no additional capital costs to implement and no ongoing annual costs associated with the AOC.

6.2 Evaluation of Remedial Alternatives

This evaluation of alternatives compares the Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1) and the No Further Action (Alternative 2) alternatives.

In accordance with BCP guidance, the selected remedy will provide protection of public health and the environment, taking into account the current, intended, and reasonably anticipated future land uses of the AOC.

An evaluation has been prepared to identify a suitable remedial action in accordance with 6 NYCRR Part 375-1.10(c)(1-6). In the specific context of the contemplated end use of the AOC, the selected remedy should be:

- Consistent with applicable SCGs
- Protective of public health and the environment
- Effective for both short-term and long-term
- Able to reduce toxicity, mobility, and volume of the hazardous constituents
- Feasible from implementability and cost effectiveness perspectives
- Reasonably anticipated to be acceptable to the local community.

6.2.1 Compliance with Standards, Criteria, and Guidance

A review of the SCGs documents pertinent to AOC specific conditions has been completed. The SCGs for soil are the 6 NYCRR Part 375-6.8(b) Unrestricted Use SCOs for Alternative 1. Alternative 2 remedial approach was the removal of solid residue in the culvert pipe and catch basins and does not have applicable SCGs. Alternative 1 will meet the SCGs for all soil within the AOC boundary.

6.2.2 Protection of Human Health and the Environment

Both Alternative 1 and Alternative 2 are protective of human health and the environment. Alternative 1 would remove soil contamination to meet soil SCGs. Alternative 2 would leave subsurface soils identified at two sample locations adjacent to Bridge Street in place above Unrestricted Use SCOs, where it will not be accessible to humans or wildlife.

6.2.3 Short-Term Effectiveness

Alternative 1 would require excavation of soils that exceed Unrestricted Use SCOs and placement of clean fill to return the area to original grade and promote drainage. Future construction activities, if any, could potentially involve excavation and disturbance of subsurface soils or fill material that are left in place under Alternative 2; however, this alternative has less potential for short-term exposure to workers and the community than Alternative 1 due to no need for soil excavation to implement the remedy.

The risk of future exposure would be lower after remediation under Alternative 1 than Alternative 2. However, this is offset by a relatively greater exposure risk during implementation of Alternative 1 since more stormwater and groundwater would need to be managed and more soil would need to be excavated and transported off-site for disposal at a solid waste permitted facility under this alternative. The potential exists for airborne contamination to be released in the form of particulates (i.e., dust) from the AOC under Alternative 1 due to excavation of soils and a longer duration for the work.

During excavation activities, potential airborne releases can be mitigated by control measures that could be put in place. Dust control measures may include wetting of travel areas that are exposed to soil surfaces that are prone to produce airborne dust. The implementation of a CAMP during excavation activities would monitor airborne dust that could potentially migrate beyond the AOC and provide a means to identify what controls need to be implemented.

Another short-term impact under Alternative 1 would be the increase in truck traffic on local roads as a result of hauling excavated soil or solids and flushing water from the AOC and hauling clean fill to the AOC. This impact would not exist under Alternative 2. The increased truck traffic required by Alternative 1 could have a negative impact on local roadways and the local community.

6.2.4 Long-Term Effectiveness and Performance

Both Alternative 1 and Alternative 2 provide a long-term and effective solution to AOC-3 contamination, and will reduce human and environmental exposure to COPCs. Alternative 1 would provide a permanent solution due to the removal of all soils that do not meet Unrestricted Use SCOs. Alternative 2 included the removal of residual solids from the pipe and catch basin to preclude migration to downstream areas and potential exposure to workers during future maintenance activities.

6.2.5 Reduction of Toxicity, Mobility, and Volume

Alternative 1 would result in a greater reduction in the volume of soil COPCs in the AOC compared to Alternative 2, but it may not have a measurable effect on toxicity of soil COPCs compared to Alternative 2 since both alternatives effectively mitigate exposure. During implementation of Alternative 1 the mobility of soil COPCs may be temporarily higher than that for Alternative 2 since Alternative 1 will require more extensive excavation and transportation of soils. Following implementation, mobility of AOC contaminants under Alternative 1 and 2 would be similar as both would remove contaminants that could migrate within the pipe to downstream locations.

6.2.6 Implementability

Technical and administrative tasks required to implement the alternatives are all achievable. However, the implementation of Alternative 1 would likely not be cost-effective for the planned end use of the AOC, due to costs and an extensive amount of time associated with handling, transporting, treating, and disposing of large volumes of stormwater, groundwater, and soil and having to obtain access to off-site properties in order to implement the remedial activities. Alternative 1 is also more difficult to implement than Alternative 2 owing to more extensive remedial activity that would likely be required to meet SCOs and potential negative impacts to the local community (i.e. truck traffic, noise, etc.). The removal of all potentially impacted soil may also be restricted by proximity to buildings, roadways, and the presence of underground utilities. More significant short-term exposures are also created by the implementation of Alternative 1.

Alternative 1 would support the widest range of future AOC uses. Under Alternative 2 the current and anticipated use of the AOC as a stormwater conveyance feature would be maintained.

6.2.7 Costs

Alternative 1 would involve removing from the AOC soil to meet Unrestricted Use SCOs There would be no annual costs associated with Alternative 1; however, there would be a significant capital cost of approximately $559,000, which means the estimated Present Worth cost is approximately $559,000 (Table 6-1). Alternative 2 will have no additional capital costs since the flushing of the culvert pipe and catch basins was already completed as part of the Emergency Remedial Actions associated with previous development of a portion of AOC-4. The significant cost of Alternative 1 would likely make it cost prohibitive for the intended future use of the AOC.

Alternative	Capital Cost (A)	Annual Cost	Present Worth Annual Cost (B)	Present Worth (C)
Alternative 1 – Restoration to Pre-Disposal or Unrestricted Conditions	$559,000	$0	$0	$559,000
Alternative 2 – No Further Action	$0	$0	$0	$0

Notes:
Estimated Present Worth (C) = A + B
Estimated Present Worth values rounded to the nearest $1,000.

6.2.8 Land Use

Alternative 1 would support an end use that is not consistent with current zoning or neighboring land uses. Alternative 2 has an end use that is consistent with the current zoning and neighboring land uses and would allow for the continued us of the AOC for stormwater conveyance. Neighboring land uses are consistent with commercial and industrial uses.

6.2.9 Community Acceptance

Alternative 1 would provide a level of cleanup that exceeds what is necessary to support the AOC's intended use, such that the additional work required to achieve the necessary cleanup may potentially reduce public acceptance. Alternative 1 would increase the duration of remediation work to manage stormwater and groundwater, excavate soils, cause an increase in construction traffic and noise, and create additional truckloads of soil to be hauled to and from the AOC.

Alternative 2 coupled with current, intended, and reasonably anticipated future AOC uses is aligned with community development interests. In order to obtain the necessary community acceptance, the selected approach will be made available for public review and comment prior to initiating.

7. AOC-4

7.1 Remedial Alternatives Analysis

As identified in the RAOs, the remedial approach for AOC-4 is focused on soil/sediment and surface water contaminants and the potential exposures to humans and the environment through direct contact and/or ingestion and the potential migration of contaminants downstream. Data collected during the RI and subsequent investigations indicated that soils that exceed the applicable Protection of Ecological Resources SCOs occur in areas of AOC-4 ranging from 0- to 24-inches bgs (Figures 13A and 13B in Attachment B-2). Contaminants of concern in this area are primarily total chromium, copper, nickel, and zinc, and to a lesser extent, hexavalent chromium. Potential for direct contact and/or ingestion of these soils is limited; however, remedial action to deal with the area is warranted to meet the remedial goals for AOC-4.

Data collected during the RI and subsequent investigations also indicated that at the time of sampling surface water exceeded applicable New York State Ambient Water Quality standards for total chromium, copper, nickel, and hexavalent chromium (Tables 5-9 and 5-10 in Attachment B-1). Once identified, the impacted surface water was removed from the swale, treated, and discharged to the Onondaga County Waste Water Treatment Facility. Confirmatory surface water samples indicated that surface water exceeds applicable New York State Ambient Water Quality standards for total chromium, copper, nickel, and hexavalent chromium; however, the magnitude of the impacts is greatly reduced from that identified in initial samples. No specific remedial actions are proposed relative to surface water for this AOC at this time.

The Emergency Remedial Work Plan (GHD, June 2103) included the excavation and removal of soils from a portion of the Bridge Street Swale that is in proximity to the Community Bank development adjacent to Bridge Street. The NYSDEC required that the soils in the Bridge Street Swale be removed to achieve Protection of Ecological Resources SCOs in those areas that would not be backfilled during construction of the bank. This RAA identifies and compares two (2) potential AOC remedies, in accordance with DER-10 and the NYSDEC requirement for soil removal associated with the Community Bank development. The alternatives to be evaluated are: Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1) and Restoration to Protection of Ecological Resources Conditions (Alternative 2).The RI and subsequent investigations data indicated that concentrations of the metals of concern were inconsistent and highly variable, especially in the downstream sections of the swale in the vicinity of Route 690.

The proposed alternatives are each evaluated and compared in terms of nine (9) specific criteria identified in 6 NYCRR Part 375-1.8(f), including:

- Compliance with SCGs
- Protection of human health and the environment
- Short-term impact and effectiveness
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume of contamination
- Implementability
- Cost effectiveness
- Land use

- Community acceptance.

The ninth criterion, community acceptance, will be further evaluated during public comment periods when feedback may be provided in relation to the proposed remedial alternative. The selected remedial alternative should produce a tangible benefit to the local community by achieving RAOs consistent with the current and reasonably anticipated future use of the AOC.

The following is an overview of each alternative and a comparative evaluation of the two (2) alternatives for AOC-4, with respect to the nine (9) evaluation criteria.

7.1.1 Restoration to Pre-Disposal or Unrestricted Conditions Alternative

A Restoration to Pre-Disposal or Unrestricted Conditions alternative would maximize the range of potential land use scenarios for AOC-4. This alternative would require a remedial approach that would result in no further restrictions to AOC-4 use (i.e. the level of cleanup should permit all types of future reuse scenarios) and no institutional/engineering controls to address exposure and achieve the RAOs.

A Restoration to Pre-Disposal or Unrestricted Conditions alternative requires that AOC-4 remediation be completed to meet Unrestricted Use SCOs, thereby meeting SCGs for soils. This would permanently remove the volume of contaminated soils that exists in AOC-4 by requiring excavation of soil across the majority of the AOC to achieve Unrestricted Use SCOs, to an estimated depth of 0.5- to 2-feet bgs (Figures 7-2a and 7-2b). This would require that a remedial design be prepared for the AOC and submitted to NYSDEC for review and acceptance, as well as preparation of contract documents and selection of a contractor. To accomplish this alternative would entail the following:

- the entire length of the swale would need to be cleared of vegetation and trees
- the swale would need to be dewatered in segments
- access across off-site properties would need to be arranged
- NYS Route 690 traffic controls would need to be implemented during work activities along the right of way
- Staging, access roads and turn around areas would need to be created for trucks and equipment
- excavated soil/sediment ,surface water and groundwater would need to be managed and contained as appropriate
- excavated soil/sediment ,surface water and groundwater would need to be transported and disposed of off-site as appropriate
- clean off-site soil could need to be imported to the AOC to reestablish grades and promote drainage in some areas
- the area above the water line would need to be reseeded to establish vegetation.

It is assumed that the backfill soil would include general soil fill covered with a minimum of 4-inches of topsoil, which would be seeded to establish vegetative cover, in areas that will not be underwater. The general soil fill must meet the following criteria:

- Requirements set forth in 6 NYCRR Part 375-6.7(d) and DER-10 Section 5.4(e)
- Be free of extraneous debris or solid waste

- Consist of soil or other unregulated material as set forth in 6 NYCRR Part 360
- Will not exceed the allowable constituent levels for imported fill or soil for the use of the AOC (Unrestricted Use SCOs).

Once the remedial action is completed, a FER would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Design Document. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State.

This alternative would eliminate the potential risk associated with ingestion and/or direct human contact with contaminated soil, and would provide a benefit in relation to potential fish and wildlife exposure by removing contaminated media from the AOC.

For this remedy, soil and surface water would need to be managed and transported to a facility permitted to receive and manage the material, which would generate increased truck traffic on local roadways. Clean off-site soil would need to be hauled to the AOC to backfill the excavation in isolated areas, which would add to the increased truck traffic.

This remedy would create short-term risks associated with soil, surface water and groundwater management, excavation, off-site transport and disposal of contaminated material, and transport of clean soil fill to the AOC; however, long-term risks would be mitigated.

It is estimated that the Restoration to Pre-Disposal or Unrestricted Conditions alternative would have a capital cost of approximately $1,268,000 (Table 7-1) to implement and no ongoing annual costs associated with the AOC once this alternative is completed. Therefore, the Present Worth of this alternative would be approximately $1,268,000 (Table 7-1).

7.1.2 Restoration to Protection of Ecological Resources Conditions Alternative

A Restoration to Protection of Ecological Resources Conditions alternative would ensure protection of ecological resources as well as maximize the range of potential land use scenarios for AOC-4. The NYSDEC has indicated that they would accept the remediation of AOC-4 to achieve Protection of Ecological Resources SCOs. This alternative would require a remedial approach that would result in no further restrictions to AOC-4 use (i.e. the level of cleanup should permit all types of future reuse scenarios) and no institutional/engineering controls to address exposure and achieve the RAOs. For the metals of concern there is, for all intents and purposes, little difference in the remedial approach for Alternative 2 compared to Alternative 1. Effectively for the metals of concern only Total Chromium has a different SCO for Protection of Ecological Resources (42 mg/kg) compared to Unrestricted Use (31 mg/kg).

A Restoration to Protection of Ecological Resources Conditions alternative requires that AOC-4 remediation be completed to meet Protection of Ecological Resources SCOs, thereby meeting SCGs for soils. This alternative essential would entail the same remedial action as Alternative 1. This would permanently remove the volume of contaminated soils that exists in AOC-4 by requiring excavation of soil across the majority of the AOC to achieve Protection of Ecological Resources SCOs, to an estimated depth of 1-feet bgs (Figures 7-4a and 7-4b) with some areas requiring additional excavations to approximately 1.5-feet. The depth of excavation is, in part, based on the experience of soil removal from the swale during the Emergency Remedial Activities associated with the Community Bank development. During those activities the removal of approximately 1-foot bgs was adequate to meet the Protection of Ecological Resources SCOs based on confirmation sampling and analysis. Typically, the concentrations of the metal COPC downstream of the Bridge

Street area were detected at lower concentrations the further away from Bridge Street the samples were taken. This alternative would require that a remedial design be prepared for the AOC and submitted to NYSDEC for review and acceptance, as well as preparation of contract documents and selection of a contractor. To accomplish this alternative, soil, surface water and groundwater would need to be managed and material would need to be transported off-site for disposal. In general, to promote drainage in the swale it is proposed not to backfill soil to pre-excavation elevations. This approach is consistent with the expressed interest of the entities that currently own or manage the swale (Town of DeWitt, National Grid, and NYSDOT) from Bridge Street to the point where it flows under Route 690. Areas of the excavation that will not be underwater would be seeded to establish vegetative cover. . If general soil fill is needed to fill in low spots it must meet the following criteria:

- Requirements set forth in 6 NYCRR Part 375-6.7(d) and DER-10 Section 5.4(e)
- Be free of extraneous debris or solid waste
- Consist of soil or other unregulated material as set forth in 6 NYCRR Part 360
- Will not exceed the allowable constituent levels for imported fill or soil for the use of the AOC (Protection of Ecological Resources SCOs).

Once the remedial action is completed, a FER would need to be prepared that certifies that the remedial action was completed in accordance with an approved Remedial Design Document. The FER would summarize the remedial activities, include laboratory analytical data, and would be certified by a Professional Engineer licensed in New York State.

This alternative would eliminate the potential risk associated with ingestion and/or direct human contact with contaminated soil/sediment, and would provide a benefit in relation to potential fish and wildlife exposure by removing contaminated media from the AOC.

For this remedy, soil and dewatering water would need to be transported to a facility permitted to receive and manage the material, which would generate increased truck traffic on local roadways. Clean off-site soil would need to be hauled to the AOC to backfill the excavation in isolated areas, which could add to the increased truck traffic. These impacts would be similar to impacts under the Restoration to Pre-Disposal or Unrestricted Conditions alternative since both alternatives require an equal amount of excavation.

This remedy would create short-term risks associated with surface water and groundwater management, excavation, off-site transport and disposal of contaminated material, and transport of clean soil fill to the AOC; however, long-term risks would be mitigated.

It is estimated that the Restoration to Protection of Ecological Resources Conditions alternative would have a capital cost of approximately $1,268,000 (Table 7-1) to implement and no ongoing annual cost associated with the AOC once this alternative is completed. Therefore, the Present Worth of this alternative would be approximately $1,268,000 (Table 7-1).

7.2 Evaluation of Remedial Alternatives

This evaluation of alternatives compares the Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1) and the Restoration to Protection of Ecological Resources Conditions (Alternative 2) alternatives.

In accordance with BCP guidance, the selected remedy will provide protection of public health and the environment, taking into account the current, intended, and reasonably anticipated future land uses of the AOC.

An evaluation has been prepared to identify a suitable remedial action in accordance with 6 NYCRR Part 375-1.10(c)(1-6). In the specific context of the contemplated end use of the AOC, the selected remedy should be:

- Consistent with applicable SCGs
- Protective of public health and the environment
- Effective for both short-term and long-term
- Able to reduce toxicity, mobility, and volume of the hazardous constituents
- Feasible from implementability and cost effectiveness perspectives
- Reasonably anticipated to be acceptable to the local community.

7.2.1 Compliance with Standards, Criteria, and Guidance

A review of the SCGs documents pertinent to AOC specific conditions has been completed. The SCGs for soil are the 6 NYCRR Part 375-6.8(b) Unrestricted Use SCOs for Alternative 1 and the Protection of Ecological Resources SCOs for Alternative 2. Alternative 1 and Alternative 2 will meet the SCGs for soil within the AOC boundary.

7.2.2 Protection of Human Health and the Environment

Each of the two (2) alternatives are protective of human health and the environment. Alternative 1 and Alternative 2 would remove soil contamination to meet soil SCGs. The excavation of the swale will create a short term disturbance of wildlife habitat that can be mitigated by managing the relocation of wildlife that may be encounter in the swale during excavation activities.

7.2.3 Short-Term Effectiveness

Alternative 1 would require excavation of soils that exceed Unrestricted Use SCOs and placement of clean fill in isolated areas to return the area to original grade and promote drainage. Alternative 2 would require excavation of soils that exceed Protection of Ecological Resources SCOs and placement of clean fill in isolated areas to return the area to original grade and promote drainage.

The risk of future exposure would be equal after remediation under Alternative 1 and Alternative 2.

Each proposed alternative would include a HASP and CAMP to identify requirements for action levels, personal protective equipment, and emergency procedures to address potential short-term impacts during soil excavation and backfilling, which makes them both equally effective over the short-term.

The potential exists for airborne contamination to be released from the AOC under both of the alternatives; however, the potential for airborne release is minimized by the fact that the majority of excavation activities will be occurring in drainage swales where wet/moist soils will be encountered.

Airborne releases potentially include particulate (i.e., dust) contaminants. During excavation activities, under either of the alternatives, potential airborne releases will be mitigated by control measures put in place. Dust control measures may include wetting of travel areas that are exposed to soil surfaces that are prone to produce airborne dust. Under both alternatives, the implementation of a CAMP during excavation activities would monitor airborne dust that could potentially migrate beyond the AOC and provide a means to identify what controls need to be implemented.

Another short-term impact under each of the alternatives would be an increase in truck traffic on local roads as a result of hauling excavated soil and collected water from the AOC and hauling clean fill to the AOC. The increased truck traffic required by Alternative 1 and Alternative 2 could have a negative impact on local roadways and community acceptance of the alternative, but the magnitude of the increased traffic would be the same for each alternative.

Alternative 1 and Alternative 2 may also require work within the NYS Route 690 R.O.W. which could increase traffic safety concerns during the implementation of the remedy.

7.2.4 Long-Term Effectiveness and Performance

Alternative 1 and Alternative 2 both provide a long-term and effective solution to AOC contamination, and will reduce human and environmental exposure to COPCs. Alternative 1 would provide a permanent solution due to the removal of all soils that do not meet Unrestricted Use SCOs. Alternative 2 would provide a permanent solution due to the removal of all soils that do not meet Protection of Ecological Resources SCOs.

7.2.5 Reduction of Toxicity, Mobility, and Volume

Alternative 1 and Alternative 2 would result in a greater reduction in the volume of soil COPCs in the AOC, but they may not have a measurable effect on toxicity of soil COPCs. Although both alternatives remove the potentially contaminated soil from the AOC for off-site disposal, neither one effectively reduces the toxicity or volume of the inorganic contaminants, especially as they will likely be landfilled. During implementation of Alternative 1 and Alternative 2 the mobility of soil COPCs may be temporarily higher since Alternative 1 and Alternative 2 will require extensive dewatering and excavation and transportation of soils and water. Following implementation, mobility of AOC contaminants under both alternatives would be lower since the alternatives would not leave contamination in the AOC above the corresponding SCOs.

7.2.6 Implementability

Technical and administrative tasks required to implement the alternatives are all achievable. However, the removal of all potentially impacted soil under both alternatives may be restricted by proximity to the property features, roadways, and presence of underground and overhead utilities. More significant short-term exposures are also created by the implementation of Alternative 1 and Alternative 2.

Alternative 1 and Alternative 2 would support the widest range of future AOC uses and would mitigate future exposure potential.

7.2.7 Costs

Alternative 1 and Alternative 2 would involve removing from the AOC a large quantity of soil to meet Unrestricted Use SCOs or Protection of Ecological Resources SCOs, respectively. The capital costs associated with Alternative 1 and Alternative 2 are the same and are estimated to be approximately $1,268,000 (Table 7-1) and neither of these alternatives have annual costs, which means the estimated Present Worth costs are approximately $1,268,000 for both Alternative 1 and Alternative 2 (Table 7-1).

Alternative	Capital Cost (A)	Annual Cost	Present Worth Annual Cost (B)	Present Worth (C)
Alternative 1 – Restoration to Pre-Disposal or Unrestricted Conditions	$1,268,000	$0	$0	$1,268,000
Alternative 2 – Restoration to Protection of Ecological Resources Conditions	$1,268,000	$0	$0	$1,268,000

Notes:
Estimated Present Worth (C) = A + B
Estimated Present Worth values rounded to the nearest $1,000.

7.2.8 Land Use

Alternative 1 and Alternative 2 would support an end use that is consistent with current zoning or neighboring land uses and that is higher than necessary to allow for the continued use of the AOC as a drainage/stormwater conveyance. Neighboring land uses are consistent with commercial and industrial uses.

7.2.9 Community Acceptance

Alternative 1 and Alternative 2 would provide a level of cleanup that exceeds what is necessary to support the AOC's intended use, such that the additional work required to achieve the necessary cleanup may potentially reduce public acceptance. Alternative 1 and Alternative 2 would increase the duration of remediation work to manage surface water and groundwater and excavate materials, cause an increase in construction traffic and noise, and create additional truckloads of soil and water to be hauled from the AOC. In order to obtain the necessary community acceptance, the selected approach will be made available for public review and comment prior to initiating remedial action.

8. Selected Remedy

8.1 AOC-1

Based on the results of the investigations completed at the AOC, the reasonably anticipated future use of the Site, and the evaluation presented above (Section 4), Alternative 2 – Restoration to Commercial Uses with Site Management, including implementation of engineering/institutional controls pursuant to an Environmental Easement, is the proposed remedy for AOC-1. This remedy is protective of human health and the environment and satisfies the remediation objectives described in Section 3 above, based on the future commercial or industrial use of the Site.

The main elements of the proposed remedy include:

- Establishing the existing concrete floor as a soil cover engineering control
- Inspection of the building's concrete slab for cracks and repairing as necessary
- Preparation and submittal of an FER for NYSDEC and NYSDOH review and approval
- Institutional controls in the form of an Environmental Easement
- Development of a SMP to be filed with an Environmental Easement
- Commercial/industrial use deed restriction filed with the Onondaga County Clerk's Office in the form of an Environmental Easement
- Groundwater use restrictions in the form of an Environmental Easement filed with the Onondaga County Clerk's Office
- Ongoing inspection, maintenance, and reporting on the soil cover system engineering control as defined in the SMP.

8.2 AOC-2

Based on the results of the investigations completed at the AOC, the reasonably anticipated future use of the Site, and the evaluation presented above (Section 5), Alternative 2 – Restoration to Commercial Uses with Site Management, including implementation of engineering/institutional controls pursuant to an Environmental Easement, is the proposed remedy for AOC-2. This remedy is protective of human health and the environment and satisfies the remediation objectives described in Section 3 above, based on the future commercial or industrial use of the Site.

The main elements of the proposed remedy include:

- Acquisition of a portion of the adjacent property that is encompassed by AOC-2 and incorporation of this area into the BCP Site; a written purchase Agreement has been agreed to in principle and is subject to seller's board approval
- Repair of the catch basin located in the swale of AOC-2. The catch basin is a part of the Town of Dewitt stormwater conveyance system, and repairs will require coordination with the Town
- Removal of trees and root systems from AOC-2 and off-site disposal at a permitted facility
- Excavation of soils from the top 1 foot and grading to promote proper surface drainage in the area delineated on Figure 5-4 with off-site disposal of soils at a permitted facility
- Documentation soil sampling on a predetermined sample grid and laboratory sample analysis

- Placement of a demarcation layer and backfilling excavated area with a minimum of 1-foot of clean off-site fill to create a soil cover system
- Preparation and submittal of an FER for NYSDEC and NYSDOH review and approval
- Development of a SMP to be filed with an Environmental Easement
- Commercial/industrial use deed restriction filed with the Onondaga County Clerk's Office in the form of an Environmental Easement
- Groundwater use restrictions in the form of an Environmental Easement filed with the Onondaga County Clerk's Office
- Ongoing inspection, maintenance, and reporting on the soil cover system engineering control as defined in the SMP.

8.3 AOC-3

Based on the results of the investigations completed in AOC-3, the Emergency Remedial activities per the NYSDEC-approved Work Plan (GHD, June 2013), which included water jetting the residual solids located in the buried culvert pipe and catch basins with off-site disposal of contaminated solids and flush water at permitted facilities, and the evaluation presented above (Section 6), Alternative 2 – No Further Action is the proposed remedy for AOC-3. During the implementation of the AOC-2 remedial activities, the stormwater culvert pipe will be managed to preclude sediment from entering the pipe and being transported downstream. The culvert pipe will be inspected for sediment after AOC-2 remedial work is completed.

8.4 AOC-4

Based on: (1) the results of the investigations completed AOC-4; (2) the Emergency Remedial activities that included removal of the solids from the portion of the swale with the higher concentrations of contaminants of concern; (3) the Town of Dewitt maintenance activities on a portion of the swale; (4) the findings reported in the Supplemental Sampling Activities Summary Letter Report (GHD, October 3, 2016), and (5) the evaluation presented above (Section 7), Alternative 2 – Restoration to Protection of Ecological Resources Conditions is the proposed remedy for AOC-4. The proposed remedial approach includes excavation of swale soils downstream from the Emergency Remedial activities and documentation soil sampling and analysis to verify that remaining soils achieve the Protection of Ecological Resources SCOs. This remedy is protective of human health and the environment and satisfies the remediation objectives described in Section 3 above.

The main elements of the proposed remedy include:

- Swale from Bridge Street to the extent of the Emergency Remedial activities: no further actions
- Swale from the extent of the Emergency Remedial activities downstream, including the swale section within the NYSDOT R.O.W. for Interstate 690:
    - Obtaining necessary permits and regulatory approvals, along with property access agreements, to complete soil excavation remedial activities
    - Clearing of vegetation and establishing temporary access roads for excavation and hauling equipment
    - Establish work areas and dewater sections of the swale in phases as work progresses

- Establish temporary access and staging areas to remove and stage excavated soils
- Excavate a minimum of 1-foot of soil from the swale, dewater and characterize the soil, and transport the soil off-site for proper disposal
- Confirmation soil sampling and analysis on a predetermined grid of 50-feet with samples taken from each sidewall and the bottom of the swale (three samples at each sample grid location). Soil samples will be analyzed for metal contaminants of concern to establish that remaining soils in the swale meet the Protection of Ecological Resources SCOs
- If the soil samples indicate the remaining soils do not achieve the Protection of Ecological Resources SCOs, additional excavation of 6- to 12-inches will be completed and subsequent confirmation soil samples collected and analyzed
- The areas of excavation will not be backfilled (backfilling is not proposed as removal of soils will be considered swale maintenance to retain grades and remove built up sediment associated with stormwater conveyance). If swale excavation proceeds to additional depths as a result of confirmation sampling, backfilling of isolated areas of the swale may be necessary.
- The disturbed areas above the swale water level will be seeded and stabilized
- Preparation and submittal of a Construction Completion Report for NYSDEC and NYSDOH review and approval.

8.5 Future BCP Site Activities

There are currently no plans to further develop AOC-1 or AOC-2. Specific actions would need to be implemented to mitigate exposure of humans and the environment to potentially contaminated media during any future construction activities conducted in these AOCs. These actions will be described in the SMP, which will have sections dedicated to AOC-1 and AOC-2.

The required SMP will include the following:

- An Engineering and Institutional Control Plan that identifies all use restrictions and engineering controls for the AOCs and details the steps and media-specific requirements necessary to ensure the following engineering/institutional controls remain in place and effective:
  - Engineering Controls: The soil cover system discussed above
  - Institutional Controls: The deed restrictions in the form of an Environmental Easement and the groundwater use restrictions in the form of an Environmental Easement, both of which are discussed above
- A Soil Management Plan which details the provisions for management of future excavations in areas of remaining contamination
- A Monitoring Plan that will assess the performance and effectiveness of the remedy, which will include, but may not be limited to, the following:
  - A schedule of monitoring and frequency of submittals to the NYSDEC
  - Monitoring and maintenance of AOC-1 and AOC-2 engineering controls

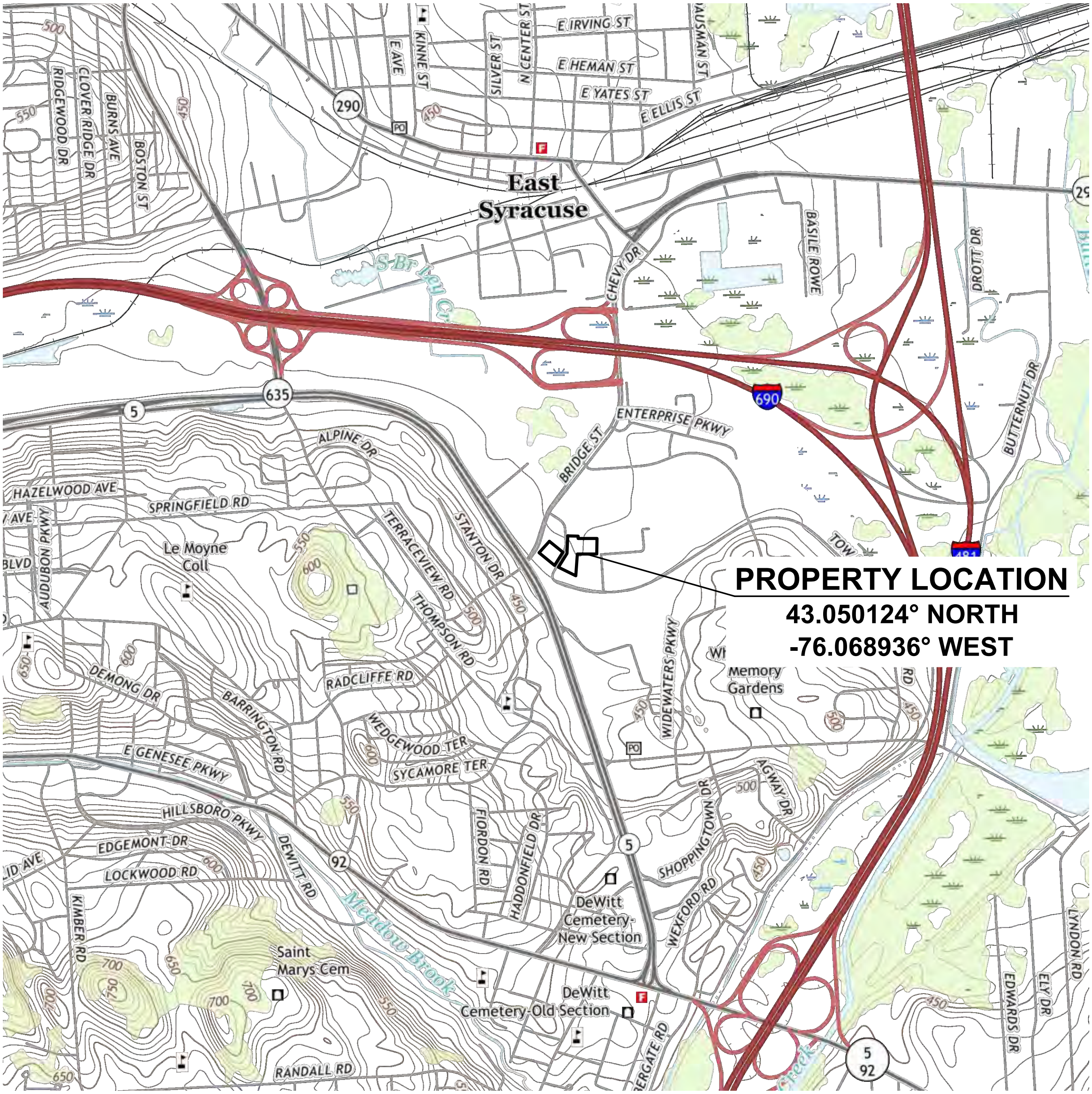
- Descriptions of the provisions of the Environmental Easement including any land use and/or groundwater use restrictions
- Provisions for the management and inspection of the identified engineering controls
- Maintain AOC access controls and NYSDEC notification
- The steps necessary for the periodic review and certification of the engineering/institutional controls.

The AOC-4 drainage swales are currently maintained by the Town of Dewitt, National Grid, and the NYSDOT as a stormwater drainage conveyance. Maintenance includes periodic dewatering and excavation of the swale by the Town of Dewitt and NYSDOT to provide adequate drainage.

Future actions associated with implementing the remedy for the Celi Drive BCP Site will include:

- Finalization of the purchase of the AAA property that encompasses AOC-2
- Review and approval of this RAA by NYSDEC and NYSDOH.
- Issuance of a Record of Decision Document by the NYSDEC
- Development of Remedial Work Plans or Remedial Design Documents as Appropriate for NYSDEC and NYSDOH approval
- Citizen Participation as required under the BCA
- Implementation of remedial activities associated with AOC-1 and AOC-2
- Implementation of remedial activities associated with AOC-4
- Preparation of a Construction Completion Report for AOC-4
- Preparation of the Final Engineering Report for AOC-1 and AOC-2
- Preparation of Site Management Plan for AOC-1 and AOC-2
- Development, execution, and implementation of Institutional Controls in the form of an Environmental Easement for AOC-1 and AOC-2
- Filing with the County Clerk’s Office of the executed Environmental Easement and Deed Restrictions
- Issuance of the Certificate of Completion by the NYSDEC.

Figures



CONTOUR INTERVAL: 10 FEET

MAPS TAKEN FROM: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLES:
SYRACUSE EAST, NY (2016)
(U.S. GEOLOGICAL SURVEY WEBSITE)

QUADRANGLE LOCATION

0 1000 2000 3000 4000'

SCALE 1"=2000' AT ORIGINAL SIZE

N

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Property Location Map

Job Number	37-11082
Revision	A
Date	06.30.2017

Figure 1-1

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5853 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 30 June 2017 - 10:20 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Revised RAA - July 2017\Figures\37-11082-L1-1.cadd.dwg

0 40 80 120 160'

SCALE 1"=80' AT ORIGINAL SIZE

N

NOTES:
1. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP SIte #C734108)
Remedial Alternatives Analysis

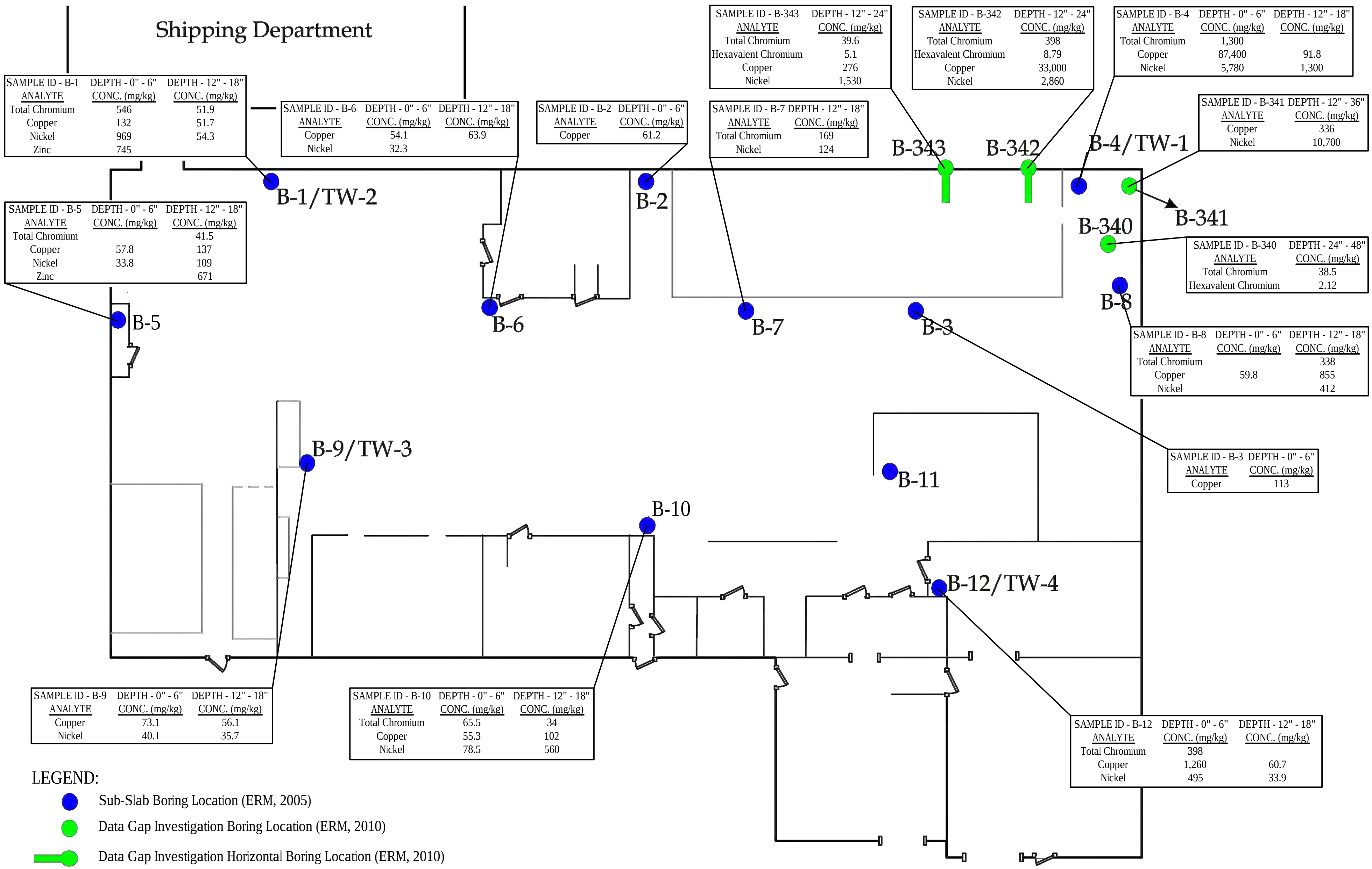
Site Layout

Job Number | 37-11082
Revision | A
Date | 05.12.2014

Figure 1-2

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 13 June 2014 - 8:50 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L1-2.cadd.dwg



SAMPLE ID - B-1	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Total Chromium	546	51.9
Copper	132	51.7
Nickel	969	54.3
Zinc	745	

SAMPLE ID - B-6	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Copper	54.1	63.9
Nickel	32.3	

SAMPLE ID - B-2	DEPTH - 0" - 6"
ANALYTE	CONC. (mg/kg)
Copper	61.2

SAMPLE ID - B-343	DEPTH - 12" - 24"
ANALYTE	CONC. (mg/kg)
Total Chromium	39.6
Hexavalent Chromium	5.1
Copper	276
Nickel	1,530

SAMPLE ID - B-7	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)
Total Chromium	169
Nickel	124

SAMPLE ID - B-342	DEPTH - 12" - 24"
ANALYTE	CONC. (mg/kg)
Total Chromium	398
Hexavalent Chromium	8.79
Copper	33,000
Nickel	2,860

SAMPLE ID - B-4	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Total Chromium	1,300	
Copper	87,400	91.8
Nickel	5,780	1,300

SAMPLE ID - B-341	DEPTH - 12" - 36"
ANALYTE	CONC. (mg/kg)
Copper	336
Nickel	10,700

SAMPLE ID - B-5	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Total Chromium		41.5
Copper	57.8	137
Nickel	33.8	109
Zinc		671

SAMPLE ID - B-340	DEPTH - 24" - 48"
ANALYTE	CONC. (mg/kg)
Total Chromium	38.5
Hexavalent Chromium	2.12

SAMPLE ID - B-8	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Total Chromium		338
Copper	59.8	855
Nickel		412

SAMPLE ID - B-3	DEPTH - 0" - 6"
ANALYTE	CONC. (mg/kg)
Copper	113

SAMPLE ID - B-9	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Copper	73.1	56.1
Nickel	40.1	35.7

SAMPLE ID - B-10	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Total Chromium	65.5	34
Copper	55.3	102
Nickel	78.5	560

SAMPLE ID - B-12	DEPTH - 0" - 6"	DEPTH - 12" - 18"
ANALYTE	CONC. (mg/kg)	CONC. (mg/kg)
Total Chromium	398	
Copper	1,260	60.7
Nickel	495	33.9

NOT TO SCALE

N

NOTES:
1. Base map and sample locations taken from Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Unrestricted Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

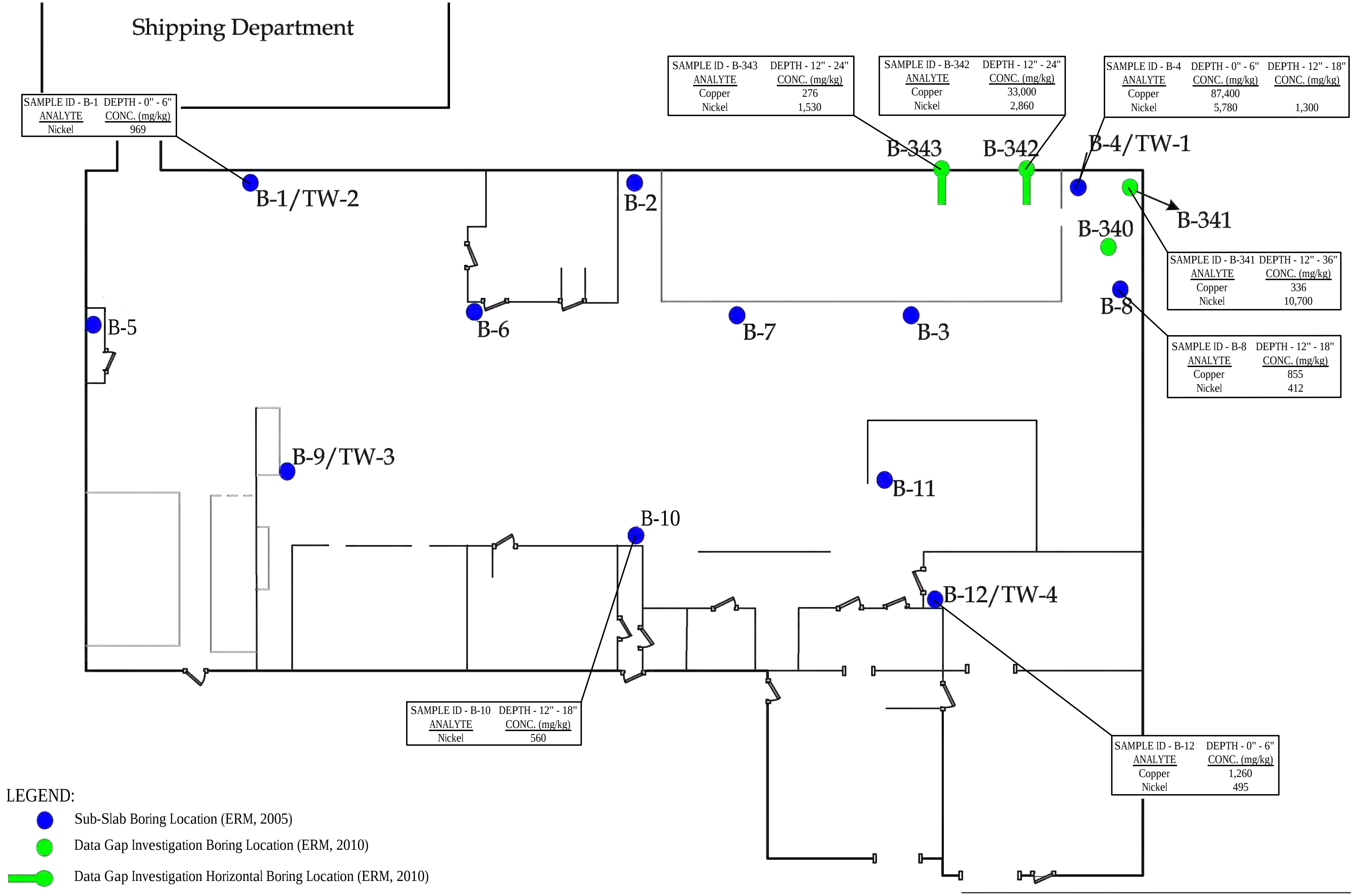
GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis
Exceedances of Unrestricted Use SCOs in AOC-1

Job Number	37-11082
Revision	A
Date	11.12.2013

Figure 4-1

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 13 June 2014 - 8:51 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L4-1.cadd.dwg



NOT TO SCALE

N

NOTES:
1. Base map and sample locations taken from Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Commercial Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis
Exceedances of Commercial Use SCOs in AOC-1

Job Number	37-11082
Revision	A
Date	11.12.2013

Figure 4-2

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

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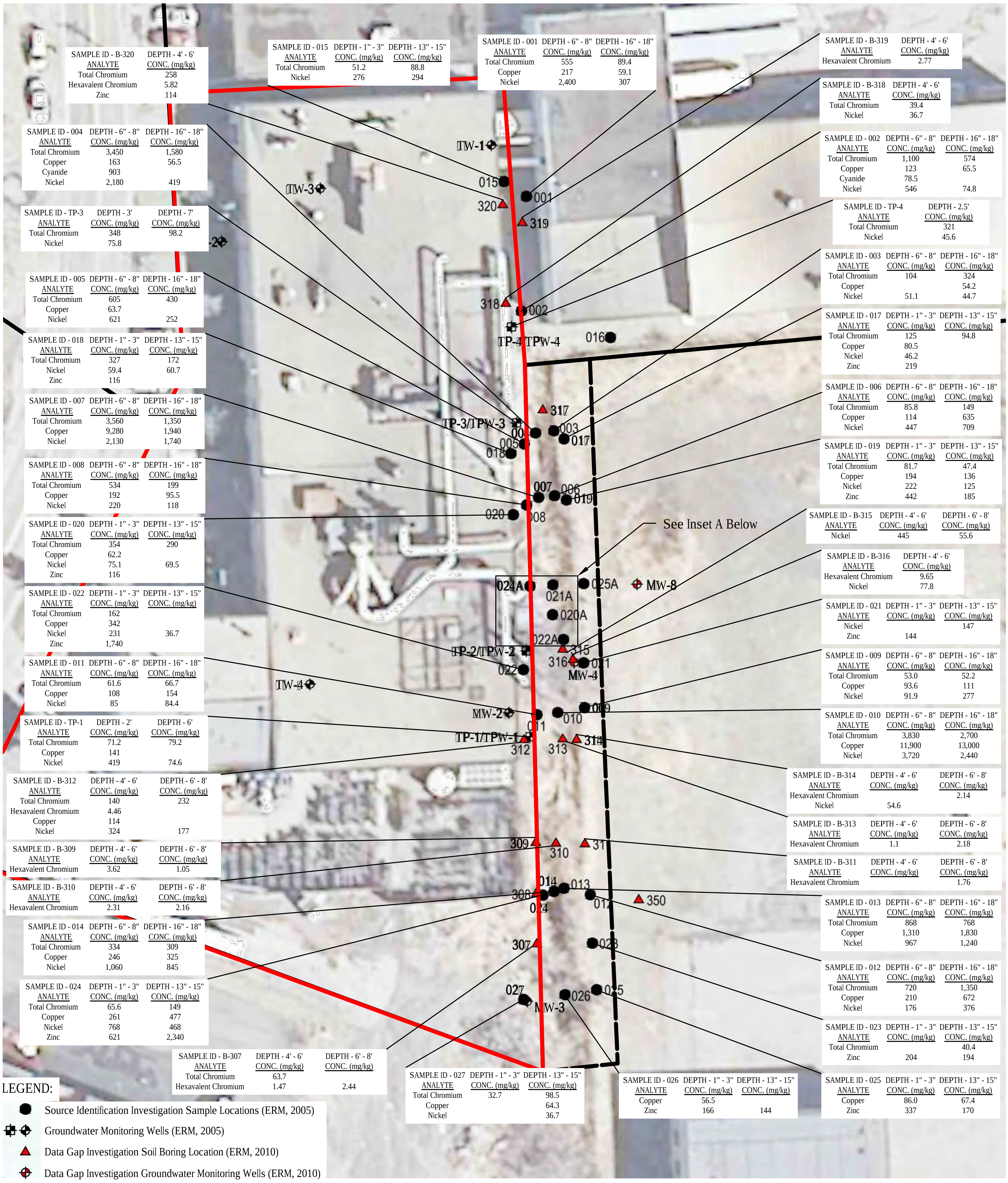


SAMPLE ID - B-320 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)
Total Chromium	258
Hexavalent Chromium	5.82
Zinc	114

SAMPLE ID - 015 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	51.2	88.8
Nickel	276	294

SAMPLE ID - 001 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	555	89.4
Copper	217	59.1
Nickel	2,400	307

SAMPLE ID - B-319 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)
Hexavalent Chromium	2.77

SAMPLE ID - B-318 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)
Total Chromium	39.4
Nickel	36.7

SAMPLE ID - 004 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	3,450	1,580
Copper	163	56.5
Cyanide	903	
Nickel	2,180	419

SAMPLE ID - 002 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	1,100	574
Copper	123	65.5
Cyanide	78.5	
Nickel	546	74.8

SAMPLE ID - TP-3 ANALYTE	DEPTH - 3' CONC. (mg/kg)	DEPTH - 7' CONC. (mg/kg)
Total Chromium	348	98.2
Nickel	75.8	

SAMPLE ID - TP-4 ANALYTE	DEPTH - 2.5' CONC. (mg/kg)
Total Chromium	321
Nickel	45.6

SAMPLE ID - 005 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	605	430
Copper	63.7	
Nickel	621	252

SAMPLE ID - 003 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	104	324
Copper		54.2
Nickel	51.1	44.7

SAMPLE ID - 018 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	327	172
Nickel	59.4	60.7
Zinc	116	

SAMPLE ID - 017 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	125	94.8
Copper	80.5	
Nickel	46.2	
Zinc	219	

SAMPLE ID - 007 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	3,560	1,350
Copper	9,280	1,940
Nickel	2,130	1,740

SAMPLE ID - 006 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	85.8	149
Copper	114	635
Nickel	447	709

SAMPLE ID - 008 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	534	199
Copper	192	95.5
Nickel	220	118

SAMPLE ID - 019 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	81.7	47.4
Copper	194	136
Nickel	222	125
Zinc	442	185

SAMPLE ID - 020 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	354	290
Copper	62.2	
Nickel	75.1	69.5
Zinc	116	

SAMPLE ID - B-315 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Nickel	445	55.6

SAMPLE ID - B-316 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)
Hexavalent Chromium	9.65
Nickel	77.8

SAMPLE ID - 022 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	162	
Copper	342	
Nickel	231	36.7
Zinc	1,740	

SAMPLE ID - 021 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Nickel		147
Zinc	144	

SAMPLE ID - 009 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	53.0	52.2
Copper	93.6	111
Nickel	91.9	277

SAMPLE ID - 011 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	61.6	66.7
Copper	108	154
Nickel	85	84.4

SAMPLE ID - 010 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	3,830	2,700
Copper	11,900	13,000
Nickel	3,720	2,440

SAMPLE ID - TP-1 ANALYTE	DEPTH - 2' CONC. (mg/kg)	DEPTH - 6' CONC. (mg/kg)
Total Chromium	71.2	79.2
Copper	141	
Nickel	419	74.6

SAMPLE ID - B-312 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Total Chromium	140	232
Hexavalent Chromium	4.46	
Copper	114	
Nickel	324	177

SAMPLE ID - B-314 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Hexavalent Chromium		2.14
Nickel	54.6	

SAMPLE ID - B-313 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Hexavalent Chromium	1.1	2.18

SAMPLE ID - B-309 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Hexavalent Chromium	3.62	1.05

SAMPLE ID - B-311 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Hexavalent Chromium		1.76

SAMPLE ID - B-310 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Hexavalent Chromium	2.31	2.16

SAMPLE ID - 013 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	868	768
Copper	1,310	1,830
Nickel	967	1,240

SAMPLE ID - 014 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	334	309
Copper	246	325
Nickel	1,060	845

SAMPLE ID - 012 ANALYTE	DEPTH - 6" - 8" CONC. (mg/kg)	DEPTH - 16" - 18" CONC. (mg/kg)
Total Chromium	720	1,350
Copper	210	672
Nickel	176	376

SAMPLE ID - 024 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	65.6	149
Copper	261	477
Nickel	768	468
Zinc	621	2,340

SAMPLE ID - 023 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium		40.4
Zinc	204	194

SAMPLE ID - B-307 ANALYTE	DEPTH - 4' - 6' CONC. (mg/kg)	DEPTH - 6' - 8' CONC. (mg/kg)
Total Chromium	63.7	
Hexavalent Chromium	1.47	2.44

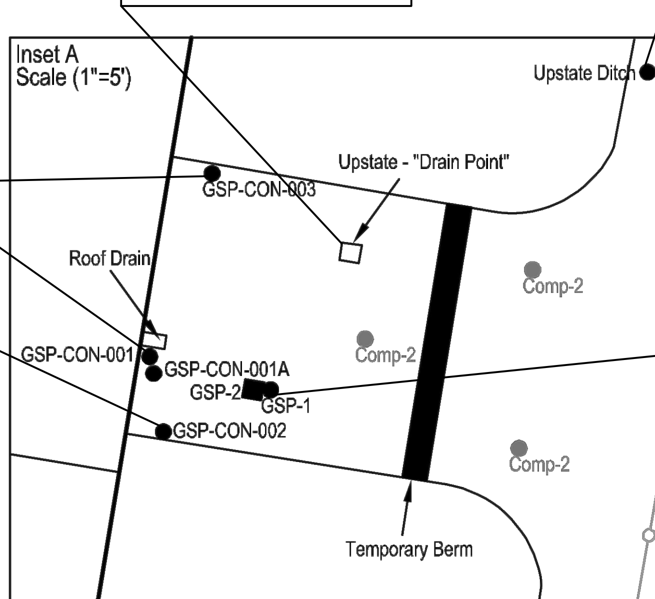
SAMPLE ID - 027 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Total Chromium	32.7	98.5
Copper		64.3
Nickel		36.7

SAMPLE ID - 026 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Copper	56.5	
Zinc	166	144

SAMPLE ID - 025 ANALYTE	DEPTH - 1" - 3" CONC. (mg/kg)	DEPTH - 13" - 15" CONC. (mg/kg)
Copper	86.0	67.4
Zinc	337	170

LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Groundwater Monitoring Wells (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Data Gap Investigation Groundwater Monitoring Wells (ERM, 2010)
- BCP Site Boundary (Approximate)
- Property Boundary (Approximate)
- Property to be Purchased (Approximate)



SAMPLE ID - Drain Point ANALYTE	DEPTH - CONC. (mg/kg)
Total Chromium	1,200
Copper	2,700
Nickel	390
Cadmium	3.1
Hexavalent Chromium	110
Selenium	4.7

SAMPLE ID - Ditch ANALYTE	DEPTH - CONC. (mg/kg)
Total Chromium	4,100
Copper	7,200
Nickel	1,500
Zinc	170
Cadmium	4.7
Hexavalent Chromium	140
Lead	83

SAMPLE ID - CON-003 ANALYTE	DEPTH - 3' CONC. (mg/kg)
Total Chromium	279
Copper	153
Nickel	571

SAMPLE ID - CON-001 ANALYTE	DEPTH - 3' CONC. (mg/kg)
Nickel	419

SAMPLE ID - CON-002 ANALYTE	DEPTH - 3' CONC. (mg/kg)
Total Chromium	38.6
Nickel	79.5

SAMPLE ID - GSP-1 ANALYTE	DEPTH - CONC. (mg/kg)
Total Chromium	1,900
Copper	1,500
Nickel	210

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Unrestricted Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

0 20 40 60 80'

SCALE 1"=40' AT ORIGINAL SIZE

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of Unrestricted Use SCOs in AOC-2

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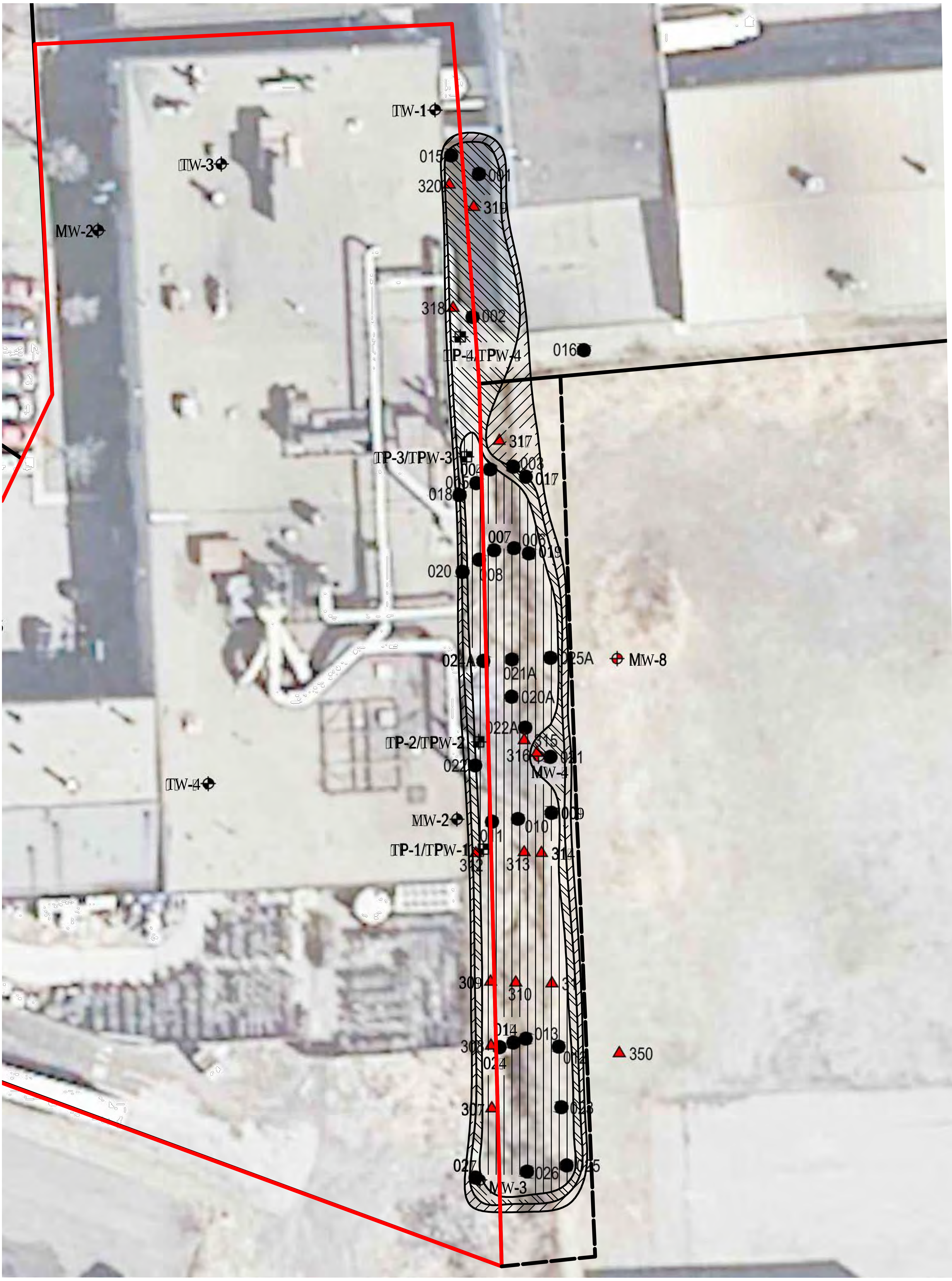
Revision | A
Date | 11.12.2013

Figure 5-1

Plot Date: 11 July 2017 - 1:15 PM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Revised RAA - July 2017\Figures\37-11082-L5-1.cadd.dwg



LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Groundwater Monitoring Wells (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Data Gap Investigation Groundwater Monitoring Wells (ERM, 2010)
- Area Requiring Excavation from 0' to 2' to Meet Unrestricted Use SCOs (Approximate)
- Area Requiring Excavation from 0' to 6' to Meet Unrestricted Use SCOs (Approximate)
- Area Requiring Excavation from 0' to 8' to Meet Unrestricted Use SCOs (Approximate)
- BCP Site Boundary (Approximate)
- Property Boundary (Approximate)
- Property to be Purchased (Approximate)

0 15 30 45 60'

SCALE 1"=30' AT ORIGINAL SIZE

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Area of Remediation to Meet Unrestricted Use SCOs in AOC-2

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NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

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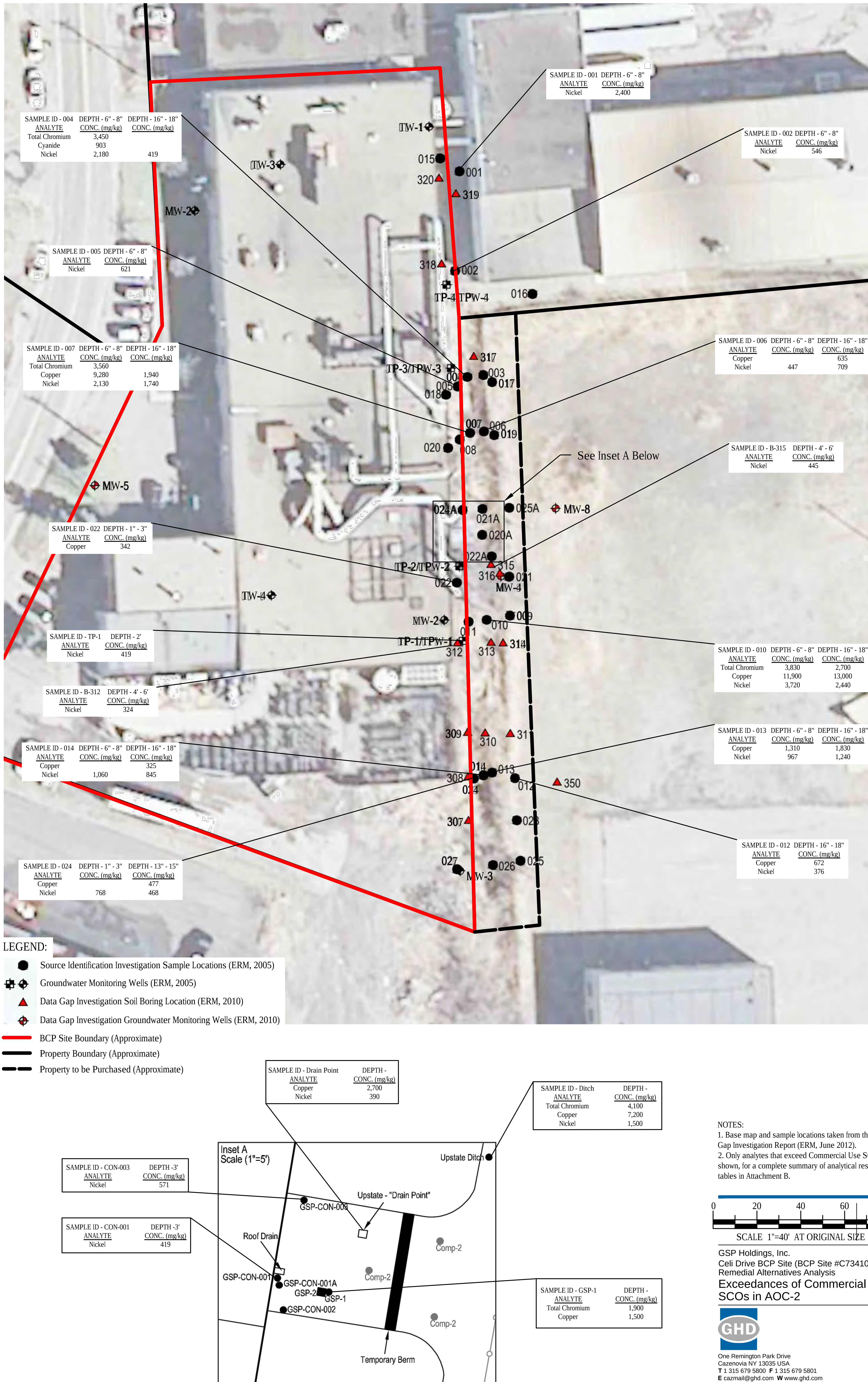
Date	05.12.2014

Figure 5-2

Plot Date: 19 July 2017 - 12:18 PM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Revised RAA - July 2017\Figures\37-11082-L5-2.cadd.dwg



NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Commercial Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of Commercial Use SCOs in AOC-2

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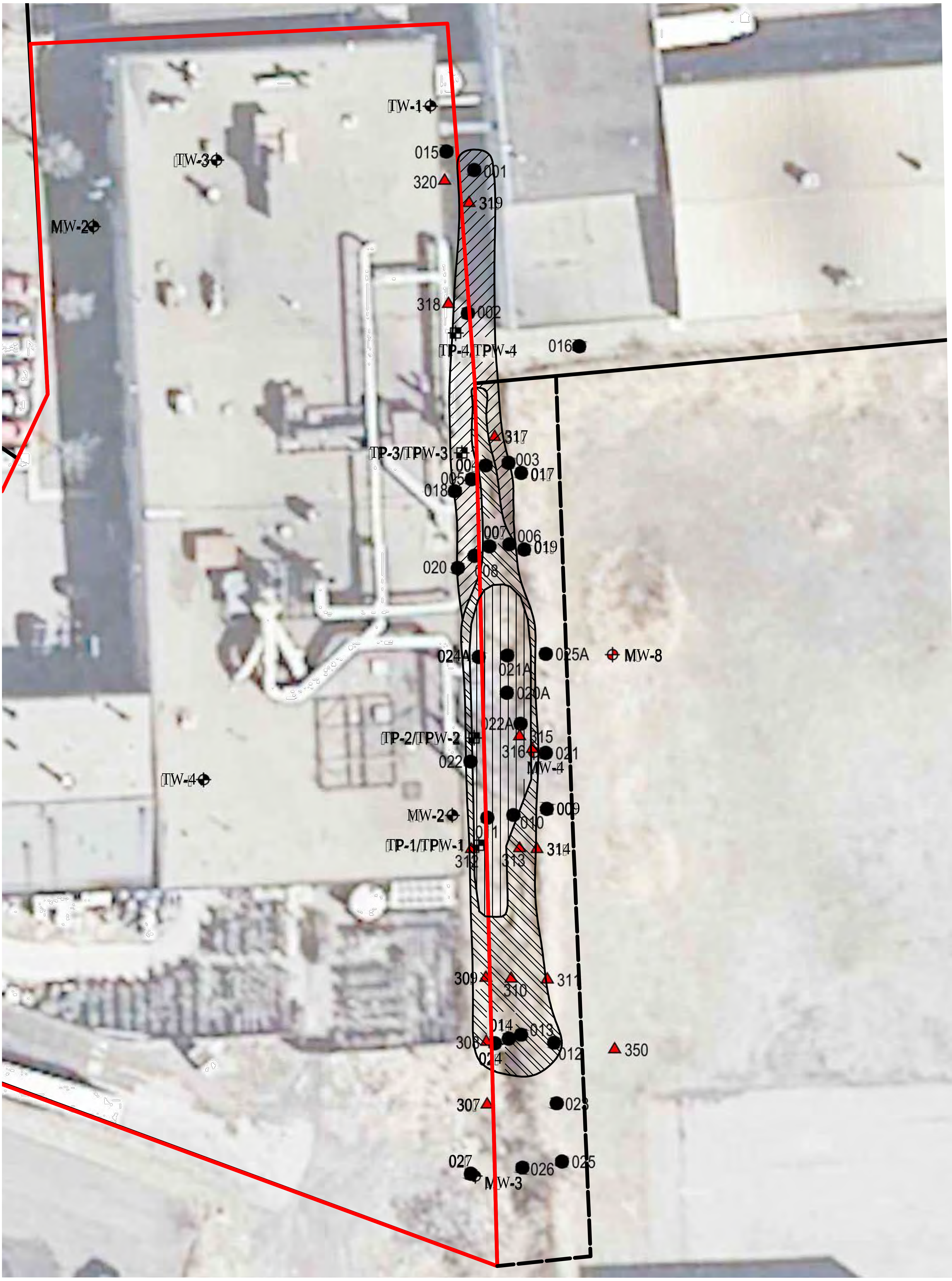
Figure 5-3

Plot Date: 11 July 2017 - 1:17 PM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Revised RAA - July 2017\Figures\37-11082-L5-3.cadd.dwg



LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Groundwater Monitoring Wells (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Data Gap Investigation Groundwater Monitoring Wells (ERM, 2010)
- Area Requiring Excavation from 0' to 1' to Meet Commercial Use SCOs (Approximate)
- Area Requiring Excavation from 0' to 2' to Meet Commercial Use SCOs (Approximate)
- Area Requiring Excavation from 0' to 6' to Meet Commercial Use SCOs (Approximate)
- BCP Site Boundary (Approximate)
- Property Boundary (Approximate)
- Property to be Purchased (Approximate)

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

0 15 30 45 60'

SCALE 1"=30' AT ORIGINAL SIZE

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Area of Remediation to Meet Commercial Use SCOs in AOC-2

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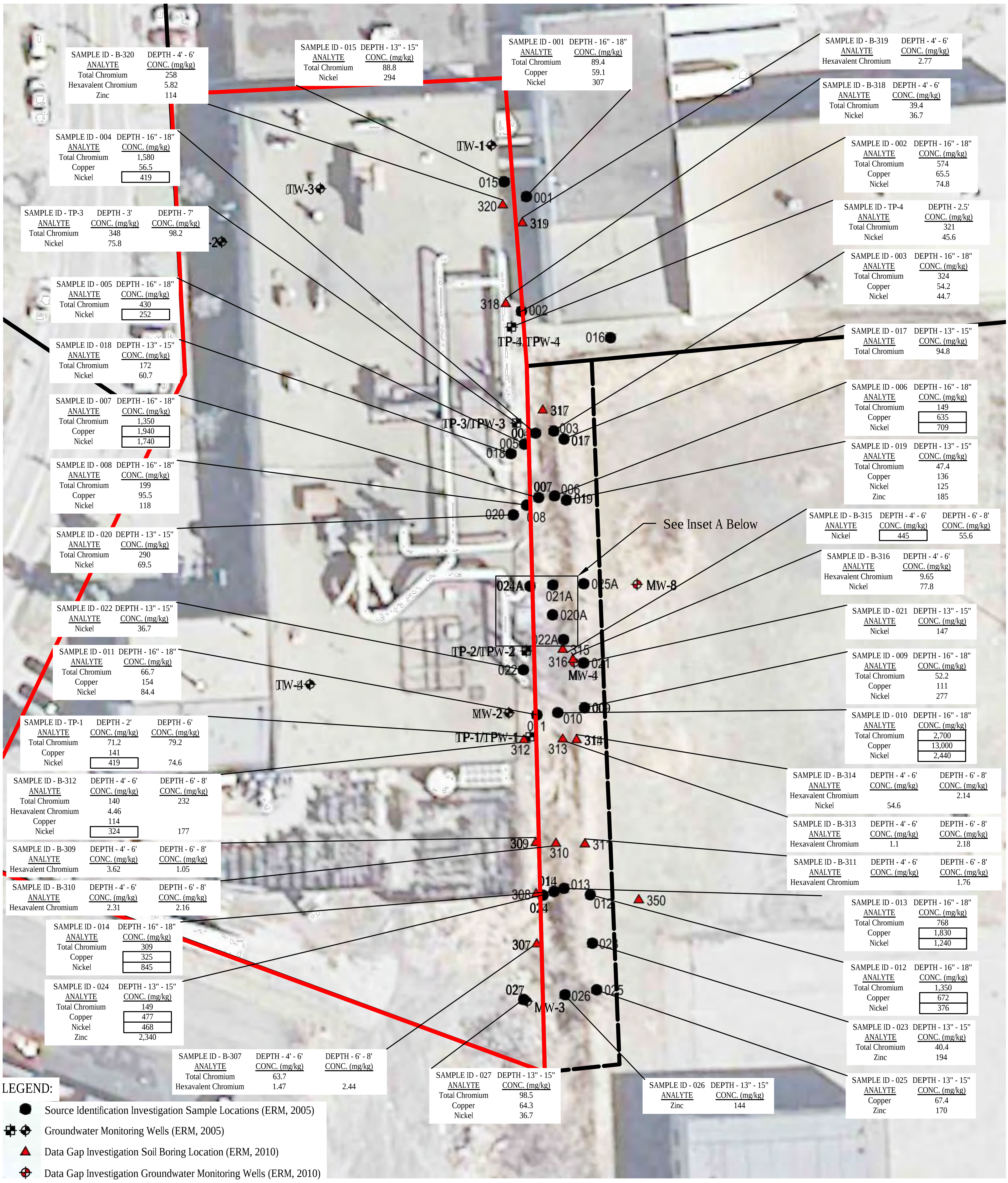
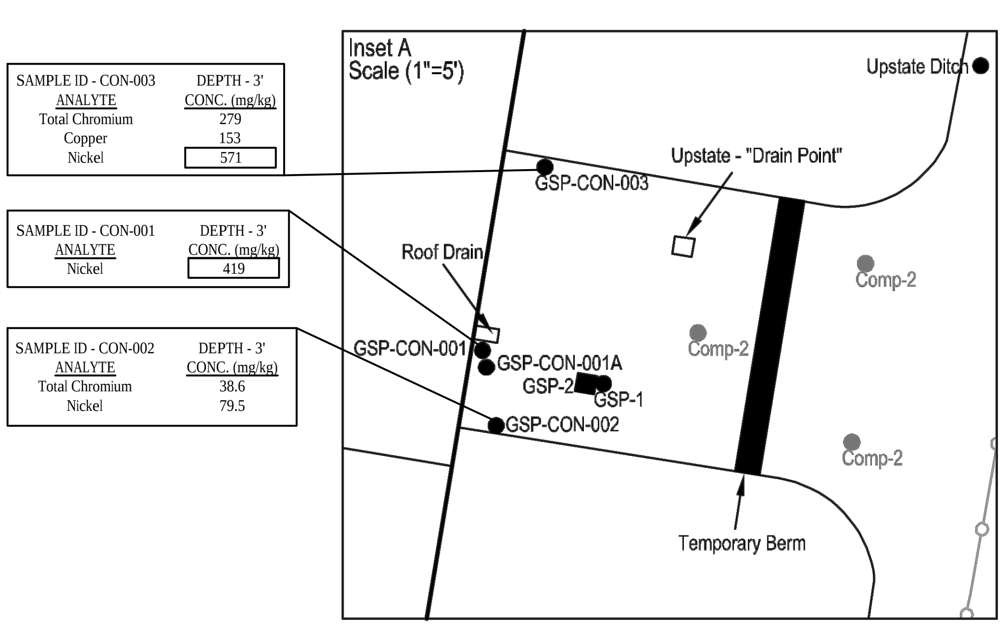
Figure 5-4

Plot Date: 19 July 2017 - 12:19 PM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Revised RAA - July 2017\Figures\37-11082-LS-4.cadd.dwg



LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Groundwater Monitoring Wells (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Data Gap Investigation Groundwater Monitoring Wells (ERM, 2010)
- BCP Site Boundary (Approximate)
- Property Boundary (Approximate)
- Property to be Purchased (Approximate)
- Indicates Analyte also Exceeds Commercial Use SCO



NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Unrestricted Use SCOs below the upper foot of soil are shown, for a complete summary of analytical results see tables in Attachment B.

0 20 40 60 80'

SCALE 1"=40' AT ORIGINAL SIZE

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of SCOs Remaining Below Upper Foot in AOC-2

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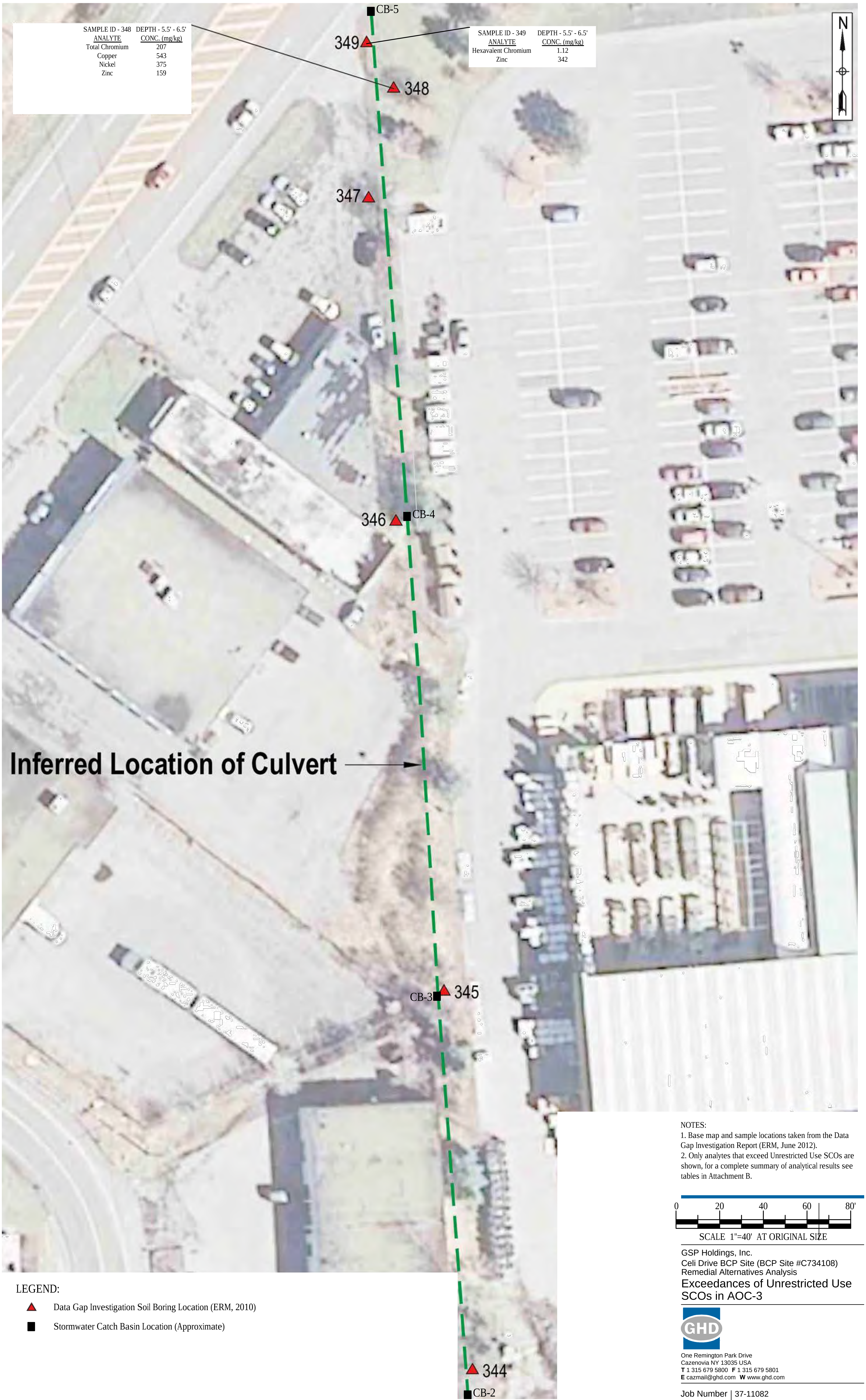
Figure 5-5

Plot Date: 19 July 2017 - 12:20 PM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Revised RAA - July 2017\Figures\37-11082-L5-5.cadd.dwg



NOTES:

1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Unrestricted Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

0 20 40 60 80'

SCALE 1"=40' AT ORIGINAL SIZE

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of Unrestricted Use SCOs in AOC-3

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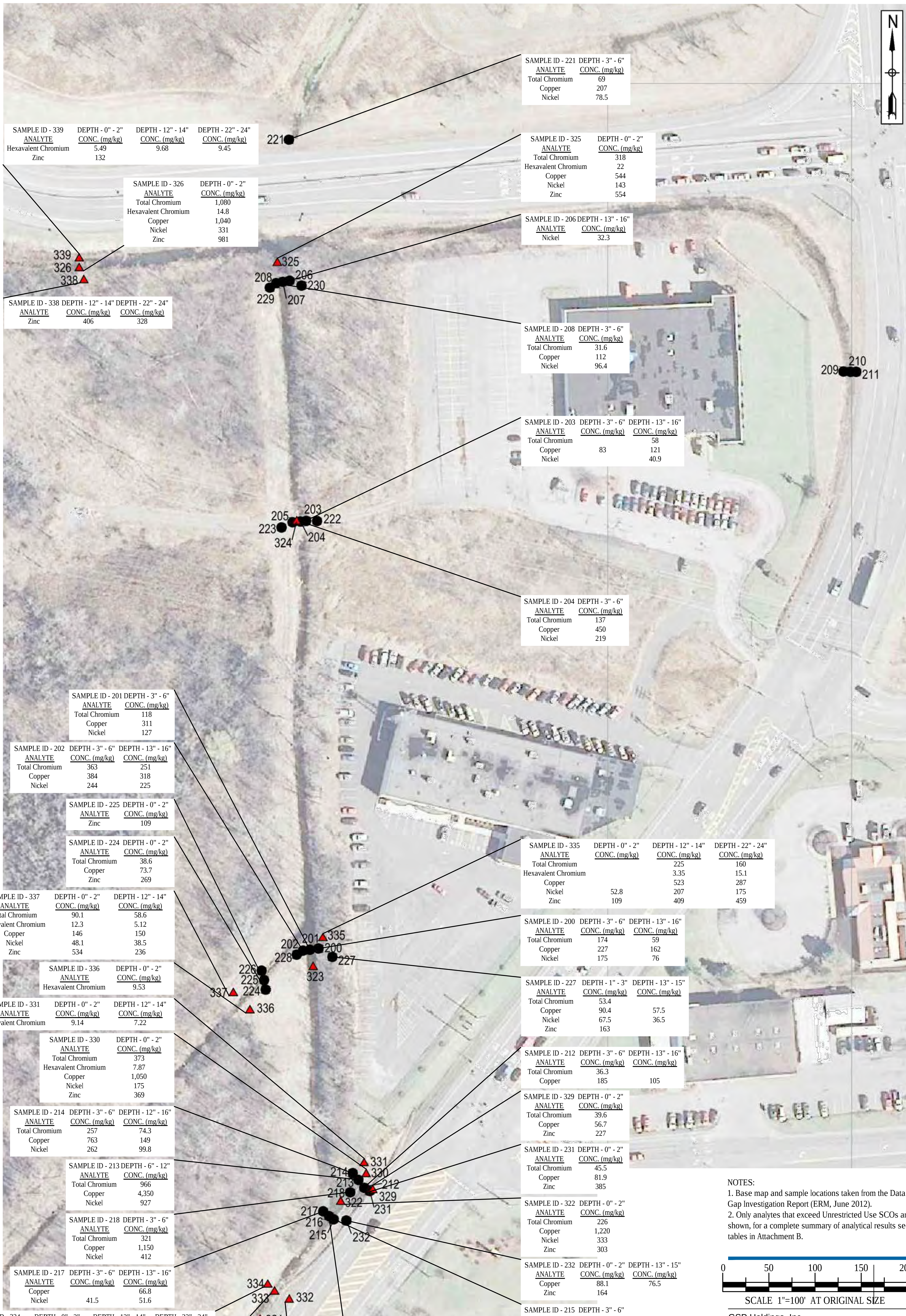
Figure 6-1

Plot Date: 13 June 2014 - 8:56 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L6-1.cadd.dwg



NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Unrestricted Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

LEGEND:

Source Identification Investigation Sample Locations (ERM, 2005)

Data Gap Investigation Soil Boring Location (ERM, 2010)

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of Unrestricted Use SCOs in AOC-4

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Figure 7-1a

Plot Date: 13 June 2014 - 8:58 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L7-1a.cadd.dwg

LEGEND:

● Source Identification Investigation Sample Locations (ERM, 2005)

▲ Data Gap Investigation Soil Boring Location (ERM, 2010)

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Unrestricted Use SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of Unrestricted Use SCOs in AOC-4

Job Number	37-11082
Revision	A
Date	11.12.2013

Figure 7-1b

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NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Area Requiring Excavation from 0' to 1' to Meet Unrestricted Use SCOs (Approximate)
- Area Requiring Excavation from 0' to 2' to Meet Unrestricted Use SCOs (Approximate)

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis
Area of Remediation to Meet
Unrestricted Use SCOs in AOC-4

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Figure 7-2a

Plot Date: 13 June 2014 - 9:00 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L7-2a.cadd.dwg

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Area of Remediation to Meet Unrestricted Use SCOs in AOC-4

Job Number	37-11082
Revision	A
Date	06.06.2014

Figure 7-2b

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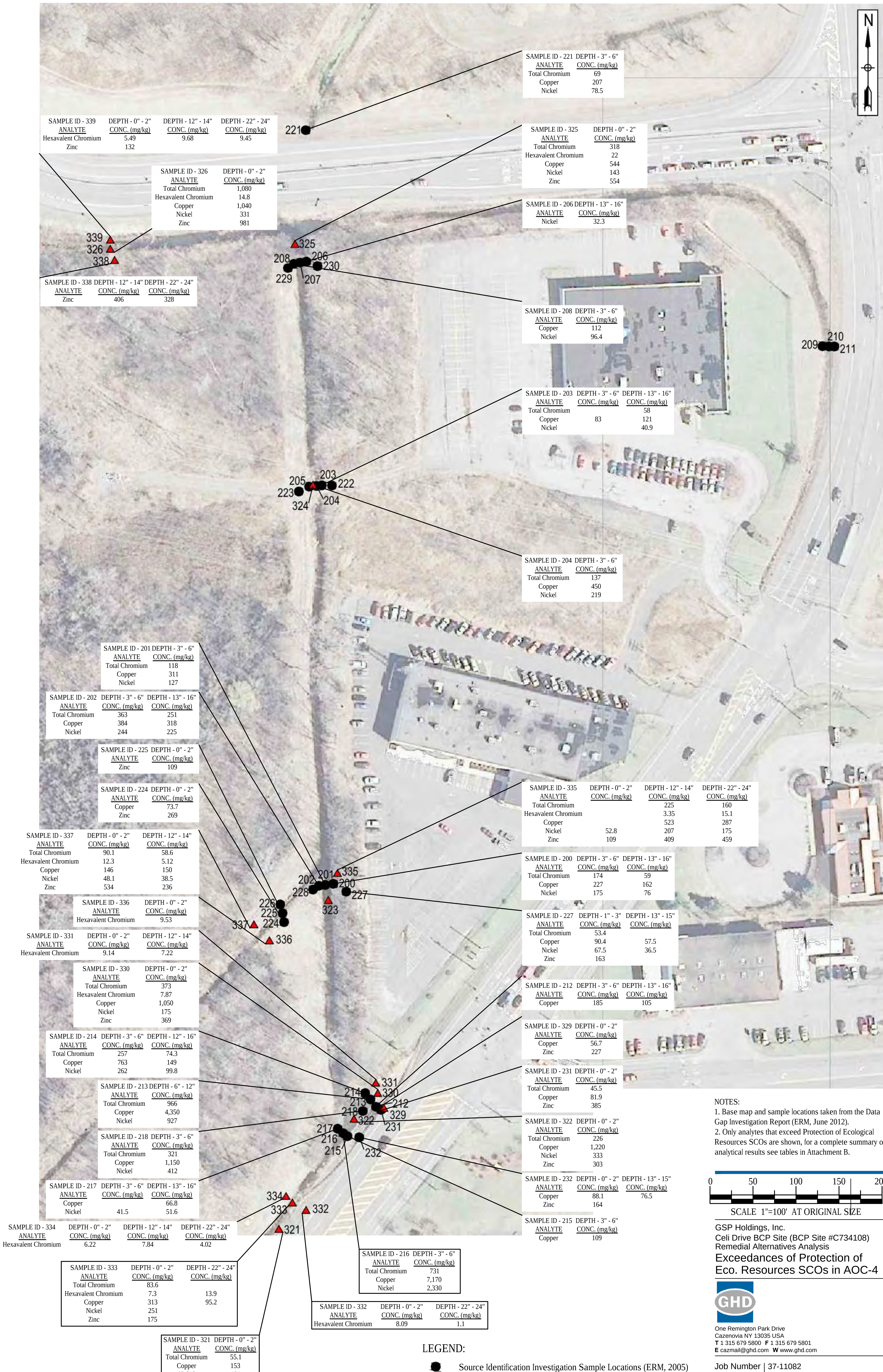
Plot Date: 13 June 2014 - 9:01 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L7-2b.cadd.dwg



NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Protection of Ecological Resources SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

LEGEND:
- Source Identification Investigation Sample Locations (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Exceedances of Protection of Eco. Resources SCOs in AOC-4

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Date | 11.12.2013

Figure 7-3a

LEGEND:

● Source Identification Investigation Sample Locations (ERM, 2005)

▲ Data Gap Investigation Soil Boring Location (ERM, 2010)

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).
2. Only analytes that exceed Protection of Ecological Resources SCOs are shown, for a complete summary of analytical results see tables in Attachment B.

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis
Exceedances of Protection of Eco.
Resources SCOs in AOC-4

Job Number	37-11082
Revision	A
Date	11.12.2013

Figure 7-3b

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Plot Date: 13 June 2014 - 9:02 AM Cad File No: G:\37\11082\Remedial Alternatives Analysis\Figures\37-11082-L7-3b.cadd.dwg

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Area Requiring Excavation from 0' to 1' to Meet Protection of Ecological Resources SCOs (Approximate)
- Area Requiring Excavation from 0' to 2' to Meet Protection of Ecological Resources SCOs (Approximate)

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis

Area of Remediation to Meet Protection of Eco. Resources SCOs in AOC-4

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Revision	A
Date	06.06.2014

Figure 7-4a

LEGEND:

- Source Identification Investigation Sample Locations (ERM, 2005)
- Data Gap Investigation Soil Boring Location (ERM, 2010)
- Area Requiring Excavation from 0' to 2' to Meet Protection of Ecological Resources SCOs (Approximate)

0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

NOTES:
1. Base map and sample locations taken from the Data Gap Investigation Report (ERM, June 2012).

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Remedial Alternatives Analysis
Area of Remediation to Meet Protection of Eco. Resources SCOs in AOC-4

Job Number	37-11082
Revision	A
Date	06.06.2014

Figure 7-4b

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Tables

Table 4-1 - Alternative Analysis Preliminary Estimates of Cost for AOC-1
Remedial Alternatives Analysis
Celi Drive BCP Site
BCP Site No C734108
July 2017

		Track 4: Commercial Uses with Site Management		
Elements of Cost	**Units**	**Quantity**	**Unit Cost ($)**	**Sub Cost**
Estimated Capital Costs				
Remedial Design	LS	1	5,000	5,000
Evaluation of slab and sealing of cracks	LS	1	10,000	10,000
(1) Documentation	LS	1	5,000	5,000
			Present Worth Capital Cost:	**$20,000**
Estimated Annual Costs				
(2) Annual Operating Costs				0
Annual Certification Reporting	Annual Cost			5,000
			(a) Present Worth Annual Cost:	**$100,942**
			Total Estimated Present Worth Cost:	**$120,942**
			Rounded to nearest $1,000:	**$121,000**

Notes:

This cost estimate is preliminary based on preliminary concepts and available information, and is subject to change.

A Remedial Design has not been prepared, so this estimate has considerable uncertainty based on final scope of work and regulatory approvals.

This cost estimate does not include any remedial action associated with groundwater.

Future maintenance of soil cover including repairs are considered part of current site operations costs and are not included here.

A Track 1 Unrestricted Use Alternative would require removal of the entire building, which is deemed not feasible.

(1) Documentation includes Final Engineering Report and an Environmental Easement for on-Site areas.

(2) No annual operating cost based on assumption there is no required groundwater or surface water monitoring.

(a) Present worth annual cost based on 30 years of annual costs at a net interest rate of 3%

Table 5-1 - Alternative Analysis Preliminary Estimates of Costs for AOC-2
Remedial Alternatives Analysis
Celi Drive BCP Site
BCP Site No C734108
July 2017

		Track 1: Restoration to Pre-Disposal or Unrestricted Conditions by Excavating to Unrestricted Standards (~11,100 sq. ft. - 0.25 acres)			Track 4: Restoration to Commercial Uses with Site Management by 1 Foot Soil Cover Engineering Control (~12,400 sq. ft. - 0.28 acres)		
Elements of Cost	**Units**	**Quantity**	**Unit Cost ($)**	**Sub Cost**	**Quantity**	**Unit Cost ($)**	**Sub Cost**
Estimated Capital Costs							
Remedial Design	LS	1	45,000	45,000	1	15,000	15,000
Contract Documents/Contractor Selection	LS	1	25,000	25,000	1	15,000	15,000
Sediment/Erosion Control							
Plan	LS	1	10,000	10,000	1	8,000	8,000
Perimeter Controls	lf	500	3	1,500	600	3	1,800
Contractor Mobilization	LS	1	8,000	8,000	1	8,000	8,000
Grading/Clearing/Grubbing	sf	12,765	0.50	6,383	14,260	0.75	10,695
Survey Pre/Post	ls	1	15,000	15,000	1	12,000	12,000
Soil Removal							
(1) Excavate	cy	2,700	15	40,500	528	15	7,922
Haul/Disposal	tons	4,455	80	356,400	882	80	70,561
Sampling/Analysis	each	36	500	18,000	30	500	15,000
Dewatering and Disposal	gal	10,000	1	10,000	2,500	1	2,500
Backfill							
(2) Off-site Topsoil	cy	420	35	14,700	264	35	9,243
(2) Off-site Gen Fill	cy	2,280	25	57,000	264	25	6,602
Sampling/Analysis	each	5	2,000	10,000	3	2,000	6,000
Demarcation Layer	sy				1,222	4	4,278
Reinstall Fencing	LS	1	5,000	5,000	1	5,000	5,000
Seeding/Fertilizer-Hydroseed	acre	0.50	1,500	750	0.28	1,500	420
Site Representative/Contract Admin	day	30	3,000	90,000	15	2,500	37,500
(3) Documentation	LS	1	50,000	50,000	1	25,000	25,000
			Present Worth Capital Cost:	**$763,233**		**Present Worth Capital Cost:**	**$260,520**
Estimated Annual Costs							
(4) Annual Operating Costs				0	4	6500	26,000
Annual Certification Reporting	Annual Cost			0			5,000
			(a) Present Worth Annual Cost:	**$0**		**Present Worth Annual Cost:**	**$223,587**
			Total Estimated Present Worth Cost:	**$763,233**		**Total Estimated Present Worth Cost:**	**$484,107**
			Rounded to nearest $1,000:	**$763,000**		**Rounded to nearest $1,000:**	**$484,000**

Notes:

This cost estimate is preliminary based on preliminary concepts and available information, and is subject to change.

A Remedial Design has not been prepared, so this estimate has considerable uncertainty based on final scope of work and regulatory approvals.

This cost estimate does not include any remedial action associated with groundwater.

Future maintenance of soil cover including repairs and/or mowing are considered part of current site operations costs and are not included here.

This cost estimate does not include any costs associated with aquiring property from the adjacent property owner.

(1) Assumes excavation up to 8 feet bgs across the AOC to achieve Unrestricted Use SCOs.

(2) Assumes up to 7 feet of general fill and 1 foot of topsoil across the excavated area.

(3) Documentation for both alternatives include Final Engineering Report. Documentation for Track 4 Alternative also includes an Environmental Easement for on-Site areas.

(4) Operating cost for Track 1 based on no monitoring, Track 4 based on assumption there is quarterly groundwater monitoring for a period of 5 years.

(a) Present worth annual cost based on 30 years of annual reporting costs and 5 years of annual monitoring costs at a net interest rate of 3%

Table 6-1 - Alternative Analysis Preliminary Estimates of Costs for AOC-3
Remedial Alternatives Analysis
Celi Drive BCP Site
BCP Site No C734108
July 2017

		Track 1: Restoration to Pre-Disposal or Unrestricted Conditions by Excavating to Unrestricted Standards and Cleaning Culvert Pipe (~1,600 sq. ft. - 0.04 acres and ~1,100 feet of culvert*)		
Elements of Cost	**Units**	**Quantity**	**Unit Cost ($)**	**Sub Cost**
Estimated Capital Costs				
Remedial Design	LS	1	20,000	20,000
Contract Documents/Contractor Selection	LS	1	15,000	15,000
Site Access	LS	1	10,000	10,000
Sediment/Erosion Control				
Plan	LS	1	8,000	8,000
Perimeter Controls	lf	160	3	480
Contractor Mobilization	LS	1	7,500	7,500
Grading/Clearing/Grubbing	sf	1,600	0.50	800
Soil Removal				
(1) Excavate	cy	2,000	15	30,000
Haul/Disposal	tons	3,300	80	264,000
Sampling/Analysis	each	6	500	3,000
Backfill				
(2) Off-site Topsoil	cy	60	35	2,100
(2) Off-site Gen Fill	cy	2,000	25	50,000
Sampling/Analysis	each	4	2,000	8,000
Pressure Wash Culvert Pipe/Disposal	LS	1	50,000	50,000
Seeding/Fertilizer-Hydroseed	acre	0.04	1,000	40
Site Representative/Contract Admin	day	20	3,000	60,000
(3) Documentation	LS	1	30,000	30,000
		Present Worth Annual Cost:		**$558,920**
Estimated Annual Costs				
(4) Annual Operating Costs				0
		(a) Present Worth Annual Cost:		**$0**
		Total Estimated Present Worth Cost:		**$558,920**
		Rounded to nearest $1,000:		**$559,000**

Notes:
This cost estimate is preliminary based on preliminary concepts and available information, and is subject to change.
A Remedial Design has not been prepared, so this estimate has considerable uncertainty based on final scope of work and regulatory approvals.
This cost estimate does not include any remedial action associated with groundwater.
* Excavation required in a discrete area of the culvert pipe to a depth of 7 feet to meet Unrestricted SCOs.
(1) Assumes excavation up to 6 feet bgs in area of the AOC-3 to achieve Unrestricted Use SCOs along entire length.
(2) Assumes up to 5 feet of general fill and 1 foot of topsoil across the excavated area.
(3) Documentation includes Final Engineering Report.
(4) No annual operating cost based on assumption there is no required groundwater or surface water monitoring.
(a) Present worth annual cost based on 30 years of annual costs at a net interest rate of 3%

Table 7-1 - Alternative Analysis Preliminary Estimates of Costs for AOC-4
Remedial Alternatives Analysis
Celi Drive BCP Site
BCP Site No C734108
July 2017

		Track 1: Restoration to Pre-Disposal or Unrestricted Conditions (Alternative 1) and Protection of Ecological Resources (Alternative 2) Conditions by Excavating to Standards (~78,000 sq. ft. - 1.8 acres)		
Elements of Cost	**Units**	**Quantity**	**Unit Cost ($)**	**Sub Cost**
Estimated Capital Costs				
Remedial Design	LS	1	40,000	40,000
Contract Documents/Contractor Selection	LS	1	25,000	25,000
Sediment/Erosion Control				
Plan	LS	1	25,000	25,000
Perimeter Controls	lf	9,000	3	27,000
Contractor Mobilization	LS	1	15,000	15,000
Access, ROW Work, and Permits	LS	1	25,000	25,000
Grading/Clearing/Grubbing	sf	80,000	0.50	40,000
Survey Pre/Post	LS	1	25,000	25,000
Soil Removal				
(1) Excavate	cy	5,778	15	86,667
Haul/Disposal	tons	9,533	65	619,667
Disposal Sampling/Analysis	each	10	1,500	15,000
Dewatering/Disposal	gal	50,000	1	50,000
Documentation Sampling and Analysis	each	210	300	63,000
Backfill				
(2) Off-site Topsoil	cy	0		
(2) Off-site Gen Fill	cy	2,204	25	55,100
Sampling/Analysis	each	4	1,000	4,000
Seeding/Fertilizer-Hydroseed	acre	1.80	1,500	2,700
Site Representative/Contract Admin	day	40	2,500	100,000
(3) Documentation	LS	1	50,000	50,000
			Present Worth Capital Cost:	**$1,268,133**
Estimated Annual Costs				
(4) Annual Operating Costs				0
Annual Certification Reporting	Annual Cost			0
			(a) Present Worth Annual Cost:	**$0**
			Total Estimated Present Worth Cost:	**$1,268,133**
			Rounded to nearest $1,000:	**$1,268,000**

Notes:

This cost estimate is preliminary based on preliminary concepts and available information, and is subject to change.

The preliminary cost estimate assumes tha the area associated with the Community Bank Development adjacen tto Bridge Street will require no further remedial action.

A Remedial Design has not been prepared, so this estimate has considerable uncertainty based on final scope of work and regulatory approvals.

This cost estimate does not include any remedial action associated with groundwater.

(1) Assumes excavation up to 2 feet bgs across the AOC to achieve Unrestricted Use or Protection of Ecological Resources SCOs.

(2) Assumes up to 1 foot of general fill and no backfill in top 1 foot across the excavated area as sediment will be removed to maintain flow.

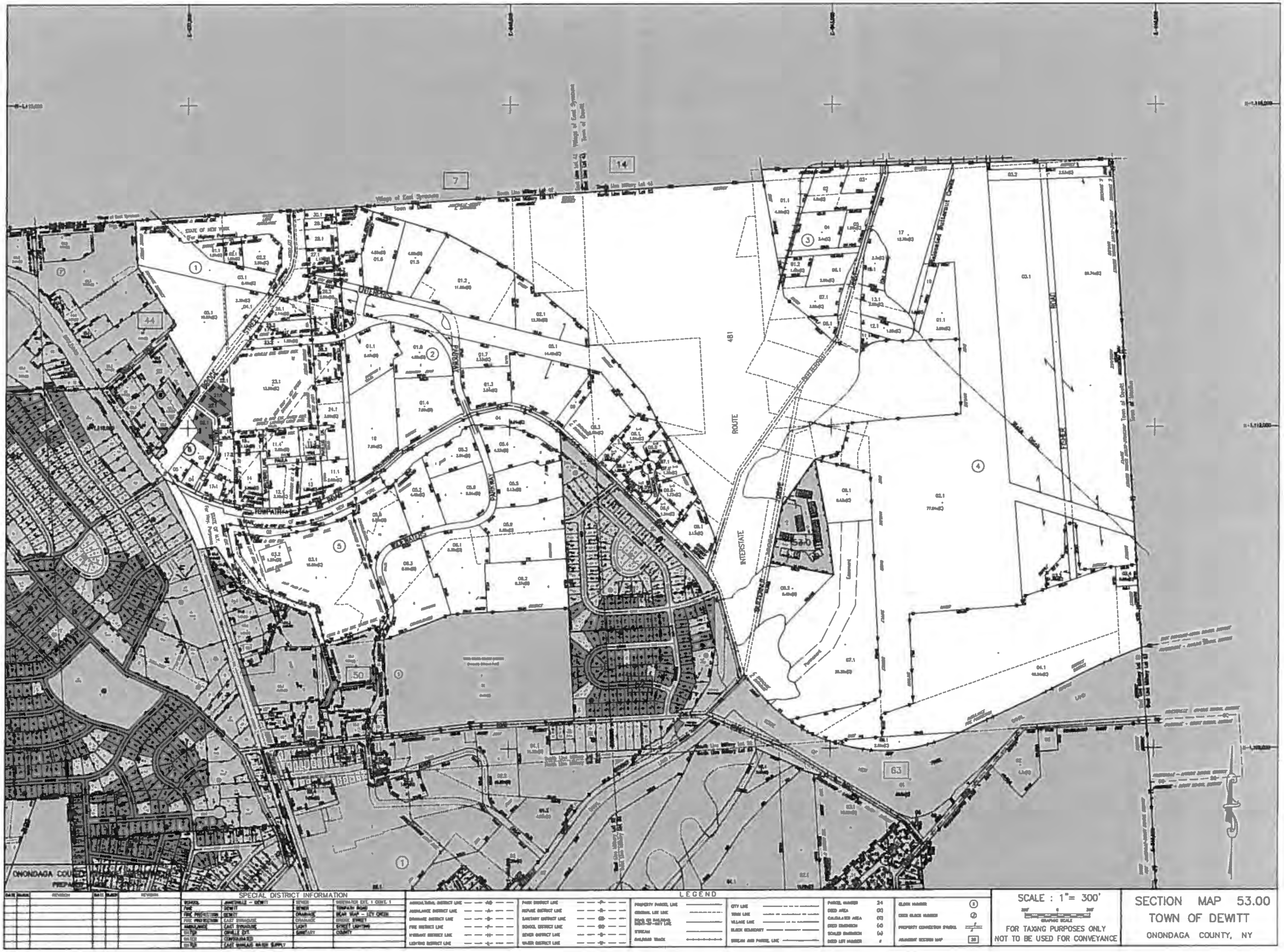
(3) Documentation for both alternatives include Final Engineering Report.

(4) No annual operating cost based on assumption there is no required groundwater or surface water monitoring.

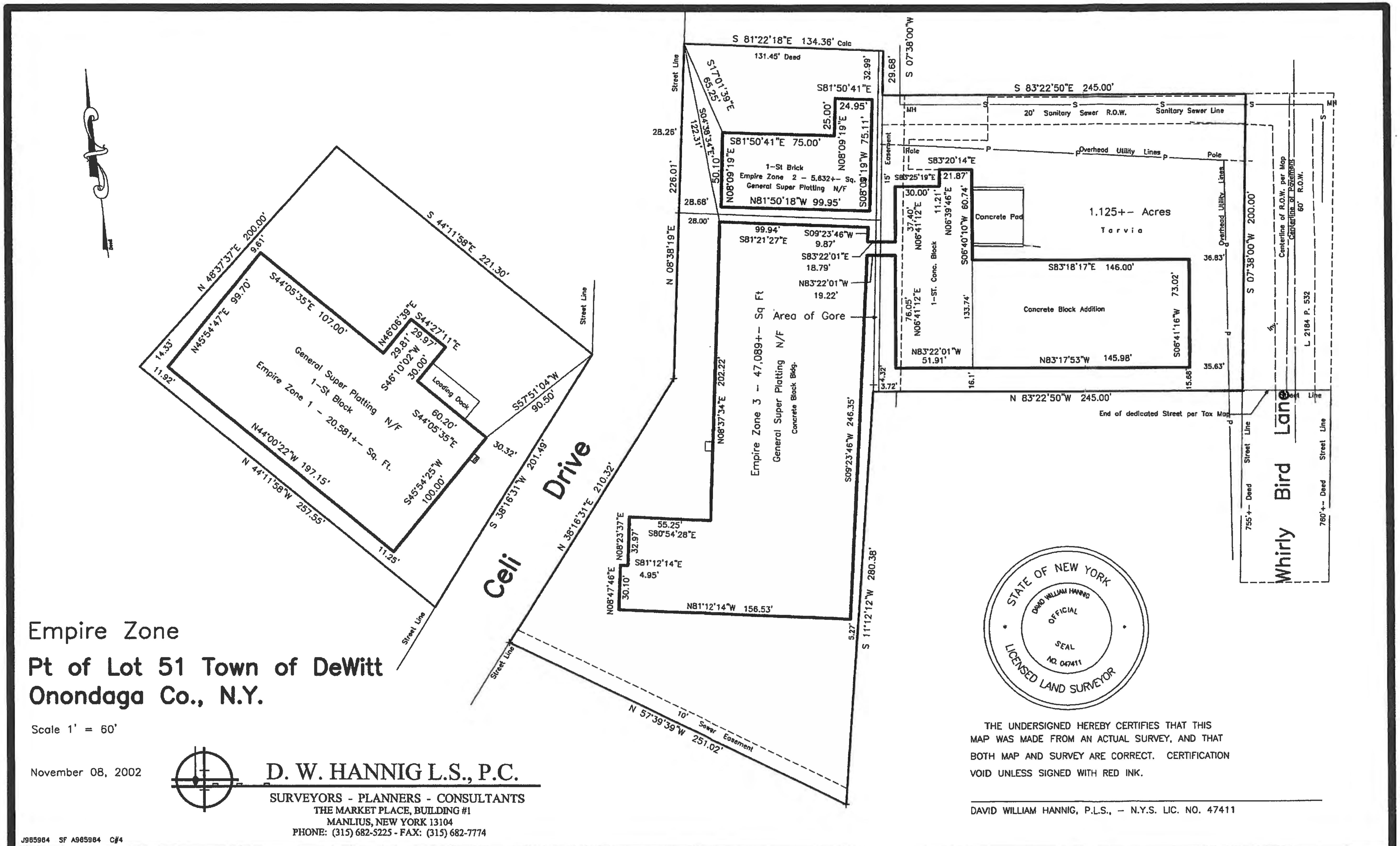
(a) Present worth annual cost based on 30 years of annual costs at a net interest rate of 3%

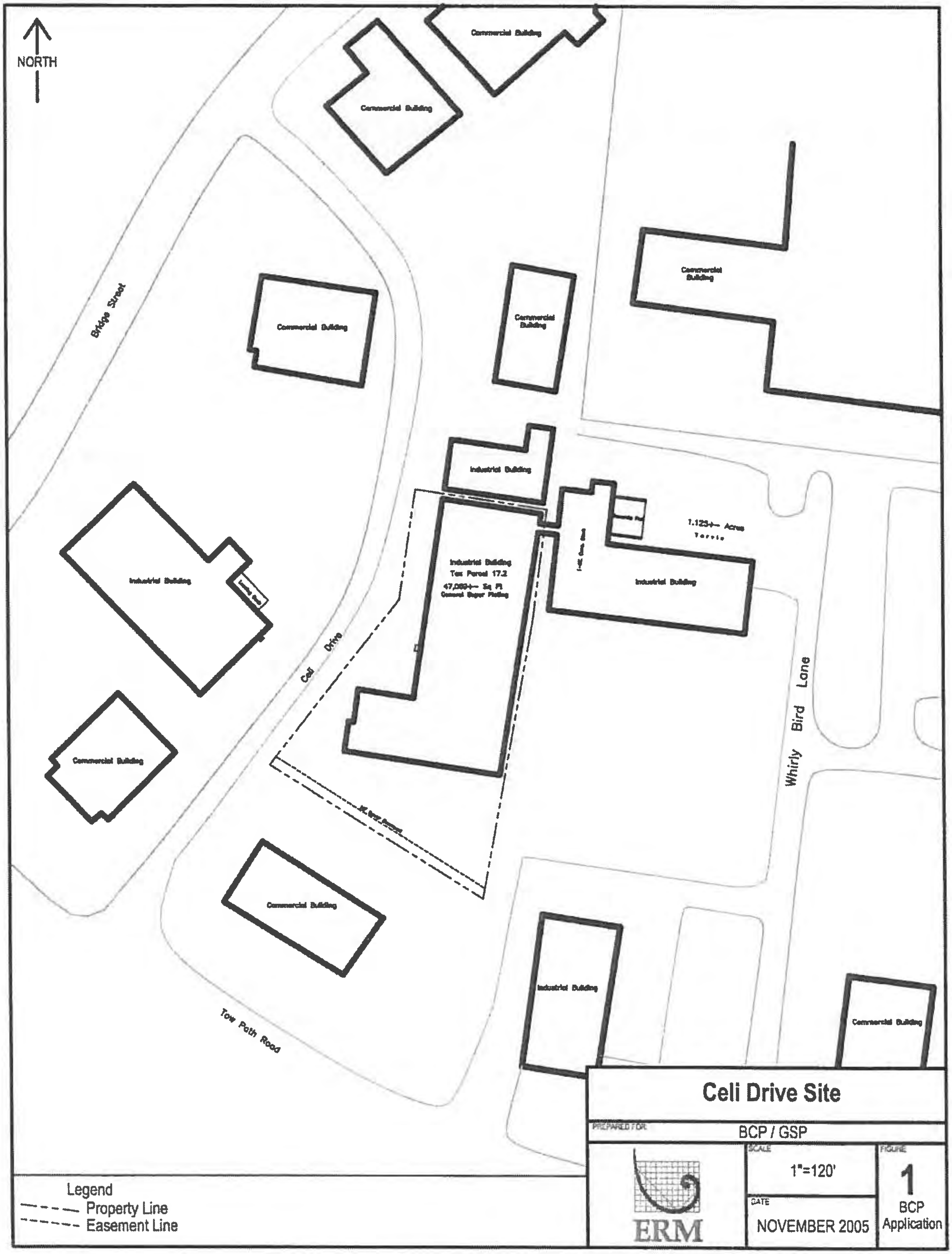
Attachments

Attachment A – Tax Map



14
7
44
50
63
ROUTE 481
INTERSTATE
SPECIAL DISTRICT INFORMATION
LEGEND
SCALE : 1"= 300'
FOR TAXING PURPOSES ONLY
NOT TO BE USED FOR CONVEYANCE
SECTION MAP 53.00
TOWN OF DEWITT
ONONDAGA COUNTY, NY


Empire Zone
Pt of Lot 51 Town of DeWitt
Onondaga Co., N.Y.
Scale 1' = 60'
November 08, 2002
D. W. HANNIG L.S., P.C.
SURVEYORS - PLANNERS - CONSULTANTS
THE MARKET PLACE, BUILDING #1
MANLIUS, NEW YORK 13104
PHONE: (315) 682-5225 - FAX: (315) 682-7774
J985984 SF A985984 C#4
General Super Platting N/F
1-St Block
Empire Zone 1 - 20,581+- Sq. Ft.
Loading Dock
N 48°37'37"E 200.00'
S 44°11'58"E 221.30'
N 44°11'58"W 257.55'
S57°51'04"W 90.50'
S44°05'35"E 107.00'
N46°06'39"E 29.81'
S44°27'11"E 29.97'
S46°10'02"W 30.00'
S44°05'35"E 60.20'
S45°54'25"W 100.00'
N44°00'22"W 197.15'
N45°54'47"E 99.70'
Celi Drive
S 38°16'31"W 201.49'
N 38°16'31"E 210.32'
Street Line
S 81°22'18"E 134.36' Calc
131.45' Deed
S17°01'39"E 65.25'
S04°38'34"E 122.31'
S81°50'41"E 75.00'
1-St Brick
Empire Zone 2 - 5,632+- Sq.
General Super Platting N/F
N81°50'18"W 99.95'
N08°09'19"E 75.11'
S08°09'19"W
Empire Zone 3 - 47,089+- Sq Ft
General Super Platting N/F
Concrete Block Bldg.
Area of Gore
N 08°38'19"E 226.01'
N08°37'34"E 202.22'
S09°23'46"W 246.35'
S 11°12'12"W 280.38'
N81°12'14"W 156.53'
S80°54'28"E 55.25'
S81°12'14"E 4.95'
N 57°39'39"W 251.02'
10' Sewer Easement
S 83°22'50"E 245.00'
20' Sanitary Sewer R.O.W.
Sanitary Sewer Line
Overhead Utility Lines
1.125+- Acres
Tarvia
Concrete Pad
1-St. Conc. Block
Concrete Block Addition
S83°18'17"E 146.00'
N83°17'53"W 145.98'
S06°41'16"W 73.02'
S06°40'10"W 60.74'
N 83°22'50"W 245.00'
S 07°38'00"W 200.00'
S 07°38'00"W
End of dedicated Street per Tax Map
Centerline of R.O.W. per Map
60' R.O.W.
L 2184 P. 532
Whirly Bird Lane
755'+- Deed
760'+- Deed
STATE OF NEW YORK
DAVID WILLIAM HANNIG
OFFICIAL SEAL
NO. 047411
LICENSED LAND SURVEYOR
THE UNDERSIGNED HEREBY CERTIFIES THAT THIS MAP WAS MADE FROM AN ACTUAL SURVEY, AND THAT BOTH MAP AND SURVEY ARE CORRECT. CERTIFICATION VOID UNLESS SIGNED WITH RED INK.
DAVID WILLIAM HANNIG, P.L.S., - N.Y.S. LIC. NO. 47411



Celi Drive Site

PREPARED FOR: BCP / GSP

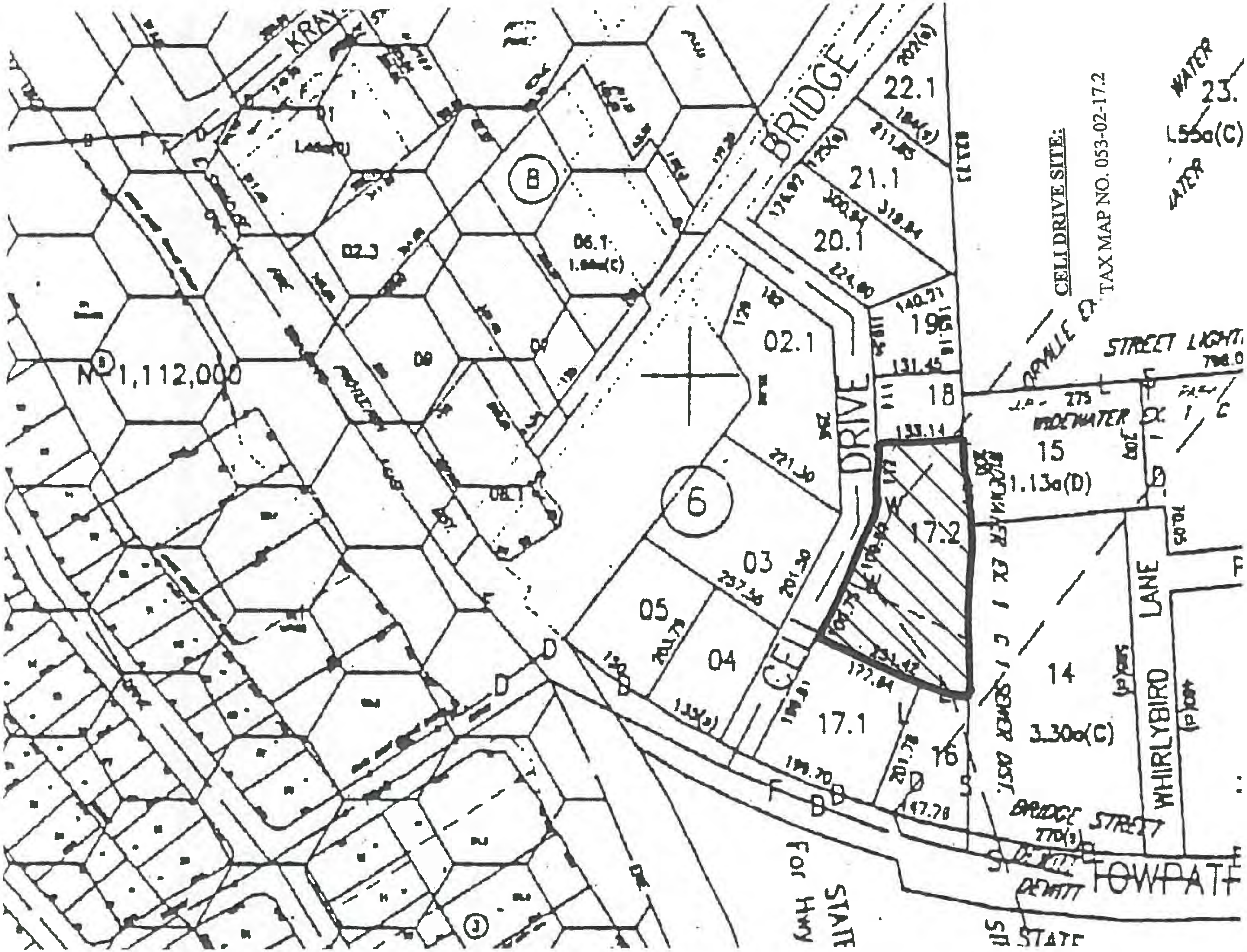
ERM

SCALE: 1"=120'

DATE: NOVEMBER 2005

FIGURE 1
BCP Application

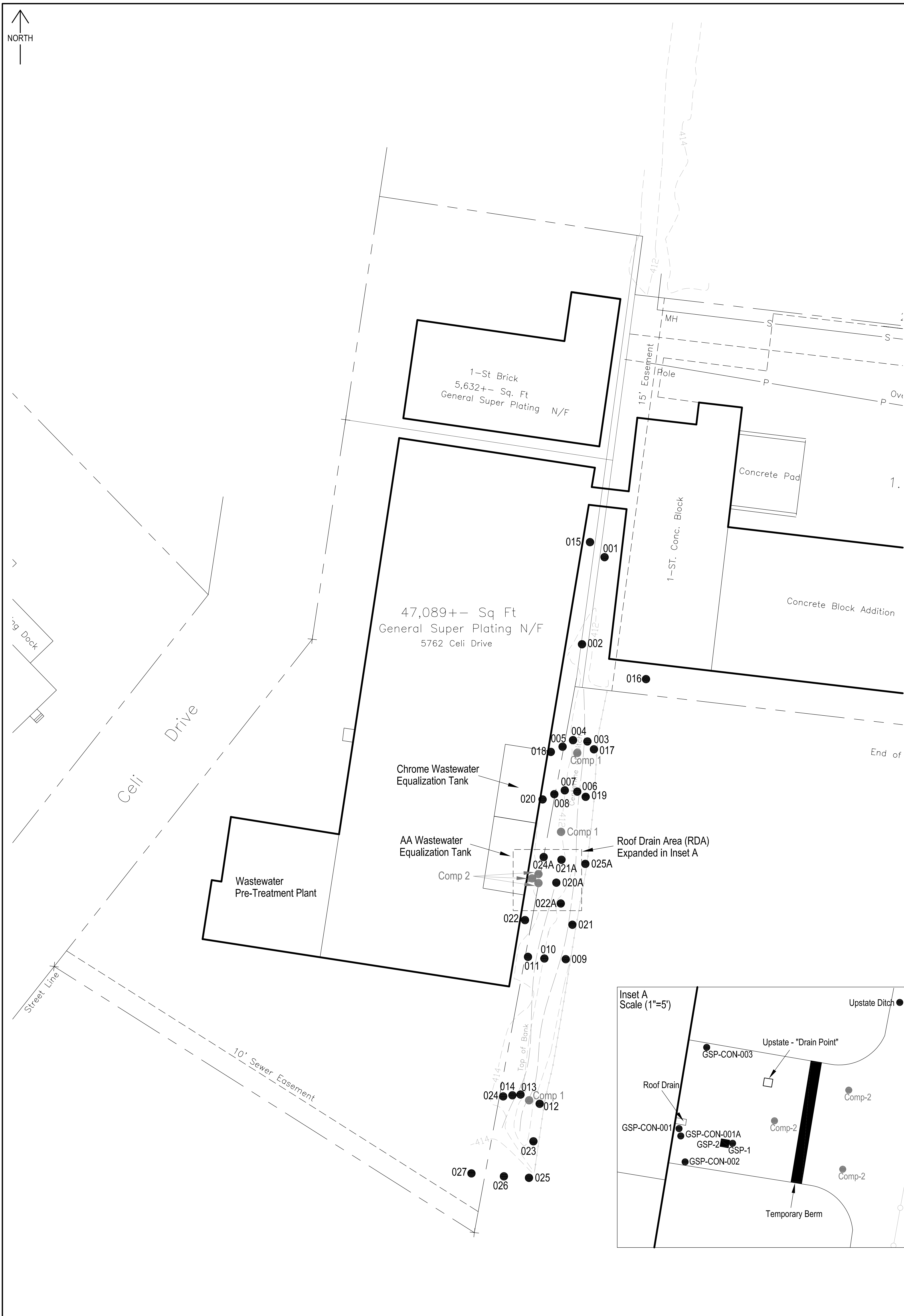
Legend
Property Line
Easement Line



CELI DRIVE SITE:
TAX MAP NO. 053-02-17.2

Attachment B – Excerpts from Previous Investigation Reports

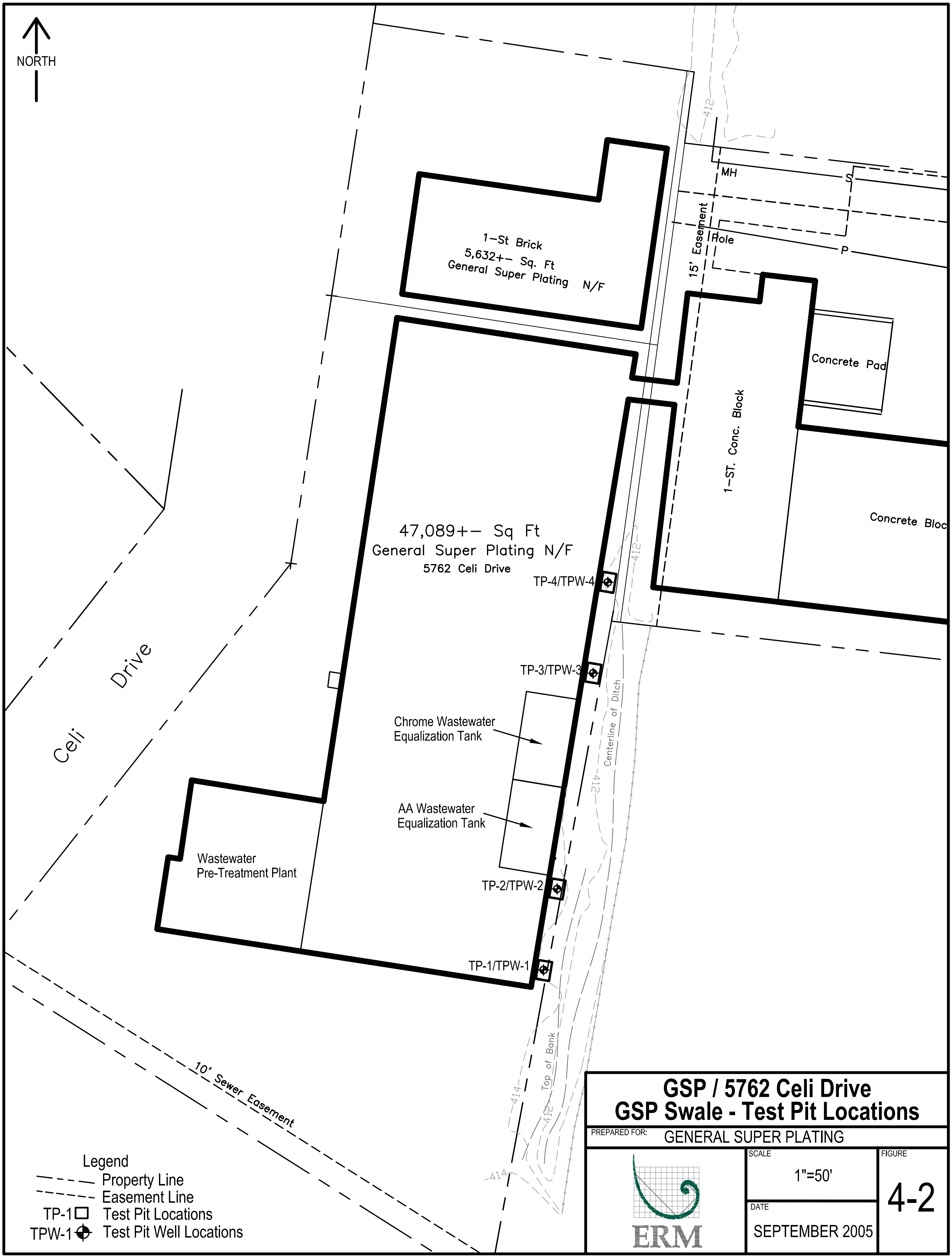
Attachment B-1 – Excerpts from Comprehensive Site Investigation Report, ERM, November 2005



Legend
Property Line
Easement Line
021A Soil/Sediment Sample Location
Comp 1 TCLP Soil Sample Location (composite)

Scale (1"=20')
10' 0 10' 20' 40'

GSP / 5762 Celi Drive GSP Swale Layout	
PREPARED FOR: GENERAL SUPER PLATING	
ERM	SCALE 1"=20'
	DATE SEPTEMBER 2005
FIGURE	4-1



GSP / 5762 Celi Drive
GSP Swale - Test Pit Locations

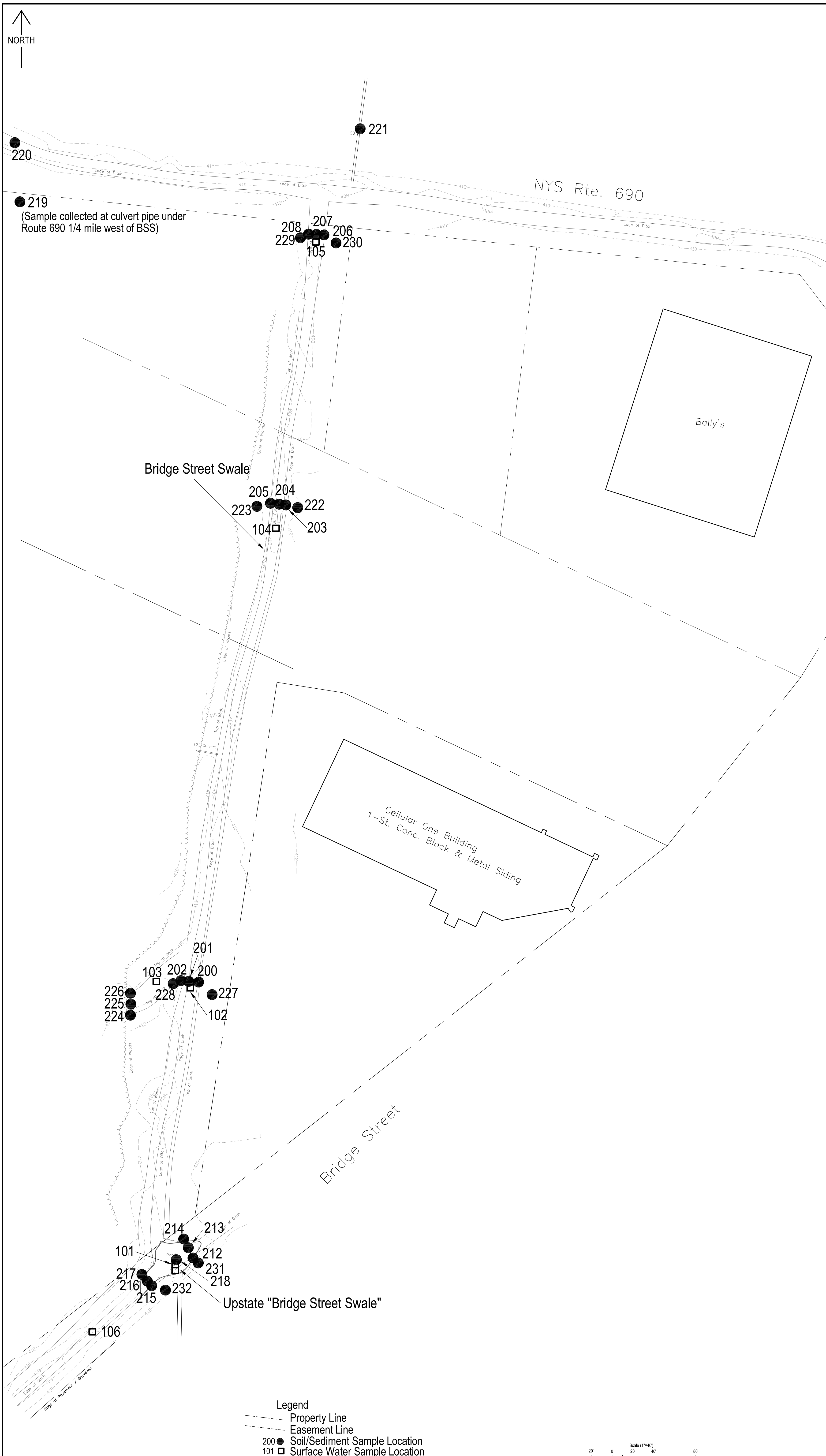
PREPARED FOR: GENERAL SUPER PLATING

ERM

SCALE 1"=50'

DATE SEPTEMBER 2005

FIGURE 4-2



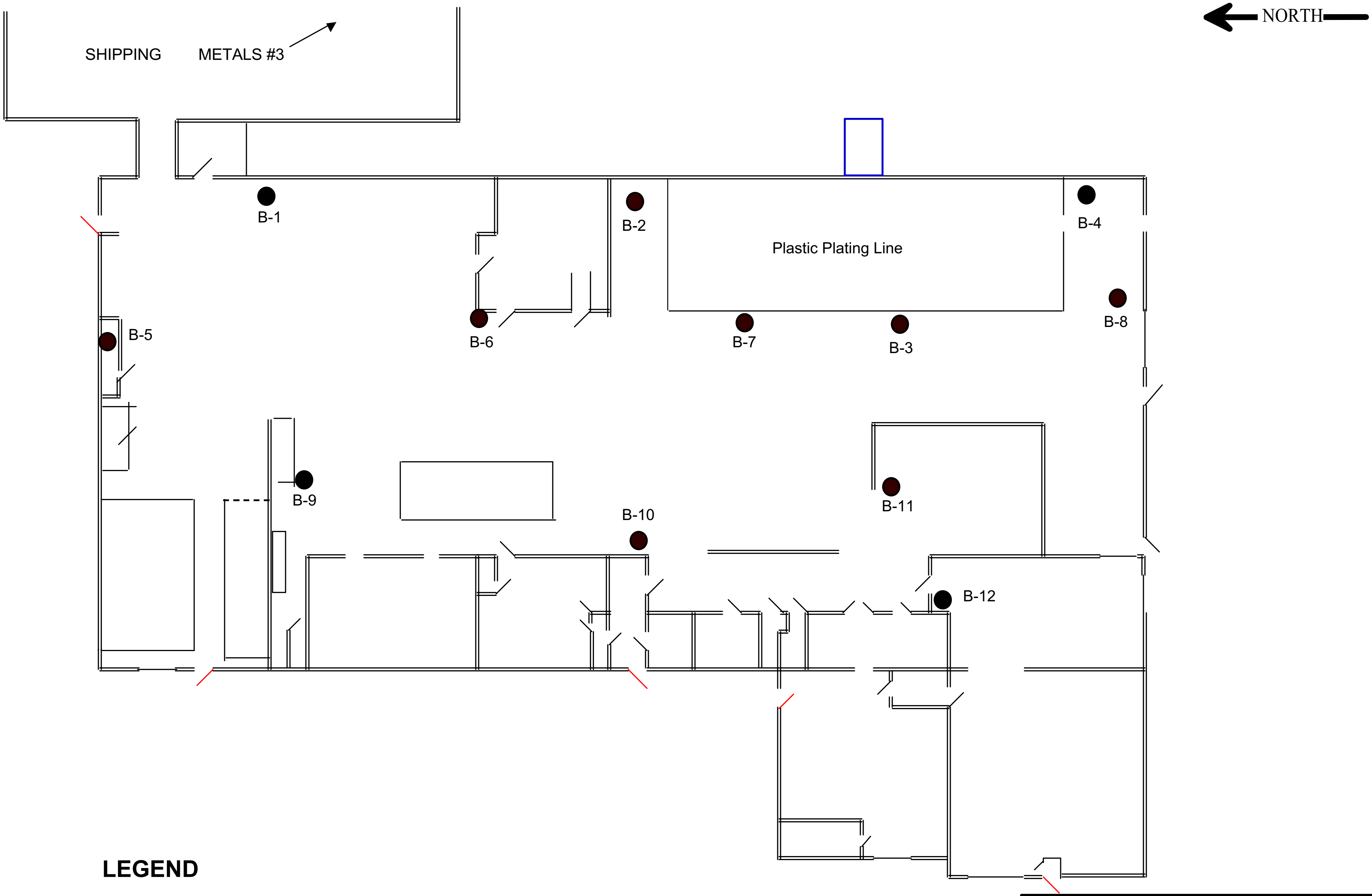
GSP / 5762 Celi Drive
Bridge Street Swale - Sample Locations

PREPARED FOR: GENERAL SUPER PLATING

SCALE	FIGURE
1"=40'	4-3
DATE: SEPTEMBER 2005	

ERM

R:\Syracuse Jobs\General Super Plating\GSP Figures.dwg (11/14/2005 - 3:59pm Boston)

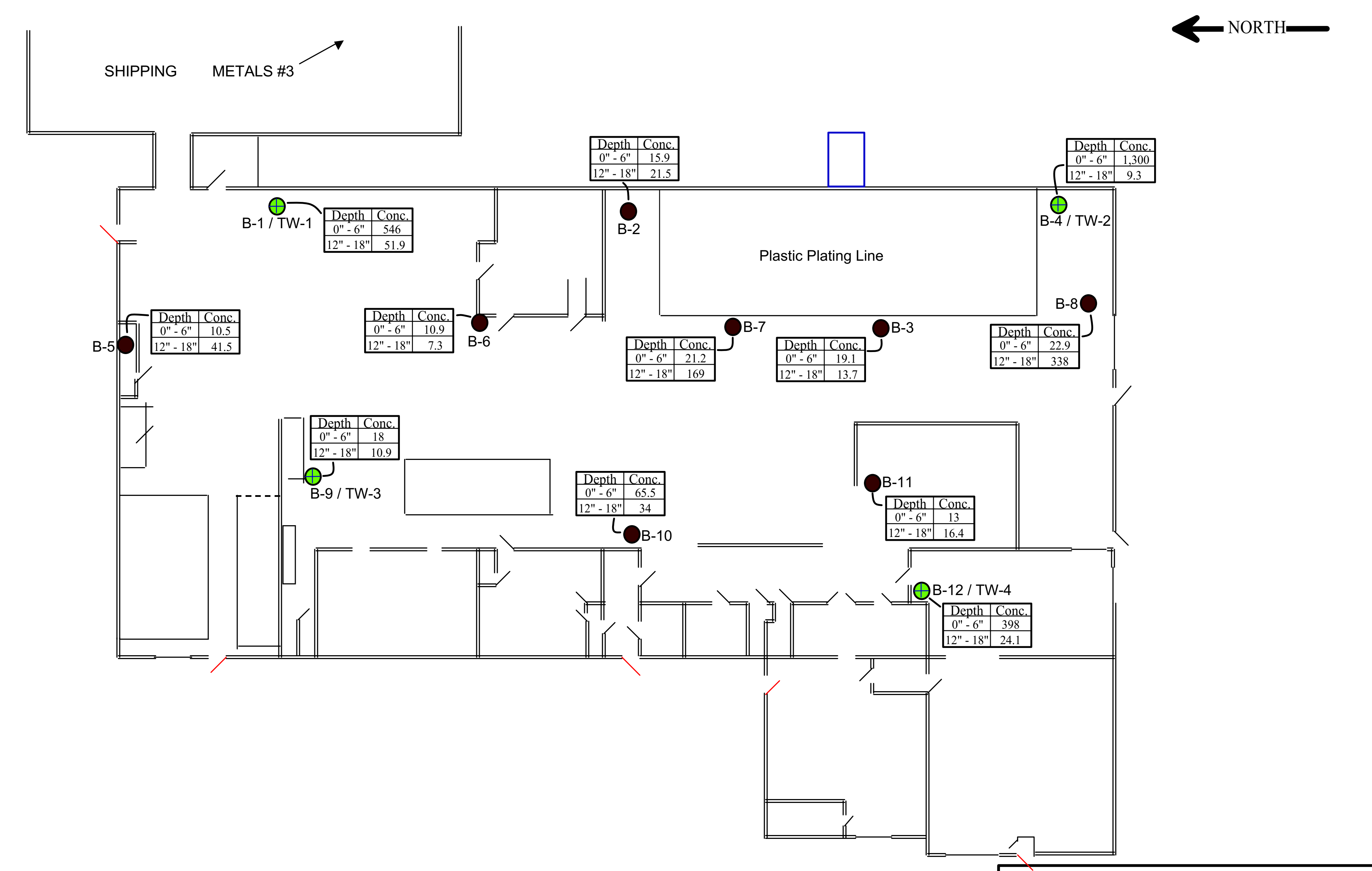


LEGEND

● Sub-Slab Boring Location

GSP SUB-SLAB SAMPLE LOCATIONS

PREPARED FOR: GSP		
ERM	SCALE NTS	FIGURE 4-5
	DATE September 2005	



LEGEND

- Sub-Slab Boring Location
- Temporary Monitoring Well Location

Conc. = Concentration of Contaminant at Specified Depth in Soil in mg/kg

GSP Sub-Slab
Total Chromium in Soil

PREPARED FOR: GSP

ERM

SCALE: NTS

DATE: September 2005

FIGURE: 5-4

G:\HANC&EST\0032572\Final Report Figures\Fig 5-4_Chromium.dsf

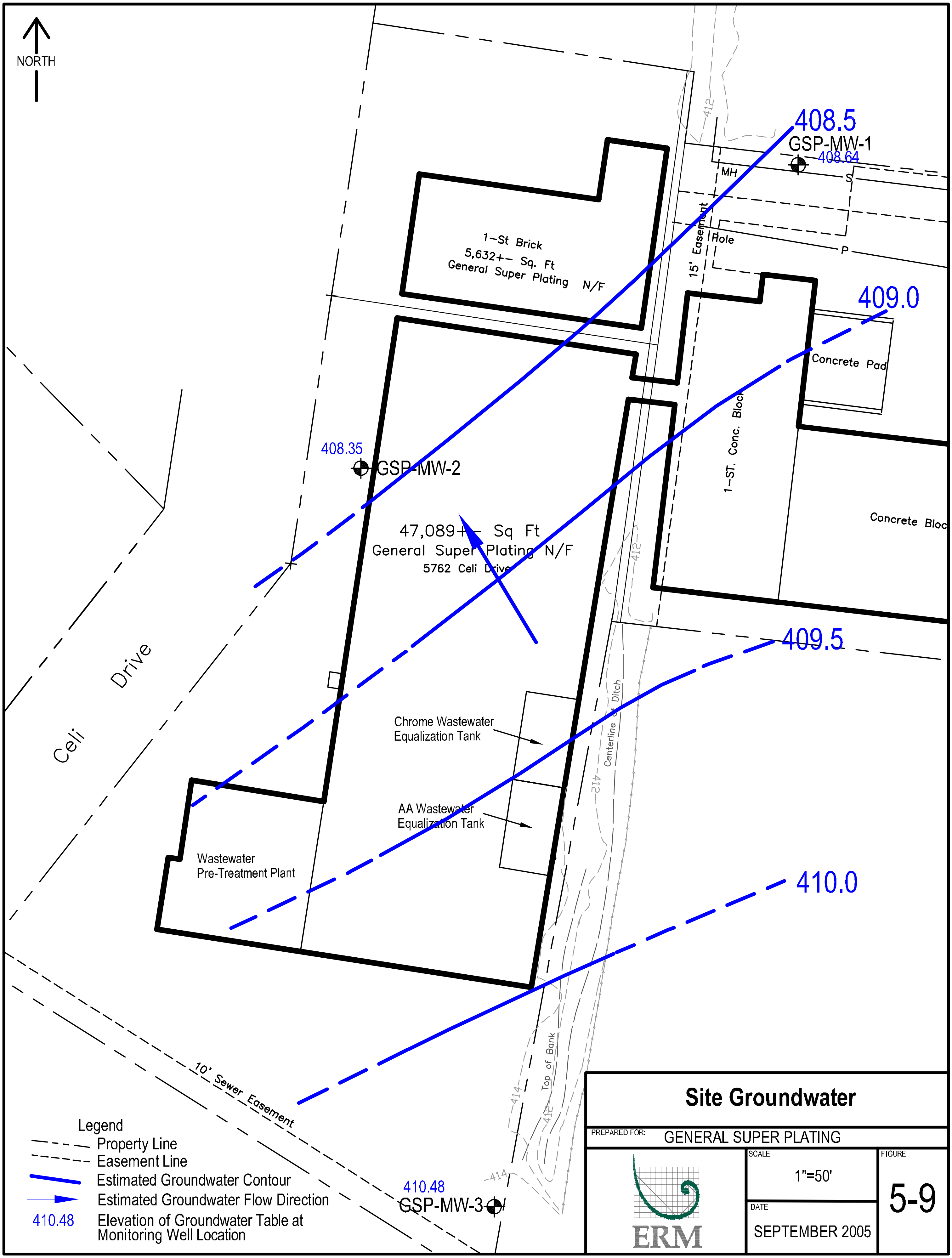

NORTH
408.5
GSP-MW-1
408.64
MH
S
Hole
P
15' Easement
1-St Brick
5,632+- Sq. Ft
General Super Plating N/F
409.0
Concrete Pad
1-ST. Conc. Block
Concrete Block
408.35
GSP-MW-2
47,089+- Sq Ft
General Super Plating N/F
5762 Celi Drive
Celi Drive
409.5
Centerline of Ditch
Chrome Wastewater
Equalization Tank
AA Wastewater
Equalization Tank
Wastewater
Pre-Treatment Plant
410.0
Top of Bank
10' Sewer Easement
410.48
GSP-MW-3
412
414
Legend
Property Line
Easement Line
Estimated Groundwater Contour
Estimated Groundwater Flow Direction
410.48
Elevation of Groundwater Table at
Monitoring Well Location
Site Groundwater
PREPARED FOR: GENERAL SUPER PLATING
ERM
SCALE
1"=50'
DATE
SEPTEMBER 2005
FIGURE
5-9

TABLE 5-1
Summary of GSP and Upstate Analytical Data - Soil
Roof Drain Area and GSP Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample ID/Location **Matrix** **Date Sampled**	**Guidance** **NYSDEC** **TAGM #4046**	*** GSP-1** **soil** **5/10/2005**	**** Drain Point (solid)** **Solid** **5/18/2005**	****Ditch** **Solid** **5/18/2005**
Metals (mg/Kg)				
Cadmium	1 or SB	ND	NA	NA
Total Chromium	10 or SB	**1900.0**	NA	NA
Copper	25 or SB	**1500.0**	NA	NA
Lead	SB	22.0	NA	NA
Nickel	13 or SB	**210.0**	NA	NA
Silver	SB	ND	NA	NA
Zinc	20 or SB	**35**	NA	NA
PCB (mg/Kg)	1/10	NA	ND	ND
Metals (mg/Kg)				
Arsenic	7.5 or SB	NA	ND	ND
Barium	300 or SB	NA	ND	ND
Cadmium	1 or SB	NA	**3.1**	**4.7**
Total Chromium	10 or SB	NA	**1200.0**	**4100.0**
Copper	25 or SB	NA	**2700.0**	**7200.0**
Lead	SB	NA	29.0	83.0
Nickel	13 or SB	NA	**390.0**	**1500.0**
Selenium	2 or SB	NA	**4.7**	**3.5**
Silver	SB	NA	ND	ND
Zinc	20 or SB	NA	**69**	**170**
Mercury (mg/Kg)	0.1	NA	ND	ND
TCL-SVOC (ug/Kg)				
Benzo(b)fluoranthene	1,100	NA	ND	740.0
Bis(2-ethylhexyl)phthalate	50,000	NA	1200.0	ND
Fluoranthene	50,000	NA	ND	790.0
TCL VOC (ug/Kg)				
Acetone	200	NA	160	82
Methylene Chloride	100	NA	3.9	6.8
Ignitabaility	N/A	NA	>60	>60
pH	N/A	NA	5.19	5.4
Total Cyanide (mg/Kg)	NS	NA	3.95	8.23
Reactive Cyanide (mg/Kg)	NS	NA	ND	ND
ReactiveSulfide (mg/Kg)	NS	NA	ND	ND
Hexavalent Chrome (mg/Kg)	NS	NA	110.0	140.0

Notes:
Exceedances of Standard is shown in **Bold**
* = Sample Collected by GSP on 10 May 2005
** = Sample collected by Upstate on 18 May 2005.
SB = Site Background
ND = Not Detected
NA=Not Analyzed
NS=No Standard
N/A=Not Applicable
TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-2
Summary of Analytical Data - Soil
GSP Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	**Standard**	**GSP-001**	**GSP-001**	**GSP-002**	**GSP-002**	**GSP-003**	**GSP-003**	**GSP-004**	**GSP-004**
Sample Depth (ft.)	**NYSDEC**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**
Date Sampled	**TAGM #4046**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**
Metals (mg/kg)									
Total Chromium	10	**555**	**89.4**	**1,100**	**574**	**104**	**324**	**3,450**	**1,580**
Copper	25 or SB	**217**	**59.1**	**123**	**65.5**	**48.9**	**54.2**	**163**	**56.5**
Nickel	13 or SB	**2,400**	**307**	**546**	**74.8**	**51.1**	**44.7**	**2,180**	**419**
Zinc	20 or SB	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)									
Total Cyanide	NS	NA	NA	78.5	5.99	NA	NA	903	17.6

Sample Location	**Standard**	**GSP-005**	**GSP-005**	**GSP-006**	**GSP-006**	**GSP-007**	**GSP-007**	**GSP-008**	**GSP-008**
Sample Depth (ft.)	**NYSDEC**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**
Date Sampled	**TAGM #4046**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**
Metals (mg/kg)									
Total Chromium	10	**605**	**430**	**85.8**	**149**	**3,560**	**1,350**	**534**	**199**
Copper	25 or SB	**63.7**	20.3	**114**	**635**	**9,280**	**1,940**	**192**	**95.5**
Nickel	13 or SB	**621**	**252**	**447**	**709**	**2,130**	**1,740**	**220**	**118**
Zinc	20 or SB	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)									
Total Cyanide	NS	NA	NA	NA	NA	2.5	ND	NA	NA

Sample Location	**Standard**	**GSP-009**	**GSP-009**	**GSP-010**	**GSP-010**	**GSP-011**	**GSP-011**	**GSP-012**	**GSP-012**
Sample Depth (ft.)	**NYSDEC**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**	**6"-8"**	**16"-18"**
Date Sampled	**TAGM #4046**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**	**5/27/2005**
Metals (mg/kg)									
Total Chromium	10	**53**	**52.2**	**3,830**	**2,700**	**61.6**	**66.7**	**720**	**1,350**
Copper	25 or SB	**93.6**	**111**	**11,900**	**13,000**	**108**	**154**	**210**	**672**
Nickel	13 or SB	**91.9**	**277**	**3,720**	**2,440**	**85**	**84.4**	**176**	**376**
Zinc	20 or SB	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)									
Total Cyanide	NS	NA	NA	ND	ND	NA	NA	NA	NA

TABLE 5-2 (Continued)

Sample Location	Standard	GSP-013	GSP-013	GSP-014	GSP-014	GSP-Dupe1	GSP-SWALE-015	GSP-SWALE-015	GSP-SWALE-016
Sample Depth (ft.)	NYSDEC	6"-8"	16"-18"	6"-8"	16"-18"	6"-8"	1"-3"	13"-15"	1"-3"
Date Sampled	TAGM #4046	5/27/2005	5/27/2005	5/27/2005	5/27/2005	5/27/2005	6/9/2005	6/9/2005	6/9/2005
Metals (mg/kg)									
Total Chromium	10	**868**	**768**	**334**	**309**	**687**	**51.2**	**88.8**	**22.6**
Copper	25 or SB	**1,310**	**1,830**	**246**	**325**	**63.4**	21.5	**32.5**	**33.1**
Nickel	13 or SB	**967**	**1,240**	**1,060**	**845**	**106**	**276**	**294**	**27.6**
Zinc	20 or SB	NA	NA	NA	NA	NA	**46.2**	**62.4**	**50.6**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	NA	NA	NA	ND	ND	ND

Sample Location	Standard	GSP-SWALE-016	GSP-SWALE-017	GSP-SWALE-017	GSP-SWALE-018	GSP-SWALE-018	GSP-SWALE-019	GSP-SWALE-019	GSP-SWALE-020
Sample Depth (ft.)	NYSDEC	13"-15"	1"-3"	13"-15"	1"-3"	13"-15"	1"-3"	13"-15"	1"-3"
Date Sampled	TAGM #4046	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005
Metals (mg/kg)									
Total Chromium	10	8.47	**125**	**94.8**	**327**	**172**	**81.7**	**47.4**	**354**
Copper	25 or SB	18.8	**80.5**	**28.7**	**40.9**	16.4	**194**	**136**	**62.2**
Nickel	13 or SB	12.1	**46.2**	**22.3**	**59.4**	**60.7**	**222**	**125**	**75.1**
Zinc	20 or SB	**103**	**219**	**79.0**	**116**	**60.0**	**442**	**185**	**116**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	4.52	3.79	ND	ND	ND

Sample Location	Standard	GSP-SWALE-020	GSP-SWALE-021	GSP-SWALE-021	GSP-SWALE-022	GSP-SWALE-022	GSP-SWALE-023	GSP-SWALE-023	GSP-SWALE-024
Sample Depth (ft.)	NYSDEC	13"-15"	1"-3"	13"-15"	1"-3"	13"-15"	1"-3"	13"-15"	1"-3"
Date Sampled	TAGM #4046	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005	6/9/2005
Metals (mg/kg)									
Total Chromium	10	**290**	**21.6**	**18.5**	**162**	**22.9**	**19.3**	**40.4**	**65.6**
Copper	25 or SB	**46.3**	**28.7**	**26.5**	**342**	**34.9**	20.9	**27.9**	**261**
Nickel	13 or SB	**69.5**	**21.6**	**147**	**231**	**36.7**	**20.0**	**23.1**	**768**
Zinc	20 or SB	**105**	**144**	**104**	**1,740**	**96.9**	**204**	**194**	**621**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	ND	3.79	ND	ND	ND

TABLE 5-2 (Continued)

Sample Location Sample Depth (ft.) Date Sampled	Standard NYSDEC TAGM #4046	GSP-SWALE-024 13"-15" 6/9/2005	GSP-SWALE-025 1"-3" 6/9/2005	GSP-SWALE-025 13"-15" 6/9/2005	GSP-SWALE-026 1"-3" 6/9/2005	GSP-SWALE-026 13"-15" 6/9/2005	GSP-SWALE-027 1"-3" 6/9/2005	GSP-SWALE-027 13"-15" 6/9/2005	GSP-SWALE-DUP-1 6/9/2005
Metals (mg/kg)									
Total Chromium	10	**149**	**18.0**	**14.5**	**27.6**	**20.4**	**32.7**	**98.5**	**233**
Copper	25 or SB	**477**	**86.0**	**67.4**	**56.5**	**47.5**	17.5	**64.3**	**53.0**
Nickel	13 or SB	**468**	**18.5**	**14.7**	**26.0**	**19.5**	**16.3**	**36.7**	**97.4**
Zinc	20 or SB	**2,340**	**337**	**170**	**166**	**144**	**57.0**	**75.9**	**90.3**
Inorganics (mg/kg)									
Total Cyanide	NS	1.20	ND	ND	ND	ND	ND	ND	ND

Sample Location Sample Depth (ft.) Date Sampled	Standard NYSDEC TAGM #4046	GSP-SWALE-DUP-1 6/9/2005							
Metals (mg/kg)									
Total Chromium	10	**21.3**							
Copper	25 or SB	**45.5**							
Nickel	13 or SB	**22.6**							
Zinc	20 or SB	**157**							
Inorganics (mg/kg)									
Total Cyanide	NS	ND							

Notes:

Exceedances of Standard is shown in **Bold**

NS = no standard

NA = not analyzed

ND = the compound was not detected at a concentration above the reported method detection limit

SB = Site Background

mg/kg = miligram/kilogram

TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-3
TCLP Analyses
GSP Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	**Standard**	**GSP-COMP1(1)**	**GSP-COMP2(1)**	*** GSP-DUPE2**
Sample Depth (ft.)	**USEPA**	**1**	**1**	**1**
Date Sampled	**SW-846**	**5/27/2005**	**5/27/2005**	**5/27/2005**
TCLP Metals (mg/L)				
Total Chromium	5	0.452	0.696	0.89
Copper	NS	0.722	33.2	33.4
Nickel	NS	3.28	9.04	8.19
Inorganics (mg/L)				
TCLP Cyanide	NS	ND	ND	NA

TABLE 5-3a
Summary of Analytical Data - VOC Soil
GSP Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	**Standard**	**GSP-020A@4'**	**GSP-021A@6"-1'**	**GSP-022A@6"-1'**	***** GSP-023A(DUPE)**	**GSP-024A@6"-1'**	**GSP-025A@6"-1'**
Sample Depth (ft.)	**NYSDEC**	**4'**	**6"-1'**	**6"-1'**	**6"-1'**	**6"-1'**	**6"-1'**
Date Sampled	**TAGM 4046**	**5/31/2005**	**5/31/2005**	**5/31/2005**	**5/31/2005**	**5/31/2005**	**5/31/2005**
**** VOCs (ug/kg)**							
2-Chlorotoluene	NS	ND	188	ND	186	NA	NA
Inorganics (mg/kg)							
Total Cyanide	0.2	NA	NA	NA	NA	ND	ND

Notes:
Exceedances of Standard is shown in **Bold**
* = duplicate sample collected from GSP-Comp-2
** = samples were analyzed for the full list of VOCs, only detected compounds presented
*** = duplicate sample collected from GSP-021@ 6"-1'
NS = no standard
NA = not analyzed
ND = the compound was not detected at a concentration above the reported method detection limit
mg/L = miligram/liter
TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-4
RDA Excavation and Test Pit Analytical Data - Soil
GSP Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	Standard	CON- 001	CON- 001A	CON-002	CON-003	DUPE 1*	TP-1
Sample Depth (ft.)	NYSDEC	----	----	----	----	----	2 ft
Date Sampled	TAGM #4046	6/7/2005	6/7/2005	6/7/2005	6/7/2005	6/7/2005	6/14/2005
Metals (mg/kg)							
Total Chromium	10	**19.2**	**27.9**	**38.6**	**279.0**	**558.0**	**71.2**
Copper	25 or SB	15.4	**40.6**	**35.6**	**153.0**	**193.0**	**141.0**
Nickel	13 or SB	**419.0**	**23.3**	**79.5**	**571.0**	**941.0**	**419.0**
Zinc	20 or SB	**60.1**	**74.4**	**33.3**	**26.4**	**60.8**	**39.2**
Inorganics (mg/kg)							
Total Cyanide	NS	ND	ND	ND	ND	ND	ND

Sample Location	Standard	TP-1	TP-2	TP-2	TP-3	TP-3	TP-4	TP-4
Sample Depth (ft.)	NYSDEC	6 ft	3 ft	7 ft	3 ft	7 ft	2.5 ft	7 ft
Date Sampled	TAGM #4046	6/14/2005	6/14/2005	6/14/2005	6/14/2005	6/14/2005	6/14/2005	6/14/2005
Metals (mg/kg)								
Total Chromium	10	**79.2**	**10.5**	**24.2**	**348.0**	**98.2**	**321.0**	8.7
Copper	25 or SB	8.9	14.7	15.4	**26.0**	13.7	**32.9**	7.8
Nickel	13 or SB	**74.6**	**16.5**	**26.0**	**75.8**	**27.3**	**45.6**	7.6
Zinc	20 or SB	**25.0**	**22.9**	**22.9**	**20.0**	**25.3**	14.6	11.8
Inorganics (mg/kg)								
Total Cyanide	NS	ND	ND	ND	ND	ND	14.9	ND

Notes:

Exceedances of Standard is shown in **Bold**

* = Duplicate of CON-3 on 7 June 2005
NS = no standard
NA = not analyzed
ND = the compound was not detected at a concentration above the reported method detection limit
SB = Site Background
mg/kg = miligram/kilogram
TAGM #4046 = NYSDEC TAGM No. 4046
TOGS 1.1.1 = NYSDEC Ambient Water Quality Standards abd Guidance Values

TABLE 5-5
Summary of Analytical Data - Soil
Bridge Street Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	**Standard**	**GSP-200**	**GSP-200**	**GSP-201**	**GSP-202**	**GSP-202**	**GSP-203**	**GSP-203**	**GSP-204**
Sample Depth (ft.)	**NYSDEC**	**3"-6"**	**13"-16"**	**3"-6"**	**3"-6"**	**13"-16"**	**3"-6"**	**13"-16"**	**3"-6"**
Date Sampled	**TAGM #4046**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**
Metals (mg/kg)									
Total Chromium	10	**174.0**	**59.0**	**118.0**	**363.0**	**251.0**	**29.5**	**58.0**	**137.0**
Copper	25 or SB	**227.0**	**162.0**	**311.0**	**384.0**	**318.0**	**83.0**	**121.0**	**450.0**
Nickel	13 or SB	**175.0**	**76.0**	**127.0**	**244.0**	**225.0**	**22.0**	**40.9**	**219.0**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	4.53	4.32	ND	ND	ND

Sample Location	**Standard**	**GSP-205**	**GSP-205**	**GSP-206**	**GSP-206**	**GSP-207**	**GSP-208**	**GSP-208**	**GSP-209**
Sample Depth (ft.)	**NYSDEC**	**3"-6"**	**13"-16"**	**3"-6"**	**13"-16"**	**3"-6"**	**3"-6"**	**13"-16"**	**3"-6"**
Date Sampled	**TAGM #4046**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**
Metals (mg/kg)									
Total Chromium	10	**17.2**	**17.1**	**15.1**	**17.0**	**21.7**	**31.6**	**16.2**	8.1
Copper	25 or SB	22.9	23.8	**41.7**	**47.5**	**38.4**	**112.0**	**27.6**	10.7
Nickel	13 or SB	**18.8**	**17.6**	**28.8**	**32.3**	**19.8**	**96.4**	**28.8**	11.2
Inorganics (mg/kg)									
Total Cyanide	NS	1.34	2.41	ND	ND	1.93	1.74	ND	ND

Sample Location	**Standard**	**GSP-209**	**GSP-210**	**GSP-211 ***	**GSP-211**	**GSP-212**	**GSP-212**	**GSP-213**	**GSP-214**
Sample Depth (ft.)	**NYSDEC**	**13"-16"**	**3"-6"**	**3"-6"**	**13"-16"**	**3"-6"**	**13"-16"**	**6"-12"**	**3"-6"**
Date Sampled	**TAGM #4046**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**
Metals (mg/kg)									
Total Chromium	10	6.7	**11.8**	**12.9**	**11.4**	**36.3**	**17.3**	**966.0**	**257.0**
Copper	25 or SB	10.3	23.4	16.7	19.4	**185.0**	**105.0**	**4350.0**	**763.0**
Nickel	13 or SB	10.3	**14.2**	**13.2**	12.9	**25.0**	**13.5**	**927.0**	**262.0**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	ND	ND	ND	2.66	ND

Notes:

Exceedances of Standard is shown in **Bold**

* = Laboratory Report misprinted sample identification as GSP-21(3"-6")

NS = no standard

NA = not analyzed

ND = the compound was not detected at a concentration above the reported method detection limit

SB = Site Background

mg/kg = miligram/kilogram

TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-5 (Continued)

Sample Location	**Standard**	**GSP-214**	**GSP-215**	**GSP-215**	**GSP-216**	**GSP-217**	**GSP-217**	**GSP-218**	**GSP-219**
Sample Depth (ft.)	NYSDEC	**12"-16"**	**3"-6"**	**13"-16"**	**3"-6"**	**3"-6"**	**13"-16"**	**3"-6"**	**3"-6"**
Date Sampled	**TAGM #4046**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**	**6/3/2005**
Metals (mg/kg)									
Total Chromium	10	**74.3**	**10.8**	6.7	**731.0**	**20.1**	**26.7**	**321.0**	**14.8**
Copper	25 or SB	**149.0**	**109.0**	15.5	**7170.0**	**42.7**	**66.8**	**1150.0**	**36.6**
Nickel	13 or SB	**99.8**	**13.7**	9.4	**2330.0**	**41.5**	**51.6**	**412.0**	**22.0**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	ND	ND	ND	4.13	ND

Sample Location	**Standard**	**GSP-220**	**GSP-221**	**BSS-S-222**	**BSS-S-222**	**BSS-S-223**	**BSS-S-223**	**BSS-S-224**	**BSS-S-225**
Sample Depth (ft.)	**NYSDEC**	**3"-6"**	**3"-6"**	**1"-3"**	**13"-15"**	**1"-3"**	**13"-15"**	**0"-2"**	**0"-2"**
Date Sampled	**TAGM #4046**	**6/3/2005**	**6/3/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**
Metals (mg/kg)									
Total Chromium	10	**465.0**	**69.0**	**11.4**	**10.8**	9.17	**11.4**	**38.6**	**15.5**
Copper	25 or SB	**547.0**	**207.0**	14.4	14.3	11.1	9.85	**73.7**	24.4
Nickel	13 or SB	**190.0**	**78.5**	12	9.33	11.5	12.2	**26.6**	**15.3**
Zinc	20 or SB	NA	NA	**62.8**	**48.1**	**32.7**	**45.7**	**269**	**109**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	ND	ND	ND	1.72	ND

Sample Location	**Standard**	**BSS-S-226**	**BSS-S-227**	**BSS-S-227**	**BSS-S-228**	**BSS-S-228**	**BSS-S-229**	**BSS-S-229**	**BSS-S-230**
Sample Depth (ft.)	**NYSDEC**	**0"-2"**	**1"-3"**	**13"-15"**	**1"-3"**	**13"-15"**	**1"-3"**	**13"-15"**	**1"-3"**
Date Sampled	**TAGM #4046**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**	**6/10/2005**
Metals (mg/kg)									
Total Chromium	10	**22.7**	**53.4**	**25.2**	6.24	5.51	6.92	8.27	8.66
Copper	25 or SB	**31.9**	**90.4**	**57.5**	5.47	8.33	8.41	23.8	18
Nickel	13 or SB	**19.5**	**67.5**	**36.5**	6.32	7.24	8.39	11.4	12.2
Zinc	20 or SB	**100**	**163**	**87.8**	**46**	**30.6**	**42.9**	**45.7**	**64**
Inorganics (mg/kg)									
Total Cyanide	NS	ND	ND	ND	ND	ND	ND	1.72	ND

Notes:

Exceedances of Standard is shown in **Bold**

NS = no standard

NA = not analyzed

ND = the compound was not detected at a concentration above the reported method detection limit

SB = Site Background

mg/kg = miligram/kilogram

TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-5 (Continued)

Sample Location Sample Depth (ft.) Date Sampled	Standard NYSDEC TAGM #4046	BSS-S-230 13"-15" 6/10/2005	BSS-S-231 0"-2" 6/10/2005	BSS-S-231 13"-15" 6/10/2005	BSS-S-232 0"-2" 6/10/2005	BSS-S-232 13"-15" 6/10/2005	BSS-S-DUPE1 6/10/2005	BSS-S-DUPE2 6/10/2005
Metals (mg/kg)								
Total Chromium	10	8.50	**45.5**	**12.1**	**21.8**	**11.3**	**23.2**	**50.4**
Copper	25 or SB	18.6	**81.9**	**44.9**	**88.1**	**76.5**	**58.8**	**128**
Nickel	13 or SB	11.9	**14.3**	8.88	**24.3**	**13.3**	**34.5**	**18.7**
Zinc	20 or SB	**71.5**	**385**	**74.3**	**164**	**80.9**	**227**	**473**
Inorganics (mg/kg)								
Total Cyanide	NS	ND	15.7	ND	ND	ND	ND	14.4

Notes:

Exceedances of Standard is shown in **Bold**

NS = no standard

NA = not analyzed

ND = the compound was not detected at a concentration above the reported method detection limit

SB = Site Background

mg/kg = miligram/kilogram

TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-6
Summary of Analytical Data - Soil
Sub-Slab Investigation
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	Standard	B-1	B-1	B-2	B-2	B-3	B-3	B-4	B-4	B-5	B-5	B-6	B-6
Sample Depth (ft.)	NYSDEC	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"
Date Sampled	TAGM #4046	7/6/2005	7/6/2005	7/6/2005	7/6/2005	7/6/2005	7/6/2005	7/5/2005	7/5/2005	7/6/2005	7/6/2005	7/6/2005	7/6/2005
Metals (mg/kg)													
Total Chromium	10	**546.0**	**51.9**	**15.9**	**21.5**	**19.1**	**13.7**	**1,300.0**	9.3	**10.5**	**41.5**	**10.9**	7.3
Copper	25 or SB	**132.0**	**51.7**	**61.2**	16.0	**113.0**	**25.2**	**87,400.0**	**91.8**	**57.8**	**137.0**	**54.1**	**63.9**
Nickel	13 or SB	**969.0**	**54.3**	**13.4**	**14.1**	**29.3**	**16.4**	**5,780.0**	**1,300.0**	**33.8**	**109.0**	**32.3**	**27.6**
Zinc	20 or SB	**745.0**	**46.6**	**21.3**	ND	**30.3**	**34.1**	**41.8**	16.0	**41.2**	**671.0**	**37.5**	**36.1**
Inorganics (mg/kg)													
Total Cyanide	NS	1.7	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND

Sample Location	Standard	B-7	B-7	B-8	B-8	B-9	B-9	B-10	B-10	B-11	B-11	B-12	B-12
Sample Depth (ft.)	NYSDEC	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"	0"-6"	12"-18"
Date Sampled	TAGM #4046	7/6/2005	7/6/2005	7/7/2005	7/7/2005	7/5/2005	7/5/2005	7/7/2005	7/7/2005	7/7/2005	7/7/2005	7/5/2005	7/5/2005
Metals (mg/kg)													
Total Chromium	10	**21.2**	**169.0**	**22.9**	**338.0**	**18.0**	**10.9**	**65.5**	**34.0**	**13.0**	**16.4**	**398.0**	**24.1**
Copper	25 or SB	13.3	11.9	**59.8**	**855.0**	**73.1**	**56.1**	**55.3**	**102.0**	12.7	20.4	**1,260.0**	**60.7**
Nickel	13 or SB	**18.7**	**124.0**	**18.5**	**412.0**	**40.1**	**35.7**	**78.5**	**560.0**	10.5	**19.6**	**495.0**	**33.9**
Zinc	20 or SB	**27.7**	**29.2**	**34.4**	**52.9**	**39.7**	**44.0**	**41.6**	**65.7**	ND	**40.5**	**58.6**	**31.0**
Inorganics (mg/kg)													
Total Cyanide	NS	ND	ND	ND	ND	ND	ND	ND	2.82	ND	ND	ND	ND

Notes:

Exceedances of Standard is shown in **Bold**

NS = no standard
NA = not analyzed
ND = the compound was not detected at a concentration above the reported method detection limit
SB = Site Background
mg/kg = miligram/kilogram
TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-6a
Summary of Analytical Data - Soil
Sub-Slab Investigation
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample ID/Location Sample Depth (ft.) Date Sampled	Guidance NYSDEC TAGM #4046	B-4 0"-6" 7/7/2005
PCB (mg/Kg)	10	ND
Metals (mg/Kg)		
Arsenic	7.5 or SB	ND
Barium	300 or SB	8.93
Cadmium	1 or SB	0.457
Total Chromium	10 or SB	**64.4**
Copper	25 or SB	NA
Lead	SB	9.0
Nickel	13 or SB	NA
Selenium	2 or SB	ND
Silver	SB	ND
Zinc	20 or SB	NA
Mercury (mg/Kg)	0.1	ND
**** TCL-SVOC (ug/Kg)**		
Benzo(b)fluoranthene	1,100	ND
Bis(2-ethylhexyl)phthalate	50,000	ND
Fluoranthene	50,000	ND
**** TCL VOC (ug/Kg)**		
Acetone	200	ND
Methylene Chloride	100	ND
Ignitabaility	NA	NA
pH	NA	7.39
Total Cyanide (mg/L)	0.20	ND
Reactive Cyanide (mg/L)	NA	ND
ReactiveSulfide (mg/L)	NA	ND
Hexavalent Chrome (mg/L)	0.05	NA

Notes:

Exceedances of Standard is shown in **Bold**

NS = no standard
NA = not analyzed
ND = the compound was not detected at a concentration above the reported method detection limit
SB = Site Background
mg/kg = miligram/kilogram
TAGM #4046 = NYSDEC TAGM No. 4046

TABLE 5-7
Summary of Analytical Data - Water
GSP and Upstate Laboratory Samples
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample ID/Location Matrix Date Sampled	Standard TOGS 1.1.1 or TAGM 4046	^ GSP-2 Water 5/10/2005	* Drain Point Water 5/18/2005
PCB (mg/L)	0.00009	NA	ND
Metals (mg/L)			
Arsenic	0.05	NA	ND
Barium	1.00	NA	ND
Cadmium	0.005	ND	ND
Total Chromium	0.05	**26.0**	**55.0**
Copper	0.20	**110.0**	ND
Lead	0.05	ND	ND
Nickel	0.10	**110.0**	**120.0**
Selenium	0.01	NA	ND
Silver	0.05	ND	ND
Zinc	***2.00	0.68	0.18
Mercury (mg/Kg)	0.0007	NA	ND
**** TCL-SVOC (ug/L)**			
Benzo(b)fluoranthene	0.002	NA	ND
Bis(2-ethylhexyl)phthalate	50.00	NA	ND
Fluoranthene	50.00	NA	ND
**** TCL VOC (ug/L)**			
Acetone	50.00	NA	**100**
Methylene Chloride	5.00	NA	ND
Ignitabaility	N/A	NA	>60
pH	N/A	NA	2.4
Total Cyanide (mg/L)	0.20	NA	ND
Reactive Cyanide (mg/L)	N/A	NA	ND
ReactiveSulfide (mg/L)	N/A	NA	ND
Hexavalent Chrome (mg/L)	0.05	NA	**57.0**

Notes:

Exceedances of Standard is shown in **Bold**

TOGS 1.1.1 = NYS - Ambient Water Quality Standards
TAGM #4046 = NYSDEC TAGM No. 4046
^ =collected by GSP
* = collected by Upstate Laboratory personnel
** = full TCL scan completed, detected compounds only reported
*** = Guidance Value
N/A = Not Applicable
ND = Not Detected
NA = Not Analyzed
mg/kg = miligram/kilogram
mg/L = miligram/liter
ug/L = microgram/liter

TABLE 5-8
Summary of Analytical Data - Groundwater
Sub-Slab Investigation - Temporary Monitoring Wells
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location Date Sampled	Standard TOGS 1.1.1	TW-1 7/8/2005	TW-2 7/8/2005	TW-3 7/8/2005	TW-4 7/8/2005
Metals (mg/L)					
Total Chromium	0.05	**181**	0.0236	0.0091	0.0368
Copper	0.2	ND	0.0068	ND	0.0155
Nickel	0.1	ND	**0.166**	0.074	**0.884**
Zinc	* 2.0	0.238	ND	ND	ND
Inorganics (mg/L)					
Total Cyanide	0.2	0.0782	ND	ND	0.0252

Notes:

Exceedances of Standard is shown in **Bold**

* 2.0 = Guidance Value, not a standard
NA = not analyzed
ND = the compound was not detected at a concentration above the reported method detection limit
mg/L = miligram/liter
TOGS 1.1.1 = NYS Division of Water - Ambient Water Quality Standards and Guidance Values

TABLE 5-9
Summary of Analytical Data - Water
Upstate Laboratory Sample
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample ID/Location Matrix Date Sampled	Standard TOGS 1.1.1 or TAGM 4046	* Bridge Street Swale Water 5/18/2005
PCB (mg/L)	0.00009	ND
Metals (mg/L)		
Arsenic	0.05	ND
Barium	1.00	ND
Cadmium	0.01	ND
Total Chromium	0.05	**6.4**
Copper	0.20	**23.0**
Lead	0.05	ND
Nickel	0.10	**12.0**
Selenium	0.01	ND
Silver	0.05	ND
Zinc	***2.00	0.12
Mercury (mg/Kg)	0.0007	ND
**** TCL-SVOC (ug/L)**		
Benzo(b)fluoranthene	0.002	ND
Bis(2-ethylhexyl)phthalate	0.05	ND
Fluoranthene	*** 0.05	ND
**** TCL VOC (ug/L)**		
Acetone	50.00	**62**
Methylene Chloride	5.00	ND
Ignitabaility	N/A	>60
pH	N/A	6.6
Total Cyanide (mg/L)	0.20	ND
Reactive Cyanide (mg/L)	N/A	ND
ReactiveSulfide (mg/L)	N/A	ND
Hexavalent Chrome (mg/L)	0.05	MI

Notes:
Exceedances of Standard is shown in **Bold**
TOGS 1.1.1 = NYS - Ambient Water Quality Standards
TAGM #4046 = NYSDEC TAGM No. 4046
* = collected by Upstate Laboratory personnel
** = full TCL scan completed, detected compounds only reported
*** = Guidance Value
N/A = Not Applicable
ND = Not Detected
MI = Matrix Interference prevented quantification
mg/kg = miligram/kilogram
mg/L = miligram/liter
ug/L = microgram/liter

TABLE 5-10
Summary of Analytical Data - Surface Water
Bridge Street Swale Area
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location	Standard	Swale-101	BSS-Swale-01	Swale-102	BSS-Swale-02	Swale-103	BSS-Swale-03	Swale-104	BSS-Swale-04
Sample Depth (ft.)	NYSDOW	- -	- -	- -	- -	- -	- -	- -	- -
Date Sampled	TOGS 1.1.1	6/2/2005	6/9/2005	6/2/2005	6/9/2005	6/2/2005	6/9/2005	6/2/2005	6/9/2005
Metals (mg/L)									
Total Chromium	0.05	**0.542**	**0.650**	**0.342**	**0.627**	ND	ND	0.036	**0.239**
Hexavalent Chromium	0.011	NA	**0.430**	NA	**0.630**	NA	ND	NA	**0.059**
Copper	0.2	**1.24**	**1.69**	**1.76**	**0.74**	ND	ND	0.122	**0.866**
Nickel	0.1	**0.661**	**0.448**	**0.603**	**0.672**	ND	ND	0.04	**0.141**
Zinc	** 2.0	NA	0.115	NA	0.071	NA	ND	NA	0.12
Inorganics (mg/L)									
Total Cyanide	0.2	ND	ND	ND	ND	ND	ND	ND	0.0104

Sample Location	Standard	Swale-105	BSS-Swale-05	BSS-Swale-06	Large Culver	Bridge Street	* Swale-106	BSS - Dupe	
Sample Depth (ft.)	NYSDOW	- -	- -	- -	- -	- -	Dupe of 102	Dupe of 01	
Date Sampled	TOGS 1.1.1	6/2/2005	6/9/2005	6/9/2005	5/24/2005	6/1/2005	6/2/2005	6/9/2005	
Metals (mg/L)									
Total Chromium	0.05	**0.636**	0.0496	**0.0782**	**0.257**	0.019	**0.367**	**0.419**	
Hexavalent Chromium	0.011	NA	0.009	ND	NA	NA	NA	**0.45**	
Copper	0.2	**1.63**	**0.25**	**0.677**	**0.997**	0.0388	**1.92**	**0.533**	
Nickel	0.1	**0.962**	0.0872	**0.406**	**0.525**	0.0064	**0.648**	**0.402**	
Zinc	** 2.0	NA	ND	0.0288	NA	NA	NA	0.0702	
Inorganics (mg/L)									
Total Cyanide	0.2	ND	ND	ND	NA	0.012	ND	ND	

Notes:

TOGS 1.1.1 = NYS Division of Water (DOW) - Ambient Water Quality Standards and Guidance Values
Exceedances of Standard is shown in **Bold**

* = Duplicate of Swale-102 on 2 June 2005
** 2.0 = Guidance Value, not a standard
NA = not analyzed
ND = the compound was not detected at a concentration above the reported method detection limit
mg/L = miligram/liter

TABLE 5-11
Summary of Analytical Data - Groundwater
Test Pit Monitoring Wells
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location Date Sampled	Standard TOGS 1.1.1	TPW-1 6/17/2005	TPW-2 6/17/2005	TPW-3 6/17/2005	TPW-4 6/17/2005
Metals (mg/L)					
Total Chromium	0.05	0.0040	0.0035	**389.0000**	**293.0000**
Copper	0.2	0.0053	ND	0.0113	0.0200
Nickel	0.1	0.0712	**1.1500**	**1.6400**	**1.8800**
Zinc	* 2.0	ND	ND	0.3710	0.3230
Inorganics (mg/L)					
Total Cyanide	0.2	ND	ND	0.0609	0.0938

Notes:

TOGS 1.1.1 = NYS Division of Water - Ambient Water Quality Standards and Guidance Values
Exceedances of Standard is shown in **Bold**

* 2.0 = Guidance Value, not a standard

ND = the compound was not detected at a concentration above the reported method detection limit

mg/L = miligram/liter

TABLE 5-12
Summary of Analytical Data - Groundwater
Site Monitoring Wells
General Super Plating Company
NYSDEC Spill No.: 0550288
ERM Project No.: 0032572

Sample Location Date Sampled	Standard TOGS 1.1.1	GSP-MW-1 8/22/2005	GSP-MW-2 8/22/2005	GSP-MW-3 8/22/2005	GSP-Dupe 8/23/2005
Metals (mg/L)					
Total Chromium	0.05	ND	ND	ND	ND
Hexavalent Chromium	0.011	0.0110	0.0090	**0.0140**	0.0100
Copper	0.2	ND	0.0036	ND	ND
Nickel	0.1	ND	0.0059	0.0047	ND
Zinc	* 2.0	ND	ND	ND	ND
Inorganics (mg/L)					
Total Cyanide	0.2	ND	ND	ND	ND

Notes:

TOGS 1.1.1 = NYS Division of Water - Ambient Water Quality Standards and Guidance Values
Exceedances of Standard is shown in **Bold**

* 2.0 = Guidance Value, not a standard
ND = the compound was not detected at a concentration above the reported method detection limit
mg/L = miligram/liter
GSP-Dupe was taken at the MW-1 location.

Attachment B-2 – Excerpts from Data Gap Investigation Report, ERM, June 2012

Quadrangle Location

Source: U.S. Department of Transportation 1990

Site Location Map		
Prepared For: General Super Plating		
ERM	Scale 1:24,000 Date 28 Mar 2011	Figure 1

Aerial View of Site

PREPARED FOR
General Super Plating - Dewitt, New York

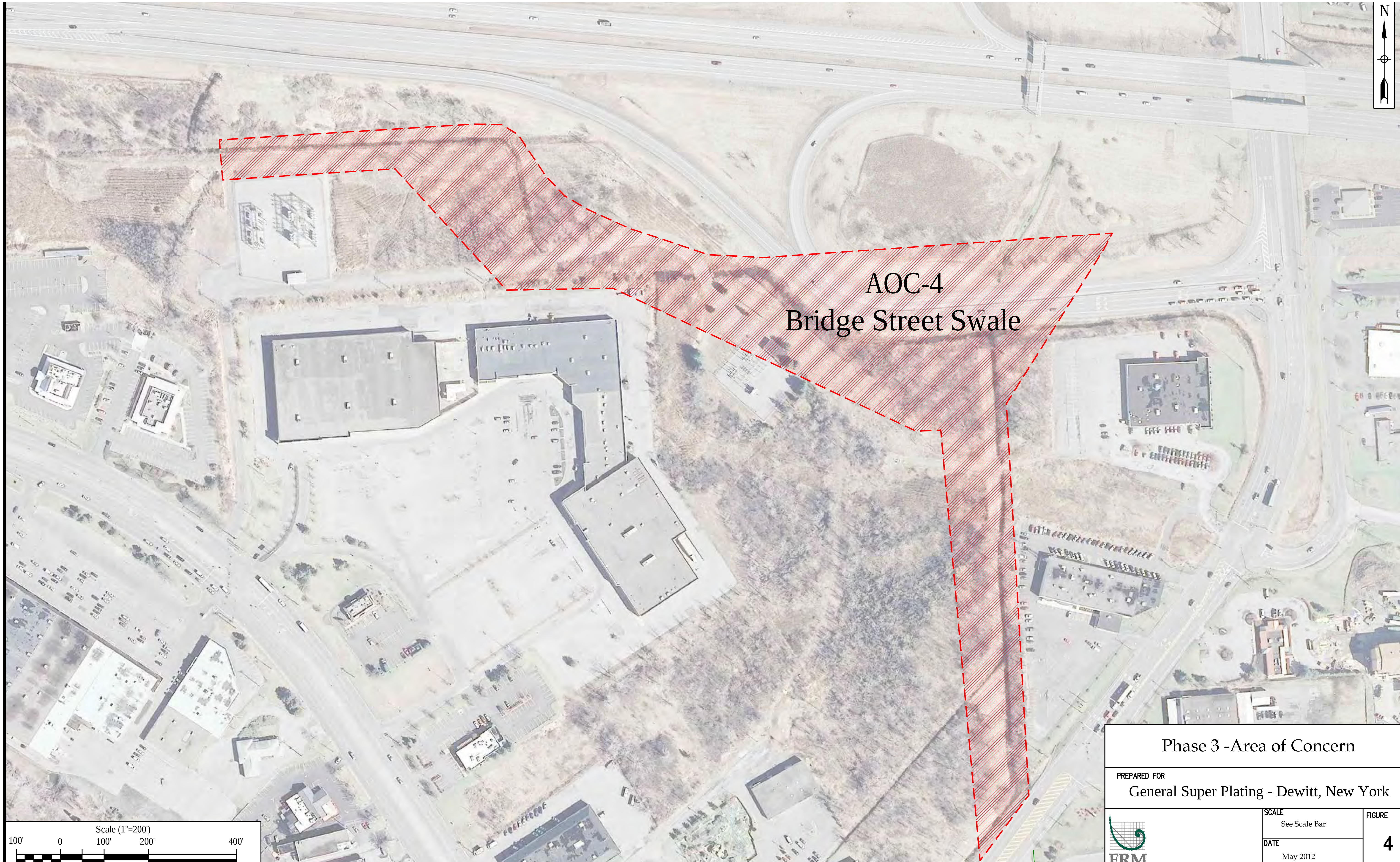
ERM

SCALE
See Scale Bar

DATE
May 2012

FIGURE
2

G:\Graphics\Clients_F_K\General Super Plating\East Syracuse,NY\CAD\DGI Investigation REV 1.dwg (05/31/2012 - 1:46pm Boston)



Phase 3 -Area of Concern

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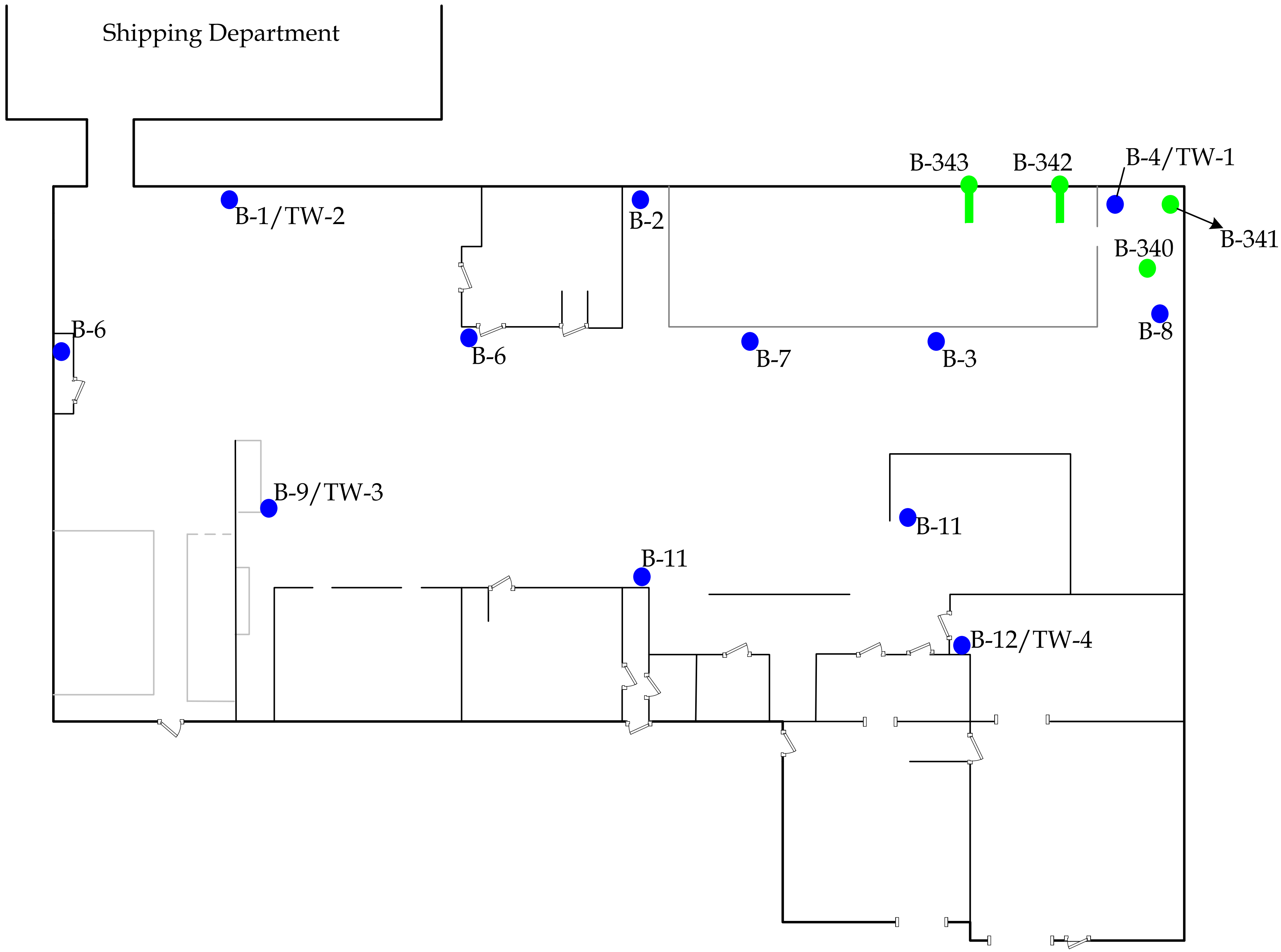
ERM

SCALE
See Scale Bar

DATE
May 2012

FIGURE
4

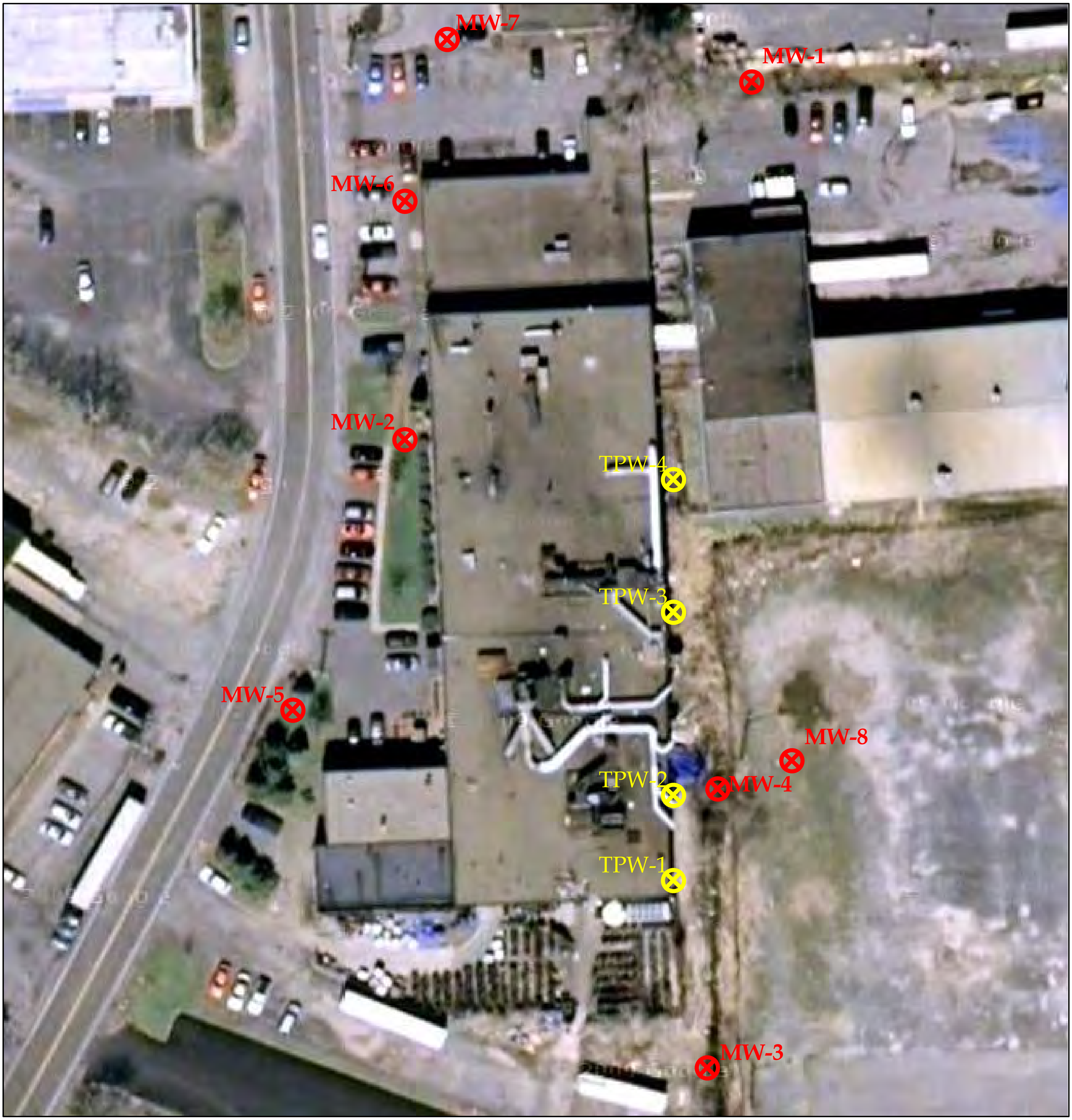
G:\Graphics\Clients_F_K\General Super Plating\East Syracuse,NY\CAD\DGI Investigation REV 1.dwg (05/30/2012 - 9:06am Boston)



<u>Legend</u>

- -Sub-Slab Boring Location 2005
- -Data Gap Investigation Boring Location- 2010
- -Data Gap Investigation Horizontal Boring Location- 2010

GSP Sub-Slab Sample Location		
Prepared For: General Super Plating		
ERM	Scale NTS	Figure 5
	Date 27 April 2010	

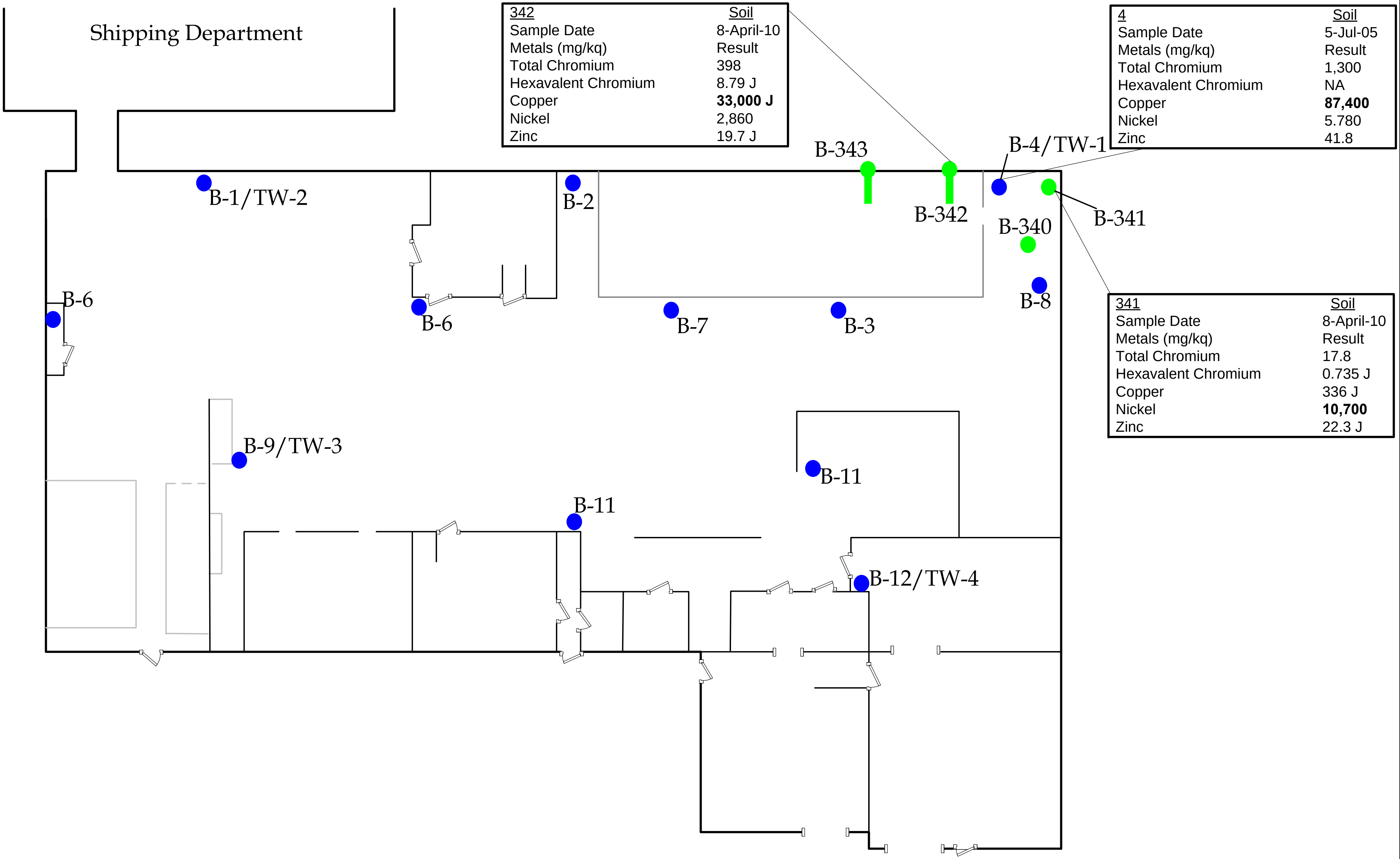


Legend

MW-5 -Monitoring Well

TPW-1 -Test Pit Monitoring Well

Monitoring Well Locations		
Prepared For: General Super Plating		
ERM	Scale: NTS	Figure: 9
	Date: 30 June 2010	



Legend

- -Sub-Slab Boring Location 2005
- -Data Gap Investigation Boring Location- 2010
- -Data Gap Investigation Horizontal Boring Location- 2010

Bold -Exceedance of Part 375 Restricted-Industrial Soil Cleanup Objective

GSP Sub-Slab-
Exceedances of Metals in Soil

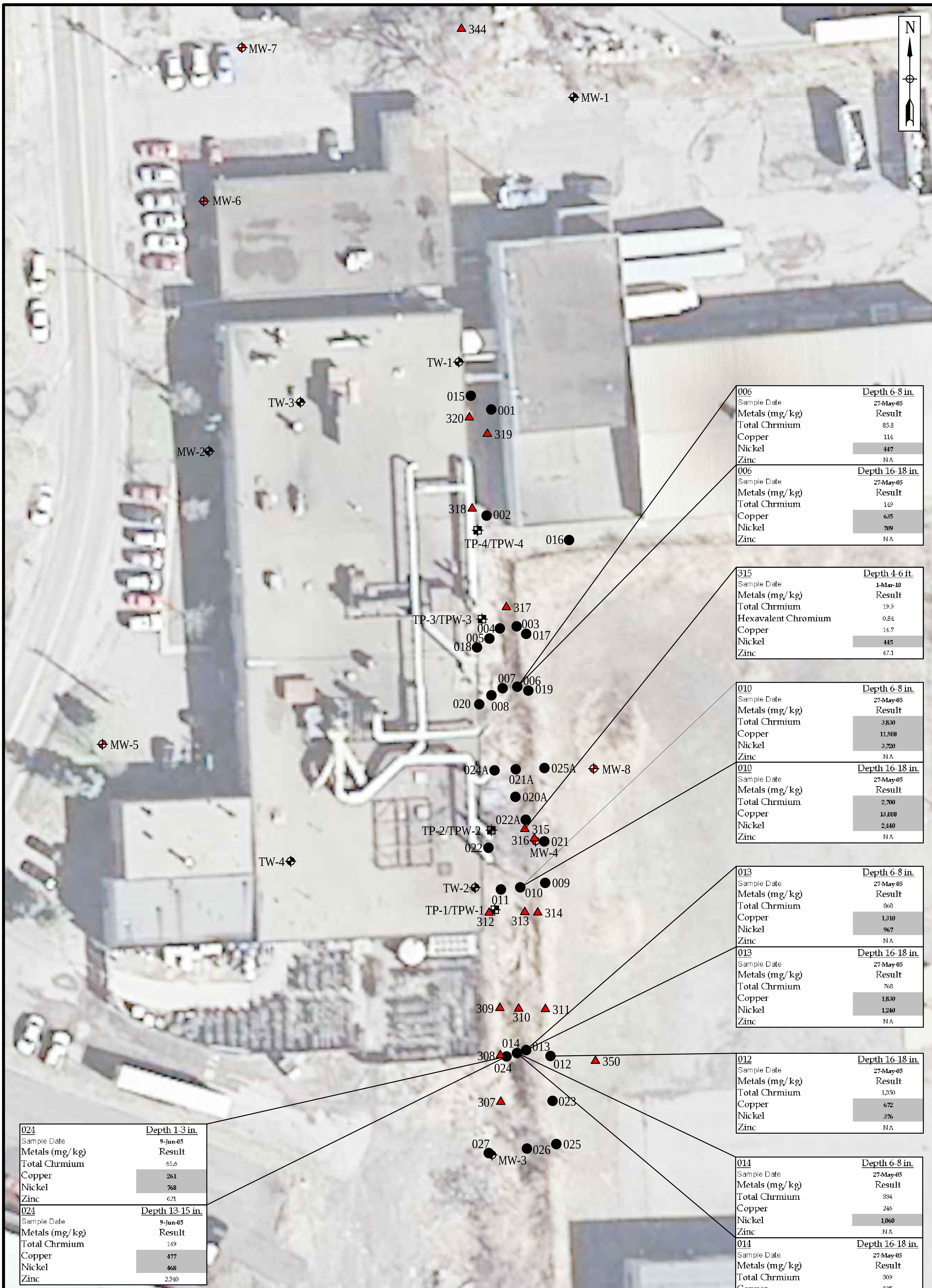
Prepared For: General Super Plating

ERM

Scale: NTS

Date: 30 June 2010

Figure: 10



006	Depth 6-8 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	85.8
Copper	114
Nickel	**447**
Zinc	NA

006	Depth 16-18 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	149
Copper	**635**
Nickel	**709**
Zinc	NA

315	Depth 4-6 ft.
Sample Date	1-Mar-10
Metals (mg/kg)	Result
Total Chrmium	19.9
Hexavalent Chromium	0.84
Copper	14.7
Nickel	**445**
Zinc	47.1

010	Depth 6-8 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	**3,830**
Copper	**11,900**
Nickel	**3,720**
Zinc	NA

010	Depth 16-18 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	**2,700**
Copper	**13,000**
Nickel	**2,440**
Zinc	NA

013	Depth 6-8 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	868
Copper	**1,310**
Nickel	**967**
Zinc	NA

013	Depth 16-18 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	768
Copper	**1,830**
Nickel	**1,240**
Zinc	NA

012	Depth 16-18 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	1,350
Copper	**672**
Nickel	**376**
Zinc	NA

014	Depth 6-8 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	334
Copper	246
Nickel	**1,060**
Zinc	NA

014	Depth 16-18 in.
Sample Date	27-May-05
Metals (mg/kg)	Result
Total Chrmium	309
Copper	325
Nickel	**845**
Zinc	NA

024	Depth 1-3 in.
Sample Date	9-Jun-05
Metals (mg/kg)	Result
Total Chrmium	65.6
Copper	**261**
Nickel	**768**
Zinc	621

024	Depth 13-15 in.
Sample Date	9-Jun-05
Metals (mg/kg)	Result
Total Chrmium	149
Copper	**477**
Nickel	**468**
Zinc	2,340

Legend

- Source Identification Investigation Sample Locations (2005)
- Monitoring Wells Installed 2005
- DGI Soil Boring Locations (2010)
- DGI Monitoring Wells (2010)
- Bold — Exceedance of Part 375 Restricted-Commercial Soil Cleanup Objective
- mg/kg — Milligrams per kilogram
- Approximate Location of Property Line

Scale (1"=40')

20' 0 20' 40' 80'

GSP Swale
Exceedances of Metals in Soil

PREPARED FOR

General Super Plating - Dewitt, New York

ERM

SCALE: See Scale Bar

DATE: June 2012

FIGURE 11

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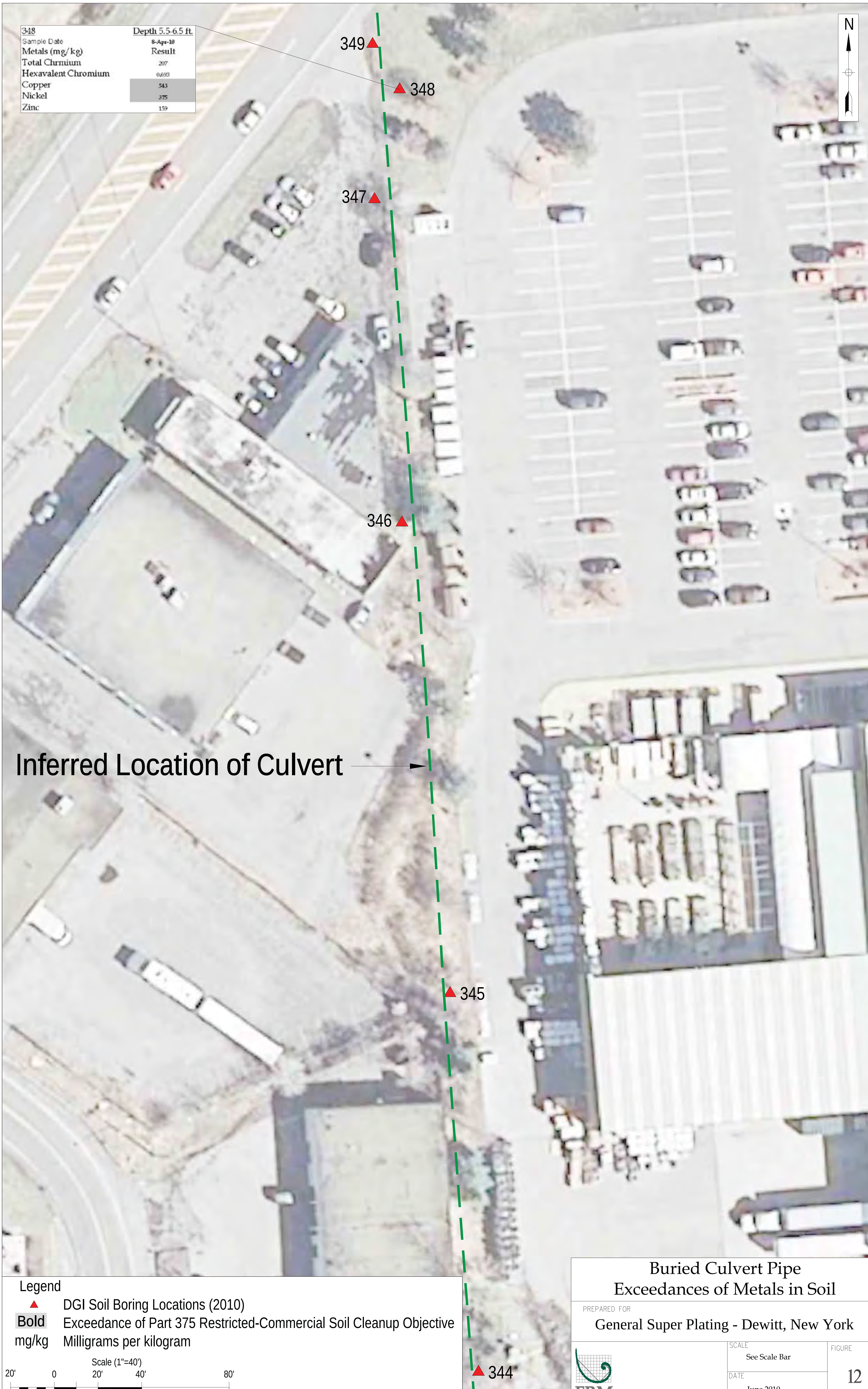

348	Depth 5.5-6.5 ft.
Sample Date	8-Apr-10
Metals (mg/kg)	Result
Total Chrmium	207
Hexavalent Chromium	0.693
Copper	**543**
Nickel	**375**
Zinc	159

Legend

▲ DGI Soil Boring Locations (2010)

Bold Exceedance of Part 375 Restricted-Commercial Soil Cleanup Objective

mg/kg Milligrams per kilogram

Scale (1"=40')

20' 0 20' 40' 80'

Buried Culvert Pipe
Exceedances of Metals in Soil

PREPARED FOR

General Super Plating - Dewitt, New York

ERM

SCALE See Scale Bar

DATE June 2010

FIGURE 12

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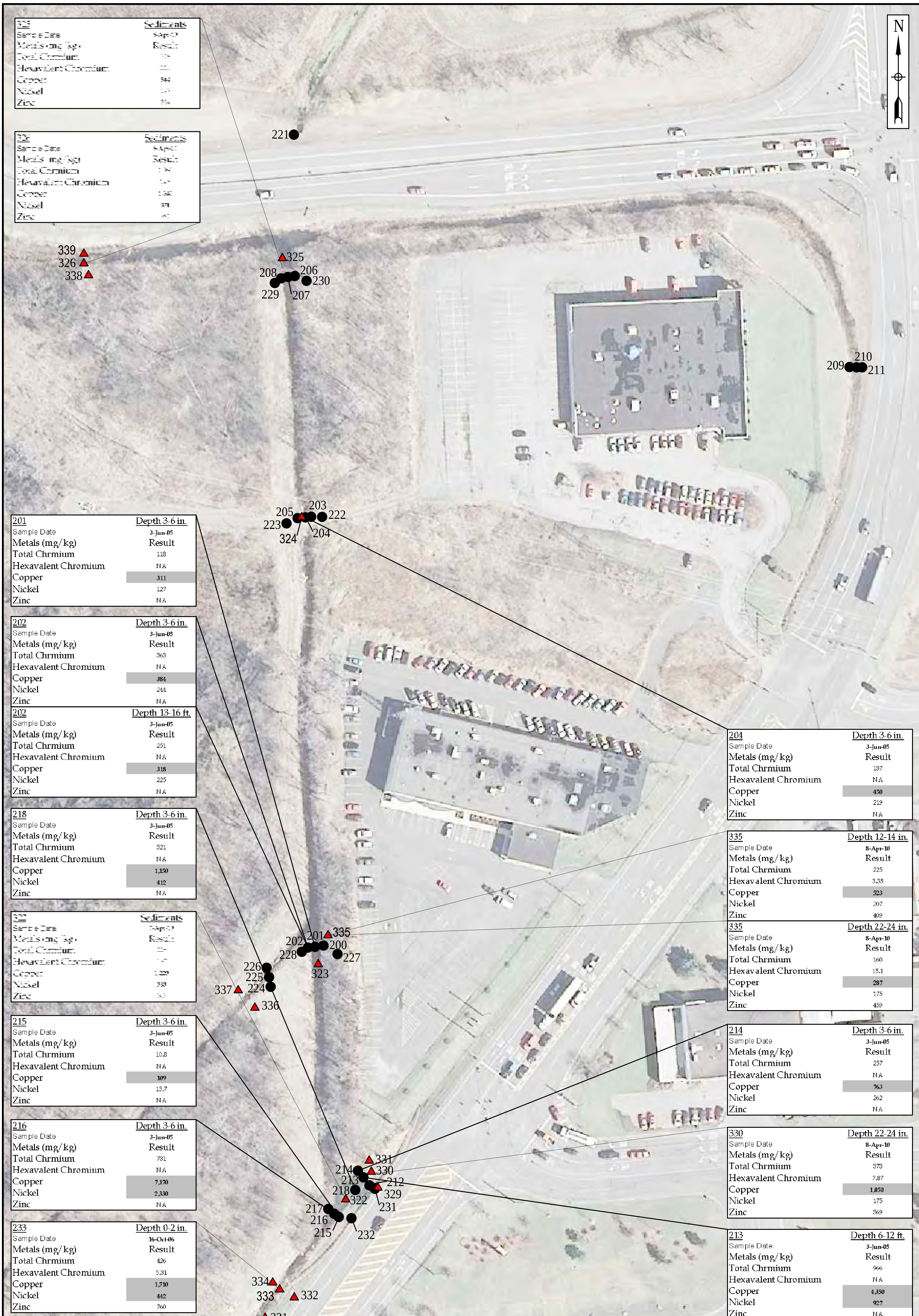

325	Sediments
Sample Date	[illegible]
Metals (mg/kg)	Result
Total Chromium	[illegible]
Hexavalent Chromium	[illegible]
Copper	[illegible]
Nickel	[illegible]
Zinc	[illegible]

326	Sediments
Sample Date	[illegible]
Metals (mg/kg)	Result
Total Chromium	[illegible]
Hexavalent Chromium	[illegible]
Copper	[illegible]
Nickel	[illegible]
Zinc	[illegible]

201	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	118
Hexavalent Chromium	NA
Copper	**311**
Nickel	127
Zinc	NA

202	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	363
Hexavalent Chromium	NA
Copper	**384**
Nickel	244
Zinc	NA

202	Depth 13-16 ft.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	251
Hexavalent Chromium	NA
Copper	**318**
Nickel	225
Zinc	NA

218	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	321
Hexavalent Chromium	NA
Copper	**1,150**
Nickel	**412**
Zinc	NA

322	Sediments
Sample Date	[illegible]
Metals (mg/kg)	Result
Total Chromium	[illegible]
Hexavalent Chromium	[illegible]
Copper	[illegible]
Nickel	[illegible]
Zinc	[illegible]

215	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	10.8
Hexavalent Chromium	NA
Copper	**109**
Nickel	13.7
Zinc	NA

216	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	731
Hexavalent Chromium	NA
Copper	**7,170**
Nickel	**2,330**
Zinc	NA

233	Depth 0-2 in.
Sample Date	16-Oct-06
Metals (mg/kg)	Result
Total Chrmium	426
Hexavalent Chromium	5.31
Copper	**1,710**
Nickel	**442**
Zinc	760

204	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	137
Hexavalent Chromium	NA
Copper	**450**
Nickel	219
Zinc	NA

335	Depth 12-14 in.
Sample Date	8-Apr-10
Metals (mg/kg)	Result
Total Chrmium	225
Hexavalent Chromium	3.35
Copper	**523**
Nickel	207
Zinc	409

335	Depth 22-24 in.
Sample Date	8-Apr-10
Metals (mg/kg)	Result
Total Chrmium	160
Hexavalent Chromium	15.1
Copper	**287**
Nickel	175
Zinc	459

214	Depth 3-6 in.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	257
Hexavalent Chromium	NA
Copper	**763**
Nickel	262
Zinc	NA

330	Depth 22-24 in.
Sample Date	8-Apr-10
Metals (mg/kg)	Result
Total Chrmium	373
Hexavalent Chromium	7.87
Copper	**1,050**
Nickel	175
Zinc	369

213	Depth 6-12 ft.
Sample Date	3-Jun-05
Metals (mg/kg)	Result
Total Chrmium	966
Hexavalent Chromium	NA
Copper	**4,350**
Nickel	**927**
Zinc	NA

Legend

- ● Source Identification Investigation Sample Locations (2005)
- ▲ DGI Soil Boring Locations (2010)
- **Bold** Exceedance of Part 375 Restricted-Commercial Soil Cleanup Objective
- mg/kg Milligrams per kilogram

Scale (1"=100')

50' 0 50' 100' 200'

Bridge Street Swale Area
Exceedances of Metals in Soil

PREPARED FOR

General Super Plating - Dewitt, New York

SCALE: See Scale Bar

DATE: May 2012

FIGURE: 13A

ERM

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Legend

- ● Source Identification Investigation Sample Locations (2005)
- ▲ DGI Soil Boring Locations (2010)
- Bold — Exceedance of Part 375 Restricted-Commercial Soil Cleanup Objective
- mg/kg — Milligrams per kilogram

Scale (1"=100')

50' 0 50' 100' 200'

Bridge Street Swale Area
Exceedances of Metals in Soil

PREPARED FOR

General Super Plating - Dewitt, New York

ERM

SCALE See Scale Bar

DATE May 2012

FIGURE 13B

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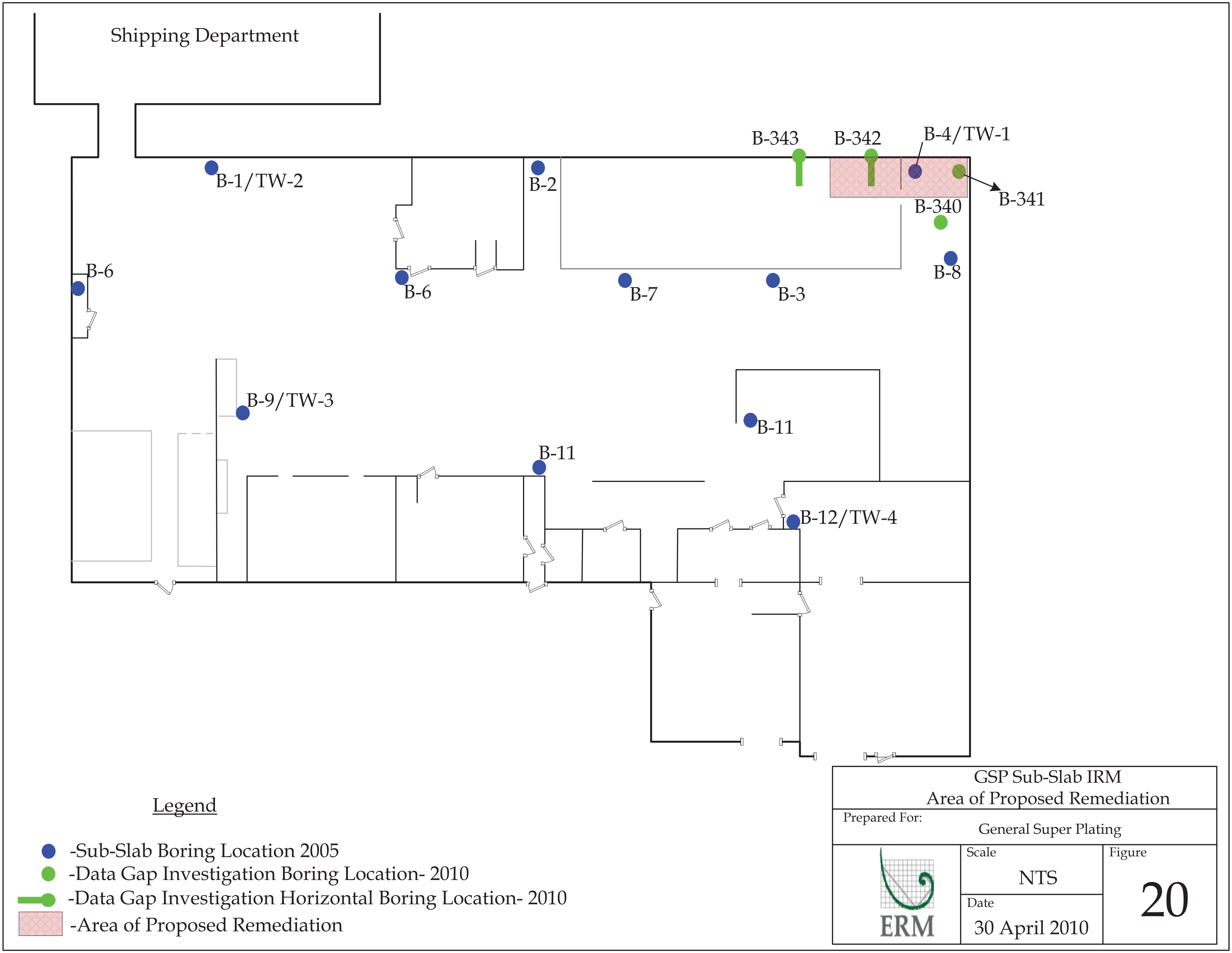
Legend

-Groundwater Flow Direction

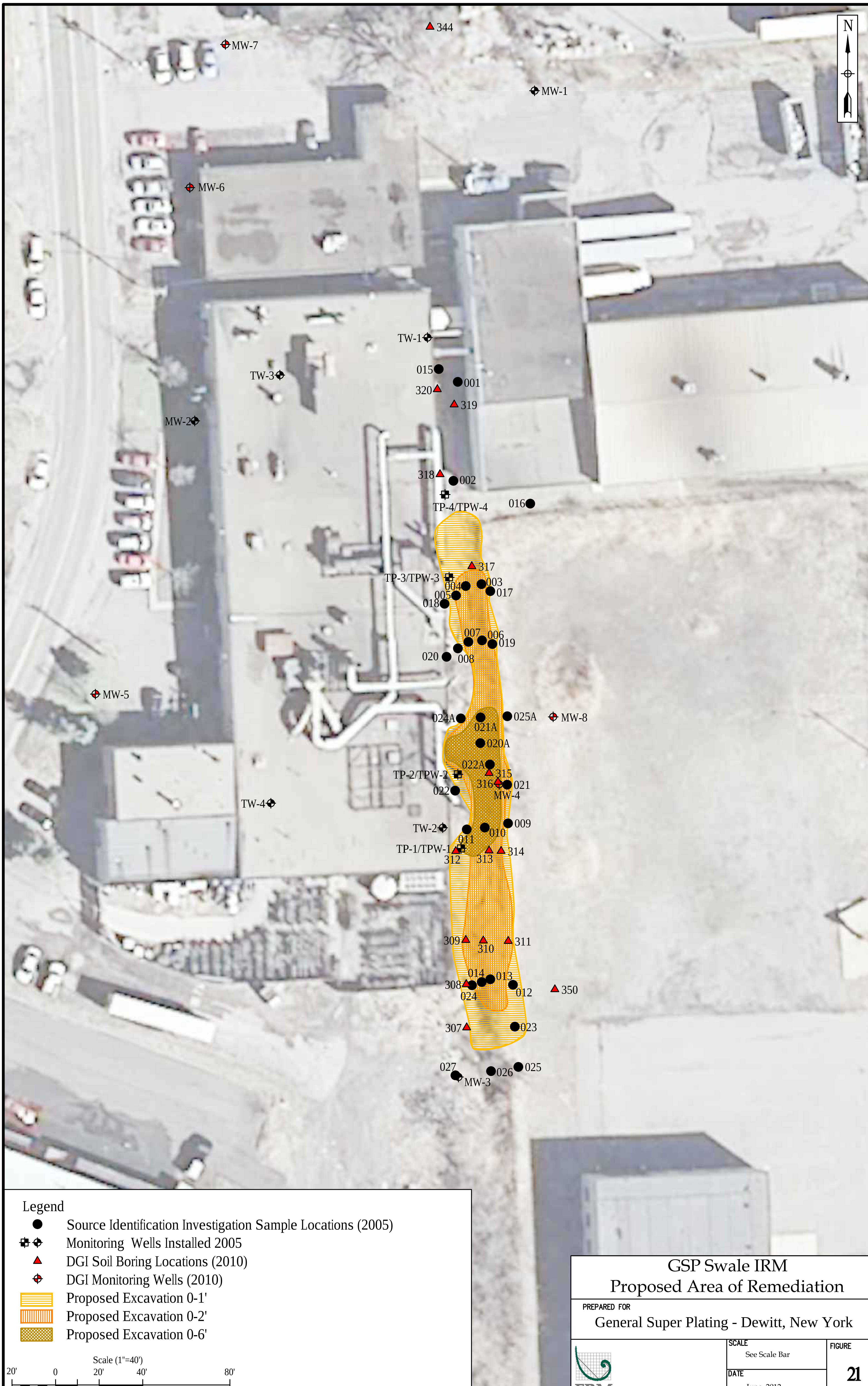
411 -Groundwater Elevation (dashed where estimated)

MW-5 -Monitoring Well

Site Ground Water- Flow Direction		
Prepared For: General Super Plating		
ERM	Scale NTS	Figure 14
	Date 29 June 2010	



GSP Sub-Slab IRM Area of Proposed Remediation		
Prepared For: General Super Plating		
ERM	Scale: NTS Date: 30 April 2010	Figure: 20



GSP Swale IRM
Proposed Area of Remediation

PREPARED FOR
General Super Plating - Dewitt, New York

ERM

SCALE
See Scale Bar

DATE
June 2012

FIGURE
21

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Legend

- ● Source Identification Investigation Sample Locations (2005)
- ▲ DGI Soil Boring Locations (2010)
- Proposed Excavation 0-1'
- Proposed Excavation 0-2'

Scale (1"=100')

50' 0 50' 100' 200'

Bridge Street Swale IRM
Proposed Area of Remediation

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See Scale Bar

DATE
June 2012

FIGURE
22A

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Bridge Street Swale IRM
Proposed Area of Remediation

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SCALE See Scale Bar

DATE May 2012

FIGURE 22B

ERM

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TABLE 1
Summary of Analytical Data - Sub-Slab -Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC	B-1		B-2		B-3		B-4		B-5		B-6		B-7	
Sample Depth	Industrial	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18
Date Sampled	Standard[1]	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	5-Jul-05	5-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05
Metals (mg/kg)															
Total Chromium[2]	7,600	546	51.9	15.9	21.5	19.1	13.7	1,300	9.3	10.5	41.5	10.9	7.3	21.2	169
Hexavalent Chromium	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	10,000	132	51.7	61.2	16.0	113	25.2	87,400	91.8	57.8	137	54.1	63.9	13.3	11.9
Nickel	10,000	969	54.3	13.4	14.1	29.3	16.4	5,780	1,300	33.8	109	32.3	27.6	18.7	124
Zinc	10,000	745	46.6	21.3	ND	30.3	34.1	41.8	16.0	41.2	671	37.5	36.1	27.7	29.2
Inorganics (mg/kg)															
Total Cyanide	10,000	1.7	ND	ND	ND	1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND

Sample Location	NYSDEC	B-8		B-9		B-10		B-11		B-12		B-340	B-341	B-342	B-343
Sample Depth	Industrial	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	0 - 6	12 - 18	24 - 48	12 - 36	12 - 24	12 - 24
Date Sampled	Standard[1]	7-Jul-05	7-Jul-05	5-Jul-05	5-Jul-05	7-Jul-05	7-Jul-05	7-Jul-05	7-Jul-05	5-Jul-05	5-Jul-05	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10
Metals (mg/kg)															
Total Chromium[2]	7,600	22.9	338	18.0	10.9	65.5	34.0	13.0	16.4	398	24.1	38.5	17.8	398	39.6
Hexavalent Chromium	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.12 J	0.735 J	8.79 J	5.1 J
Copper	10,000	59.8	855	73.1	56.1	55.3	102.0	12.7	20.4	1,260	60.7	29 J	336 J	33,000 J	276 J
Nickel	10,000	18.5	412	40.1	35.7	78.5	560	10.5	19.6	495	33.9	26.6	10,700	2,860	1,530
Zinc	10,000	34.4	52.9	39.7	44.0	41.6	65.7	ND	40.5	58.6	31.0	52.6 J	22.3 J	19.7 J	16.6 J
Inorganics (mg/kg)															
Total Cyanide	10,000	ND	ND	ND	ND	ND	2.82	ND	ND	ND	ND	ND	ND	1.43	ND

Notes:

Exceedance of Site SCG
[d] = Duplicate Sample
mg/kg = milligrams per kilogram
NA = Not Analyzed
ND = Not detected at a concentration above the method detection limit.
[1] = NYSDEC 6 NYCRR Part 375 Table 375-6.8(b), Restricted Use Soil Cleanup Objectives, Protection of Public Health; 14 December 2006.
[2] = Cleanup objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.
[3] = Sub-slab boring locations are located on-site and are therefore compared to NYSDEC Industrial Standards only.
Sample depths are measured in inches.

Table 2
Summary of Analytical Data - GSP Swale -Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC Commercial Standard[1,3]	GSP-001		GSP-002		GSP-003		GSP-004		GSP-005		GSP-006		GSP-007	
Sample Depth		6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18
Date Sampled		27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05
Metals (mg/kg)															
Total Chromium[2]	1,900	555	89.4	1,100	574	104	324	3,450	1,580	605	430	85.8	149	3,560	1,350
Copper	270	217	59.1	123	65.5	48.9	54.2	163	56.5	63.7	20.3	114	635	9,280	1,940
Nickel	310	2,400	307	546	74.8	51.1	44.7	2,180	419	621	252	447	709	2,130	1,740
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)															
Total Cyanide	27	NA	NA	78.5	5.99	NA	NA	903	17.6	NA	NA	NA	NA	2.5	ND

Sample Location	NYSDEC Commercial Standard[1,3]	GSP-008		GSP-009		GSP-010		GSP-011		GSP-012		GSP-013		GSP-014		
Sample Depth		6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	16 - 18	6 - 8	6 - 8[d]	16 - 18
Date Sampled		27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05	27-May-05
Metals (mg/kg)																
Total Chromium[2]	1,900	534	199	53.0	52.2	3,830	2,700	61.6	66.7	720	1,350	868	768	334	687	309
Copper	270	192	95.5	93.6	111	11,900	13,000	108	154	210	672	1,310	1,830	246	63.4	325
Nickel	310	220	118	91.9	277	3,720	2,440	85	84.4	176	376	967	1,240	1,060	106	845
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)																
Total Cyanide	27	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	ND	ND	NA	NA	NA

Sample Location	NYSDEC Commercial Standard[1,3]	GSP-SWALE-015		GSP-SWALE-016		GSP-SWALE-017		GSP-SWALE-018		GSP-SWALE-019		GSP-SWALE-020		GSP-SWALE-021	
Sample Depth		1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15
Date Sampled		9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05
Metals (mg/kg)															
Total Chromium[2]	1,900	51.2	88.8	22.6	8.47	125	94.8	327	172	81.7	47.4	354	290	21.6	18.5
Copper	270	21.5	32.5	33.1	18.8	80.5	28.7	40.9	16.4	194	136	62.2	46.3	28.7	26.5
Nickel	310	276	294	27.6	12.1	46.2	22.3	59.4	60.7	222	125	75.1	69.5	21.6	147
Zinc	10,000	46.2	62.4	50.6	103	219	79.0	116	60.0	442	185	116	105	144	104
Inorganics (mg/kg)															
Total Cyanide	27	ND	ND	ND	ND	ND	ND	4.52	3.79	ND	ND	ND	ND	ND	ND

Sample Location	NYSDEC Commercial Standard[1,3]	GSP-SWALE-022		GSP-SWALE-023		GSP-SWALE-024		GSP-SWALE-025		GSP-SWALE-026		GSP-SWALE-027	
Sample Depth		1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15
Date Sampled		9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05
Metals (mg/kg)													
Total Chromium[2]	1,900	162	22.9	19.3	40.4	65.6	149	18.0	14.5	27.6	20.4	32.7	98.5
Copper	270	342	34.9	20.9	27.9	261	477	86.0	67.4	56.5	47.5	17.5	64.3
Nickel	310	231	36.7	20.0	23.1	768	468	18.5	14.7	26.0	19.5	16.3	36.7
Zinc	10,000	1,740	96.9	204	194	621	2,340	337	170	166	144	57.0	75.9
Inorganics (mg/kg)													
Total Cyanide	27	ND	3.79	ND	ND	ND	1.20	ND	ND	ND	ND	ND	ND

Notes:

Exceedance of Site SCG
[d] = Duplicate Sample
mg/kg = milligrams per kilogram
NA = Not Analyzed
ND = Not detected at a concentration above the method detection limit.
[1] = NYSDEC 6 NYCRR Part 375 Table 375-6.8(b), Restricted Use Soil Cleanup Objectives, Protection of Public Health; 14 December 2006.
[2] = Cleanup objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.
Sample depths are measured in inches.
Sample intervals are measured in feet below ground surface.

Table 2 (continued)
Summary of Analytical Data - GSP Swale - Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC	B-307		B-308		B-309		B-310		B-311		B-312	
Sample Interval	Commercial	4 - 6	6 - 8	4 - 6	6 - 8	4 - 6	6 - 8	4 - 6	6 - 8	4 - 6	6 - 8	4 - 6	6 - 8
Date Sampled	Standard[1,3]	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10
Metals (mg/kg)													
Total Chromium[2]	1,900	63.7	26.2	24.6	14.1	24.2	10.6	20.2	18.7	29.8	14.1	140	232
Hexavalent Chromium	400	1.47 J	2.44 J	0.924 J	0.96 J	3.62 J	1.05 J	2.31	2.16	0.804 J	1.76	4.46	0.44 J
Copper	270	40.4	34.2	15.4	23.1	20.0	12.7	16.9	17.8	18.2	17.1	114	25.8
Nickel	310	24.8	28.9	24.5	13.8	23.3	11.1	20.4	19.6	26.6	13.6	324	177
Zinc	10,000	64.2	103	58.0	34.1	74.1	23.4	42.4	39.3	64.2	29.0	58.8	71.5
Inorganics (mg/kg)													
Total Cyanide	27	ND	ND	1.37	ND	1.68	ND	ND	ND	ND	ND	ND	ND
Volitile organic Compounds (mg/kg)													
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample Location	NYSDEC	B-313			B-314		B-315			B-316			B-317		
Sample Interval	Commercial	0 - 1	4 - 6	6 - 8	4 - 6	6 - 8	0 - 1	4 - 6	6 - 8	0 - 1	4 - 6	6 - 8	0 - 1	4 - 6	6 - 8
Date Sampled	Standard[1,3]	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	1-Mar-10	2-Mar-10	2-Mar-10	2-Mar-10
Metals (mg/kg)															
Total Chromium[2]	1,900	NA	11.6	17.1	25.2	16.4	NA	19.9	17.1	NA	25.3	8.77	NA	16.7	9.8
Hexavalent Chromium	400	NA	1.1 J	2.18	0.323 J	2.14	NA	0.84 J	0.926 J	NA	9.65 J	0.613 J	NA	0.264 J	0.615 J
Copper	270	NA	19.0	19.9	16.6	19.4	NA	14.7	21.3	NA	37.8	20.9	NA	16.0	17.1
Nickel	310	NA	29.8	19.0	54.6	20.2	NA	445	55.6	NA	77.8	13.8	NA	15.3	12.6
Zinc	10,000	NA	28.6	38.7	49.7	42.9	NA	47.1	42.2	NA	76.8	25.6	NA	38	23.3
Inorganics (mg/kg)															
Total Cyanide	27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volitile organic Compounds (mg/kg)															
Acetone	500	ND	ND	NA	NA	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA
Methylene Chloride	500	ND	ND	NA	NA	NA	ND	ND	NA	ND	ND	NA	ND	ND	NA

Sample Location	NYSDEC	B-318		B-319		B-320		B-350
Sample Interval	Commercial	4 - 6	6 - 8	4 - 6	6 - 8	4 - 6	6 - 8	1.1-1.7
Date Sampled	Standard[1,3]	2-Mar-10	2-Mar-10	2-Mar-10	2-Mar-10	2-Mar-10	2-Mar-10	2-Mar-10
Metals (mg/kg)								
Total Chromium[2]	1,900	39.4	27.3	12.7	18.0	258	20.1	11.2 J
Hexavalent Chromium	400	0.559 J	0.61 J	2.77 J	0.744 J	5.82 J	0.715 J	0.442
Copper	270	22.7	14.3	21.9	26.4	33.5	24.1	20.5
Nickel	310	36.7	14.3	12.7	20.8	18.6	21.5	11.5 J
Zinc	10,000	77.0	34.8	47.1	51.4	114	51.6	26.3 J
Inorganics (mg/kg)								
Total Cyanide	27	ND	ND	ND	ND	2.33	1.62	ND
Volitile organic Compounds (mg/kg)								
Acetone	500	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA

Notes:

Exceedance of Site SCG

d = Duplicate Sample
mg/kg = milligrams per kilogram
NA = Not Analyzed
ND = Not detected at a concentration above the method detection limit.
1 = NYSDEC 6 NYCRR Part 375 Table 375-6.8(b), Restricted Use Soil Cleanup Objectives, Protection of Public Health; 14 December 2006.
2 = Cleanup objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.
Sample depths are measured in inches.
Sample intervals are measured in feet below ground surface.

TABLE 3
Summary of Analytical Data - Burried Culvert Pipe - Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location / Sample Depth / Date Sampled	NYSDEC Commercial Standard[1]	GSP-344 5.5 - 6.5 22-Apr-10	GSP-345 5.5 - 6.5 22-Apr-10	GSP-346 6.5 - 7.5 22-Apr-10	GSP-347 5.5 - 6.5 22-Apr-10	GSP-348 5.5 - 6.5 22-Apr-10	GSP-349 2.5-3 27-May-10	GSP-349 5-5.5 27-May-10
Metals (mg/kg)								
Total Chromium	1,900	15.8 J	14.8 J	13.5 J	15 J	207 J	12.9 J	13.8 J
Hexavalent Chromium	400	ND	0.74 J	0.489 J	0.585 J	0.693 J	0.6 J	1.12 J
Copper	270	40.6 J	17.5 J	20.7 J	18.7 J	543 J	17.3	24
Nickel	310	16.1 J	15.7 J	16.3 J	15 J	375 J	12.6 J	12.5 J
Zinc	10,000	47.2 J	34 J	35.4 J	31.1 J	159 J	42.7 J	342 J
Inorganics (mg/kg)								
Total Cyanide	27	0.896 J	ND	ND	ND	ND	ND	ND
Volitile Organic Compounds (mg/kg)								
Acetone	500	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA

Notes:
(green shading) Exceedance of Site SCG
[d] = Duplicate Sample
mg/kg = milligrams per kilogram
NA = Not Analyzed
ND = Not detected at a concentration above the method detection limit.
[1] = NYSDEC 6 NYCRR Part 375 Table 375-6.8(b), Restricted Use Soil Cleanup Objectives, Protection of Public Health; 14 December 2006.
[2] = Clean up objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.
[3] = Sample locations are located off-site and are therefore compared to NYSDEC Commercial standards only.
Sample intervals are measured in feet below ground surface.

Table 4
Summary of Analytical Data - Bridge Street Swale - Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC Commercial Standard[1]	GSP-200		GSP-201	GSP-202		GSP-203		GSP-204	GSP-205		GSP-206		GSP-207
Sample Depth		3 - 6	13 - 16	3 - 6	3 - 6	13 - 16	3 - 6	13 - 16	3 - 6	3 - 6	13 - 16	3 - 6	13 - 16	3 - 6
Date Sampled		3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05
Metals (mg/kg)														
Total Chromium[2]	1,900	174	59.0	118	363	251	29.5	58.0	137	17.2	17.1	15.1	17.0	21.7
Hexavalent Chromium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	227	162	311	384	318	83.0	121	450	22.9	23.8	41.7	47.5	38.4
Nickel	310	175	76.0	127	244	225	22.0	40.9	219	18.8	17.6	28.8	32.3	19.8
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)														
Total Cyanide	27	ND	ND	ND	4.53	4.32	ND	ND	ND	1.34	2.41	ND	ND	1.93
Volatile Organic Compounds (mg/kg)														
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample Location	NYSDEC Commercial Standard[1]	GSP-208		GSP-209		GSP-210	GSP-211 *	GSP-211	GSP-212		GSP-213	GSP-214	
Sample Depth		3 - 6	13 - 16	3 - 6	13 - 16	3 - 6	3 - 6	13 - 16	3 - 6	13 - 16	6 - 12	3 - 6	12 - 16
Date Sampled		3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05
Metals (mg/kg)													
Total Chromium[2]	1,900	31.6	16.2	8.1	6.7	11.8	12.9	11.4	36.3	17.3	966	257	74.3
Hexavalent Chromium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	112	27.6	10.7	10.3	23.4	16.7	19.4	185	105	4,350	763	149
Nickel	310	96.4	28.8	11.2	10.3	14.2	13.2	12.9	25.0	13.5	927	262	99.8
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics (mg/kg)													
Total Cyanide	27	1.74	ND	ND	ND	ND	ND	ND	ND	ND	2.66	ND	ND
Volatile Organic Compounds (mg/kg)													
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample Location	NYSDEC Commercial Standard[1]	GSP-215		GSP-216	GSP-217		GSP-218	GSP-219	GSP-220	GSP-221	BSS-S-222		BSS-S-223	
Sample Depth		3 - 6	13 - 16	3 - 6	3 - 6	13 - 16	3 - 6	3 - 6	3 - 6	3 - 6	1 - 3	13 - 15	1 - 3	13 - 15
Date Sampled		3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	3-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05
Metals (mg/kg)														
Total Chromium[2]	1,900	10.8	6.7	731	20.1	26.7	321	14.8	465	69.0	11.4	10.8	9.17	11.4
Hexavalent Chromium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	270	109	15.5	7,170	42.7	66.8	1,150	36.6	547	207	14.4	14.3	11.1	9.85
Nickel	310	13.7	9.4	2,330	41.5	51.6	412	22.0	190	78.5	11.8	9.33	11.5	12.2
Zinc	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	62.8	48.1	32.7	45.7
Inorganics (mg/kg)														
Total Cyanide	27	ND	ND	ND	ND	ND	4.13	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (mg/kg)														
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Exceedance of Site SCG

d = Duplicate Sample

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NA = Not Analyzed

ND = Not detected at a concentration above the method detection limit.

µg/kg = micrograms per kilogram

1 = NYSDEC 6 NYCRR Part 375, Restricted Use Soil Cleanup Objectives, Protection of Public Health.

2 = Cleanup objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.

3 = Sample locations are located off-site and are therefore compared to NYSDEC Commercial standards only.

Sample depths are measured in inches.

TABLE 4 (continued)
Summary of Analytical Data - Bridge Street Swale - Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC	BSS-S-224	BSS-S-225	BSS-S-226	BSS-S-227		BSS-S-228		BSS-S-229		BSS-S-230		BSS-S-231	
Sample Depth	Commercial	0 - 2	0 - 2	0 - 2	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	1 - 3	13 - 15	0 - 2	13 - 15
Date Sampled	Standard[1]	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05	10-Jun-05
Metals (mg/kg)														
Total Chromium[2]	1,900	38.6	15.5	22.7	53.4	25.2	6.24	5.51	6.92	8.27	8.66	8.50	45.5	12.1
Hexavalent Chromium	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	250	73.7	24.4	31.9	90.4	57.5	5.47	8.33	8.41	23.8	18.0	18.6	81.9	44.9
Nickel	310	26.6	15.3	19.5	67.5	36.5	6.32	7.24	8.39	11.4	12.2	11.9	14.3	8.88
Zinc	10,000	269	109	100	163	87.8	46.0	30.6	42.9	45.7	64.0	71.5	385	74.3
Inorganics (mg/kg)														
Total Cyanide	27	1.72	ND	ND	ND	ND	ND	ND	ND	1.72	ND	ND	15.7	ND
Volatile Organic Compounds (mg/kg)														
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample Location	NYSDEC	BSS-S-232		GSP-233	GSP-234	GSP-235	GSP-321	GSP-322	GSP-323	GSP-324	GSP-325	GSP-326	GSP-327	GSP-328
Sample Depth	Commercial	0 - 2	13 - 15	6 - 12	6 - 18	6 - 18	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2	0 - 2
Date Sampled	Standard[1]	10-Jun-05	10-Jun-05	16-Oct-06	16-Oct-06	16-Oct-06	7-Apr-10	7-Apr-10	7-Apr-10	7-Apr-10	7-Apr-10	7-Apr-10	7-Apr-10	7-Apr-10
Metals (mg/kg)														
Total Chromium[2]	1,900	21.8	11.3	426	144	117	55.1	226	0.844 J	17.6	318	1,080	33.6	43.1
Hexavalent Chromium	400	NA	NA	5.31	2.6	ND	ND	0.97 J	0.155 J	0.331 J	22 J	14.8 J	ND	13.4 J
Copper	270	88.1	76.5	1,710	220	99.0	153	1,220	ND	29.0	544	1,040	57.9	84.1
Nickel	310	24.3	13.3	442	104	61.0	121	333	1.95	17.5	143	331	29.4	31.1
Zinc	10,000	164	80.9	760	576	238	78.4	303	11.1	40.4	554	981	99.1	126
Inorganics (mg/kg)														
Total Cyanide	27	ND	ND	ND	ND	ND	0.848 J	ND	1.11 J	1.11 J	13.6	4.17	ND	2.37
Volatile Organic Compounds (mg/kg)														
Acetone	500	NA	NA	NA	NA	NA	123	ND	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	NA

Sample Location	NYSDEC	GSP-B-329			GSP-B-330			GSP-B-331			GSP-B-332		
Sample Depth	Commercial	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24
Date Sampled	Standard[1]	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10
Metals (mg/kg)													
Total Chromium[2]	1,900	39.6	9.07	16.1	373	15.5	9.55	18.3	18.6	12.8	30.3	25.5	8.63
Hexavalent Chromium	400	ND	ND	0.322 J	7.87 J	0.236 J	0.215 J	9.14 J	7.22 J	ND	8.09 J	ND	1.1
Copper	270	56.7	10.6	17.8	1,050	24.9	12.8	28.2	26.0	13.9	36.9	21.8	12.9
Nickel	310	18.2	6.11	10.7	175	12.9	7.57	14.2	14.6	9.34	17.7	17.6	7.41
Zinc	10,000	227	43.5	65.4	369	33.1	22.3	73.4	54.4	37.4	86.0	43.2	40.5
Inorganics (mg/kg)													
Total Cyanide	27	1.7	22.7	1.66	5.78	ND	ND	0.061 J	ND	ND	0.759 J	ND	ND
Volatile Organic Compounds (mg/kg)													
Acetone	500	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	ND	NA	ND	NA	NA	NA	NA	NA	NA

Notes:
Exceedance of Site SCG
d = Duplicate Sample
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
NA = Not Analyzed
ND = Not detected at a concentration above the method detection limit.
μg/kg = micrograms per kilogram
1 = NYSDEC 6 NYCRR Part 375, Restricted Use Soil Cleanup Objectives, Protection of Public Health.
2 = Cleanup objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.
3 = Sample locations are located off-site and are therefore compared to NYSDEC Commercial standards only.
Sample depths are measured in inches.

TABLE 4 (continued)
Summary of Analytical Data - Bridge Street Swale - Soil
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC	GSP-B-333			GSP-B-334			GSP-B-335			GSP-B-336		
Sample Depth	Commercial	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24
Date Sampled	Standard[1]	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10
Metals (mg/kg)													
Total Chromium[2]	1,900	83.6	12.3	19.1	13.4	13.9	14.4	28.0	225	160	14.4	15.0	15.8
Hexavalent Chromium	400	7.3 J	ND	13.9 J	6.22 J	7.84 J	4.02 J	0.553 J	3.35 J	15.1	9.53 J	ND	ND
Copper	270	313	25.4	95.2	23.5	26.9	20.0	35.4	523	287	22.2	22.2	19.1
Nickel	310	251	18.3	25.6	19.2	17.9	14.5	52.8	207	175	15.2	15.6	15.4
Zinc	10,000	175	26.2	63.3	39.3	42.0	40.7	109	409	459	50.3	39	42.8
Inorganics (mg/kg)													
Total Cyanide	27	1.24 J	ND	ND	1.08 J	0.616 J	4.02	ND	2.37	2.65	ND	ND	ND
Volatile Organic Compounds (mg/kg)													
Acetone	500	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	ND	NA	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample Location	NYSDEC	GSP-B-337			GSP-B-338			GSP-B-339		
Sample Depth	Commercial	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24	0 - 2	12 - 14	22 - 24
Date Sampled	Standard[1]	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10	8-Apr-10
Metals (mg/kg)										
Total Chromium[2]	1,900	90.1	58.6	19.5	28.1	17.8	21.1	26.4	22.4	18.3
Hexavalent Chromium	400	12.3 J	5.12 J	0.286 J	0.232 J	0.209 J	ND	5.49 J	9.68 J	9.45 J
Copper	270	146	150	21.4	43.3	23.3	18.8	44.5	32.8	13.7
Nickel	310	48.1	38.5	19.2	29.1	14.1	14.3	22.0	20.1	16.9
Zinc	10,000	534	236	50.3	98.2	406	328	132	91.8	51.7
Inorganics (mg/kg)										
Total Cyanide	27	2.05	1.35	ND	ND	ND	0.61 J	0.846 J	ND	ND
Volatile Organic Compounds (mg/kg)										
Acetone	500	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	500	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
Exceedance of Site SCG
d = Duplicate Sample
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
NA = Not Analyzed
ND = Not detected at a concentration above the method detection limit.
µg/kg = micrograms per kilogram
1 = NYSDEC 6 NYCRR Part 375, Restricted Use Soil Cleanup Objectives, Protection of Public Health.
2 = Cleanup objective is the sum of the hexavalent and trivalent chromium restricted use soil cleanup objective.
3 = Sample locations are located off-site and are therefore compared to NYSDEC Commercial standards only.
Sample depths are measured in inches.

TABLE 5
Summary of Analytical Data - Site Permanent Monitoring Wells- Ground Water
General Super Plating Company
Data Gap Investigation
NYSDEC BCP No.: C734108
ERM Project No.: 0111860

Sample Location	NYSDEC	MW-1		MW-2		MW-3		MW-4	MW-5	MW-6	MW-7	MW-8
Date Sampled	Standard[1]	22-Aug-05	18-Mar-10	22-Aug-05	18-Mar-10	22-Aug-05	18-Mar-10	18-Mar-10	18-Mar-10	18-Mar-10	18-Mar-10	18-Mar-10
Metals (mg/L)												
Total Chromium	0.05	ND	ND	ND	0.0024 J	ND	ND	0.010	ND	ND	ND	ND
Hexavalent Chromium	0.011	0.0110	ND	0.0090	ND	0.0140	ND	ND	0.010 J	ND	ND	ND
Copper	0.2	ND	ND	0.0036	ND	ND	0.0041 J	0.0226	ND	ND	ND	ND
Nickel	0.1	ND	0.0014 J	0.0059	0.0084	0.0047	0.102	0.237	0.0031 J	0.010	0.0018 J	0.0042 J
Zinc	2.0***	ND	0.0094 J	ND	0.0104 J	ND	0.0118 J	0.022	0.0119 J	0.0114 J	0.0138 J	0.0145
Volatile Organic Compounds (µg/L)												
Acetone	0.05***	NA	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
Methylene Chloride	0.005	NA	ND	NA	ND	NA	ND	ND	ND	ND	ND	ND
Inorganics (mg/L)												
Total Cyanide	0.2	ND	ND	ND	0.00356 J	ND	0.00371 J	ND	ND	ND	0.00777	0.00410 J

Notes:

Exceedance of Site SCG (green shading)

J = An estimated value.

mg/L = milligrams per liter

NA = Not Analyzed

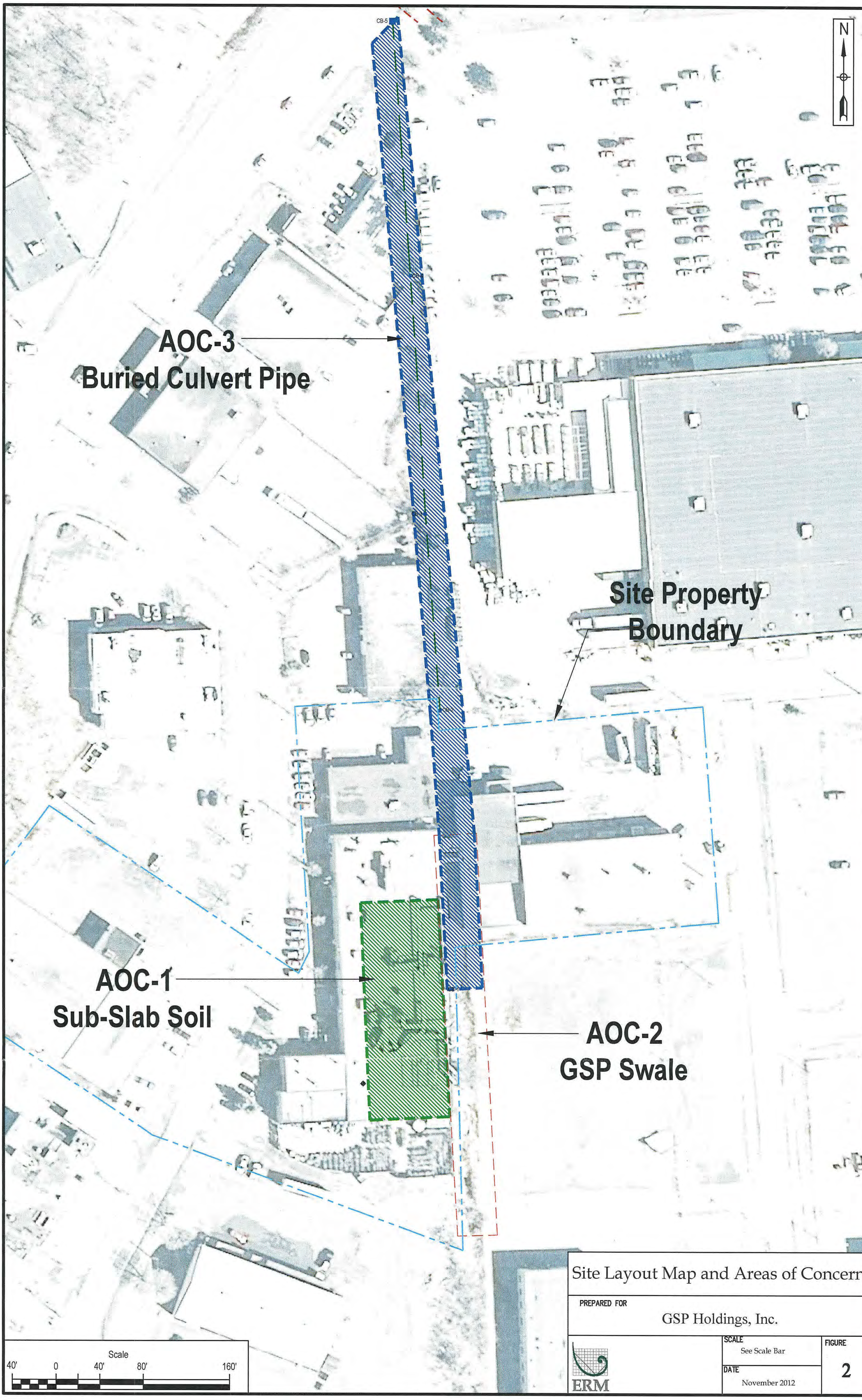
ND = Not detected at a concentration above the method detection limit.

µg/L = micrograms per liter

[1] = NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards

*** = Guidance Value

Attachment B-3 – Excerpts from Work Plan to Address Areas of Concern 1, 2, & 3, ERM, November 2012



Site Layout Map and Areas of Concern

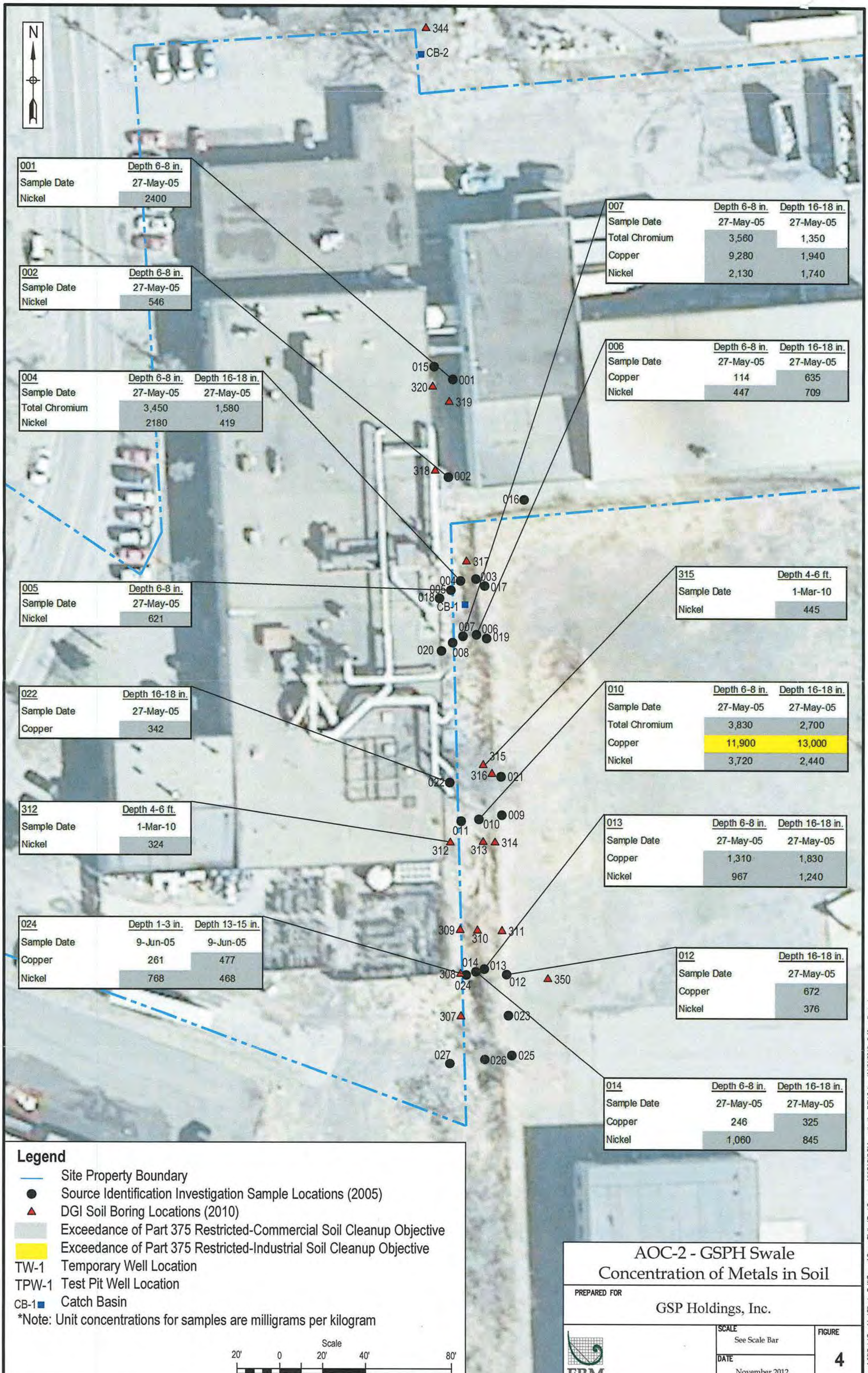
PREPARED FOR

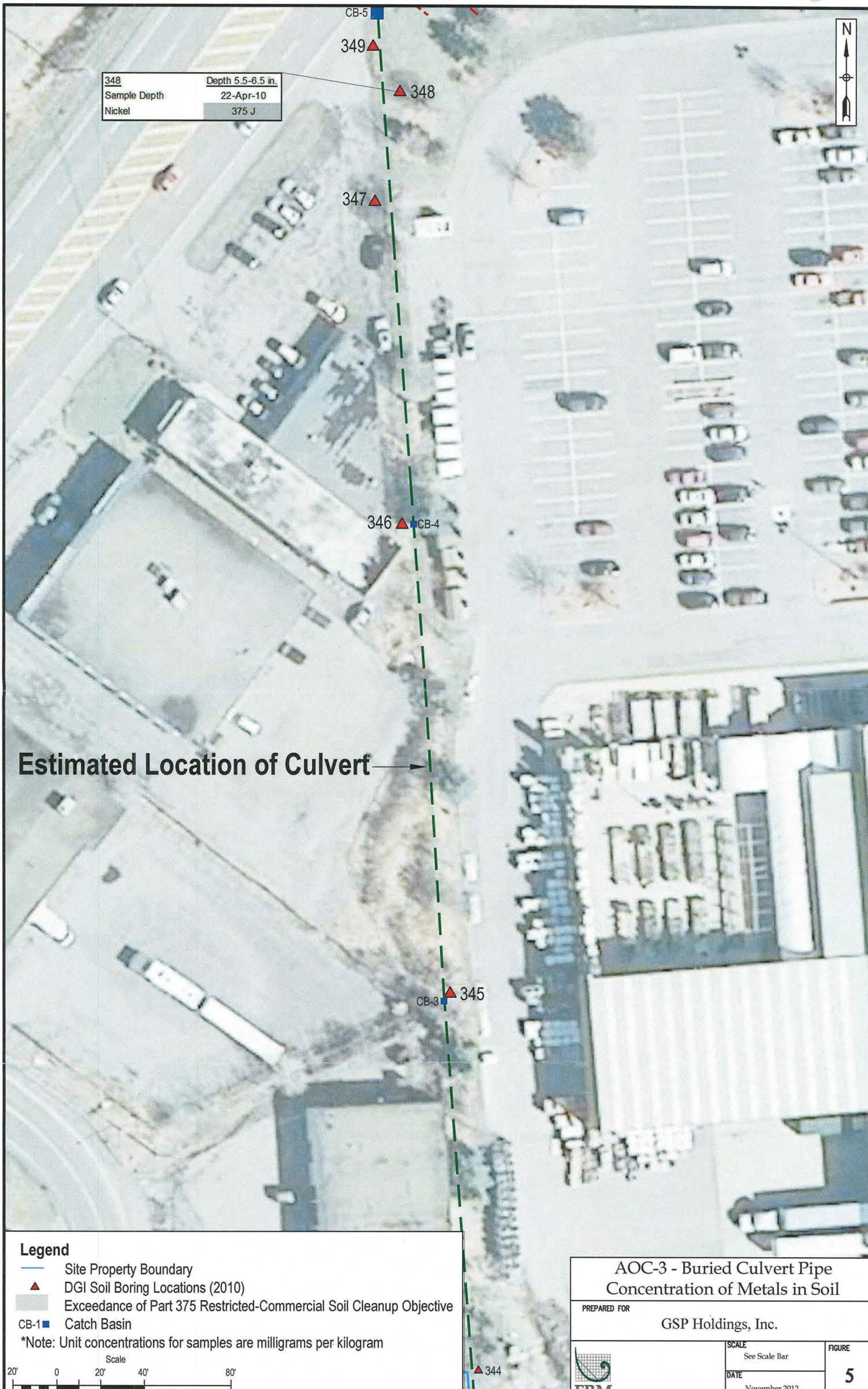
GSP Holdings, Inc.

ERM

SCALE	FIGURE
See Scale Bar	2
DATE	
November 2012	

\\nebosfs02\Data\Graphics\Clients_F_K\General Super Plating\East Syracuse,NY\CAD\DGI Investigation REV 6.dwg (11/01/2012 - 3:39pm Boston)


N
344
CB-2
001 Depth 6-8 in.
Sample Date 27-May-05
Nickel 2400
002 Depth 6-8 in.
Sample Date 27-May-05
Nickel 546
004 Depth 6-8 in. Depth 16-18 in.
Sample Date 27-May-05 27-May-05
Total Chromium 3,450 1,580
Nickel 2180 419
005 Depth 6-8 in.
Sample Date 27-May-05
Nickel 621
022 Depth 16-18 in.
Sample Date 27-May-05
Copper 342
312 Depth 4-6 ft.
Sample Date 1-Mar-10
Nickel 324
024 Depth 1-3 in. Depth 13-15 in.
Sample Date 9-Jun-05 9-Jun-05
Copper 261 477
Nickel 768 468
007 Depth 6-8 in. Depth 16-18 in.
Sample Date 27-May-05 27-May-05
Total Chromium 3,560 1,350
Copper 9,280 1,940
Nickel 2,130 1,740
006 Depth 6-8 in. Depth 16-18 in.
Sample Date 27-May-05 27-May-05
Copper 114 635
Nickel 447 709
315 Depth 4-6 ft.
Sample Date 1-Mar-10
Nickel 445
010 Depth 6-8 in. Depth 16-18 in.
Sample Date 27-May-05 27-May-05
Total Chromium 3,830 2,700
Copper 11,900 13,000
Nickel 3,720 2,440
013 Depth 6-8 in. Depth 16-18 in.
Sample Date 27-May-05 27-May-05
Copper 1,310 1,830
Nickel 967 1,240
012 Depth 16-18 in.
Sample Date 27-May-05
Copper 672
Nickel 376
014 Depth 6-8 in. Depth 16-18 in.
Sample Date 27-May-05 27-May-05
Copper 246 325
Nickel 1,060 845
015 320 001 319 318 002 016 317 004 003 005 017 018 CB-1 007 006 019 020 008 315 316 021 022 009 011 010 312 313 314 309 310 311 014 013 308 024 012 350 307 023 027 026 025
Legend
Site Property Boundary
Source Identification Investigation Sample Locations (2005)
DGI Soil Boring Locations (2010)
Exceedance of Part 375 Restricted-Commercial Soil Cleanup Objective
Exceedance of Part 375 Restricted-Industrial Soil Cleanup Objective
TW-1 Temporary Well Location
TPW-1 Test Pit Well Location
CB-1 Catch Basin
*Note: Unit concentrations for samples are milligrams per kilogram
Scale
20' 0 20' 40' 80'
AOC-2 - GSPH Swale
Concentration of Metals in Soil
PREPARED FOR
GSP Holdings, Inc.
ERM
SCALE See Scale Bar
DATE November 2012
FIGURE 4
\\nebosfs02\Data\Graphics\Clients_F_K\General Super Plating\East Syracuse,NY\CAD\DGI Investigation REV 6.dwg (11/01/2012 - 3:40pm Boston)



\\nebos02\Data\Graphics\Clients_F_K\General Super Plating\East Syracuse,NY\CAD\DGI Investigation REV 6.dwg (11/01/2012 - 3:41pm Boston)

Attachment B-4 – Excerpts from Monthly Progress Report – October 2012, ERM, November 9, 2012

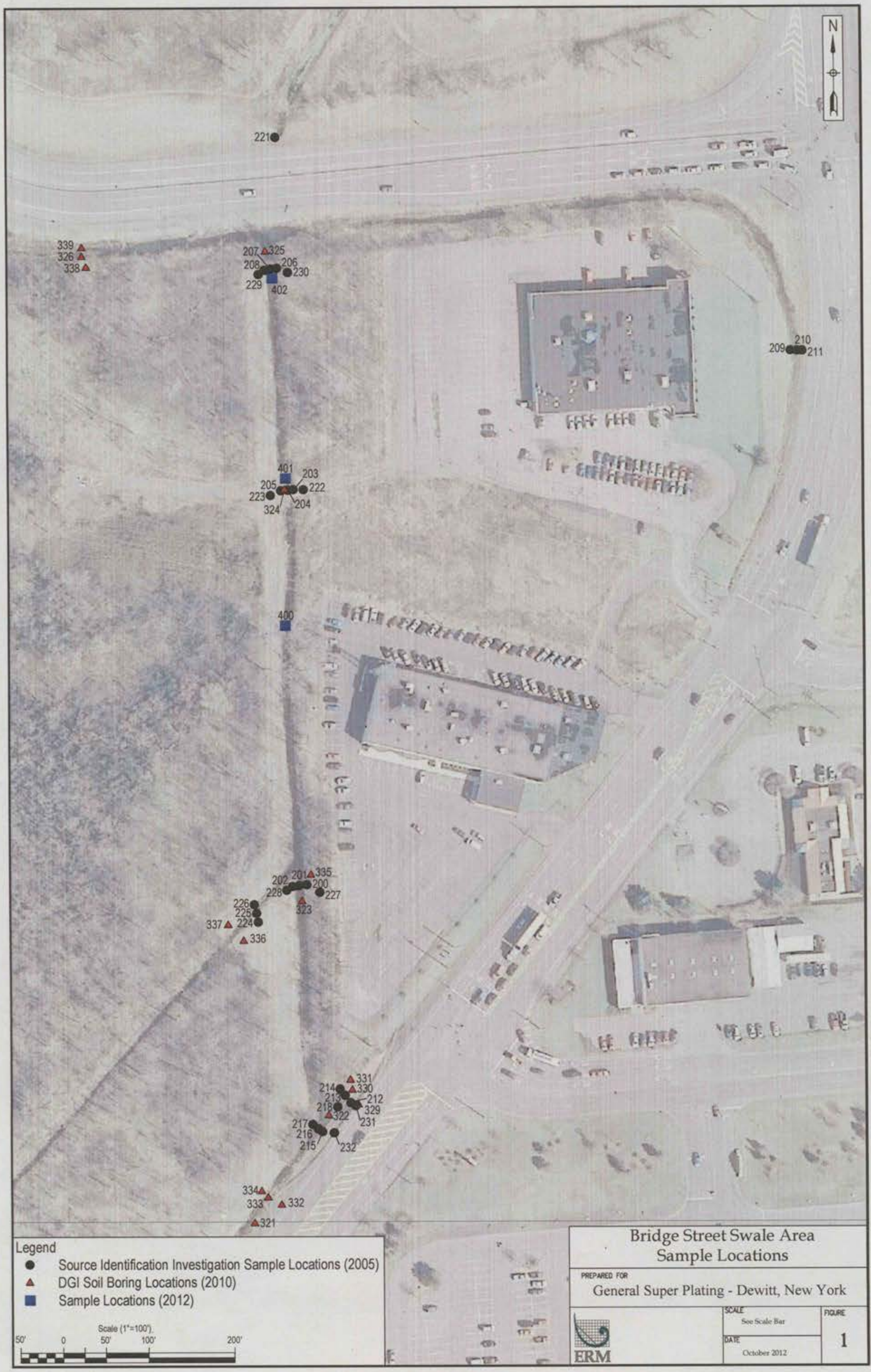

N
Legend
Source Identification Investigation Sample Locations (2005)
DGI Soil Boring Locations (2010)
Sample Locations (2012)
Scale (1"=100')
50' 0 50' 100' 200'
Bridge Street Swale Area
Sample Locations
PREPARED FOR
General Super Plating - Dewitt, New York
SCALE
See Scale Bar
DATE
October 2012
FIGURE
1
ERM

Table 1: Analytical Summary of Soil Samples Reported in October 2012

Celi Drive Site - Dewitt, New York

NYSDEC BCP Site No.: C734108

			NYSDEC Restricted Use Soil Cleanup Objective-Commercial				
	Date Collected	Sample Depth (ft)	1,500	270	310	10,000	27
Sample Location			**Chromium**	**Copper**	**Nickel**	**Zinc**	**Cyanide**
GSPH-400	**10/17/2012**	**0-0.5**	16.7	38.7	17.5	57.4	<0.524
GSPH-401	**10/17/2012**	**0-0.5**	30.4	50.8	25.3	166	<0.586
GSPH-Dup 01*	**10/17/2012**	**0-0.5**	24.2	41.4	27.3	146	<0.526
GSPH-402	**10/17/2012**	**0-0.5**	143	545	202	401	<0.906

Notes:

<: Analyte was not detected above the method detection limit.

*: Blind dupilcate sample, parent sample is GSPH-401.

Analyte reported above the restricted commerical soil cleanup objective value.

Attachment B-5 – Excerpts from Emergency Remedial Work Plan, GHD, June 2013

LEGEND:

CATCH BASIN AND BURIED CULVERT (APPROXIMATE)

AREA OF EXISTING BRIDGE STREET SWALE AFFECTED BY DEVELOPMENT (APPROXIMATE)

AREA OF NEW DEVELOPMENT (APPROXIMATE)

NOT TO SCALE

N

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (Site #C734108)
Emergency Remedial Work Plan
Site Plan View

Job Number 37-11082
Revision A
Date June 2013

Figure 02

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 5 June 2013 - 4:32 PM Cad File No: G:\37\11082\IEM Figures\37-11082-L2.cadd.dwg

Attachment B-6 – Excerpts from Background Sediment Sampling Letter Report, GHD, October 2013

LEGEND:

● BACKGROUND SEDIMENT SAMPLE LOCATION (APPROXIMATE)

NOT TO SCALE

N

NOTES:

1. AERIAL PHOTOGRAPHS ARE 2012 HALF FOOT 4 BAND CENTRAL ZONE INDEX FROM THE NYSGIS CLEARINGHOUSE WEBSITE: http://gis.ny.gov/

2. BACKGROUND SEDIMENT SAMPLE LOCATIONS ARE APPROXIMATE.

GSP Holdings, Inc.
Celi Drive BCP Site
BCP Site #C734108

Background Sediment Sample Locations

Job Number	37-11082
Revision	A
Date	10.08.13

Figure 2

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 16 October 2013 - 12:51 PM Cad File No: G:\37\11082\Background Sediment Sampling\Sampling\Figures\Fig 2 - Background Sample Locations.dwg

Table 2 - (Page 1 of 5): Summary of Background Sediment Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			Rural Soil Background Concentrations*	TAGM #4046 - Eastern USA Background^	SAMPLE IDENTIFICATION					
	UNRESTRICTED USE	COMMERCIAL USE	PROTECTION OF ECOLOGICAL RESOURCES			Background A1		Background A2		Background A3	
Sample Date						9/3/2013		9/3/2013		9/3/2013	
Sample Depth (ft. bgs)						0 - 6"		12 - 14"		22 - 24"	
Metals by EPA Method 6010C							**R.L.**		**R.L.**		**R.L.**
Chromium, Total	30	1,500	41	30	1.5 - 40**	17		27		17	
Copper, Total	50	270	50		1 - 50	34		**67**		24	
Nickel, Total	30	310	30		0.5 - 25	20		16		22	
Zinc, Total	109	10,000	109		9 - 50	84		**300**		51	
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		N/A	U	1.4	U	2.7	U	1.3
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	400	1	NE		U	1.2	U	2.4	U	1.1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

* - Rural Soil Background Concentrations from New York State Brownfield Cleanup Program - Development of Cleanup Objectives Technical Support Document (NYSDEC and NYSDOH, September, 2006)

^ - Eastern USA Background from Appendix A of Tagm #4046 (NYSDEC, June, 1994)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

R.L. - Laboratory Reporting Limit

NE - Not Established

NS - Not Specified

N/A - Not Available

** - New York State Background

*** - Background levels vary widely. Average levels in undeveloped, rural areas range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways typically range from 200 - 500 ppm.

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 2 - (Page 2 of 5): Summary of Background Sediment Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			Rural Soil Background Concentrations*	TAGM #4046 - Eastern USA Background^	SAMPLE IDENTIFICATION					
	UNRESTRICTED USE	COMMERCIAL USE	PROTECTION OF ECOLOGICAL RESOURCES			Background B1		Background B2		Background B3	
Sample Date						9/3/2013		9/3/2013		9/3/2013	
Sample Depth (ft. bgs)						0 - 6"		12 - 14"		22 - 24"	
Metals by EPA Method 6010C							**R.L.**		**R.L.**		**R.L.**
Chromium, Total	30	1,500	41	30	1.5 - 40**	27		11		18	
Copper, Total	50	270	50		1 - 50	**60**		22		33	
Nickel, Total	30	310	30		0.5 - 25	26		12		22	
Zinc, Total	109	10,000	109		9 - 50	**140**		42		57	
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		N/A	U	2.2	U	1.3	U	1.6
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	400	1	NE		U	1.8	U	1.1	U	1.4

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

* - Rural Soil Background Concentrations from New York State Brownfield Cleanup Program - Development of Cleanup Objectives Technical Support Document (NYSDEC and NYSDOH, September, 2006)

^ - Eastern USA Background from Appendix A of Tagm #4046 (NYSDEC, June, 1994)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

R.L. - Laboratory Reporting Limit

NE - Not Established

NS - Not Specified

N/A - Not Available

** - New York State Background

*** - Background levels vary widely. Average levels in undeveloped, rural areas range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways typically range from 200 - 500 ppm.

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 2 - (Page 3 of 5): Summary of Background Sediment Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			Rural Soil Background Concentrations*	TAGM #4046 - Eastern USA Background^	SAMPLE IDENTIFICATION					
	UNRESTRICTED USE	COMMERCIAL USE	PROTECTION OF ECOLOGICAL RESOURCES			Background C1		Background C2		Background C3	
Sample Date						9/3/2013		9/3/2013		9/3/2013	
Sample Depth (ft. bgs)						0 - 6"		12 - 14"		22 - 24"	
Metals by EPA Method 6010C							**R.L.**		**R.L.**		**R.L.**
Chromium, Total	30	1,500	41	30	1.5 - 40**	**80**		**48**		19	
Copper, Total	50	270	50		1 - 50	14		49		**51**	
Nickel, Total	30	310	30		0.5 - 25	6.8		16		18	
Zinc, Total	109	10,000	109		9 - 50	85		**120**		100	
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		N/A	U	1.3	U	1.5	U	1.5
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	400	1	NE		U	1	U	1.2	U	1.3

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

* - Rural Soil Background Concentrations from New York State Brownfield Cleanup Program - Development of Cleanup Objectives Technical Support Document (NYSDEC and NYSDOH, September, 2006)

^ - Eastern USA Background from Appendix A of Tagm #4046 (NYSDEC, June, 1994)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

R.L. - Laboratory Reporting Limit

NE - Not Established

NS - Not Specified

N/A - Not Available

** - New York State Background

*** - Background levels vary widely. Average levels in undeveloped, rural areas range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways typically range from 200 - 500 ppm.

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 2 - (Page 4 of 5): Summary of Background Sediment Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			Rural Soil Background Concentrations*	TAGM #4046 - Eastern USA Background^	SAMPLE IDENTIFICATION							
	UNRESTRICTED USE	COMMERCIAL USE	PROTECTION OF ECOLOGICAL RESOURCES			Background D1		Background D2		Background D3		Duplicate	
Sample Date						9/3/2013		9/3/2013		9/3/2013		9/3/2013	
Sample Depth (ft. bgs)						0 - 6"		12 - 14"		22 - 24"		0 - 6" (Background D1)	
Metals by EPA Method 6010C							R.L.		R.L.		R.L.		R.L.
Chromium, Total	30	1,500	41	30	1.5 - 40**	**40**		**48**		**31**		**38**	
Copper, Total	50	270	50		1 - 50	38		30		40		35	
Nickel, Total	30	310	30		0.5 - 25	15		16		20		15	
Zinc, Total	109	10,000	109		9 - 50	**140**		51		67		**130**	
Cyanide by EPA Method 9010C													
Cyanide, Total	27	27	NS		N/A	U	1.6	U	1.4	U	1.7	U	1.6
Chromium by EPA Method 7196A													
Chromium, Hexavalent	1	400	1	NE		U	1.4	U	1.1	U	1.4	U	1.4

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

* - Rural Soil Background Concentrations from New York State Brownfield Cleanup Program - Development of Cleanup Objectives Technical Support Document (NYSDEC and NYSDOH, September, 2006)

^ - Eastern USA Background from Appendix A of Tagm #4046 (NYSDEC, June, 1994)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

R.L. - Laboratory Reporting Limit

NE - Not Established

NS - Not Specified

N/A - Not Available

** - New York State Background

*** - Background levels vary widely. Average levels in undeveloped, rural areas range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways typically range from 200 - 500 ppm.

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 2 - (Page 5 of 5): Summary of Background Sediment Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			Rural Soil Background Concentrations*	TAGM #4046 - Eastern USA Background^	SAMPLE IDENTIFICATION					
	UNRESTRICTED USE	COMMERCIAL USE	PROTECTION OF ECOLOGICAL RESOURCES			Background E1		Background E2		Background E3	
Sample Date						9/3/2013		9/3/2013		9/3/2013	
Sample Depth (ft. bgs)						0 - 6"		12 - 14"		22 - 24"	
Metals by EPA Method 6010C							R.L.		R.L.		R.L.
Chromium, Total	30	1,500	41	30	1.5 - 40**	9.1		16		14	
Copper, Total	50	270	50		1 - 50	31		46		24	
Nickel, Total	30	310	30		0.5 - 25	10		19		19	
Zinc, Total	109	10,000	109		9 - 50	**290**		**130**		46	
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		N/A	U	1.8	U	1.7	U	1.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	400	1	NE		U	1.5	U	1.5	U	1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

* - Rural Soil Background Concentrations from New York State Brownfield Cleanup Program - Development of Cleanup Objectives Technical Support Document (NYSDEC and NYSDOH, September, 2006)

^ - Eastern USA Background from Appendix A of Tagm #4046 (NYSDEC, June, 1994)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

R.L. - Laboratory Reporting Limit

NE - Not Established

NS - Not Specified

N/A - Not Available

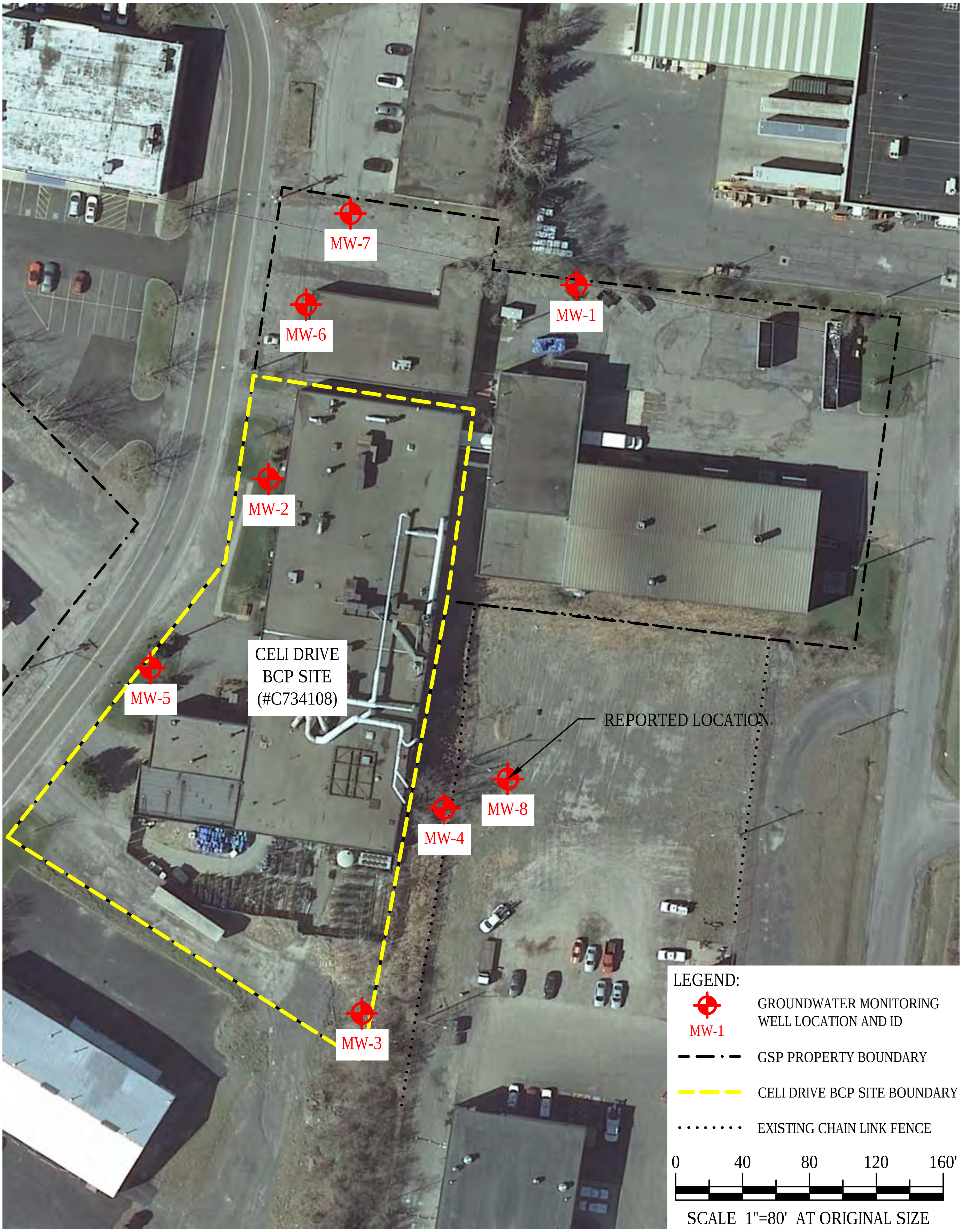
** - New York State Background

*** - Background levels vary widely. Average levels in undeveloped, rural areas range from 4 - 61 ppm. Average background levels in metropolitan or suburban areas or near highways typically range from 200 - 500 ppm.

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Attachment B-7 – Excerpts from Groundwater Sampling Letter Report, GHD, April 16, 2014



NOTES:

1. Site features are from a field survey completed by D.W. Hannig L.S., P.C. dated November 8, 2002 and revised 9-1-2005, 3-2-2010, 5-10-2010, 6-15-2010, 6-24-2010, and 4-1-2014.
2. Aerial photographs are 2012 half foot 4 band central zone index from the NYSGIS Clearinghouse website: http://gis.ny.gov/
3. MW-8 could not be located in the field and was not surveyed previously.

Plot Date: 16 April 2014 - 11:15 AM Cad File No: G:\37\11082\Groundwater Sampling\Figures\37-11082-L2.cadd.dwg

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Groundwater Sampling Report
Site Layout

Job Number	37-11082
Revision	A
Date	02.26.14

Figure 2

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Table 1: (Page 1 of 1) Groundwater Elevation Data. Celi Drive BCP Site, Syracuse, NY.

Monitoring Well I.D.	Date	Reference Point	Reference Elevation (feet)	DTW (feet)	DOW (feet)	Water Elevation (feet)	Volume (gal)
MW-1	1/31/2014	Top of PVC	413.46	3.58	16.16	409.88	2.01
MW-2	1/31/2014	Top of PVC	414.05	2.92	14.85	411.13	1.91
MW-3	1/31/2014	Top of PVC	416.10	4.46	14.58	411.64	1.62
MW-4	1/31/2014	Top of PVC	415.88	4.30	14.75	411.58	1.67
MW-5	1/31/2014	Top of PVC	415.01	4.07	13.90	410.94	1.57
MW-6	1/31/2014	Top of PVC	413.16	2.95	13.76	410.21	1.73
MW-7	1/31/2014	Top of PVC	412.92	3.05	13.14	409.87	1.61
MW-8	1/31/2014	Top of PVC	NM	NM	NM	NM	NM

DTW - depth to water

DOW - depth of well

NM - Not Measured because well could not be located

Table 2: (Page 1 of 2) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	DTW (feet)	Amount Purged (liters)	Comments
MW-1	1/31/2014	7:51	9.16	1.436	1.05	3.2	8.12	45.3	1401.5	3.72	14.0	Purged 14 liters at 3 cycles per minute. Water started cloudy light yellowish brown with some sediment and cleared quickly. Sample water was clear with no sheen or odor.
		7:55	10.82	1.501	1.06	0.89	7.09	9.3	1145.4	3.70		
		7:58	10.78	1.504	1.06	0.75	7.04	-0.7	800.8	3.70		
		8:01	10.76	1.502	1.06	0.62	7.03	1.2	687.4	3.70		
		8:04	10.74	1.503	1.06	0.57	7.03	-2.0	501.7	3.70		
		8:07	10.73	1.502	1.06	0.55	7.03	-6.5	346.4	3.70		
		8:13	10.61	1.507	1.07	0.47	7.05	-15.9	164.6	3.70		
		8:16	10.62	1.511	1.07	0.45	6.98	-16.2	117.4	3.70		
		8:19	10.60	1.511	1.07	0.42	6.98	-19.5	95.4	3.70		
		8:23	10.61	1.517	1.08	0.41	7.00	-23.2	68.6	3.70		
		8:26	10.54	1.519	1.08	0.40	7.01	-26.2	56.8	3.70		
		8:30	10.55	1.521	1.08	0.39	7.02	-29.2	49.4	3.70		
		8:33	10.57	1.521	1.08	0.41	7.04	-34.0	45.1	3.70		
		8:36	10.55	1.522	1.08	0.39	7.04	-25.4	42.2	3.70		
MW-2	1/31/2014	11:41	8.20	1.290	0.97	2.95	7.70	88.5	1268.4	3.80	16.0	Purged 16 liters at 2 cycles per minute. Water started turbid brown and took a long time to clear. Sample water was clear with a blocky sheen and no odor.
		11:45	9.63	1.332	0.96	0.78	7.37	55.6	1398.5	4.20		
		11:49	10.22	1.354	0.97	0.54	7.31	38.2	1445.3	4.40		
		11:53	10.25	1.355	0.96	0.48	7.27	27.1	1442.1	4.32		
		11:57	10.53	1.361	0.96	0.54	7.29	35.2	1442.1	4.25		
		12:00	10.54	1.364	0.96	0.52	7.23	25.4	1442.2	4.23		
		12:05	10.72	1.368	0.96	0.45	7.23	10.3	1400.2	4.23		
		12:10	10.82	1.371	0.96	0.39	7.22	2.4	1032.5	4.23		
		12:15	10.83	1.370	0.96	0.38	7.20	-2.7	669.6	4.23		
		12:20	10.82	1.369	0.96	0.38	7.18	-6.7	412.9	4.23		
		12:25	10.82	1.368	0.96	0.39	7.17	-9.2	278.5	4.23		
		12:30	10.79	1.365	0.96	0.40	7.14	-10.5	175.8	4.23		
		12:35	10.82	1.363	0.95	0.40	7.13	-12.8	131.9	4.23		
		12:40	10.84	1.361	0.95	0.40	7.14	-15.3	108.5	4.23		
		12:45	10.93	1.363	0.95	0.39	7.14	-17.7	83.4	4.23		
		12:50	11.00	1.366	0.95	0.38	7.13	-18.5	72.9	4.23		
		12:55	11.03	1.367	0.95	0.38	7.13	-19.9	48.7	4.23		
MW-3	1/31/2014	15:21	7.04	0.811	0.62	2.77	7.48	108.0	901.0	4.52	12.0	Purged 12 liters at 2 cycles per minute. Water started cloudy and cleared fairly quickly. Sample water was slightly cloudy with no sheen or odor.
		15:24	7.67	0.812	0.61	1.06	7.08	96.8	518.4	4.72		
		15:28	7.85	0.817	0.61	0.76	6.85	91.6	344.3	4.83		
		15:31	7.98	0.825	0.61	0.65	6.72	90.6	278.9	4.90		
		15:34	8.12	0.831	0.61	0.56	6.66	89.2	190.1	4.99		
		15:39	8.04	0.831	0.62	0.51	6.61	87.0	158.5	4.85		
		15:44	8.19	0.834	0.61	0.47	6.66	80.8	126.0	4.85		
		15:49	8.32	0.835	0.61	0.44	6.63	79.3	94.7	4.85		
		15:53	8.35	0.835	0.61	0.42	6.62	78.1	74.1	4.85		
		15:58	8.44	0.836	0.61	0.41	6.61	77.5	66.3	4.85		
		16:03	8.51	0.836	0.61	0.42	6.61	76.6	63.5	4.85		
		16:08	8.57	0.836	0.61	0.41	6.60	75.3	49.3	4.85		
MW-4	1/31/2014	16:38	5.18	0.865	0.70	4.22	7.22	132.3	1004.3	5.05	14.0	Purged 14 liters at 2 cycles per minute. Water started slightly cloudy and cleared fairly quickly. Sample water was slightly cloudy with no sheen or odor. Sample taken prior to reaching less than 50 NTUs due to running out of daylight.
		16:41	6.16	0.907	0.71	1.07	7.05	107.7	511.1	5.60		
		16:45	6.03	0.906	0.71	0.71	7.03	87.3	429.8	5.65		
		16:49	5.98	0.909	0.72	0.60	6.98	74.1	394.9	5.65		
		16:54	6.10	0.918	0.72	0.55	6.96	53.7	336.6	5.65		
		16:59	6.17	0.929	0.73	0.58	6.97	54.5	279.8	5.65		
		17:04	6.20	0.934	0.73	0.62	6.93	45.7	224.6	5.65		
		17:09	6.21	0.938	0.74	0.49	7.02	33.8	212.9	5.65		
		17:13	6.19	0.943	0.74	0.43	7.01	27.7	171.4	5.65		
		17:18	6.25	0.948	0.74	0.40	6.98	23.5	148.9	5.65		
		17:23	6.25	0.952	0.75	0.39	6.97	20.3	133.4	5.65		
		17:28	6.23	0.954	0.75	0.37	6.95	16.6	146.3	5.65		
		17:33	6.24	0.956	0.75	0.37	6.95	14.1	121.9	5.65		
		17:37	6.26	0.957	0.75	0.36	6.96	12.7	114.7	5.65		

Field parameters collected during purging using a YSI 6920 with flow thru cell and 2-inch bladder pump.

Field parameters recorded after every liter of purge.

Table 2: (Page 2 of 2) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	DTW (feet)	Amount Purged (liters)	Comments
MW-5	1/31/2014	13:34	7.80	1.540	1.18	3.92	7.72	106.5	1420.8	4.38	22.0	Purged 22 liters at 3 cycles per minute. Water started turbid brown and cleared slowly. Sample water was slightly cloudy with no sheen or odor. Sample taken prior to reaching less than 50 NTUs due to minimal improvement in water clarity.
		13:37	9.19	1.692	1.26	1.12	7.35	86.6	1427.2	4.60		
		13:40	9.21	1.681	1.24	0.92	7.29	74.9	1422.4	4.65		
		13:43	9.08	1.675	1.24	0.89	7.20	66.3	1188.4	4.65		
		13:46	9.09	1.675	1.24	0.85	7.16	60.0	1138.7	4.65		
		13:49	9.11	1.685	1.25	0.87	7.12	54.8	1356.4	4.65		
		13:53	9.17	1.702	1.26	0.82	7.11	48.2	1350.2	4.65		
		13:55	9.11	1.708	1.27	0.88	7.12	44.1	1204.2	4.65		
		13:58	8.97	1.704	1.27	1.02	7.23	47.6	1171.3	4.65		
		14:00	8.86	1.703	1.27	1.19	7.09	48.0	1081.1	4.65		
		14:03	8.85	1.708	1.28	1.05	7.08	43.8	950.0	4.65		
		14:07	8.85	1.705	1.28	1.03	7.08	38.5	755.2	4.65		
		14:11	8.95	1.726	1.29	0.95	7.09	34.3	636.4	4.65		
		14:14	8.91	1.711	1.28	0.97	7.11	29.8	545.3	4.65		
		14:17	8.88	1.710	1.28	0.97	7.11	27.7	494.4	4.65		
		14:20	8.99	1.718	1.28	0.91	7.11	25.2	377.4	4.65		
		14:24	9.02	1.723	1.28	0.94	7.12	22.2	333.8	4.65		
		14:27	9.06	1.725	1.28	0.91	7.12	21.0	304.7	4.65		
		14:30	9.00	1.724	1.29	0.94	7.12	19.4	243.0	4.65		
		14:34	9.07	1.729	1.29	0.90	7.12	18.1	211.7	4.65		
		14:37	9.05	1.730	1.29	0.88	7.12	17.1	104.5	4.65		
		14:41	9.05	1.728	1.29	0.88	7.11	17.0	150.3	4.65		
MW-6	1/31/2014	10:34	8.30	1.839	1.40	3.31	7.77	76.0	232.6	3.36	10.0	Purged 10 liters at 3 cycles per minute. Water started slightly yellowish brown and cleared quickly. Sample water was clear with no sheen or odor.
		10:37	9.69	1.952	1.44	1.06	7.48	25.8	195.4	3.45		
		10:40	9.45	1.948	1.44	0.72	7.38	2.7	104.8	3.47		
		10:43	9.44	1.948	1.44	0.58	7.34	-10.6	94.7	3.50		
		10:46	9.48	1.960	1.45	0.52	7.31	-18.9	70.8	3.50		
		10:48	9.51	1.971	1.46	0.48	7.29	-25.2	60.3	3.50		
		10:51	9.56	1.991	1.48	0.45	7.27	-30.1	50.4	3.52		
		10:55	9.63	2.001	1.48	0.44	7.27	-35.1	46.9	3.52		
		10:58	9.70	2.012	1.48	0.42	7.25	-38.3	36.8	3.52		
		11:01	9.70	2.017	1.49	0.41	7.23	-39.8	32.1	3.52		
		11:04	9.72	2.027	1.49	0.38	7.21	-42.0	29.5	3.52		
MW-7	1/31/2014	9:12	8.29	1.627	1.23	2.92	7.44	56.6	842.7	3.52	13.0	Purged 13 liters at 3 cycles per minute. Water started cloudy brown with little sediment and cleared quickly. Sample water was clear with no sheen or odor.
		9:16	9.40	1.708	1.26	0.95	7.27	-1.4	419.0	3.72		
		9:19	8.86	1.683	1.26	0.68	7.27	-19.5	224.4	3.72		
		9:23	8.86	1.687	1.26	0.56	7.24	-33.4	169.0	3.65		
		9:26	8.93	1.659	1.24	0.56	7.24	-39.4	122.2	3.75		
		9:29	8.95	1.638	1.22	0.49	7.24	-43.0	102.2	3.75		
		9:32	8.97	1.625	1.21	0.46	7.23	-47.5	92.6	3.75		
		9:35	9.10	1.610	1.19	0.43	7.23	-50.6	82.3	3.75		
		9:38	9.10	1.599	1.18	0.41	7.23	-52.9	74.4	3.75		
		9:41	9.12	1.588	1.18	0.40	7.23	-55.3	62.8	3.75		
		9:44	9.15	1.580	1.17	0.38	7.23	-57.0	54.0	3.75		
		9:48	9.19	1.576	1.16	0.38	7.23	-58.6	48.1	3.75		
		9:51	9.19	1.568	1.16	0.36	7.23	-59.9	48.9	3.75		
		9:54	9.21	1.564	1.15	0.36	7.22	-61.2	41.6	3.75		
MW-8	1/31/2014	NM	NM	NM	NM	NM	NM	NM	NM	NM	-	Well could not be located to be sampled.

Field parameters collected during purging using a YSI 6920 with flow thru cell and 2-inch bladder pump.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 1 of 2) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification MW-1						
Date Sampled		Aug-05*		Mar-10*		Jan-14		
Metals by EPA Method 6010C								**D.L.**
Total Chromium	50		U		U	2.3	J	1
Copper	200		U		U	4.4	J^B	1.6
Nickel	100		U	1.4	J	3.8	J	1.3
Zinc	2,000 (G)		U	9.4	J	7.7	JB	1.5
Hexavalent Chromium by EPA Method 7196A								
Hexavalent Chromium	50	11			U		U	5
Cyanide by EPA Method 9012B								
Cyanide	200		U		U		U	5

Analyte	GW Std (ug/L)	Sample Identification MW-2						
Date Sampled		Aug-05*		Mar-10*		Jan-14		
Metals by EPA Method 6010C								**D.L.**
Total Chromium	50		U	2.4	J	3.7	J	1
Copper	200	3.6			U	4.1	JB	1.6
Nickel	100	5.9		8.4		7.8	J	1.3
Zinc	2,000 (G)		U	10.4	J	6.4	JB	1.5
Hexavalent Chromium by EPA Method 7196A								
Hexavalent Chromium	50	9			U		U	5
Cyanide by EPA Method 9012B								
Cyanide	200		U	3.56	J		U	5

Analyte	GW Std (ug/L)	Sample Identification MW-3						
Date Sampled		Aug-05*		Mar-10*		Jan-14		
Metals by EPA Method 6010C								**D.L.**
Total Chromium	50		U		U	5.1		1
Copper	200		U	4.1	J	10	B	1.6
Nickel	100	4.7		**102**		**120**		1.3
Zinc	2,000 (G)		U	11.8	J	12	B	1.5
Hexavalent Chromium by EPA Method 7196A								
Hexavalent Chromium	50	14			U		U	5
Cyanide by EPA Method 9012B								
Cyanide	200		U	3.71	J		UJ	5

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled because well could not be located

D.L. - Laboratory Detection Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 3: (Page 2 of 2) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification MW-4					MW-5				
Date Sampled		Mar-10*		Jan-14			Mar-10*		Jan-14		
Metals by EPA Method 6010C						**D.L.**					**D.L.**
Total Chromium	50	10		29		1		U	10		1
Copper	200	22.6		93	B	1.6		U	11	B	1.6
Nickel	100	**237**		**340**		1.3	3.1	J	12		1.3
Zinc	2,000 (G)	22		23	B	1.5	11.9	J	18	B	1.5
Hexavalent Chromium by EPA Method 7196A											
Hexavalent Chromium	50		U		U	5	10	J		U	5
Cyanide by EPA Method 9012B											
Cyanide	200		U		U	5		U		U	5

Analyte	GW Std (ug/L)	Sample Identification MW-6					MW-7				
Date Sampled		Mar-10*		Jan-14			Mar-10*		Jan-14		
Metals by EPA Method 6010C						**D.L.**					**D.L.**
Total Chromium	50		U	2.0	J	1		U	3.1	J	1
Copper	200		U	3.4	JB	1.6		U	5.7	JB	1.6
Nickel	100	10		3.9	J	1.3	1.8	J	4.5	J	1.3
Zinc	2,000 (G)	11.4	J	7.0	JB	1.5	13.8	J	11	B	1.5
Hexavalent Chromium by EPA Method 7196A											
Hexavalent Chromium	50		U		U	5		U		UJ	5
Cyanide by EPA Method 9012B											
Cyanide	200		U		U	5	7.77			U	5

Analyte	GW Std (ug/L)	Sample Identification MW-8					Duplicate					
Date Sampled		Mar-10*		Jan-14			Aug-05* (MW-1)		Jan-14 (MW-3)			
Metals by EPA Method 6010C						**D.L.**					**D.L.**	**RPD**
Total Chromium	50		U	NS				U	4.7		1	8.16%
Copper	200		U	NS				U	9.6	JB	1.6	4.08%
Nickel	100	4.2	J	NS				U	**120**		1.3	0.00%
Zinc	2,000 (G)	14.5		NS				U	9.8	JB	1.5	20.18%
Hexavalent Chromium by EPA Method 7196A												
Hexavalent Chromium	50		U	NS			10			UJ	5	N/A
Cyanide by EPA Method 9012B												
Cyanide	200	4.1	J	NS				U		U	5	N/A

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

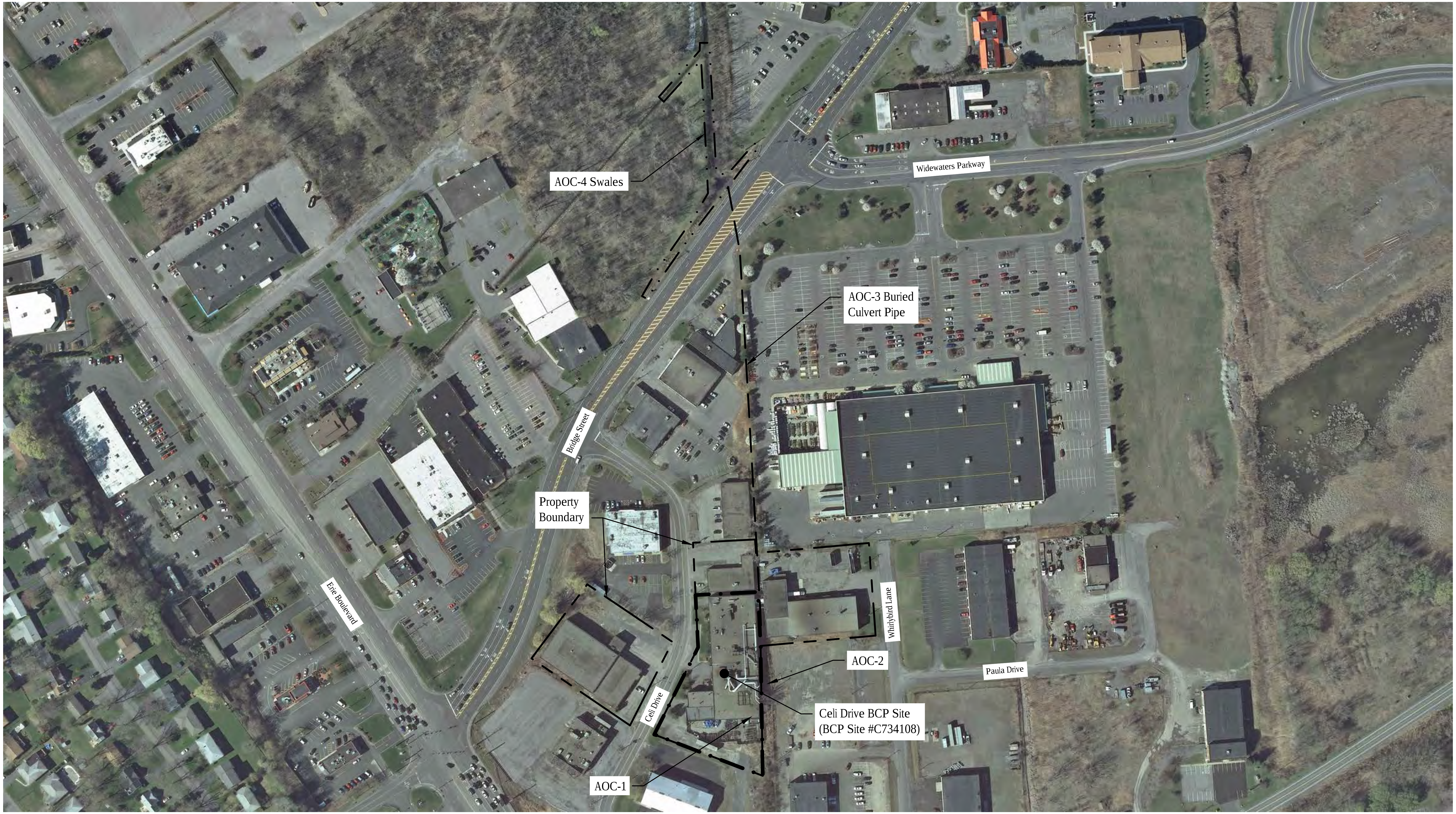
NS - Not sampled because well could not be located

D.L. - Laboratory Detection Limit

RPD - Relative Percent Difference between sample and blind field duplicate

Bold and boxed results indicate an exceedance of Groundwater Standards

Attachment B-8 – Excerpts from Construction Completion Report – AOC-3 and AOC-4, GHD, January 2016



0 100 200 300 400'

SCALE 1"=200' AT ORIGINAL SIZE

N

NOTES:
1. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Construction Completion Report
Celi Drive BCP Site (BCP SIte #C734108)

Site Layout

Job Number	37-11082
Revision	A
Date	02.03.2015

Figure 2

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 3 February 2015 - 10:31 AM Cad File No: G:\37\11082\AOC-4\AOC-4 Construction Completion Report\Figures\Figure 2 - Site Layout.dwg

0 20 40 60 80'

SCALE 1"=40' AT ORIGINAL SIZE

N

NOTES:
1. Sample locations surveyed by Ianuzi & Romans Land Surveying, P.C. (5-23-2014, 5-30-2014, and 6-5-2014).
2. Edge of water surveyed by Ianuzi & Romans Land Surveying, P.C. (1-27-2014).
3. Edge of water post-excavation surveyed by Ianuzi & Romans Land Surveying, P.C. (5-30-2014).
4. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Construction Completion Report
Celi Drive BCP Site (BCP SIte #C734108)

Job Number | 37-11082
Revision | A
Date | 01.28.2015

AOC-4 Sample Locations

Figure 3

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 30 January 2015 - 1:29 PM Cad File No: G:\37\11082\AOC-4\AOC-4 Construction Completion Report\Figures\Figure 3 - AOC-4 Sample Locations.dwg

NOTES:
1. Only analytical results of end-point soil samples are shown here. For a complete summary of soil sample analytical results refer to tables in the Construction Completion Report.
2. All analytical results reported as milligrams per kilogram (mg/kg), parts per million.
3. Total Chromium Soil Cleanup Objectives (SCOs) are 30, 36, and 41 mg/kg for Unrestricted Use, Residential Use, and Protection of Ecological Resources, respectively.
4. Hexavalent Chromium SCOs are 1, 22, and 1 mg/kg for Unrestricted Use, Residential Use, and Protection of Ecological Resources, respectively.
5. Sample locations surveyed by Ianuzi & Romans Land Surveying, P.C. (5-23-2014, 5-30-2014, and 6-5-2014).
6. Edge of water post-excavation surveyed by Ianuzi & Romans Land Surveying, P.C. (5-30-2014).
7. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Construction Completion Report
Celi Drive BCP Site (BCP SIte #C734108)

AOC-4 End-Point Sample Results - Total and Hexavalent Chromium

Job Number	37-11082
Revision	A
Date	03.16.2015

Figure 4

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 16 March 2015 - 8:47 AM Cad File No: G:\37\11082\AOC-4\AOC-4 Construction Completion Report\Figures\Figure 4 - AOC-4 Chromium Results.dwg

0 20 40 60 80'

SCALE 1"=40' AT ORIGINAL SIZE

N

NOTES:

1. Only analytical results of end-point soil samples are shown here. For a complete summary of soil sample analytical results refer to tables in the Construction Completion Report.
2. All analytical results reported as milligrams per kilogram (mg/kg), parts per million.
3. Total Copper Soil Cleanup Objectives (SCOs) are 50, 270, and 50 mg/kg for Unrestricted Use, Residential Use, and Protection of Ecological Resources, respectively.
4. Total Cyanide SCOs are 27, 27 mg/kg, and No Standard for Unrestricted Use, Residential Use, and Protection of Ecological Resources, respectively.
5. Sample locations surveyed by Ianuzi & Romans Land Surveying, P.C. (5-23-2014, 5-30-2014, and 6-5-2014).
6. Edge of water post-excavation surveyed by Ianuzi & Romans Land Surveying, P.C. (5-30-2014).
7. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Construction Completion Report
Celi Drive BCP Site (BCP SIte #C734108)

AOC-4 End-Point Sample Results - Total Copper and Total Cyanide

Job Number	37-11082
Revision	A
Date	03.16.2015

Figure 5

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 16 March 2015 - 9:00 AM Cad File No: G:\37\11082\AOC-4\AOC-4 Construction Completion Report\Figures\Figure 5 - AOC-4 Copper and Cyanide Results.dwg

0 20 40 60 80'

SCALE 1"=40' AT ORIGINAL SIZE

N

NOTES:
1. Only analytical results of end-point soil samples are shown here. For a complete summary of soil sample analytical results refer to tables in the Construction Completion Report.
2. All analytical results reported as milligrams per kilogram (mg/kg), parts per million.
3. Total Nickel Soil Cleanup Objectives (SCOs) are 30, 140, and 30 mg/kg for Unrestricted Use, Residential Use, and Protection of Ecological Resources, respectively.
4. Sample locations surveyed by Ianuzi & Romans Land Surveying, P.C. (5-23-2014, 5-30-2014, and 6-5-2014).
5. Edge of water post-excavation surveyed by Ianuzi & Romans Land Surveying, P.C. (5-30-2014).
6. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Construction Completion Report
Celi Drive BCP Site (BCP SIte #C734108)

AOC-4 End-Point Sample Results - Total Nickel

Job Number	37-11082
Revision	A
Date	03.16.2015

Figure 6

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com

Plot Date: 16 March 2015 - 9:06 AM Cad File No: G:\37\11082\AOC-4\AOC-4 Construction Completion Report\Figures\Figure 6 - AOC-4 Nickel Results.dwg

Table 1 - (Page 1 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-1A				SW-1B				SW-1C			
Sample Date				5/6/2014				5/6/2014				5/6/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	22	J			14	J			8.9	J		
Copper, Total	50	270	50	49	J			18	J			17	J		
Nickel, Total	30	140	30	24	J			13	J			8.9	J		
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.27	1.2		U	0.28	1.2		U	0.24	1
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	0.2	0.99		U	0.20	0.99		U	0.18	0.88

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 2 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION											
				BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-2A				SW-2B				SW-2B-1			
Sample Date				5/6/2014				5/6/2014				5/23/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	18	J			**410**	*			12			
Copper, Total	50	270	50	39	J			**1,400**	*			19			
Nickel, Total	30	140	30	20	J			**570**	*			14			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS	0.42	J	0.28	1.2	2.0					U	0.27	1.2
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	0.2	1		U	0.34	1.7		UJ	0.2	0.98

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION							
				BRIDGE STREET SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-2C				SW-2C-1			
Sample Date				5/6/2014				5/23/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	**730**	*			14			
Copper, Total	50	270	50	**1,200**	*			21			
Nickel, Total	30	140	30	**590**	*			17			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS	2.3					U	0.27	1.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		U	0.36	1.8		UJ	0.20	0.98

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Bold, thick outlined, shaded, and asterisk cell indicates analyte exceeds the Protection of Ecological Resources, the Unrestricted Use, and the Residential Use Soil Cleanup Objectives

Table 1 - (Page 3 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-3A				SW-3A-1				SW-3B			
Sample Date				5/7/2014				5/22/2014				5/7/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	12				12				**130**	*		
Copper, Total	50	270	50	**130**				29				**140**			
Nickel, Total	30	140	30	**31**				14				**51**			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.7	3		U	0.28	1.2	2.1			
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	2.4	12		UJ	0.2	1		U	0.33	1.6

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-3B-1				SW-3C			
Sample Date				5/22/2014				5/7/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	16				5.6	J		
Copper, Total	50	270	50	22				13	J		
Nickel, Total	30	140	30	19				7.8			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.3	1.3		U	0.49	2.1
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		UJ	0.21	1		UJ	0.18	0.89

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Bold, thick outlined, shaded, and asterisk cell indicates analyte exceeds the Protection of Ecological Resources, the Unrestricted Use, and the Residential Use Soil Cleanup Objectives

Table 1 - (Page 4 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-4A				SW-4B				SW-4C			
Sample Date				5/7/2014				5/7/2014				5/7/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	14	J			**34**	**J**			9.7	J		
Copper, Total	50	270	50	21	J			42	J			24	J		
Nickel, Total	30	140	30	22				28				16			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.54	2.3		U	0.31	1.3		U	0.26	1.1
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		UJ	0.2	0.98		UJ	0.22	1.1		UJ	0.18	0.89

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 5 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-5A				SW-5A-1				SW-5A-2			
Sample Date				5/7/2014				5/22/2014				5/28/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	**30**				19				9.0			
Copper, Total	50	270	50	**100**				**69**				16			
Nickel, Total	30	140	30	**81**				**35**				12			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.32	1.4		U	0.29	1.2	0.50	J	0.27	1.2
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	0.24	1.2		U	0.2	1		U	0.19	0.97

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-5B				SW-5C			
Sample Date				5/7/2014				5/7/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	23	J			19	J		
Copper, Total	50	270	50	30	J			24	J		
Nickel, Total	30	140	30	25				21			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.35	1.5		U	0.29	1.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		U	0.24	1.2		U	0.21	1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 6 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION											
				BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-6A				SW-6A-1				SW-6B			
Sample Date				5/7/2014				5/22/2014				5/7/2014			
Metals by EPA Method 6010C						**D.L.**	**R.L.**			**D.L.**	**R.L.**			**D.L.**	**R.L.**
Chromium, Total	30	36	41	**31**				15				23	J		
Copper, Total	50	270	50	**73**				26				22	J		
Nickel, Total	30	140	30	**120**				23				27			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.32	1.3		U	0.28	1.2		U	0.35	1.5
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	0.23	1.1		UJ	0.19	0.97		U	0.26	1.3

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION			
				BRIDGE STREET SWALE			
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-6C			
Sample Date				5/7/2014			
Metals by EPA Method 6010C						**D.L.**	**R.L.**
Chromium, Total	30	36	41	12	J		
Copper, Total	50	270	50	33	J		
Nickel, Total	30	140	30	27			
Cyanide by EPA Method 9010C							
Cyanide, Total	27	27	NS		U	0.24	1
Chromium by EPA Method 7196A							
Chromium, Hexavalent	1	22	1		U	0.18	0.9

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 7 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-7A		D.L.	R.L.	SW-7A-1		D.L.	R.L.	SW-7B		D.L.	R.L.
				SAMPLE IDENTIFICATION MAIN SWALE											
Sample Date				5/8/2014				5/23/2014				5/8/2014			
Metals by EPA Method 6010C															
Chromium, Total	30	36	41	**36**				21				19			
Copper, Total	50	270	50	46				37				21			
Nickel, Total	30	140	30	**44**				25				20			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.28	1.2		U	0.36	1.5	0.81	J	0.28	1.2
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1	0.38	J	0.2	1		UJ	0.25	1.3	0.26	J	0.2	1

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-7C		D.L.	R.L.	SW-7C-1		D.L.	R.L.
				SAMPLE IDENTIFICATION MAIN SWALE							
Sample Date				5/8/2014				5/22/2014			
Metals by EPA Method 6010C											
Chromium, Total	30	36	41	**100**	*			21			
Copper, Total	50	270	50	**210**				23			
Nickel, Total	30	140	30	**93**				23			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.58	2.5	0.48	J	0.29	1.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		U	0.41	2.1	0.26	J	0.21	1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

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Bold, thick outlined, shaded, and asterisk cell indicates analyte exceeds the Protection of Ecological Resources, the Unrestricted Use, and the Residential Use Soil Cleanup Objectives

Table 1 - (Page 8 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-8A				SW-8B				SW-8C			
Sample Date				5/8/2014				5/8/2014				5/8/2014			
Metals by EPA Method 6010C						**D.L.**	**R.L.**			**D.L.**	**R.L.**			**D.L.**	**R.L.**
Chromium, Total	30	36	41	14				5.9				16			
Copper, Total	50	270	50	18				11				**110**			
Nickel, Total	30	140	30	17				8.0	J	2.1	13	23			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.28	1.2		U	0.3	1.3		U	0.66	2.8
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1	0.31	J	0.2	1	0.28	J	0.22	1.1		U	0.47	2.4

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE			
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-8C-1			
Sample Date				5/22/2014			
Metals by EPA Method 6010C						**D.L.**	**R.L.**
Chromium, Total	30	36	41	21			
Copper, Total	50	270	50	11			
Nickel, Total	30	140	30	24			
Cyanide by EPA Method 9010C							
Cyanide, Total	27	27	NS		U	0.31	1.3
Chromium by EPA Method 7196A							
Chromium, Hexavalent	1	22	1		UJ	0.22	1.1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

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J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

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Table 1 - (Page 9 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-9A				SW-9A-1				SW-9B			
Sample Date				5/20/2014				5/29/2014				5/20/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	**68**	*			15	J			15	J		
Copper, Total	50	270	50	**160**				19	J			16	J		
Nickel, Total	30	140	30	**80**				19				17			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.31	1.3		U	0.26	1.1		UJ	0.27	1.2
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	0.23	1.1		U	0.19	0.97		UJ	0.2	1

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-9C				SW-9C-1			
Sample Date				5/20/2014				5/29/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	**50**	*			13	J		
Copper, Total	50	270	50	**63**				11	J		
Nickel, Total	30	140	30	**43**				8.5			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS	0.55	J	0.26	1.1		U	0.52	2.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		U	0.19	0.96	0.28	J	0.18	0.9

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

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Bold, thick outlined, shaded, and asterisk cell indicates analyte exceeds the Protection of Ecological Resources, the Unrestricted Use, and the Residential Use Soil Cleanup Objectives

Table 1 - (Page 10 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION											
				MAIN SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-10A				SW-10A-1				SW-10B			
Sample Date				5/9/2014				5/19/2014				5/9/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	11				16	J			18	J		
Copper, Total	50	270	50	**66**				20	J			36	J		
Nickel, Total	30	140	30	17				14				18			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.59	2.5	0.37	J	0.32	1.3	0.47	J	0.37	1.6
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1	0.92	J	0.42	2.1		UJ	0.22	1.1	0.42	J	0.27	1.3

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION							
				MAIN SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-10C				SW-10C-1			
Sample Date				5/9/2014				5/19/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	24				12	J		
Copper, Total	50	270	50	**82**				12	J		
Nickel, Total	30	140	30	**50**				10			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.51	2.2		U	0.25	1
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		U	0.36	1.8		UJ	0.17	0.87

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

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Table 1 - (Page 11 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-11A				SW-11A-1				SW-11B			
Sample Date				5/9/2014				5/23/2014				5/9/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	18				7.4				**40**	*		
Copper, Total	50	270	50	**110**				10				**96**			
Nickel, Total	30	140	30	**230**	*			10				**35**			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS	0.54	J	0.47	2	0.26	J	0.26	1.1	1.4	J	0.4	1.7
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1	0.76	J	0.34	1.7		UJ	0.19	0.94	0.77	J	0.3	1.5

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-11B-1				SW-11C			
Sample Date				5/23/2014				5/9/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	12				18	J		
Copper, Total	50	270	50	11				19	J		
Nickel, Total	30	140	30	14				20			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.32	1.4		U	0.27	1.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1		UJ	0.23	1.1	0.46	J	0.2	1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Bold, thick outlined, and asterisk cell indicates analyte exceeds the Unrestricted Use and the Residential Use Soil Cleanup Objectives

Table 1 - (Page 12 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE								
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-12A			SW-12B			SW-12C		
Sample Date				5/22/2014			5/22/2014			5/22/2014		
Metals by EPA Method 6010C					D.L.	R.L.		D.L.	R.L.		D.L.	R.L.
Chromium, Total	30	36	41	11			12			8.5		
Copper, Total	50	270	50	20			18			18		
Nickel, Total	30	140	30	19			12			9.1		
Cyanide by EPA Method 9010C												
Cyanide, Total	27	27	NS	U	0.25	1.1	U	0.3	1.3	U	0.24	1
Chromium by EPA Method 7196A												
Chromium, Hexavalent	1	22	1	UJ	0.18	0.91	UJ	0.23	1.1	UJ	0.18	0.9

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

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Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 13 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-13A				SW-13A-1				SW-13B			
Sample Date				5/22/2014				5/29/2014				5/22/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	21				9.8	J			9.4			
Copper, Total	50	270	50	43				8.3	J			20			
Nickel, Total	30	140	30	**37**				10	J			16			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.32	1.4		U	0.25	1.1		U	0.27	1.2
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1	0.29	J	0.23	1.1		~~U~~R	~~0.19~~	~~0.95~~	0.24	J	0.19	0.97

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE			
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-13C			
Sample Date				5/22/2014			
Metals by EPA Method 6010C						D.L.	R.L.
Chromium, Total	30	36	41	7.4			
Copper, Total	50	270	50	21			
Nickel, Total	30	140	30	13			
Cyanide by EPA Method 9010C							
Cyanide, Total	27	27	NS		U	0.25	1.1
Chromium by EPA Method 7196A							
Chromium, Hexavalent	1	22	1		UJ	0.18	0.88

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

R - Result rejected by DUSR

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

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Table 1 - (Page 14 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-14A				SW-14B				SW-14B-1			
Sample Date				5/22/2014				5/22/2014				5/29/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	11				25				11			
Copper, Total	50	270	50	21				**67**				15			
Nickel, Total	30	140	30	19				**43**				13			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.27	1.2	0.28	J	0.28	1.2		U	0.54	2.3
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1	0.31	J	0.2	0.99	0.31	J	0.21	1		U	0.18	0.92

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE			
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-14C			
Sample Date				5/22/2014			
Metals by EPA Method 6010C						D.L.	R.L.
Chromium, Total	30	36	41	12			
Copper, Total	50	270	50	28			
Nickel, Total	30	140	30	21			
Cyanide by EPA Method 9010C							
Cyanide, Total	27	27	NS		U	0.24	1
Chromium by EPA Method 7196A							
Chromium, Hexavalent	1	22	1		UJ	0.18	0.89

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

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J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

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Table 1 - (Page 15 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-15A				SW-15B				SW-15C			
Sample Date				5/23/2014				5/23/2014				5/23/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	13				17				25			
Copper, Total	50	270	50	38				23				**57**			
Nickel, Total	30	140	30	15				16				18			
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.27	1.1		U	0.29	1.2	0.93	J	0.3	1.3
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		UJ	0.18	0.92		UJ	0.21	1		U	0.22	1.1

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION BRIDGE STREET SWALE			
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-15C-1			
Sample Date				5/29/2014			
Metals by EPA Method 6010C						D.L.	R.L.
Chromium, Total	30	36	41	22			
Copper, Total	50	270	50	50			
Nickel, Total	30	140	30	18			
Cyanide by EPA Method 9010C							
Cyanide, Total	27	27	NS		U	0.56	2.4
Chromium by EPA Method 7196A							
Chromium, Hexavalent	1	22	1		U	0.19	0.95

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

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J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

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Table 1 - (Page 16 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION CHIMNEY PLAZA SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-16				SW-17			
Sample Date				5/27/2014				5/27/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	6.1				6.7			
Copper, Total	50	270	50	16				12			
Nickel, Total	30	140	30	9.2				9.0			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.27	1.1		U	0.26	1.1
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1	**2.6**					U	0.19	0.97

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

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Table 1 - (Page 17 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION CHIMNEY PLAZA SWALE							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-18				SW-19			
Sample Date				5/28/2014				5/28/2014			
Metals by EPA Method 6010C						**D.L.**	**R.L.**			**D.L.**	**R.L.**
Chromium, Total	30	36	41	11	J			8.1	J		
Copper, Total	50	270	50	27	J			14	J		
Nickel, Total	30	140	30	14				11			
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	0.29	1.2		U	0.27	1.2
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1	0.4	J	0.21	1	0.43	J	0.19	0.96

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 18 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION MAIN SWALE											
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	SW-20A				SW-20B				SW-20C			
Sample Date				6/4/2014				6/4/2014				6/4/2014			
Metals by EPA Method 6010C						D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	36	41	5.4				7.4				11			
Copper, Total	50	270	50	9.2				16				15			
Nickel, Total	30	140	30	7.5	J			11	J			14	J		
Cyanide by EPA Method 9010C															
Cyanide, Total	27	27	NS		U	0.52	2.2		U	0.62	2.7		U	0.55	2.4
Chromium by EPA Method 7196A															
Chromium, Hexavalent	1	22	1		U	0.2	1		U	0.22	1.1		U	0.19	0.95

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

Table 1 - (Page 19 of 19): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES			SAMPLE IDENTIFICATION							
	UNRESTRICTED USE	RESIDENTIAL USE	PROTECTION OF ECOLOGICAL RESOURCES	DUP-1 (SW-8B)				DUPLICATE (SW-6A-1)			
Sample Date				5/8/2014				5/22/2014			
Metals by EPA Method 6010C						**R.L.**	**RPD**			**R.L.**	**RPD**
Chromium, Total	30	36	41	4.5			26.92%	18			18.18%
Copper, Total	50	270	50	7.7			35.29%	35			29.51%
Nickel, Total	30	140	30	5.6			35.29%	**32**			32.73%
Cyanide by EPA Method 9010C											
Cyanide, Total	27	27	NS		U	1.2	NA	0.28	J	1.1	NA
Chromium by EPA Method 7196A											
Chromium, Hexavalent	1	22	1	0.31	J	0.98	10.17%		UJ	0.98	NA

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold and thick outlined cell indicates analyte exceeds the Unrestricted Use Soil Cleanup Objective

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources and the Unrestricted Use Soil Cleanup Objectives

RPD - Relative Percent Difference

$$\text{RPD} = \frac{2(\text{Sample Value} - \text{Duplicate Sample Value})}{(\text{Sample Value} + \text{Duplicate Sample Value})}$$

NOTES:

Elevations referred to N.G.V.D. 1929 (feet)

Location of underground utilities taken by field measurement where practicable, otherwise taken from various other sources and are approximate only.

LEGEND:

- ⊠ indicates sample point obtained 1/27/2014
- ⊠ indicates sample point numbers between 1553 and 1630 obtained 5/23/2014
- ○ indicates sample point numbers between 1633 and 1673 obtained 5/30/2014
- □ indicates sample point numbers 1677 through 1680 obtained 6/5/2014

845 — indicates POINT I.D. NUMBER
407.73 — indicates POINT ELEV.
SWL — indicates POINT DESCRIPTION

412 — indicates original grade contour

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

TRACT MAP: KRAVEC SUBDIVISION
BY: C.T. MALE ASSOCIATES
DATE FILED: OCTOBER 23, 2013
MAP NO. 11759

\\Server\land projects\3533002\dwg\3553001_R2.dwg

REVISIONS
5 - 23 - 14
5 - 30 - 14
6 - 5 - 14
*3 - 17 - 15

*REVISIONS PER GHD COMMENTS/REQUEST 2-20-15

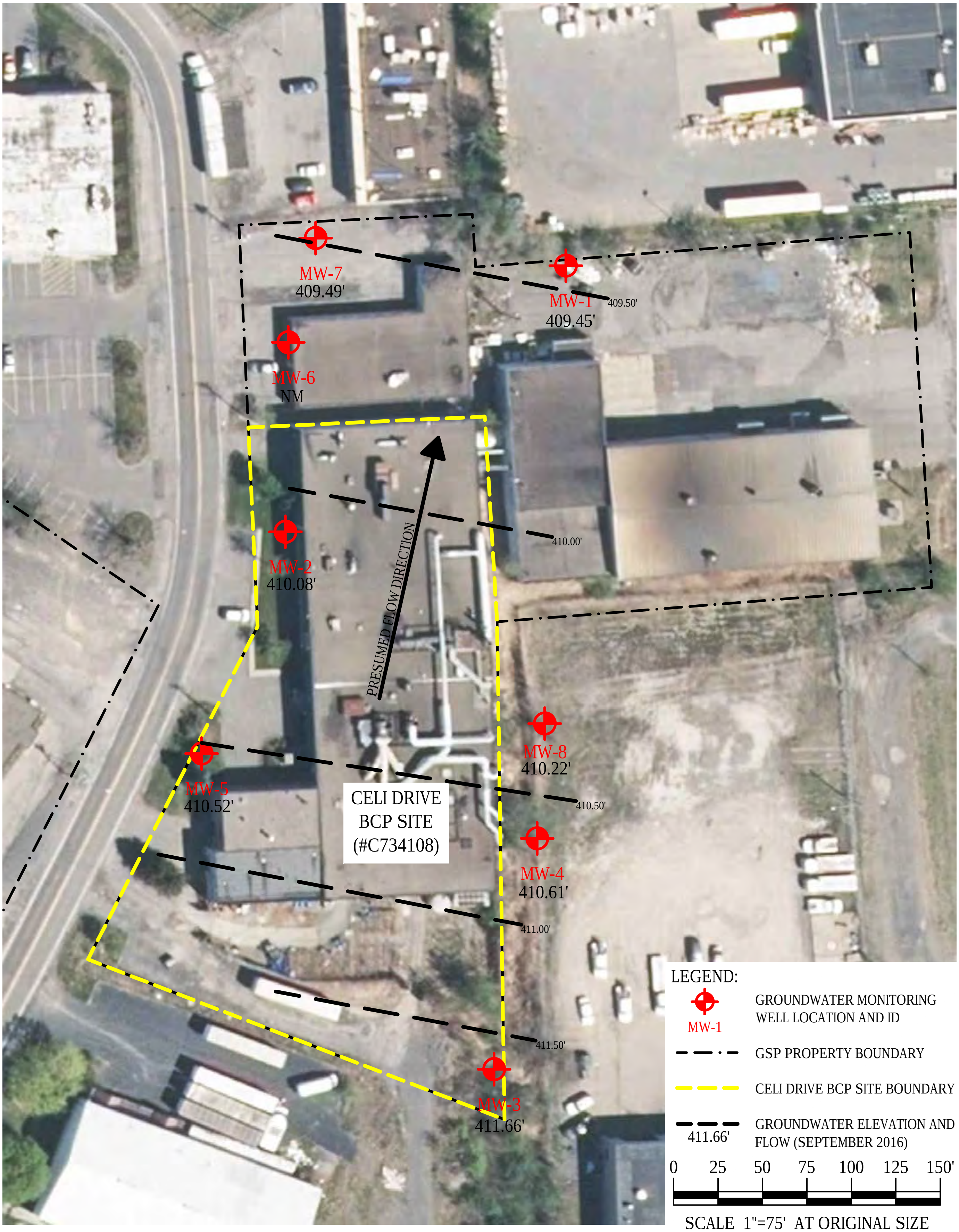
SAMPLING POINTS
PART OF
KRAVEC SUBDIVISION
AND
NEW 5841 BSA, LLC PARCEL
PART OF MILITARY LOT No. 51
TOWN OF DEWITT
ONONDAGA COUNTY, NEW YORK

IANUZI & ROMANS
LAND SURVEYING, P.C.
5251 WITZ DRIVE
NORTH SYRACUSE, NY 13212
PHONE: (315) 457-7200
FAX: (315) 457-9251

DATE: JANUARY 27, 2014
SCALE: 1" = 20'
FILE NO.: 3553.001
SHEET NO.
F.B. NO. 1494

STATE OF NEW YORK
HAL R. ROMANS
NO. 049880
LICENSED LAND SURVEYOR

Attachment B-9 – Excerpts from Supplemental Sampling Activities Summary Letter Report, GHD, October 3, 2016



NOTES:
1. Site features are from a field survey completed by D.W. Hannig L.S., P.C. dated November 8, 2002 and revised 9-1-2005, 3-2-2010, 5-10-2010, 6-15-2010, 6-24-2010, and 4-1-2014.
2. Aerial photographs are 2015 half foot 4 band central zone index from the NYSGIS Clearinghouse website: http://gis.ny.gov/

N

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Supplemental Sampling Activities

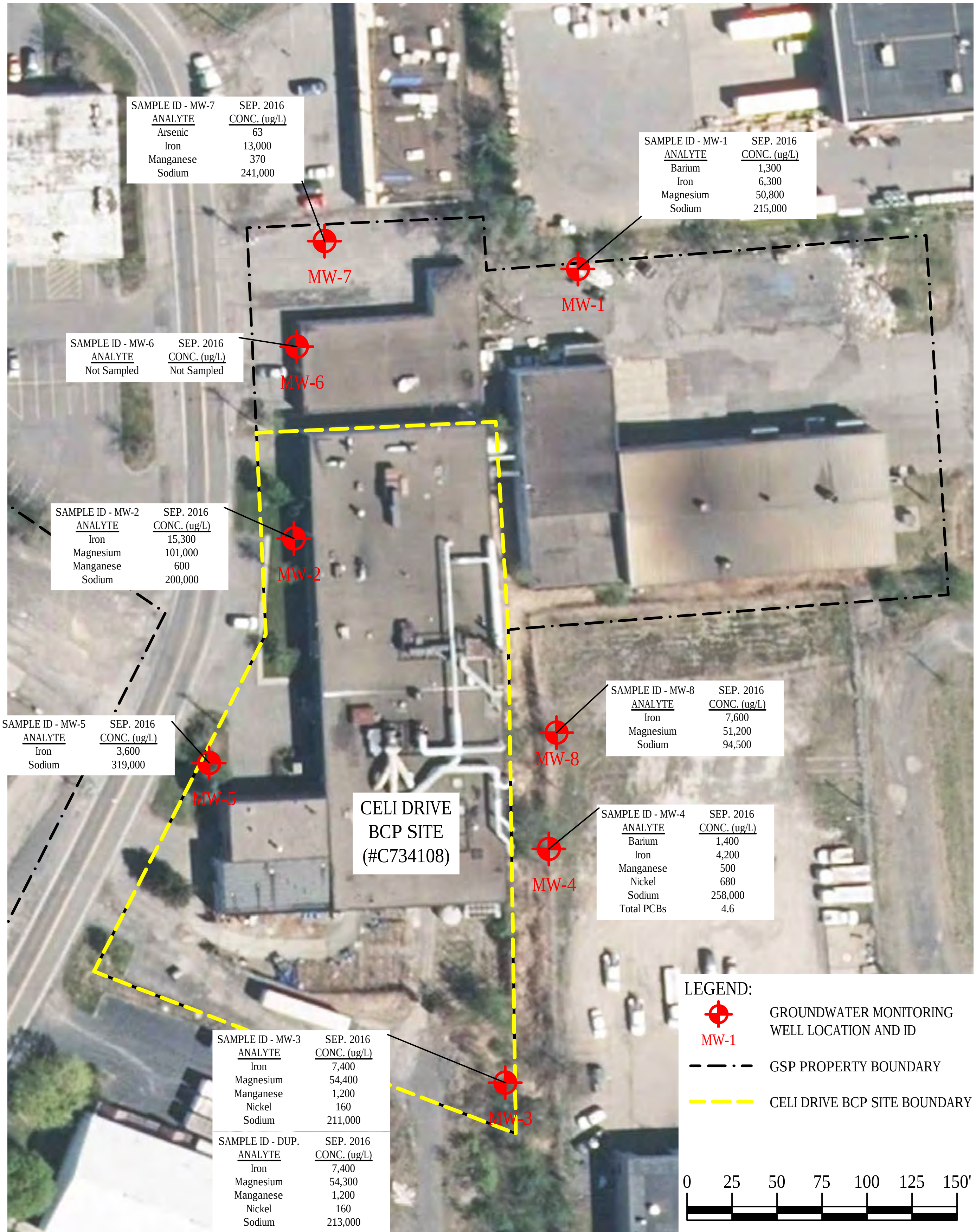
Groundwater Elevation and Flow

Job Number	37-11082
Revision	A
Date	09.21.2016

Figure 3

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 30 September 2016 - 10:43 AM Cad File No: G:\37\11082\Additional Investigation - 2016\Report\Figure 3 - GW Elevation and Flow.dwg



NOTES:

1. Site features are from a field survey completed by D.W. Hannig L.S., P.C. dated November 8, 2002 and revised 9-1-2005, 3-2-2010, 5-10-2010, 6-15-2010, 6-24-2010, and 4-1-2014.
2. Aerial photographs are 2015 half foot 4 band central zone index from the NYSGIS Clearinghouse website: http://gis.ny.gov/
3. Only analytes that exceed applicable Class GA standards or guidance values are shown here.

N

GSP Holdings, Inc.
Celi Drive BCP Site (BCP Site #C734108)
Supplemental Sampling Activities

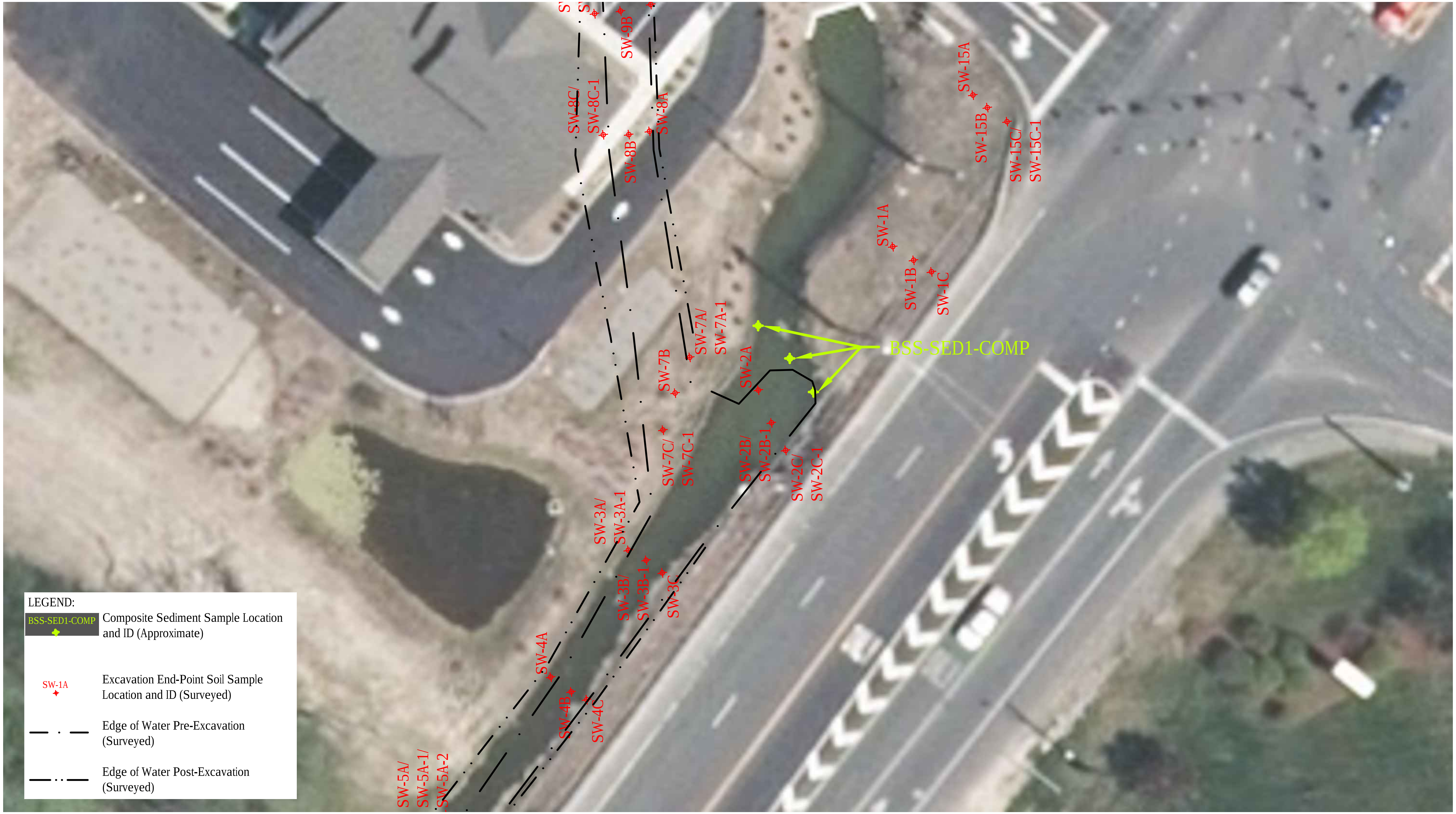
Groundwater Exceedances of Class GA Standards

Job Number | 37-11082
Revision | A
Date | 09.21.2016

Figure 4

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 30 September 2016 - 10:45 AM Cad File No: G:\37\11082\Additional Investigation - 2016\Report\Figure 4 - GW Exceedances.dwg



0 10 20 30 40 50'

SCALE 1"=25' AT ORIGINAL SIZE

N

NOTES:
1. Aerial photographs are 2015 1-foot resolution color orthoimagery from the NYS GIS Clearinghouse website (http://gis.ny.gov/gateway/mg/index.html).
2. Previous sediment sample locations were surveyed.

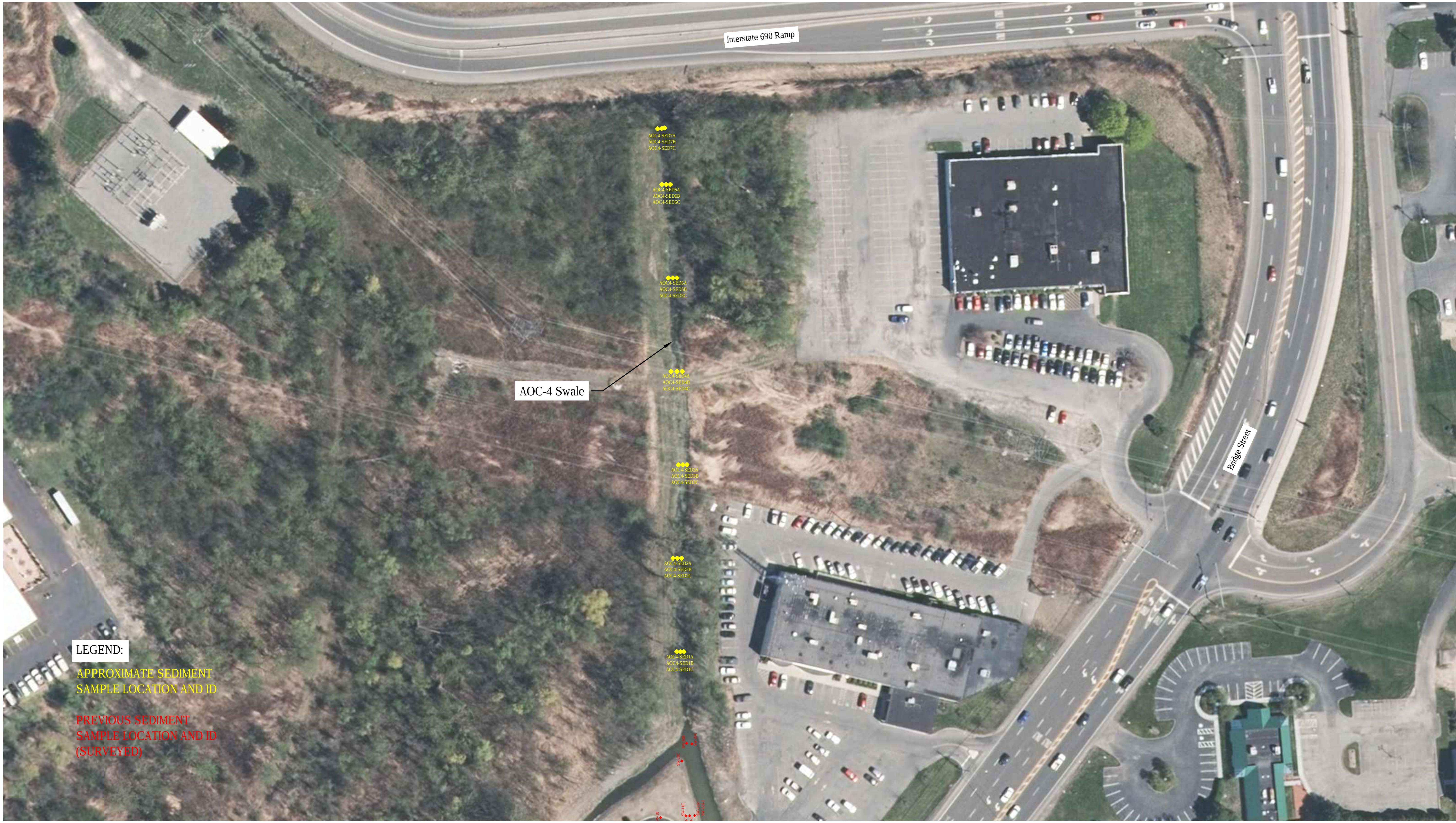
GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP SIte #C734108)
Supplemental Sampling Activities
Bridge Street Swale Sediment Sample Locations

Job Number	37-11082
Revision	A
Date	09.21.2016

Figure 5

One Remington Park Drive, Cazenovia NY 13035 USA T 1 315 679 5800 F 1 315 679 5801 E cazmail@ghd.com W www.ghd.com



0 50 100 150 200'

SCALE 1"=100' AT ORIGINAL SIZE

N

NOTES:
1. Aerial photographs are 0.5 foot resolution color orthoimagery from the U.S. Geological Survey website (http://earthexplorer.usgs.gov/).

GHD

GSP Holdings, Inc.
Celi Drive BCP Site (BCP SIte #C734108)
Supplemental Sampling Activities

Approximate Swale Sample Locations

Job Number	37-11082
Revision	A
Date	09.21.2016

Figure 6

One Remington Park Drive, Cazenovia NY 13035 USA **T** 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Plot Date: 21 September 2016 - 3:28 PM Cad File No: G:\37\11082\Additional Investigation - 2016\Report\Figure 6 - Sed Sample Locations and Exceedances.dwg

Table 1: (Page 1 of 1) Groundwater Monitoring Well Development Log. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	PID	DTW	DOW	Time	Volume Removed (gallons)	Turbidity (NTU)	Comments
MW-8	8/26/2016	1.0	4.85	14.44	10:05	0.0	-	Removed 28 gallons of water with peristaltic pump and dedicated tubing. Pumped as fast as the pump would go the entire time and well never went dry. Shut off pump twice for approximately 10 minutes each time to empty buckets. Water started very turbid with lots of very fine silty sediment. Water cleared with development to little sediment at completion of development. Removed approximately 1.5 feet of sediment from well. Development water contained in steel 55-gallon drum staged on-site awaiting characterization and disposal.
					11:00	3.5	MAX	
					11:12	7.0	MAX	
					11:16	8.0	314.0	
					11:27	10.5	366.0	
					11:37	11.0	233.0	
					11:50	14.0	163.0	
					12:05	17.5	52.4	
					12:20	21.0	28.4	
					12:26	21.5	41.3	
					12:42	24.5	136.0	
					12:58	28.0	52.0	
			6.80	15.90	13:00	-	-	

Turbidity collected during development using a HACH2100Q.

MAX - turbidity meter maximum reading output was 1000 NTU.

Table 2: (Page 1 of 1) Groundwater Elevation Data. Celi Drive BCP Site, Syracuse, NY.

Monitoring Well I.D.	Date	Reference Point	Reference Elevation (feet)	DTW (feet)	DOW (feet)	Water Elevation (feet)	Volume (gal)
MW-1	1/31/2014	Top of PVC	413.46	3.58	16.16	409.88	2.01
	9/1/2016			4.01	16.37	409.45	1.98
MW-2	1/31/2014	Top of PVC	414.05	2.92	14.85	411.13	1.91
	9/1/2016			3.97	15.08	410.08	1.78
MW-3	1/31/2014	Top of PVC	416.10	4.46	14.58	411.64	1.62
	9/1/2016			4.44	14.83	411.66	1.66
MW-4	1/31/2014	Top of PVC	415.88	4.30	14.75	411.58	1.67
	9/1/2016			5.27	15.00	410.61	1.56
MW-5	1/31/2014	Top of PVC	415.01	4.07	13.90	410.94	1.57
	9/1/2016			4.49	14.00	410.52	1.52
MW-6	1/31/2014	Top of PVC	413.16	2.95	13.76	410.21	1.73
	9/1/2016			NM	NM	NM	NM
MW-7	1/31/2014	Top of PVC	412.92	3.05	13.14	409.87	1.61
	9/1/2016			3.43	13.33	409.49	1.58
MW-8	1/31/2014	Top of PVC	414.70	-	-	-	-
	9/1/2016			4.48	15.88	410.22	1.82

DTW - depth to water

DOW - depth of well

(-) - Not Measured because well could not be located

NM - Not Measured because well was not sampled during this event

Table 3: (Page 1 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-1	1/31/2014	7:51	9.16	1.436	1.05	3.2	8.12	45.3	1401.5	14.0	Purged 14 liters at 3 cycles per minute with bladder pump. Water started cloudy light yellowish brown with some sediment and cleared quickly. Sample water was clear with no sheen or odor.
		7:55	10.82	1.501	1.06	0.89	7.09	9.3	1145.4		
		7:58	10.78	1.504	1.06	0.75	7.04	-0.7	800.8		
		8:01	10.76	1.502	1.06	0.62	7.03	1.2	687.4		
		8:04	10.74	1.503	1.06	0.57	7.03	-2.0	501.7		
		8:07	10.73	1.502	1.06	0.55	7.03	-6.5	346.4		
		8:13	10.61	1.507	1.07	0.47	7.05	-15.9	164.6		
		8:16	10.62	1.511	1.07	0.45	6.98	-16.2	117.4		
		8:19	10.60	1.511	1.07	0.42	6.98	-19.5	95.4		
		8:23	10.61	1.517	1.08	0.41	7.00	-23.2	68.6		
		8:26	10.54	1.519	1.08	0.40	7.01	-26.2	56.8		
		8:30	10.55	1.521	1.08	0.39	7.02	-29.2	49.4		
		8:33	10.57	1.521	1.08	0.41	7.04	-34.0	45.1		
		8:36	10.55	1.522	1.08	0.39	7.04	-25.4	42.2		
	9/1/2016	7:35	18.11	1.752	1.03	2.96	6.70	16.4	460.0	18.0	Purged 18 liters with peristaltic pump. Water cleared with purge, yellow tint, no sediment, no odor, no sheen. MS/MSD sample taken from this location.
		7:37	16.92	1.738	1.06	1.05	6.76	-28.8	246.5		
		7:39	17.24	1.754	1.06	1.53	6.73	-36.2	1169.8		
		7:42	17.53	1.767	1.06	1.83	6.75	-45.2	284.4		
		7:43	17.65	1.771	1.06	2.29	6.75	-47.9	1128.3		
		7:45	17.89	1.776	1.05	1.87	6.77	-53.4	276.2		
		7:47	18.09	1.778	1.05	1.51	6.82	-58.4	149.9		
		7:49	18.21	1.779	1.05	1.45	6.87	-62.2	119.6		
		7:51	18.29	1.784	1.05	1.09	6.86	-67.8	59.2		
		7:52	18.36	1.790	1.05	1.25	6.87	-67.4	43.8		
		7:54	18.40	1.796	1.05	2.50	6.87	-69.0	45.6		
		7:56	18.48	1.803	1.06	1.99	6.88	-71.5	27.2		
		7:58	18.53	1.808	1.06	2.02	6.76	-73.6	23.9		
		8:00	18.61	1.818	1.06	1.66	6.89	-75.9	17.4		
		8:04	18.67	1.827	1.07	1.53	6.92	-77.8	13.4		
		8:06	18.72	1.834	1.07	1.27	6.90	-78.4	20.3		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 2 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-2	1/31/2014	11:41	8.20	1.290	0.97	2.95	7.70	88.5	1268.4	16.0	Purged 16 liters at 2 cycles per minute with bladder pump. Water started turbid brown and took a long time to clear. Sample water was clear with a blocky sheen and no odor.
		11:45	9.63	1.332	0.96	0.78	7.37	55.6	1398.5		
		11:49	10.22	1.354	0.97	0.54	7.31	38.2	1445.3		
		11:53	10.25	1.355	0.96	0.48	7.27	27.1	1442.1		
		11:57	10.53	1.361	0.96	0.54	7.29	35.2	1442.1		
		12:00	10.54	1.364	0.96	0.52	7.23	25.4	1442.2		
		12:05	10.72	1.368	0.96	0.45	7.23	10.3	1400.2		
		12:10	10.82	1.371	0.96	0.39	7.22	2.4	1032.5		
		12:15	10.83	1.370	0.96	0.38	7.20	-2.7	669.6		
		12:20	10.82	1.369	0.96	0.38	7.18	-6.7	412.9		
		12:25	10.82	1.368	0.96	0.39	7.17	-9.2	278.5		
		12:30	10.79	1.365	0.96	0.40	7.14	-10.5	175.8		
		12:35	10.82	1.363	0.95	0.40	7.13	-12.8	131.9		
		12:40	10.84	1.361	0.95	0.40	7.14	-15.3	108.5		
		12:45	10.93	1.363	0.95	0.39	7.14	-17.7	83.4		
		12:50	11.00	1.366	0.95	0.38	7.13	-18.5	72.9		
		12:55	11.03	1.367	0.95	0.38	7.13	-19.9	48.7		
	9/1/2016	10:04	16.78	1.687	1.03	3.32	7.58	-34.5	1365.6	17.0	Purged 17 liters with peristaltic pump. Water turbid brown with lots of floaters at start. Floaters decreased with purge but turbidity didn't, no sheen, no odor.
		10:05	15.65	1.656	1.03	0.84	7.37	-42.0	1658.9		
		10:06	15.59	1.653	1.03	0.54	7.37	-44.5	646.2		
		10:08	15.67	1.657	1.03	0.40	7.19	-49.8	696.0		
		10:10	15.62	1.653	1.03	0.35	7.14	-50.8	597.8		
		10:11	15.60	1.653	1.03	0.33	7.11	-52.1	634.2		
		10:13	15.60	1.650	1.03	0.30	7.06	-54.0	424.6		
		10:15	15.62	1.648	1.03	0.28	7.08	-55.2	305.7		
		10:16	15.60	1.648	1.03	0.30	7.05	-57.0	305.2		
		10:18	15.61	1.646	1.03	0.26	7.06	-57.7	170.4		
		10:20	15.58	1.639	1.03	0.25	7.05	-58.5	235.8		
		10:22	15.61	1.633	1.02	0.24	7.03	-60.0	178.6		
		10:25	15.80	1.645	1.02	0.27	7.07	-52.2	110.4		
		10:27	15.53	1.624	1.02	1.98	7.08	-56.0	148.5		
		10:29	15.55	1.621	1.01	1.88	7.06	-57.8	151.6		
		10:31	15.51	1.620	1.01	2.23	7.08	-59.0	130.3		
		10:33	15.51	1.617	1.01	1.93	7.07	-59.2	105.6		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 3 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-3	1/31/2014	15:21	7.04	0.811	0.62	2.77	7.48	108.0	901.0	12.0	Purged 12 liters at 2 cycles per minute with bladder pump. Water started cloudy and cleared fairly quickly. Sample water was slightly cloudy with no sheen or odor.
		15:24	7.67	0.812	0.61	1.06	7.08	96.8	518.4		
		15:28	7.85	0.817	0.61	0.76	6.85	91.6	344.3		
		15:31	7.98	0.825	0.61	0.65	6.72	90.6	278.9		
		15:34	8.12	0.831	0.61	0.56	6.66	89.2	190.1		
		15:39	8.04	0.831	0.62	0.51	6.61	87.0	158.5		
		15:44	8.19	0.834	0.61	0.47	6.66	80.8	126.0		
		15:49	8.32	0.835	0.61	0.44	6.63	79.3	94.7		
		15:53	8.35	0.835	0.61	0.42	6.62	78.1	74.1		
		15:58	8.44	0.836	0.61	0.41	6.61	77.5	66.3		
		16:03	8.51	0.836	0.61	0.42	6.61	76.6	63.5		
		16:08	8.57	0.836	0.61	0.41	6.60	75.3	49.3		
	9/1/2016	15:22	17.77	1.922	1.16	5.93	7.40	-57.4	220.9	12.0	Purged 12 liters with peristaltic pump. Water clear, no sheen, no odor. Duplicate sample taken from this location.
		15:24	14.73	1.777	1.14	0.80	7.24	-68.8	107.8		
		15:25	14.94	1.779	1.13	0.43	7.18	-71.1	100.7		
		15:27	15.14	1.786	1.13	0.38	7.11	-72.6	80.1		
		15:28	15.31	1.785	1.13	0.35	7.09	-72.6	82.6		
		15:30	15.42	1.781	1.12	0.34	7.07	-71.2	106.7		
		15:31	15.54	1.778	1.12	0.36	7.04	-68.3	98.2		
		15:33	15.56	1.776	1.12	0.35	7.02	-68.4	59.0		
		15:34	15.45	1.772	1.12	0.34	7.01	-67.9	23.3		
		15:36	15.33	1.771	1.12	0.32	6.99	-67.4	17.3		
		15:38	15.29	1.772	1.13	0.30	6.99	-66.8	12.1		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 4 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-4	1/31/2014	16:38	5.18	0.865	0.70	4.22	7.22	132.3	1004.3	14.0	Purged 14 liters at 2 cycles per minute with bladder pump. Water started slightly cloudy and cleared fairly quickly. Sample water was slightly cloudy with no sheen or odor. Sample taken prior to reaching less than 50 NTUs due to running out of daylight.
		16:41	6.16	0.907	0.71	1.07	7.05	107.7	511.1		
		16:45	6.03	0.906	0.71	0.71	7.03	87.3	429.8		
		16:49	5.98	0.909	0.72	0.60	6.98	74.1	394.9		
		16:54	6.10	0.918	0.72	0.55	6.96	53.7	336.6		
		16:59	6.17	0.929	0.73	0.58	6.97	54.5	279.8		
		17:04	6.20	0.934	0.73	0.62	6.93	45.7	224.6		
		17:09	6.21	0.938	0.74	0.49	7.02	33.8	212.9		
		17:13	6.19	0.943	0.74	0.43	7.01	27.7	171.4		
		17:18	6.25	0.948	0.74	0.40	6.98	23.5	148.9		
		17:23	6.25	0.952	0.75	0.39	6.97	20.3	133.4		
		17:28	6.23	0.954	0.75	0.37	6.95	16.6	146.3		
		17:33	6.24	0.956	0.75	0.37	6.95	14.1	121.9		
		17:37	6.26	0.957	0.75	0.36	6.96	12.7	114.7		
	9/1/2016	13:52	19.18	1.146	0.65	3.95	7.44	-64.5	508.3	24.0	Purged 24 liters with peristaltic pump. Water slight brown tint at first and cleared with purged. Sample water clear with no sheen and no odor.
		13:54	16.52	0.914	0.54	1.91	7.37	-52.6	203.7		
		13:56	16.49	0.856	0.51	1.48	7.30	-43.1	147.0		
		13:58	16.81	0.839	0.49	1.20	7.32	-34.5	128.5		
		13:59	17.13	0.850	0.50	1.03	7.21	-29.0	166.0		
		14:00	17.48	0.881	0.51	0.94	7.20	-23.4	218.2		
		14:02	17.70	0.929	0.54	0.73	7.08	-20.9	300.0		
		14:04	17.67	0.989	0.58	0.68	7.14	-20.7	331.2		
		14:05	17.47	1.059	0.62	0.93	7.11	-24.4	326.1		
		14:07	17.24	1.103	0.65	1.45	7.09	-27.2	322.3		
		14:09	17.03	1.180	0.70	2.16	7.09	-29.5	298.1		
		14:11	16.85	1.266	0.76	2.70	7.07	-31.5	232.5		
		14:13	16.74	1.345	0.81	3.37	7.08	-32.4	150.0		
		14:14	16.65	1.393	0.84	3.64	7.07	-32.1	129.7		
		14:16	16.58	1.438	0.87	3.79	7.06	-32.3	92.7		
		14:18	16.70	1.540	0.94	3.82	7.05	-34.5	102.8		
		14:20	16.31	1.664	1.02	3.71	7.07	-34.8	90.8		
		14:22	16.42	1.589	0.97	3.85	7.06	-36.7	120.0		
		14:23	16.45	1.532	0.94	4.28	7.05	-36.2	121.6		
		14:25	16.40	1.557	0.95	4.38	7.03	-35.1	126.9		
		14:27	16.46	1.601	0.98	4.49	7.04	-33.7	94.0		
		14:28	16.42	1.718	0.99	4.41	7.02	-33.0	66.5		
		14:30	16.36	1.790	1.10	4.32	7.00	-33.2	49.7		
		14:32	16.35	1.829	1.13	4.32	6.99	-33.5	39.7		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 5 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-5	1/31/2014	13:34	7.80	1.540	1.18	3.92	7.72	106.5	1420.8	22.0	Purged 22 liters at 3 cycles per minute with bladder pump. Water started turbid brown and cleared slowly. Sample water was slightly cloudy with no sheen or odor. Sample taken prior to reaching less than 50 NTUs due to minimal improvement in water clarity.
		13:37	9.19	1.692	1.26	1.12	7.35	86.6	1427.2		
		13:40	9.21	1.681	1.24	0.92	7.29	74.9	1422.4		
		13:43	9.08	1.675	1.24	0.89	7.20	66.3	1188.4		
		13:46	9.09	1.675	1.24	0.85	7.16	60.0	1138.7		
		13:49	9.11	1.685	1.25	0.87	7.12	54.8	1356.4		
		13:53	9.17	1.702	1.26	0.82	7.11	48.2	1350.2		
		13:55	9.11	1.708	1.27	0.88	7.12	44.1	1204.2		
		13:58	8.97	1.704	1.27	1.02	7.23	47.6	1171.3		
		14:00	8.86	1.703	1.27	1.19	7.09	48.0	1081.1		
		14:03	8.85	1.708	1.28	1.05	7.08	43.8	950.0		
		14:07	8.85	1.705	1.28	1.03	7.08	38.5	755.2		
		14:11	8.95	1.726	1.29	0.95	7.09	34.3	636.4		
		14:14	8.91	1.711	1.28	0.97	7.11	29.8	545.3		
		14:17	8.88	1.710	1.28	0.97	7.11	27.7	494.4		
		14:20	8.99	1.718	1.28	0.91	7.11	25.2	377.4		
		14:24	9.02	1.723	1.28	0.94	7.12	22.2	333.8		
		14:27	9.06	1.725	1.28	0.91	7.12	21.0	304.7		
		14:30	9.00	1.724	1.29	0.94	7.12	19.4	243.0		
		14:34	9.07	1.729	1.29	0.90	7.12	18.1	211.7		
		14:37	9.05	1.730	1.29	0.88	7.12	17.1	104.5		
		14:41	9.05	1.728	1.29	0.88	7.11	17.0	150.3		
	9/1/2016	11:14	18.58	1.775	1.04	5.11	7.41	-13.2	1375.4	13.0	Purged 13 liters with peristaltic pump. Water started rusty orange with lots of rusty orange floaters. Sample water clear with no sheen and no odor.
		11:16	16.59	1.722	1.05	1.02	7.39	-38.9	1381.3		
		11:18	16.52	1.710	1.05	0.65	7.31	-44.6	1143.3		
		11:21	16.94	1.714	1.04	0.72	7.32	-44.5	260.2		
		11:22	16.84	1.701	1.03	0.73	7.29	-49.0	141.6		
		11:24	17.01	1.689	1.02	0.37	7.24	-50.7	155.3		
		11:26	17.14	1.677	1.01	0.33	7.20	-49.7	188.4		
		11:28	17.25	1.674	1.01	0.35	7.22	-50.7	169.9		
		11:29	17.25	1.646	1.01	0.37	7.18	-50.6	168.8		
		11:31	17.25	1.682	1.01	0.39	7.18	-52.0	143.1		
		11:32	17.24	1.686	1.01	0.39	7.17	-53.7	112.2		
		11:34	17.21	1.692	1.02	0.40	7.12	-56.0	69.3		
		11:36	17.21	1.697	1.02	0.39	7.18	-57.0	60.2		
		11:37	17.20	1.702	1.02	0.36	7.13	-58.8	48.6		
		11:39	17.22	1.706	1.03	0.38	7.18	-59.8	50.7		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 6 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-6	1/31/2014	10:34	8.30	1.839	1.40	3.31	7.77	76.0	232.6	10.0	Purged 10 liters at 3 cycles per minute with bladder pump. Water started slightly yellowish brown and cleared quickly. Sample water was clear with no sheen or odor.
		10:37	9.69	1.952	1.44	1.06	7.48	25.8	195.4		
		10:40	9.45	1.948	1.44	0.72	7.38	2.7	104.8		
		10:43	9.44	1.948	1.44	0.58	7.34	-10.6	94.7		
		10:46	9.48	1.960	1.45	0.52	7.31	-18.9	70.8		
		10:48	9.51	1.971	1.46	0.48	7.29	-25.2	60.3		
		10:51	9.56	1.991	1.48	0.45	7.27	-30.1	50.4		
		10:55	9.63	2.001	1.48	0.44	7.27	-35.1	46.9		
		10:58	9.70	2.012	1.48	0.42	7.25	-38.3	36.8		
		11:01	9.70	2.017	1.49	0.41	7.23	-39.8	32.1		
		11:04	9.72	2.027	1.49	0.38	7.21	-42.0	29.5		
	9/1/2016	NM	NM	NM	NM	NM	NM	NM	NM	-	Well was not sampled during this event.

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 7 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-7	1/31/2014	9:12	8.29	1.627	1.23	2.92	7.44	56.6	842.7	13.0	Purged 13 liters at 3 cycles per minute with bladder pump. Water started cloudy brown with little sediment and cleared quickly. Sample water was clear with no sheen or odor.
		9:16	9.40	1.708	1.26	0.95	7.27	-1.4	419.0		
		9:19	8.86	1.683	1.26	0.68	7.27	-19.5	224.4		
		9:23	8.86	1.687	1.26	0.56	7.24	-33.4	169.0		
		9:26	8.93	1.659	1.24	0.56	7.24	-39.4	122.2		
		9:29	8.95	1.638	1.22	0.49	7.24	-43.0	102.2		
		9:32	8.97	1.625	1.21	0.46	7.23	-47.5	92.6		
		9:35	9.10	1.610	1.19	0.43	7.23	-50.6	82.3		
		9:38	9.10	1.599	1.18	0.41	7.23	-52.9	74.4		
		9:41	9.12	1.588	1.18	0.40	7.23	-55.3	62.8		
		9:44	9.15	1.580	1.17	0.38	7.23	-57.0	54.0		
		9:48	9.19	1.576	1.16	0.38	7.23	-58.6	48.1		
		9:51	9.19	1.568	1.16	0.36	7.23	-59.9	48.9		
		9:54	9.21	1.564	1.15	0.36	7.22	-61.2	41.6		
	9/1/2016	9:03	20.41	1.590	0.89	2.77	7.24	-72.6	55.6	11.0	Purged 11 liters with peristaltic pump. Water clear with lots of black floaters at start, floaters decreased with purge, sample water clear, petroleum like sheen, no odor.
		9:05	19.36	1.518	0.86	0.67	7.09	-87.5	49.7		
		9:07	19.74	1.506	0.85	0.43	7.15	-91.2	50.8		
		9:08	20.25	1.517	0.85	0.35	6.97	-94.1	53.5		
		9:09	20.78	1.540	0.85	0.29	6.94	-96.7	43.9		
		9:10	21.09	1.561	0.85	0.28	7.01	-98.3	40.1		
		9:12	21.30	1.580	0.86	0.27	6.94	-100.2	41.9		
		9:14	21.31	1.595	0.87	0.27	6.93	-99.6	42.9		
		9:15	21.29	1.609	0.88	0.27	6.99	-98.5	39.2		
		9:17	21.28	1.627	0.89	0.26	6.94	-99.9	34.0		
		9:19	21.17	1.649	0.90	0.28	6.93	-99.6	23.6		
		9:21	21.09	1.669	0.92	0.24	6.98	-99.7	15.1		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 3: (Page 8 of 8) Groundwater Field Parameter Data. Celi Drive BCP Site, Syracuse, NY.

Well I.D.	Date	Time	Temp (°C)	Conductivity (mmhos/cm)	Salinity (%)	Dissolved Oxygen (mg/L)	pH (units)	ORP (mV)	Turbidity (NTU)	Amount Purged (liters)	Comments
MW-8	1/31/2014	NM	NM	NM	NM	NM	NM	NM	NM	-	Well could not be located to be sampled.
	9/1/2016	12:36	19.24	1.336	0.76	4.91	7.63	-48.9	1395.8	15.0	Purged 15 liters with peristaltic pump. Water turbid at first with very fine sediment. Cleared with purge. Sample water clear with no sheen and no odor.
		12:39	16.61	1.264	0.76	2.56	7.41	-52.6	569.0		
		12:42	16.90	1.254	0.75	2.14	7.38	-51.1	291.7		
		12:43	16.89	1.248	0.75	2.01	7.22	-50.5	221.4		
		12:45	16.95	1.255	0.75	1.82	7.03	-50.8	113.8		
		12:48	16.78	1.260	0.76	1.62	7.03	-51.9	91.6		
		12:54	16.64	1.262	0.76	1.02	7.00	-54.9	44.2		
		12:56	16.53	1.258	0.76	1.04	6.98	-56.8	91.2		
		12:57	16.58	1.257	0.76	1.50	6.99	-57.7	70.5		
		12:59	16.78	1.259	0.75	1.42	6.97	-58.6	57.5		
		13:01	16.69	1.261	0.76	1.23	6.95	-58.6	25.7		
		13:03	16.64	1.258	0.76	1.15	6.96	-58.8	36.5		
		13:05	16.64	1.260	0.76	1.09	6.97	-58.9	28.8		

Field parameters collected during purging using a YSI 6920 with flow thru cell.

Field parameters recorded after every liter of purge.

NM - Not Measured

Table 4: (Page 1 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification									
		MW-1									
Date Sampled		Aug-05*		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C								D.L.			R.L.
Aluminum		-		-		-				U	200
Antimony	3	-		-		-				U	20
Arsenic	25	-		-		-				U	15
Barium	1,000	-		-		-			**1,300**		2
Beryllium	3 (G)	-		-		-				U	2
Cadmium	5	-		-		-				U	2
Calcium		-		-		-			190,000		500
Chromium, total	50		U		U	2.3	J	1		U	4
Cobalt		-		-		-				U	4
Copper	200		U		U	4.4	J^B	1.6		U	10
Iron	300	-		-		-			**6,300**		50
Lead	25	-		-		-				U	10
Magnesium	35,000 (G)	-		-		-			**50,800**		200
Manganese	300	-		-		-			54		3
Nickel	100		U	1.4	J	3.8	J	1.3		U	10
Potassium		-		-		-			5,200		500
Selenium	10	-		-		-				U	25
Silver	50	-		-		-				U	6
Sodium	20,000	-		-		-			**215,000**		1000
Thallium	0.5 (G)	-		-		-				U	20
Vanadium		-		-		-				U	5
Zinc	2,000 (G)		U	9.4	J	7.7	JB	1.5		U	10
Hexavalent Chromium by EPA Method 7196A											
Chromium, hexavalent	50	11			U		U	5		UJ	100
Mercury by EPA Method 7470A											
Mercury	0.7	-		-		-				U	0.2
Cyanide by EPA Method 9012											
Cyanide	200		U		U		U	5		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 2 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification									
		MW-2									
Date Sampled		Aug-05*		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C								**D.L.**			**R.L.**
Aluminum		-		-		-			5,000		200
Antimony	3	-		-		-				U	20
Arsenic	25	-		-		-				U	15
Barium	1,000	-		-		-			430		2
Beryllium	3 (G)	-		-		-				U	2
Cadmium	5	-		-		-				U	2
Calcium		-		-		-			291,000		500
Chromium, total	50		U	2.4	J	3.7	J	1	10		4
Cobalt		-		-		-				U	4
Copper	200	3.6			U	4.1	JB	1.6	11		10
Iron	300	-		-		-			**15,300**		50
Lead	25	-		-		-			12		10
Magnesium	35,000 (G)	-		-		-			**101,000**		200
Manganese	300	-		-		-			**600**		3
Nickel	100	5.9		8.4		7.8	J	1.3	18		10
Potassium		-		-		-			6,800		500
Selenium	10	-		-		-				U	25
Silver	50	-		-		-				U	6
Sodium	20,000	-		-		-			**200,000**		1000
Thallium	0.5 (G)	-		-		-				U	20
Vanadium		-		-		-			13		5
Zinc	2,000 (G)		U	10.4	J	6.4	JB	1.5	16		10
Hexavalent Chromium by EPA Method 7196A											
Chromium, hexavalent	50	9			U		U	5		U	10
Mercury by EPA Method 7470A											
Mercury	0.7	-		-		-				U	0.2
Cyanide by EPA Method 9012											
Cyanide	200		U	3.56	J		U	5		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 3 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification									
		MW-3									
Date Sampled		Aug-05*		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C								**D.L.**			**R.L.**
Aluminum		-		-		-				U	200
Antimony	3	-		-		-				U	20
Arsenic	25	-		-		-				U	15
Barium	1,000	-		-		-			220		2
Beryllium	3 (G)	-		-		-				U	2
Cadmium	5	-		-		-				U	2
Calcium		-		-		-			219,000		500
Chromium, total	50		U		U	5.1		1		U	4
Cobalt		-		-		-				U	4
Copper	200		U	4.1	J	10	B	1.6		U	10
Iron	300	-		-		-			**7,400**		50
Lead	25	-		-		-				U	10
Magnesium	35,000 (G)	-		-		-			**54,400**		200
Manganese	300	-		-		-			**1,200**		3
Nickel	100	4.7		**102**		**120**		1.3	**160**		10
Potassium		-		-		-			3,400		500
Selenium	10	-		-		-				U	25
Silver	50	-		-		-				U	6
Sodium	20,000	-		-		-			**211,000**		1000
Thallium	0.5 (G)	-		-		-				U	20
Vanadium		-		-		-				U	5
Zinc	2,000 (G)		U	11.8	J	12	B	1.5		U	10
Hexavalent Chromium by EPA Method 7196A											
Chromium, hexavalent	50	14			U		U	5		U	10
Mercury by EPA Method 7470A											
Mercury	0.7	-		-		-				U	0.2
Cyanide by EPA Method 9012											
Cyanide	200		U	3.71	J		UJ	5		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 4 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification							
		MW-4							
Date Sampled		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C						D.L.			R.L.
Aluminum		-		-			480		200
Antimony	3	-		-				U	20
Arsenic	25	-		-				U	15
Barium	1,000	-		-			**1,400**		2
Beryllium	3 (G)	-		-				U	2
Cadmium	5	-		-				U	2
Calcium		-		-			205,000		500
Chromium, total	50	10		29		1	5.4		4
Cobalt		-		-				U	4
Copper	200	22.6		93	B	1.6	34		10
Iron	300	-		-			**4,200**		50
Lead	25	-		-				U	10
Magnesium	35,000 (G)	-		-			32,500		200
Manganese	300	-		-			**500**		3
Nickel	100	**237**		**340**		1.3	**680**		10
Potassium		-		-			6,300		500
Selenium	10	-		-				U	25
Silver	50	-		-				U	6
Sodium	20,000	-		-			**258,000**		1000
Thallium	0.5 (G)	-		-				U	20
Vanadium		-		-				U	5
Zinc	2,000 (G)	22		23	B	1.5		U	10
Hexavalent Chromium by EPA Method 7196A									
Chromium, hexavalent	50		U		U	5		U	10
Mercury by EPA Method 7470A									
Mercury	0.7	-		-				U	0.2
Cyanide by EPA Method 9012									
Cyanide	200		U		U	5		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 5 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification							
		MW-5							
Date Sampled		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C						D.L.			R.L.
Aluminum		-		-			710		200
Antimony	3	-		-				U	20
Arsenic	25	-		-			22		15
Barium	1,000	-		-			91		2
Beryllium	3 (G)	-		-				U	2
Cadmium	5	-		-				U	2
Calcium		-		-			112,000		500
Chromium, total	50		U	10		1		U	4
Cobalt		-		-				U	4
Copper	200		U	11	B	1.6		U	10
Iron	300	-		-			**3,600**		50
Lead	25	-		-				U	10
Magnesium	35,000 (G)	-		-			28,500		200
Manganese	300	-		-			69		3
Nickel	100	3.1	J	12		1.3		U	10
Potassium		-		-			4,000		500
Selenium	10	-		-				U	25
Silver	50	-		-				U	6
Sodium	20,000	-		-			**319,000**		1000
Thallium	0.5 (G)	-		-				U	20
Vanadium		-		-				U	5
Zinc	2,000 (G)	11.9	J	18	B	1.5		U	10
Hexavalent Chromium by EPA Method 7196A									
Chromium, hexavalent	50	10	J		U	5		U	10
Mercury by EPA Method 7470A									
Mercury	0.7	-		-				U	0.2
Cyanide by EPA Method 9012									
Cyanide	200		U		U	5		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 6 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification							
		MW-6							
Date Sampled		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C						**D.L.**			**R.L.**
Aluminum		-		-			NS		
Antimony	3	-		-			NS		
Arsenic	25	-		-			NS		
Barium	1,000	-		-			NS		
Beryllium	3 (G)	-		-			NS		
Cadmium	5	-		-			NS		
Calcium		-		-			NS		
Chromium, total	50		U	2.0	J	1	NS		
Cobalt		-		-			NS		
Copper	200		U	3.4	JB	1.6	NS		
Iron	300	-		-			NS		
Lead	25	-		-			NS		
Magnesium	35,000 (G)	-		-			NS		
Manganese	300	-		-			NS		
Nickel	100	10		3.9	J	1.3	NS		
Potassium		-		-			NS		
Selenium	10	-		-			NS		
Silver	50	-		-			NS		
Sodium	20,000	-		-			NS		
Thallium	0.5 (G)	-		-			NS		
Vanadium		-		-			NS		
Zinc	2,000 (G)	11.4	J	7.0	JB	1.5	NS		
Hexavalent Chromium by EPA Method 7196A									
Chromium, hexavalent	50		U		U	5	NS		
Mercury by EPA Method 7470A									
Mercury	0.7	-		-			NS		
Cyanide by EPA Method 9012									
Cyanide	200		U		U	5	NS		

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 7 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification							
		MW-7							
Date Sampled		Mar-10*		Jan-14			Sep-16		
Metals by EPA Method 6010C						D.L.			R.L.
Aluminum		-		-				U	200
Antimony	3	-		-				U	20
Arsenic	25	-		-			**63**		15
Barium	1,000	-		-			490		2
Beryllium	3 (G)	-		-				U	2
Cadmium	5	-		-				U	2
Calcium		-		-			143,000		500
Chromium, total	50		U	3.1	J	1		U	4
Cobalt		-		-				U	4
Copper	200		U	5.7	JB	1.6		U	10
Iron	300	-		-			**13,000**		50
Lead	25	-		-				U	10
Magnesium	35,000 (G)	-		-			28,400		200
Manganese	300	-		-			**370**		3
Nickel	100	1.8	J	4.5	J	1.3		U	10
Potassium		-		-			10,900		500
Selenium	10	-		-				U	25
Silver	50	-		-				U	6
Sodium	20,000	-		-			**241,000**		1000
Thallium	0.5 (G)	-		-				U	20
Vanadium		-		-				U	5
Zinc	2,000 (G)	13.8	J	11	B	1.5	10		10
Hexavalent Chromium by EPA Method 7196A									
Chromium, hexavalent	50		U		UJ	5		U	10
Mercury by EPA Method 7470A									
Mercury	0.7	-		-				U	0.2
Cyanide by EPA Method 9012									
Cyanide	200	7.77			U	5		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 8 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification MW-8					
Date Sampled		Mar-10*		Jan-14	Sep-16		
Metals by EPA Method 6010C					D.L.		R.L.
Aluminum		-		-	1,000		200
Antimony	3	-		-		U	20
Arsenic	25	-		-		U	15
Barium	1,000	-		-	270		2
Beryllium	3 (G)	-		-		U	2
Cadmium	5	-		-		U	2
Calcium		-		-	215,000		500
Chromium, total	50		U	NS		U	4
Cobalt		-		-		U	4
Copper	200		U	NS		U	10
Iron	300	-		-	**7,600**		50
Lead	25	-		-		U	10
Magnesium	35,000 (G)	-		-	**51,200**		200
Manganese	300	-		-	210		3
Nickel	100	4.2	J	NS		U	10
Potassium		-		-	2,600		500
Selenium	10	-		-		U	25
Silver	50	-		-		U	6
Sodium	20,000	-		-	**94,500**		1000
Thallium	0.5 (G)	-		-		U	20
Vanadium		-		-		U	5
Zinc	2,000 (G)	14.5		NS		U	10
Hexavalent Chromium by EPA Method 7196A							
Chromium, hexavalent	50		U	NS		U	10
Mercury by EPA Method 7470A							
Mercury	0.7	-		-		U	0.2
Cyanide by EPA Method 9012							
Cyanide	200	4.1	J	NS		U	10

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 9 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification									
		Duplicate									
Date Sampled		Aug-05*		Jan-14				Sep-16			
		(MW-1)		(MW-3)				(MW-3)			
Metals by EPA Method 6010C						D.L.	RPD			R.L.	RPD
Aluminum		-		-			-		U	200	N/A
Antimony	3	-		-			-		U	20	N/A
Arsenic	25	-		-			-		U	15	N/A
Barium	1,000	-		-			-	220		2	0.00%
Beryllium	3 (G)	-		-			-		U	2	N/A
Cadmium	5	-		-			-		U	2	N/A
Calcium		-		-			-	219,000		500	0.00%
Chromium, total	50		U	4.7		1	8.16%		U	4	N/A
Cobalt		-		-			-		U	4	N/A
Copper	200		U	9.6	JB	1.6	4.08%		U	10	N/A
Iron	300	-		-			-	**7,400**		50	0.00%
Lead	25	-		-			-		U	10	N/A
Magnesium	35,000 (G)	-		-			-	**54,300**		200	0.18%
Manganese	300	-		-			-	**1,200**		3	0.00%
Nickel	100		U	**120**		1.3	0.00%	**160**		10	0.00%
Potassium		-		-			-	3,500		500	2.90%
Selenium	10	-		-			-		U	25	N/A
Silver	50	-		-			-		U	6	N/A
Sodium	20,000	-		-			-	**213,000**		1000	0.94%
Thallium	0.5 (G)	-		-			-		U	20	N/A
Vanadium		-		-			-		U	5	N/A
Zinc	2,000 (G)		U	9.8	JB	1.5	20.18%		U	10	N/A
Hexavalent Chromium by EPA Method 7196A											
Chromium, hexavalent	50	10			UJ	5	N/A		U	10	N/A
Mercury by EPA Method 7470A											
Mercury	0.7	-		-			-		U	0.2	N/A
Cyanide by EPA Method 9012											
Cyanide	200		U		U	5	N/A		U	10	N/A

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - Historic samples taken by ERM

U - Analyzed for but Not Detected

J - Indicates an estimated value

B - Compound was found in the blank and sample

^ - Instrument related QC exceeds the control limits

NS - Not sampled during sampling event

N/A - Not Applicable, analyte not detected in either parent sample or duplicate sample

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 10 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification														
		MW-1			MW-2			MW-3			MW-4			MW-5		
Date Sampled		Sep-16			Sep-16			Sep-16			Sep-16			Sep-16		
Polychlorinated Biphenyls by EPA Method 8082A				**R.L.**			**R.L.**			**R.L.**			**R.L.**			**R.L.**
PCB-1016 (Aroclor 1016)			U	0.5		U	0.49		U	0.49		U	0.49		U	0.49
PCB-1221 (Aroclor 1221)			U	0.5		U	0.49		U	0.49		U	0.49		U	0.49
PCB-1232 (Aroclor 1232)			U	0.5		U	0.49		U	0.49		U	0.49		U	0.49
PCB-1242 (Aroclor 1242)			U	0.5		U	0.49		U	0.49		U	0.49		U	0.49
PCB-1248 (Aroclor 1248)			U	0.5		U	0.49		U	0.49	4.6		0.49		U	0.49
PCB-1254 (Aroclor 1254)			U	0.5		U	0.49		U	0.49		U	0.49		U	0.49
PCB-1260 (Aroclor 1260)			U	0.5		U	0.49		U	0.49		U	0.49		U	0.49
Total PCBs	0.09	ND			ND			ND			$\boxed{\textbf{4.6}}$			ND		

Analyte	GW Std (ug/L)	Sample Identification											
		MW-6			MW-7			MW-8			Duplicate		
Date Sampled		Sep-16			Sep-16			Sep-16			Sep-16 (MW-3)		
Polychlorinated Biphenyls by EPA Method 8082A				**R.L.**			**R.L.**			**R.L.**		**R.L.**	**RPD**
PCB-1016 (Aroclor 1016)		NS				U	0.51		U	0.49	U	0.5	N/A
PCB-1221 (Aroclor 1221)		NS				U	0.51		U	0.49	U	0.5	N/A
PCB-1232 (Aroclor 1232)		NS				U	0.51		U	0.49	U	0.5	N/A
PCB-1242 (Aroclor 1242)		NS				U	0.51		U	0.49	U	0.5	N/A
PCB-1248 (Aroclor 1248)		NS				U	0.51		U	0.49	U	0.5	N/A
PCB-1254 (Aroclor 1254)		NS				U	0.51		U	0.49	U	0.5	N/A
PCB-1260 (Aroclor 1260)		NS				U	0.51		U	0.49	U	0.5	N/A
Total PCBs	0.09	NS			ND			ND			ND		N/A

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

U - Analyzed for but Not Detected

J - Indicates an estimated value

NS - Not sampled during sampling event

ND - Not Detected above laboratory detection limits

N/A - Not Applicable, analyte not detected in either parent sample or duplicate sample

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 11 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std	Sample Identification									
	(ug/L)	MW-1		MW-2		MW-3		MW-4		MW-5	
Date Sampled		Sep-16		Sep-16		Sep-16		Sep-16		Sep-16	
Volatile Organic Compounds by EPA Method 8260C			**R.L.**		**R.L.**		**R.L.**		**R.L.**		**R.L.**
1,1,1-trichloroethane	5	U	1	U	1	U	1	U	1	U	1
1,1,2,2-tetrachloroethane	5	U	1	U	1	U	1	U	1	U	1
1,1,2-trichloro-1,2,2-trifluoroethane	5	U	1	U	1	U	1	U	1	U	1
1,1,2-trichloroethane	1	U	1	U	1	U	1	U	1	U	1
1,1-dichloroethane	5	U	1	U	1	U	1	U	1	U	1
1,1-dichloroethene	5	U	1	U	1	U	1	U	1	U	1
1,2,4-trichlorobenzene	5	U	1	U	1	U	1	U	1	U	1
1,2,4-trimethylbenzene	5	U	1	U	1	U	1	U	1	U	1
1,2-dibromo-3-chloropropane	0.04	U	1	U	1	U	1	U	1	U	1
1,2-dibromoethane (ethylene dibromide)	6.00E-04	U	1	U	1	U	1	U	1	U	1
1,2-dichlorobenzene	3	U	1	U	1	U	1	U	1	U	1
1,2-dichloroethane	0.6	U	1	U	1	U	1	U	1	U	1
1,2-dichloropropane	1	U	1	U	1	U	1	U	1	U	1
1,3,5-trimethylbenzene (mesitylene)	5	U	1	U	1	U	1	U	1	U	1
1,3-dichlorobenzene	3	U	1	U	1	U	1	U	1	U	1
1,4-dichlorobenzene	3	U	1	U	1	U	1	U	1	U	1
2-hexanone	50 (G)	U	5	U	5	U	5	U	5	U	5
Acetone	50 (G)	U	10	U	10	U	10	U	10	U	10
Benzene	1	U	1	U	1	U	1	U	1	U	1
Bromodichloromethane	50 (G)	U	1	U	1	U	1	U	1	U	1
Bromoform	50 (G)	U	1	U	1	U	1	U	1	U	1
Bromomethane	5	U	1	U	1	U	1	U	1	U	1
Carbon disulfide	60 (G)	U	1	U	1	U	1	U	1	U	1
Carbon tetrachloride	5	U	1	U	1	U	1	U	1	U	1
Chlorobenzene	5	U	1	U	1	U	1	U	1	U	1
Chloroethane	5	U	1	U	1	U	1	U	1	U	1
Chloroform	7	U	1	U	1	U	1	U	1	U	1
Chloromethane	5	U	1	U	1	U	1	U	1	U	1
cis-1,2-dichloroethylene	5	U	1	U	1	U	1	U	1	U	1
cis-1,3-dichloropropene	0.4*	U	1	U	1	U	1	U	1	U	1
Cyclohexane		U	1	U	1	U	1	U	1	U	1
Cymene	5	U	1	U	1	U	1	U	1	U	1
Dibromochloromethane	50 (G)	U	1	U	1	U	1	U	1	U	1
Dichlorodifluoromethane	5	U	1	U	1	U	1	U	1	U	1
Ethylbenzene	5	U	1	U	1	U	1	U	1	U	1
Isopropylbenzene (cumene)	5	U	1	U	1	U	1	U	1	U	1
Methyl acetate		U	2.5	U	2.5	U	2.5	U	2.5	U	2.5
Methyl ethyl ketone (2-butanone)	50 (G)	U	10	U	10	U	10	U	10	U	10
Methyl isobutyl ketone (4-methyl-2-pentanone)		U	5	U	5	U	5	U	5	U	5
Methylcyclohexane		U	1	U	1	U	1	U	1	U	1
Methylene chloride	5	U	1	U	1	U	1	U	1	U	1
Naphthalene	10 (G)	U	1	U	1	U	1	U	1	U	1
n-butylbenzene	5	U	1	U	1	U	1	U	1	U	1
n-propylbenzene	5	U	1	U	1	U	1	U	1	U	1
sec-butylbenzene	5	U	1	U	1	U	1	U	1	U	1
Styrene	5	U	1	U	1	U	1	U	1	U	1
t-butylbenzene	5	U	1	U	1	U	1	U	1	U	1
Tert-butyl methyl ether	10 (G)	U	1	U	1	U	1	U	1	U	1
Tetrachloroethylene (PCE)	5	U	1	U	1	U	1	U	1	U	1
Toluene	5	U	1	U	1	U	1	U	1	U	1
trans-1,2-dichloroethene	5	U	1	U	1	U	1	U	1	U	1
trans-1,3-dichloropropene	0.4*	U	1	U	1	U	1	U	1	U	1
Trichloroethylene (TCE)	5	U	1	U	1	U	1	U	1	U	1
Trichlorofluoromethane	5	U	1	U	1	U	1	U	1	U	1
Vinyl chloride	2	U	1	U	1	U	1	U	1	U	1
Xylenes, total	5	U	2	U	2	U	2	U	2	U	2
Total VOCs		ND		ND		ND		ND		ND	

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - applies to the sum of cis and trans

U - Analyzed for but Not Detected

J - Indicates an estimated value

NS - Not sampled during sampling event

ND - Not Detected above laboratory detection limits

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 12 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification								
		MW-6		MW-7		MW-8		Duplicate		
Date Sampled		Sep-16		Sep-16		Sep-16		Sep-16 (MW-3)		
Volatile Organic Compounds by EPA Method 8260C			**R.L.**		**R.L.**		**R.L.**		**R.L.**	**RPD**
1,1,1-trichloroethane	5	NS		U	1	U	1	U	1	N/A
1,1,2,2-tetrachloroethane	5	NS		U	1	U	1	U	1	N/A
1,1,2-trichloro-1,2,2-trifluoroethane	5	NS		U	1	U	1	U	1	N/A
1,1,2-trichloroethane	1	NS		U	1	U	1	U	1	N/A
1,1-dichloroethane	5	NS		U	1	U	1	U	1	N/A
1,1-dichloroethene	5	NS		U	1	U	1	U	1	N/A
1,2,4-trichlorobenzene	5	NS		U	1	U	1	U	1	N/A
1,2,4-trimethylbenzene	5	NS		U	1	U	1	U	1	N/A
1,2-dibromo-3-chloropropane	0.04	NS		U	1	U	1	U	1	N/A
1,2-dibromoethane (ethylene dibromide)	6.00E-04	NS		U	1	U	1	U	1	N/A
1,2-dichlorobenzene	3	NS		U	1	U	1	U	1	N/A
1,2-dichloroethane	0.6	NS		U	1	U	1	U	1	N/A
1,2-dichloropropane	1	NS		U	1	U	1	U	1	N/A
1,3,5-trimethylbenzene (mesitylene)	5	NS		U	1	U	1	U	1	N/A
1,3-dichlorobenzene	3	NS		U	1	U	1	U	1	N/A
1,4-dichlorobenzene	3	NS		U	1	U	1	U	1	N/A
2-hexanone	50 (G)	NS		U	5	U	5	U	5	N/A
Acetone	50 (G)	NS		U	10	U	10	U	10	N/A
Benzene	1	NS		U	1	U	1	U	1	N/A
Bromodichloromethane	50 (G)	NS		U	1	U	1	U	1	N/A
Bromoform	50 (G)	NS		U	1	U	1	U	1	N/A
Bromomethane	5	NS		U	1	U	1	U	1	N/A
Carbon disulfide	60 (G)	NS		U	1	U	1	U	1	N/A
Carbon tetrachloride	5	NS		U	1	U	1	U	1	N/A
Chlorobenzene	5	NS		U	1	U	1	U	1	N/A
Chloroethane	5	NS		U	1	U	1	U	1	N/A
Chloroform	7	NS		U	1	U	1	U	1	N/A
Chloromethane	5	NS		U	1	U	1	U	1	N/A
cis-1,2-dichloroethylene	5	NS		U	1	U	1	U	1	N/A
cis-1,3-dichloropropene	0.4*	NS		U	1	U	1	U	1	N/A
Cyclohexane		NS		U	1	U	1	U	1	N/A
Cymene	5	NS		U	1	U	1	U	1	N/A
Dibromochloromethane	50 (G)	NS		U	1	U	1	U	1	N/A
Dichlorodifluoromethane	5	NS		U	1	U	1	U	1	N/A
Ethylbenzene	5	NS		U	1	U	1	U	1	N/A
Isopropylbenzene (cumene)	5	NS		U	1	U	1	U	1	N/A
Methyl acetate		NS		U	2.5	U	2.5	U	2.5	N/A
Methyl ethyl ketone (2-butanone)	50 (G)	NS		U	10	U	10	U	10	N/A
Methyl isobutyl ketone (4-methyl-2-pentanone)		NS		U	5	U	5	U	5	N/A
Methylcyclohexane		NS		U	1	U	1	U	1	N/A
Methylene chloride	5	NS		U	1	U	1	U	1	N/A
Naphthalene	10 (G)	NS		U	1	U	1	U	1	N/A
n-butylbenzene	5	NS		U	1	U	1	U	1	N/A
n-propylbenzene	5	NS		U	1	U	1	U	1	N/A
sec-butylbenzene	5	NS		U	1	U	1	U	1	N/A
Styrene	5	NS		U	1	U	1	U	1	N/A
t-butylbenzene	5	NS		U	1	U	1	U	1	N/A
Tert-butyl methyl ether	10 (G)	NS		1.2	1	U	1	U	1	N/A
Tetrachloroethylene(PCE)	5	NS		U	1	U	1	U	1	N/A
Toluene	5	NS		U	1	U	1	U	1	N/A
trans-1,2-dichloroethene	5	NS		U	1	U	1	U	1	N/A
trans-1,3-dichloropropene	0.4*	NS		U	1	U	1	U	1	N/A
Trichloroethylene (TCE)	5	NS		U	1	U	1	U	1	N/A
Trichlorofluoromethane	5	NS		U	1	U	1	U	1	N/A
Vinyl chloride	2	NS		U	1	U	1	U	1	N/A
Xylenes, total	5	NS		U	2	U	2	U	2	N/A
Total VOCs		NS		1.20		ND		ND		N/A

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

* - applies to the sum of cis and trans

U - Analyzed for but Not Detected

J - Indicates an estimated value

NS - Not sampled during sampling event

ND - Not Detected above laboratory detection limits

N/A - Not Applicable, analyte not detected in either parent sample or duplicate sample

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 13 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification									
		MW-1		MW-2		MW-3		MW-4		MW-5	
Date Sampled		Sep-16		Sep-16		Sep-16		Sep-16		Sep-16	
Semi Volatile Organic Compounds by EPA Method 8270D			R.L.		R.L.		R.L.		R.L.		R.L.
2,4,5-trichlorophenol		U	5	U	5	U	4.8	U	4.9	U	4.8
2,4,6-trichlorophenol		U	5	U	5	U	4.8	U	4.9	U	4.8
2,4-dichlorophenol	5	U	5	U	5	U	4.8	U	4.9	U	4.8
2,4-dimethylphenol	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
2,4-dinitrophenol	10 (G)	UT	10	U	10	U	9.7	U	9.9	U	9.6
2,4-dinitrotoluene	5	U	5	U	5	U	4.8	U	4.9	U	4.8
2,6-dinitrotoluene	5	U	5	U	5	U	4.8	U	4.9	U	4.8
2-chloronaphthalene	10 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
2-chlorophenol		U	5	U	5	U	4.8	U	4.9	U	4.8
2-methylnaphthalene		U	5	U	5	U	4.8	U	4.9	U	4.8
2-methylphenol (o-cresol)		U	5	U	5	U	4.8	U	4.9	U	4.8
2-nitroaniline	5	U	10	U	10	U	9.7	U	9.9	U	9.6
2-nitrophenol		U	5	U	5	U	4.8	U	4.9	U	4.8
3,3'-dichlorobenzidine	5	U	5	U	5	U	4.8	U	4.9	U	4.8
3-nitroaniline	5	U	10	U	10	U	9.7	U	9.9	U	9.6
4,6-dinitro-2-methylphenol		U	10	U	10	U	9.7	U	9.9	U	9.6
4-bromophenyl phenyl ether		U	5	U	5	U	4.8	U	4.9	U	4.8
4-chloro-3-methylphenol		U	5	U	5	U	4.8	U	4.9	U	4.8
4-chloroaniline	5	U	5	U	5	U	4.8	U	4.9	U	4.8
4-chlorophenyl phenyl ether		U	5	U	5	U	4.8	U	4.9	U	4.8
4-methylphenol (p-cresol)		U	10	U	10	U	9.7	U	9.9	U	9.6
4-nitroaniline	5	U	10	U	10	U	9.7	U	9.9	U	9.6
4-nitrophenol		UT	10	U	10	U	9.7	U	9.9	U	9.6
Acenaphthene	20 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Acenaphthylene		U	5	U	5	U	4.8	U	4.9	U	4.8
Acetophenone		U	5	U	5	U	4.8	U	4.9	U	4.8
Anthracene	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Atrazine	7.5	U	5	U	5	U	4.8	U	4.9	U	4.8
Benzaldehyde		U	5	U	5	U	4.8	U	4.9	U	4.8
Benzo(a)anthracene	0.002 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Benzo(a)pyrene	ND	U	5	U	5	U	4.8	U	4.9	U	4.8
Benzo(b)fluoranthene	0.002 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Benzo(g,h,i)perylene		UJ	5	U	5	U	4.8	U	4.9	U	4.8
Benzo(k)fluoranthene	0.002 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Benzyl butyl phthalate		U	5	U	5	U	4.8	U	4.9	U	4.8
Biphenyl (diphenyl)		U	5	U	5	U	4.8	U	4.9	U	4.8
bis(2-chloroethoxy) methane	5	U	5	U	5	U	4.8	U	4.9	U	4.8
bis(2-chloroethyl) ether (2-chloroethyl ether)	1	U	5	U	5	U	4.8	U	4.9	U	4.8
bis(2-chloroisopropyl) ether		U	5	U	5	U	4.8	U	4.9	U	4.8
bis(2-ethylhexyl) phthalate	5	U	5	U	5	U	4.8	U	4.9	U	4.8
Caprolactam		U	5	U	5	U	4.8	U	4.9	U	4.8
Carbazole		U	5	U	5	U	4.8	U	4.9	U	4.8
Chrysene	0.002 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Dibenz(a,h)anthracene		UJ	5	U	5	U	4.8	U	4.9	U	4.8
Dibenzofuran		U	10	U	10	U	9.7	U	9.9	U	9.6
Diethyl phthalate	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Dimethyl phthalate	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
di-n-butyl phthalate		U	5	U	5	U	4.8	U	4.9	U	4.8
di-n-octylphthalate	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Fluoranthene	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Fluorene	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Hexachlorobenzene	0.04	U	5	U	5	U	4.8	U	4.9	U	4.8
Hexachlorobutadiene	0.5	U	5	U	5	U	4.8	U	4.9	U	4.8
Hexachlorocyclopentadiene	5	U	5	U	5	U	4.8	U	4.9	U	4.8
Hexachloroethane	5	U	5	U	5	U	4.8	U	4.9	U	4.8
Indeno(1,2,3-c,d)pyrene	0.002 (G)	UJ	5	U	5	U	4.8	U	4.9	U	4.8
Isophorone	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Naphthalene	10 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Nitrobenzene	0.4	U	5	U	5	U	4.8	U	4.9	U	4.8
n-nitrosodi-n-propylamine		U	5	U	5	U	4.8	U	4.9	U	4.8
n-nitrosodiphenylamine	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Pentachlorophenol	1	U	10	U	10	U	9.7	U	9.9	U	9.6
Phenanthrene	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Phenol	1	U	5	U	5	U	4.8	U	4.9	U	4.8
Pyrene	50 (G)	U	5	U	5	U	4.8	U	4.9	U	4.8
Total SVOCs		ND		ND		ND		ND		ND	

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

U - Analyzed for but Not Detected

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NS - Not sampled during sampling event

ND - Not Detected above laboratory detection limits

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 4: (Page 14 of 14) Summary of Groundwater Laboratory Analytical Results. Celi Drive BCP Site, Syracuse, NY.

Analyte	GW Std (ug/L)	Sample Identification MW-6		MW-7		MW-8		Duplicate		
Date Sampled		Sep-16		Sep-16		Sep-16		Sep-16 (MW-3)		
Semi Volatile Organic Compounds by EPA Method 8270D			R.L.		R.L.		R.L.		R.L.	RPD
2,4,5-trichlorophenol		NS		U	5	U	4.9	U	4.9	N/A
2,4,6-trichlorophenol		NS		U	5	U	4.9	U	4.9	N/A
2,4-dichlorophenol	5	NS		U	5	U	4.9	U	4.9	N/A
2,4-dimethylphenol	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
2,4-dinitrophenol	10 (G)	NS		U	10	U	9.8	U	9.9	N/A
2,4-dinitrotoluene	5	NS		U	5	U	4.9	U	4.9	N/A
2,6-dinitrotoluene	5	NS		U	5	U	4.9	U	4.9	N/A
2-chloronaphthalene	10 (G)	NS		U	5	U	4.9	U	4.9	N/A
2-chlorophenol		NS		U	5	U	4.9	U	4.9	N/A
2-methylnaphthalene		NS		U	5	U	4.9	U	4.9	N/A
2-methylphenol (o-cresol)		NS		U	5	U	4.9	U	4.9	N/A
2-nitroaniline	5	NS		U	10	U	9.8	U	9.9	N/A
2-nitrophenol		NS		U	5	U	4.9	U	4.9	N/A
3,3'-dichlorobenzidine	5	NS		U	5	U	4.9	U	4.9	N/A
3-nitroaniline	5	NS		U	10	U	9.8	U	9.9	N/A
4,6-dinitro-2-methylphenol		NS		U	10	U	9.8	U	9.9	N/A
4-bromophenyl phenyl ether		NS		U	5	U	4.9	U	4.9	N/A
4-chloro-3-methylphenol		NS		U	5	U	4.9	U	4.9	N/A
4-chloroaniline	5	NS		U	5	U	4.9	U	4.9	N/A
4-chlorophenyl phenyl ether		NS		U	5	U	4.9	U	4.9	N/A
4-methylphenol (p-cresol)		NS		U	10	U	9.8	U	9.9	N/A
4-nitroaniline	5	NS		U	10	U	9.8	U	9.9	N/A
4-nitrophenol		NS		U	10	U	9.8	U	9.9	N/A
acenaphthene	20 (G)	NS		U	5	U	4.9	U	4.9	N/A
acenaphthylene		NS		U	5	U	4.9	U	4.9	N/A
acetophenone		NS		U	5	U	4.9	U	4.9	N/A
anthracene	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
atrazine	7.5	NS		U	5	U	4.9	U	4.9	N/A
benzaldehyde		NS		U	5	U	4.9	U	4.9	N/A
benzo(a)anthracene	0.002 (G)	NS		U	5	U	4.9	U	4.9	N/A
benzo(a)pyrene	ND	NS		U	5	U	4.9	U	4.9	N/A
benzo(b)fluoranthene	0.002 (G)	NS		U	5	U	4.9	U	4.9	N/A
benzo(g,h,i)perylene		NS		U	5	U	4.9	U	4.9	N/A
benzo(k)fluoranthene	0.002 (G)	NS		U	5	U	4.9	U	4.9	N/A
benzyl butyl phthalate		NS		U	5	U	4.9	U	4.9	N/A
biphenyl (diphenyl)		NS		U	5	U	4.9	U	4.9	N/A
bis(2-chloroethoxy) methane	5	NS		U	5	U	4.9	U	4.9	N/A
bis(2-chloroethyl) ether (2-chloroethyl ether)	1	NS		U	5	U	4.9	U	4.9	N/A
bis(2-chloroisopropyl) ether		NS		U	5	U	4.9	U	4.9	N/A
bis(2-ethylhexyl) phthalate	5	NS		U	5	U	4.9	U	4.9	N/A
caprolactam		NS		U	5	U	4.9	U	4.9	N/A
carbazole		NS		U	5	U	4.9	U	4.9	N/A
chrysene	0.002 (G)	NS		U	5	U	4.9	U	4.9	N/A
dibenz(a,h)anthracene		NS		U	5	U	4.9	U	4.9	N/A
dibenzofuran		NS		U	10	U	9.8	U	9.9	N/A
diethyl phthalate	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
dimethyl phthalate	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
di-n-butyl phthalate		NS		U	5	U	4.9	U	4.9	N/A
di-n-octylphthalate	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
fluoranthene	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
fluorene	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
hexachlorobenzene	0.04	NS		U	5	U	4.9	U	4.9	N/A
hexachlorobutadiene	0.5	NS		U	5	U	4.9	U	4.9	N/A
hexachlorocyclopentadiene	5	NS		U	5	U	4.9	U	4.9	N/A
hexachloroethane	5	NS		U	5	U	4.9	U	4.9	N/A
indeno(1,2,3-c,d)pyrene	0.002 (G)	NS		U	5	U	4.9	U	4.9	N/A
isophorone	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
naphthalene	10 (G)	NS		U	5	U	4.9	U	4.9	N/A
nitrobenzene	0.4	NS		U	5	U	4.9	U	4.9	N/A
n-nitrosodi-n-propylamine		NS		U	5	U	4.9	U	4.9	N/A
n-nitrosodiphenylamine	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
pentachlorophenol	1	NS		U	10	U	9.8	U	9.9	N/A
phenanthrene	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
phenol	1	NS		U	5	U	4.9	U	4.9	N/A
pyrene	50 (G)	NS		U	5	U	4.9	U	4.9	N/A
Total SVOCs		NS		ND		ND		ND		N/A

All values reported as ug/L

GW Std - Class GA Groundwater Quality Standard or Guidance Value from New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Serise (June 1998).

(G) - Guidance value

U - Analyzed for but Not Detected

J - Indicates an estimated value

NS - Not sampled during sampling event

ND - Not Detected above laboratory detection limits

N/A - Not Applicable, analyte not detected in either parent sample or duplicate sample

R.L. - Laboratory Reporting Limit

Bold and boxed results indicate an exceedance of Groundwater Standards

Table 5 - (Page 1 of 1): Summary of Post-Excavation Soil Sample Laboratory Analytical Results - Bridge Street Swale. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION BRIDGE STREET SWALE			
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	BSS-SED1-COMP			
Sample Date			8/23/2016			
Metals by EPA Method 6010C					**D.L.**	**R.L.**
Chromium, Total	30	41	**55**			
Copper, Total	50	50	30			
Nickel, Total	30	30	17			
Cyanide by EPA Method 9010C						
Cyanide, Total	27	NS		U	0.21	1.3
Chromium by EPA Method 7196A						
Chromium, Hexavalent	1	1		U	0.22	1.1

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 1 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION															
			MAIN SWALE															
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED1A				AOC4-SED1B				AOC4-SED1C				DUPLICATE 2			
Sample Date			8/23/2016				8/23/2016				8/23/2016				8/23/2016 (AOC4-SED1B)			
Metals by EPA Method 6010C					D.L.	R.L.			D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	41	11				**140**				**160**				31			
Copper, Total	50	50	39				**170**				**300**				**57**			
Nickel, Total	30	30	14				**57**				**140**				27			
Cyanide by EPA Method 9010C																		
Cyanide, Total	27	NS	0.26	J	0.2	1.2	0.92	J	0.27	1.6	0.78	J	0.57	3.4	0.67	J	0.64	3.9
Chromium by EPA Method 7196A																		
Chromium, Hexavalent	1	1		U	0.21	1		U	0.27	1.4		U	0.3	1.5		U	0.32	1.6

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 2 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION											
			MAIN SWALE											
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED2A				AOC4-SED2B				AOC4-SED2C			
Sample Date			8/23/2016				8/23/2016				8/23/2016			
Metals by EPA Method 6010C					**D.L.**	**R.L.**			**D.L.**	**R.L.**			**D.L.**	**R.L.**
Chromium, Total	30	41	**130**				**210**				**190**			
Copper, Total	50	50	**220**				**530**				**66**			
Nickel, Total	30	30	**130**				**140**				**53**			
Cyanide by EPA Method 9010C														
Cyanide, Total	27	NS	0.96	J	0.6	3.6	2.8	J	1	6.1	1.6	J	0.4	2.4
Chromium by EPA Method 7196A														
Chromium, Hexavalent	1	1		U	0.31	1.6		U	0.52	2.6		U	0.4	2

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 3 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION											
			MAIN SWALE											
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED3A				AOC4-SED3B				AOC4-SED3C			
Sample Date			8/23/2016				8/23/2016				8/23/2016			
Metals by EPA Method 6010C					**D.L.**	**R.L.**			**D.L.**	**R.L.**			**D.L.**	**R.L.**
Chromium, Total	30	41	**270**				**62**				40			
Copper, Total	50	50	**240**				**150**				40			
Nickel, Total	30	30	**59**				**54**				27			
Cyanide by EPA Method 9010C														
Cyanide, Total	27	NS	1.4	J	0.39	2.3	1.5	J	0.41	2.5		U	0.3	1.8
Chromium by EPA Method 7196A														
Chromium, Hexavalent	1	1		U	0.38	1.9		U	0.42	2.1		U	0.31	1.5

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 4 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION															
			MAIN SWALE															
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED4A				AOC4-SED4B				AOC4-SED4C				DUPLICATE			
Sample Date			8/23/2016				8/23/2016				8/23/2016				8/23/2016 (AOC4-SED4C)			
Metals by EPA Method 6010C					D.L.	R.L.			D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	41	**75**				**120**				**160**				**82**			
Copper, Total	50	50	**230**				**81**				**440**				**200**			
Nickel, Total	30	30	**60**				**34**				**67**				**59**			
Cyanide by EPA Method 9010C																		
Cyanide, Total	27	NS	1.1	J	0.67	4	16		0.29	1.8	1.2	J	0.55	3.3	0.51	J	0.24	1.5
Chromium by EPA Method 7196A																		
Chromium, Hexavalent	1	1		U	0.33	1.6		U	0.23	1.4		U	0.28	1.4		U	0.26	1.3

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

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NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 5 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION											
			MAIN SWALE											
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED5A				AOC4-SED5B				AOC4-SED5C			
Sample Date			8/23/2016				8/23/2016				8/23/2016			
Metals by EPA Method 6010C					D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	41	27				**170**				33			
Copper, Total	50	50	**70**				**410**				**150**			
Nickel, Total	30	30	**34**				**170**				**340**			
Cyanide by EPA Method 9010C														
Cyanide, Total	27	NS		U	0.24	1.4	2.2	J	0.42	2.5	0.58	J	0.28	1.7
Chromium by EPA Method 7196A														
Chromium, Hexavalent	1	1		U	0.24	1.2		U	0.44	2.2		U	0.28	1.4

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

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J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 6 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION											
			MAIN SWALE											
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED6A				AOC4-SED6B				AOC4-SED6C			
Sample Date			8/23/2016				8/23/2016				8/23/2016			
Metals by EPA Method 6010C					**D.L.**	**R.L.**			**D.L.**	**R.L.**			**D.L.**	**R.L.**
Chromium, Total	30	41	**51**				**210**				**220**			
Copper, Total	50	50	**120**				**730**				**500**			
Nickel, Total	30	30	**51**				**200**				**140**			
Cyanide by EPA Method 9010C														
Cyanide, Total	27	NS	0.33	J	0.29	1.8	1.7	J	0.45	2.7	0.7	J	0.48	2.9
Chromium by EPA Method 7196A														
Chromium, Hexavalent	1	1		U	0.31	1.5		U	0.46	2.3		U	0.25	1.2

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

U - Analyzed for but not detected above the laboratory reporting limit

J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

Table 6 - (Page 7 of 7): Summary of Post-Excavation Soil Sample Laboratory Analytical Results. Celi Drive BCP Site (BCP Site #C734108). Syracuse, NY.

ANALYTE (mg/kg)	SOIL CLEANUP OBJECTIVES		SAMPLE IDENTIFICATION MAIN SWALE											
	UNRESTRICTED USE	PROTECTION OF ECOLOGICAL RESOURCES	AOC4-SED7A				AOC4-SED7B				AOC4-SED7C			
Sample Date			8/23/2016				8/23/2016				8/23/2016			
Metals by EPA Method 6010C					D.L.	R.L.			D.L.	R.L.			D.L.	R.L.
Chromium, Total	30	41	**290**				**86**				35			
Copper, Total	50	50	**980**				**89**				**70**			
Nickel, Total	30	30	**370**				**56**				**33**			
Cyanide by EPA Method 9010C														
Cyanide, Total	27	NS	0.74	J	0.69	4.2	1.4	J	0.24	1.5	1.2	J	0.34	2.1
Chromium by EPA Method 7196A														
Chromium, Hexavalent	1	1		U	0.36	1.8		U	0.25	1.3		U	0.34	1.7

All values reported as mg/kg (parts per million)

Soil Cleanup Objectives from 6 NYCRR Part 375-6.8(b) (December 2006) and Supplemental Soil Cleanup Objectives (October 2010)

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J - Estimated value

D.L. - Laboratory Detection Limit

R.L. - Laboratory Reporting Limit

NS - Not Specified

Bold, thick outlined, and shaded cell indicates analyte exceeds the Protection of Ecological Resources Soil Cleanup Objectives

GSP Holdings, Inc.
Celi Drive BCP Site
BCP Site #E734108
Dewitt, New York

Project No. 37-11082

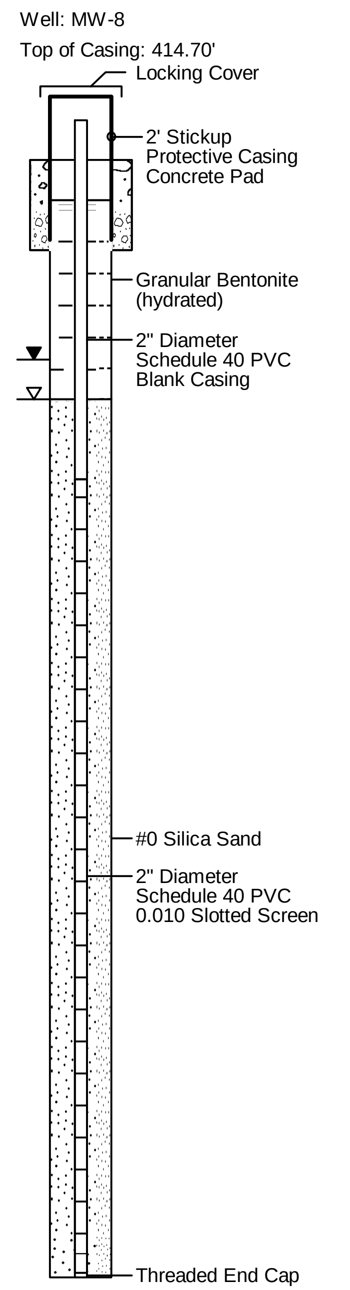
Depth of Boring	: 14.0-feet bgs
Drilling Contractor	: Parratt-Wolff
Driller	: Mark Eaves
Drilling Method	: Direct Push
Sample Equipment	: DT-325
Field Geologist	: Ian McNamara
Initial Depth to GW	: 3.0'
Stable Depth to GW	: 2.5'
Surveyed By	: D.W. Hannig

LOG OF BORING MW-8

Date Started	: August 26, 2016
Date Completed	: August 26, 2016
Northing/Latitude	: 43.05008
Easting/Longitude	: -76.06868
Surface Elevation	: 412.8'

Water Level
▼ After Completion
▽ During Drilling

DEPTH (feet bgs)	SOIL DESCRIPTION	BLOW COUNT	RECOVERY (inches)	PID READING (ppm)
0	Asphalt millings, brick and concrete fragments, loose (fill)			
2	Brown, CLAY and SILT with fine to medium grained SAND and fine GRAVEL, medium-stiff, moist to wet with depth	N/A	30	0.0
5	Gray, CLAY and SILT, some fine to medium grained SAND, rusty orange mottling, medium-stiff to stiff, wet Decreasing clay with depth	N/A	42	0.1
7.25	Brown, SILT and fine to medium grained SAND, loose, wet			
9	Brown, fine to coarse grained SAND, some fine GRAVEL and SILT, loose, wet	N/A	48	0.0
11.25	Reddish-brown, CLAY with SILT, medium-stiff, wet (dilatancy)	N/A	24	0.1
14	End of Boring at 14' bgs			



NOTES:
BGS - Below Ground Surface
N/A - Not Applicable
ppm - Parts Per Million

LOG OF BORING MW-8

www.ghd.com

APPENDIX C

Site-Specific Health and Safety Plan (HASP)

HEALTH AND SAFETY PLAN

Interim Remedial Measures Work Plan
Celi Drive BCP Site, AOC #4
Dewitt, New York

<table>
<tr><th colspan="3">EMERGENCY CONTACT NUMBERS</th></tr>
<tr><td colspan="2">Emergency Response Number</td><td>911</td></tr>
<tr><td colspan="2">Poison Control Center</td><td>(800) 222-1222</td></tr>
<tr><td colspan="2">Dewitt Fire Department / Emergency Medical</td><td>(315) 446-3195</td></tr>
<tr><td colspan="2">Dewitt Police Department</td><td>(315) 449-3644</td></tr>
<tr><td colspan="2">Onondaga County Sherriff's Department</td><td>(315) 435-3044</td></tr>
<tr><th colspan="3">NEAREST MEDICAL FACILITIES / HOSPITAL</th></tr>
<tr><td colspan="2">Upstate Medical University (Hospital)
750 East Adams Street
Syracuse, New York 13216</td><td>(315) 464-5540</td></tr>
<tr><td colspan="2">WellNow Urgent Care
6227 Thompson Road
Dewitt, New York 13206</td><td>(315) 937-2007</td></tr>
<tr><th colspan="3">ENVIRONMENTAL CONSULTANT</th></tr>
<tr><td>Lakeside Engineering
(607) 725-5824</td><td>Project Engineer</td><td>Robert G. Harner, P.E.</td></tr>
<tr><td rowspan="3">Asbestos & Environmental
Consulting Corporation (AECC)
(315) 432-9400</td><td>Project Manager</td><td>Richard McKenna</td></tr>
<tr><td>Safety Coordinator</td><td>George Fischer
(315) 569-0474 (cell)</td></tr>
<tr><td>Field Team Leader</td><td>George Fischer</td></tr>
<tr><th colspan="3">REMEDIATION CONTRACTOR</th></tr>
<tr><td rowspan="3">TBD</td><td>HSO</td><td>TBD</td></tr>
<tr><td>Supervisor</td><td>TBD</td></tr>
<tr><td>Operator</td><td>TBD</td></tr>
</table>

January 2021

Asbestos & Environmental Consulting Corp. ~ 6308 Fly Road, East Syracuse, New York 13057 (315) 432-9400, (315) 432-9405 Fax

1.0 INTRODUCTION

This document sets forth the minimum health and safety requirements to be followed during the implementation of remedial actions to be undertaken to address soil / sediment within a drainage swale

This project-specific Health and Safety Plan (HASP) sets forth requirements for maintaining the health and safety of workers at the Site. This HASP addresses general health and safety issues related to the presence of specific chemical and physical hazards that may be encountered during performance of the work activities at the Site. All Remediation Contractors and Subcontractors are required to prepare and maintain their own project-specific HASP that incorporates the minimum requirements of this HASP.

An Emergency Response Plan is included at the end of this Plan, which presents the procedures to be followed in the event of an emergency situation.

2.0 GENERAL DEFINITIONS

The following definitions shall apply to and are used throughout the HASP:

Contamination Reduction Zone – Area between the Exclusion Zone and Support Zone that provides a transition between contaminated and clean areas. Decontamination stations are located in this zone.

Contractor – Any contractor responsible for performing work that will disturb contaminated Site soils or involve management of other contaminated waste streams such as decontamination residues.

Environmental Consultant – A consultant to the Owner that will specialize in the environmental aspects of the project, namely preparation and implementation of the Remedial Investigation Work Plan, collection of soil samples, collection of groundwater samples, oversight of contractor activities, and decontamination of equipment at the end of the project.

Exclusion Zone – Any portion of the Site where hazardous substances are present, or may reasonably be suspected to be present, in the air, water, or soil.

HSO – The Health & Safety Officer is a qualified professional designated by the Consultant who is responsible for the execution and maintenance of the HASP.

Monitoring – The use of field instrumentation to measure the levels of contaminants. Monitoring will be conducted, if deemed necessary (i.e., excessive airborne dust and particulates), to evaluate potential exposures to chemical and physical hazards.

On-site personnel – All consultant, contractor, and subcontractor personnel working at the Site.

PPE – Personal Protective Equipment; clothing / gear worn by personnel within the work area that is designed to reduce exposure to chemical and / or physical hazards.

Project – All on-site work performed at the Site involving potentially contaminated soil disturbance (i.e., investigations and potential interim remedial measures).

Site – The subject property where the disturbance of potentially contaminated soil may occur.

Subcontractor – All subcontractors to the Contractor hired to work on this project.

Support Zone – The remainder of the Site outside of the Contamination Reduction Zone and Exclusion Zone. Support equipment is located in this zone.

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Visitor – All other personnel, excluding the on-site personnel.

3.0 RESPONSIBILITIES

Implementation of the HASP will be accomplished through an integrated team effort. The following key personnel will be involved with this project:

OWNER		
	Owner Representative	
ENVIRONMENTAL CONSULTANTS		
Lakeside Engineering (607) 725-5824	Field Team Manager	Robert G. Harner, P.E.
Asbestos & Environmental Consulting Corporation (AECC) (315) 432-9400	Project Manager	Richard McKenna
	Safety Coordinator	George Fischer: (315) 569-0474 (cell)
	Field Team Leader	George Fischer
REMEDIATION CONTRACTOR(S)		
TBD	HSO	TBD
	Supervisor	TBD
	Operator	TBD
GOVERNMENTAL AGENCIES		
NYS Department of Environmental Conservation (NYSDEC) (315)426-7400		Christopher F. Mannes, P.E. (315) 426-7515
NYS Department of Health (NYSDOH)		Mark S. Sergott, P.G. (518) 402-7897

This HASP will be periodically reviewed by all parties during the project to verify that it accurately reflects the operations conducted and the conditions present at the Site. Changes in Site conditions or changes in the work tasks at the Site will necessitate a review and modification of the HASP. The Contractor's HSO shall contact the Environmental Consultant if site conditions change that warrant modifications to the HASP, and vise versa. Changes, modifications, and amendments to the HASP will be made in the form of addenda, and will be attached to the HASP.

All parties to the project will perform their duties in a manner consistent with generally accepted practices, and will be responsible for the following (of their own employees) during the project:

- Verification that medical examinations and training requirements for all personnel are current
- Reviewing the HASP with all on-site personnel
- Implementation and maintenance of the HASP
- Providing all on-site personnel with proper PPE
- Compliance with applicable state and federal health and safety standards

The HSO for this project is designated with the following responsibilities:

- Maintain a daily log book for recording all significant health and safety activities
- Have authority to suspend work due to health or safety-related concerns
- Provide on-site technical assistance and conduct health and safety briefings at the Site
- Verify that first aid kits, eye wash kits, and fire extinguishers are at the Site
- Verify that on-site personnel have received the necessary training and physical examinations
- Verify that on-site personnel have been provided with and are using the required PPE
- Review of the adequacy of the HASP and amend the HASP as necessary during the project
- Prepare addenda to the HASP and maintain required documents for recordkeeping purposes

4.0 SITE HAZARDS EVALUATION

4.1 Chemical Hazards

The soil/sediment and surface water within the swale of AOC-4 have been determined to be contaminated with the following chemicals of concern:

Known Contaminant	Known Health Effects
Chromium (total)	**Target Organs:** *eyes, skin, respiratory system.* **Symptoms:** ***e****ye and respiratory tract irritant; lung fibrosis.*
Chromium (hexavalent)	**Target Organs:** *eyes, skin, respiratory system.* **Symptoms:** *irritation to eyes, skin/dermal, and respiratory tract, carcinogen.*
Copper (total)	**Target Organs:** *eyes, skin, respiratory system, liver, kidneys.* **Symptoms:** *irritation to eyes, nose and pharynx; nasal septum perforation; metallic taste; dermatitis.*
Nickel (total)	**Target Organs:** *nasal cavities, skin, respiratory system.* **Symptoms:** sensitization dermatitis, *allergic asthma, pneumonitis; potential carcinogen.*
Cyanide (total)	**Target Organs:** *eyes, skin, cardiovascular system, central nervous system, thyroid, blood.* **Symptoms:** *irritation to eyes and skin, asphyxia, lassitude (weakness, exhaustion), headache, confusion, nausea, vomiting, increased respiratory rate, slow gasping respiration, thyroid or blood changes.*

Applicable fact sheets are presented in Appendix A.

Based on available information, concentrations of identified contaminants are not believed to be above the threshold for hazardous (RCRA) waste. As the work progresses and additional data is collected, this HASP will be updated to reflect this information.

The contaminants at the Site may enter the human body in a variety of ways. The chemical routes of exposure anticipated from the remedial activities at this Site include:

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Absorption - Dermal (skin) contact with impacted soil on-site resulting in absorption of chemicals of concern through the skin and into the blood stream. Proper use of PPE as specified later in this Plan will minimize risks of exposure at the Site.

Ingestion - Chemicals / materials of concern can come in direct contact with the mouth from soil or other contaminated areas (PPE, skin, tools, etc.) and enter the bloodstream through the stomach lining. Proper care in handling PPE and tools, refraining from eating and drinking at the Site, and frequent hand washing with soap and water will minimize risks of exposure.

Inhalation –Contaminants attached to dust and particulates can be entrained by wind and become airborne across the Site and be subsequently inhaled through the nose and / or mouth. This exposure route is the most likely way for worker exposure to occur. The Contractor shall employ methods that minimize the creation of dust and utilize dust suppression techniques to minimize dust and particulates. Respirators with appropriate cartridges should be available to on-site workers in case compounds become a nuisance or health hazard. The Contractor is responsible for any personal air monitoring of employees, as deemed necessary.

4.2 Physical Hazards

Based upon the anticipated field activities, the following potential hazardous conditions may exist:

- The use of typical mechanical equipment such as hydraulic excavating equipment, skid-steers, trucks, and trailers, etc. can create a potential for crushing and pinching hazards due to movement and positioning of the equipment, movement of lever arms and hydraulics, and entanglement of clothing and appendages in exposed drives and tracks. Mechanical equipment can also create a potential for impact of steel tools, masts, and cables should equipment rigging fail, or other structural failures occur during hydraulic equipment operation. Heavy equipment work must be conducted only by trained, experienced personnel. Personnel must remain outside the turning radius of moving equipment while equipment is in operation. At a minimum, personnel must maintain visual contact with the equipment operator. When not operational, equipment must be set and locked so that it cannot be activated, released, dropped, etc. The mechanical equipment stated above represents typical equipment that is ordinarily used during this scope of work, but is not meant to be an all-inclusive list. Similar precautions should be used around other mechanical equipment deployed to the Site that is not listed above.

- The contractor is responsible for ensuring compliance with OSHA's construction standard for excavations (29 CFR 1926 Subpart P), and for designating the Competent Person responsible for selecting and implementing the appropriate protective system(s), assuring appropriate means of access and egress for excavations greater than four (4) feet in depth, and for ensuring that potential atmospheric and physical hazards associated with any excavation / trenching activities are completed in accordance with Subpart P and other applicable OSHA Standards as applicable.

- Work around large equipment often creates excessive noise. Noise can cause workers to be startled, annoyed, or distracted; cause pain, physical damage to the ear, and temporary and / or permanent hearing loss; and can interfere with communication. If workers are subjected to noise exceeding an 8-hour time-weighted average sound level of 85 dBA, hearing protection will be required with an appropriate noise reduction rating to comply with 29 CFR 1910.95 and to reduce noise levels below levels of concern.

- Personnel may be injured during physical lifting and handling of heavy equipment, construction materials, or containers.

- Personnel may encounter slip, trip, and fall hazards associated with excavations, manways, and construction debris and materials. Precautionary measures should be taken by identifying and removing slip, trip, and fall hazards prior to commencing work. In the event slip, trip, and fall hazards cannot be removed or minimized, site workers will be shown the location of the physical hazard and be asked to avoid it during work activities.

- The potential for fire and / or explosion emergencies is always present on the Site. Field vehicles will be equipped with a fire extinguisher. Employees must be trained in the proper use of fire suppression equipment. However, large fires that cannot be controlled with a fire extinguisher shall be handled by professionals. The proper authorities shall be notified in these instances.

- Persons working outdoors in temperatures at or below freezing may be subject to frostbite. Extreme cold for a short time may cause injury to exposed body surfaces or result in a profound generalized cooling which can cause death. Areas of the body such as fingers, toes, and ears, are the most susceptible to cold stress. Ambient air temperature and wind velocity are two factors which influence the development of a cold weather injury. Local injury resulting from exposure to cold temperatures is known as “frostbite.” There are several degrees of damage in which frostbite of the extremities can be categorized, as follows:

    - Frost nip or incipient frostbite is characterized by sudden bleaching or whitening of the skin.
    - Superficial frostbite occurs when the skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
    - Deep frostbite is characterized by tissues that are cold, pale, and solid; this is an extremely serious injury.

- Heat stress is another potential hazard condition that may arise. Heat stress can result from a number of contributing factors, including environmental conditions, clothing, and workload as well as the physical condition of the individual. Since heat stress is one of the most common injuries / symptoms associated with outdoor work conducted with direct solar load, and, in particular, because wearing PPE can increase the risk of developing heat stress, workers must be capable of recognizing the signs and symptoms of heat-related illnesses. Signs and symptoms of heat-related illnesses which all on-site personnel should be aware, include the following:

    - Heat rash may result from continuous exposure to heat or humid air.
    - Heat cramps are caused by heavy sweating and may include muscle spasms and pain in the hands, feet, and abdomen.
    - Heat exhaustion is indicated by pale, cool, and moist skin; heavy sweating; dizziness; nausea; and fainting.
    - Heat stroke is indicated by red, hot, and unusually dry skin; lack of or reduced perspiration; nausea; dizziness and confusion; rapid pulse; and coma. Immediate action must be taken to cool the body before serious injury or death occurs.

- Overhead and underground utilities exist within the Work Area, which may expose workers to electrocution hazards, explosive hazards, and volatile vapors. Utility locations will be determined prior to the remedial activites.

5.0 PERSONAL PROTECTIVE EQUIPMENT

Personnel will be required to wear Level D and Modified Level D PPE ensembles, at a minimum. The following PPE ensembles shall be worn by on-site personnel for the following tasks:

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Level D Protection, as listed below, shall be worn by on-site personnel at all times when tasks are performed which DO NOT INVOLVE dermal exposure, or contact with chemical hazards:

- Standard outer garments (i.e. long pants and long-sleeve shirt)
- Durable leather steel-toed work boots
- Rubber boots worn over work boots
- Durable leather gloves
- Eye protection
- Hard hat
- Hearing protection

Modified Level D Protection, as listed below, shall be worn by on-site personnel at all times when tasks are performed which involve dermal exposure or contact with chemical hazards and/or during excavation/handling of soils or groundwater deemed hazardous waste (not currently anticipated for this project):

- Disposable coveralls worn over standard outer garments. Personnel will frequently verify the integrity of their coveralls by checking for holes or tears.
- Durable leather steel-toed work boots
- Disposable nitrile gloves. Personnel will frequently verify the integrity of their gloves by checking for holes or tears.
- Rubber boots worn over work boots
- Eye protection
- Hard hat
- Hearing protection

Respirator use is not anticipated on this project. If respiratory protection becomes necessary, a determination shall be made regarding each person's physical ability to wear a respirator. Consequently, persons required to wear respirators must provide the Contractor's HSO with current documentation (not older than 6 months) regarding their physical condition and ability to wear a respirator, as certified by a qualified physician. Failure to provide current, complete respirator certification documentation will be sufficient grounds to preclude personnel from conducting work activities where respiratory protection is required.

6.0 PERSONNEL TRAINING

6.1 Requirements and Responsibilities

All on-site personnel and visitors will be trained commensurate with their job responsibilities and in accordance with Occupational Safety and Health Administration (OSHA) training and medical surveillance requirements as specified in 29 CFR 1910.120. The Contractor is responsible for providing such training prior to personnel being allowed to engage in activities that could expose them to health and safety hazards. The HSO has the responsibility to assure that this training is provided for the site-conditions and such training is updated, as needed. The HSO and Contractor's on-site Supervisor will be trained in basic first aid, and at least one of these individuals will be present during each work shift while personnel are at the Site.

6.2 Site Orientation Meeting

The Contractor will be responsible for notifying all on-site personnel of required attendance at a site orientation meeting, which will be organized by the Contractor's HSO. Any subcontractor personnel will also be required to attend the site orientation meeting as well as any other periodic health and safety meeting specified by the HSO. Personnel attending the site orientation meeting are to sign a Site Orientation Meeting Attendance Acknowledgment Form. The following is a listing of general site orientation training topics:

- Names and responsibilities of key personnel
- Safe work practices
- Personal protective equipment
- Chemical and physical hazards
- Site equipment Medical surveillance
- Site hazards
- Site control measures
- Decontamination procedures
- Standard operating procedures
- Emergency response plan

6.3 Documentation / Recordkeeping

OSHA regulations require medical surveillance in the form of annual medical examinations for certain types of work involving exposure to hazardous or toxic substances. All on-site personnel, visitors, and subcontractors are required to have documented proof on file of OSHA training and medical surveillance requirements as specified in 29 CFR 1910.120 to demonstrate compliance with the training requirements specified in this Section. The HSO is responsible to check all personnel to ensure training is kept current during the project.

7.0 MEDICAL CLEARANCE

Medical clearance refers to OSHA requirements for annual physical reports performed by a licensed physician, which document a worker's physical ability to perform specific job duties. Medical clearance is not required for on-site personnel or visitors at the Site, except for OSHA medical surveillance requirements for workers within the Exclusion Zone or Contamination Reduction Zone.

8.0 STANDARD OPERATING PROCEDURES

Potential chemical and physical hazards exist at the Site. This Section presents Standard Operating Procedures (SOPs) that will be followed during the project. Specific precautions to avoid the potential hazards for each task are presented herein.

8.1 General SOPs

Workers shall adhere to the established SOP for their respective specialties. Work at the Site will be conducted according to established procedures and guidelines for the safety and health of all involved. General SOPs at the Site include the following:

- All questions should be referred to the Contractor's HSO or Project Manager.
- All on-site personnel will be trained and briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures, and communications.
- Inspections of the Site will be conducted to ensure compliance with the HASP, and if any change in operation occurs, the HASP will be modified to reflect any change.
- Be observant of not only one's own immediate surrounding but also that of others.

- On-site personnel in the work zone will act as safety backup to each other, and on-site personnel outside the work zone will provide emergency assistance when necessary.
- Use extra precautions when working near heavy equipment.
- Communications using hand signals or other means will be maintained between on-site personnel, the HSO, and the Project Manager at all times.
- Breaks should be planned to prevent heat, cold, stresses, accidents, and fatigue.
- Work areas for various operational activities will be established.
- Strict pedestrian and vehicular traffic control will be maintained on-site.
- Entrance / exit locations and emergency escape routes will be designated and delineated.
- On-site personnel and equipment in each Work Area will be minimized to maintain effective Site operations.
- Required PPE ensembles must be worn by all on-site personnel entering work areas designated for wearing PPE. At minimum, hard hat, safety glasses, steel-toe boots, durable leather gloves, and hearing protection will be worn on the project Site.
- Work Areas and decontamination procedures will be established based on expected Site conditions.
- Plan work procedures and decontamination areas to minimize contamination exposure.
- Contaminated equipment shall not be placed on unprotected surfaces.
- Procedures for leaving a Work Area will be planned prior to entering the Site.
- All electrical equipment (power tools, extension cords, instruments, etc.) will conform to 29 CFR 1926.400 Subpart K.
- Fire prevention and protection (appropriate signs for flammable liquids, smoking areas, storage areas of combustible or flammable materials, etc.) will be in accordance with OSHA 29 CFR 1926.150 Subpart F.
- Workers shall not enter areas containing asbestos debris, or handle/disturb asbestos-containing materials
- Workers shall not handle/disturb known or potential lead-based paints

Violation of these SOPs may result in immediate dismissal from the Site.

8.2 Site Control Measures

Site control measures will minimize potential contamination of on-site personnel, protect the public from potential on-site hazards, and prevent vandalism of equipment and materials. Site control measures also enhance response in emergency situation. For this project, the primary site control measure will be a temporary fence or other barrier installed along the Site boundary for the duration of the project.

Areas where intrusive work will occur will be routinely divided into three distinct areas: an Exclusion Zone, a Contamination Reduction Zone (CRZ), and a Support Zone.

Exclusion Zone

The Exclusion Zone will be designated as the area where the highest potential for exposure by dermal or inhalation routes exists. The Exclusion Zone coincides with areas being excavated. PPE is required and a daily log will be kept of all personnel entering this zone.

The Exclusion Zone for work areas will be demarcated with barrier tape.

Approval for entry into the Exclusion Zone will require compliance with OSHA training and medical surveillance requirements (29 CFR 1910.120). Subcontractor and vendor equipment will not be permitted to enter the Exclusion Zone without prior authorization and will be subject to Site decontamination procedures. All personnel and equipment shall be decontaminated when leaving the Exclusion Zone. No eating, drinking, or smoking will be permitted in the Exclusion Zone.

Contamination Reduction Zone (CRZ)

The Contractor will establish the CRZ in an area between the Exclusion Zone and Support Zone. Approval for entry into the CRZ will require compliance with OSHA training and medical surveillance requirements (29 CFR 1910.120). Access to the Exclusion Zone will be through the CRZ. The CRZ will be designated as the area immediately adjacent to and surrounding the Exclusion Zone. The probability of dermal and inhalation exposure is lower in the CRZ than in the Exclusion Zone. The CRZ includes facilities for personnel and equipment decontamination. PPE worn in the Exclusion Zone may not be worn outside the CRZ, except during emergencies. No eating, drinking, or smoking will be permitted in the CRZ.

Support Zone

The Support Zone includes all areas outside the CRZ and Loading Zone. The exposure potential in the Support Zone is minimal. The Support Zone provides a changing area for personnel entering the CRZ and Exclusion Zone, as well as an area for the storage of clean equipment and materials. Protective clothing worn in the Exclusion Zone will not be allowed to be worn in the Support Zone, except in emergencies. It is the responsibility of the Project Manager to control access to the Site and to assure proper security. Any evidence of unauthorized entry will be noted in the daily log.

Under no circumstances will the general public be permitted to access the work area. All preapproved visitors will be briefed on the HASP, and shall sign the Daily Site Sign-In / Sign-Out Log. Pre-approved visitors will be permitted in the immediate area of active operations only with approval from the Contractor's HSO or Project Manager. All personal vehicles are restricted to the Support Zone.

8.3 Communication Procedures

Personnel in the Exclusion Zone will remain within sight of other project personnel. The commonly used international hand and arm signals are listed below, and will be used when necessary:

Signal	Meaning
Right hand thumbs up	OK, I'm All Right
Right hand thumbs down	No, Negative
Rotating both hands at sides	Situation Under Control
Rotating both hands above head	Need Assistance
Hand gripping throat	Out of Air, Cannot Breathe
Both hands placed on hips	Leave Area Immediately
Rotating both hands at knees	Situation Grave, Evacuate Immediately
Both hands placed on top of head	Returning to Support Zone

8.4 Decontamination Procedures

Personnel Decontamination

On-site personnel performing remediation tasks under the Modified Level D PPE ensemble will perform decontamination operations in accordance with the following steps:

- Remove re-usable boot covers, or discard disposable boot covers.
- Remove coveralls first (if applicable), then remove nitrile gloves and place in the disposal container staged in the CRZ. All disposable PPE (gloves, coveralls), rags, cloths, etc. will be containerized separately from general refuse, and disposed of in accordance with the applicable regulations.
- Remove and discard inner gloves.
- Proceed to the Support Zone bringing decontaminated tools and sampling containers.
- Wash hands, face, and other exposed skin with soap and water. Shower and shampoo as soon as possible at the end of the work day, before any social activities.
- Place non-disposable coveralls in plastic bags prior to leaving the Site and prior to entering any vehicle.
- Launder non-disposable clothing worn in Exclusion Zone prior to reuse, separately from other laundry items. Impermeable items such as vinyl boots do not need to be laundered prior to reuse; however, they should either be kept in the CRZ or placed in a sealed container prior to leaving the CRZ.

8.5 Periodic Health and Safety Meetings

The HSO will conduct weekly health and safety meetings. These meetings will be a review of existing protocols as well as a means to update personnel on new Site conditions. The meetings will also provide an opportunity for on-site personnel to discuss health and safety concerns. Topics for discussion may include, but are not limited to, the following:

- Review of the type and frequency of environmental and personal monitoring
- Task-specific levels of protection and anticipated potential for upgrading
- Review of existing and new health and safety issues
- Review of emergency procedures

9.0 ACCIDENT AND EMERGENCY RESPONSE PLAN

This Section includes procedures and methods of evaluating and addressing medical, fire, and other emergency situations which may occur at the Site. In any unknown situation, always assume the worst conditions and plan responses accordingly. All emergency situations require concise and timely actions conducted in a manner that minimizes the health and safety risks to on-site personnel and to the public. All on-site personnel shall be familiar with the Emergency Response Plan.

9.1 Responsibilities

The Contractor's HSO has the responsibility for directing response activities in the event of an emergency or accident, and will be responsible for the following:

- Assess the situation
- Determine required response measures
- Notify appropriate response teams
- Direct on-site personnel during the emergency

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The Contractor's HSO will coordinate the response activities of on-site personnel with those of public agencies. A list of agencies to be contacted and who may, depending on the nature of the situation, assume authority for emergency response is presented in Section 9.6. This table includes names and telephone numbers of local hospitals, ambulance service, fire and police departments, and other applicable agencies. The HSO will notify emergency response agencies and establish emergency procedures prior to commencing remedial activities at the Site.

9.2 Emergency Procedures

Due to the nature of the tasks to be conducted at the Site, the emergency situations that may occur are most likely limited to personnel accidents (i.e., slip, trip, and fall accidents; equipment related accidents, etc.) requiring first aid. The following procedures shall be followed in the event of an emergency:

- On-site personnel shall report all accidents and unusual events to the HSO.
- The HSO will assess the situation. If off-site assistance and medical treatment is required, the HSO will designate a person to call the proper authorities.
- First-aid or other applicable treatment will be provided by properly trained individuals.

The HSO will inform the Owner of the injury/accident, and an Accident Report Form detailing the causes and consequences of the injury/accident will be submitted to the Project Manager within 48 hours of the incident. The Accident Report Form shall include:

- Names and social security numbers of accident victims and witnesses
- Date and time of accident
- Location, cause, and duration of accident
- A description of corrective actions implemented
- Off-site persons and agencies notified and time of arrival at the Site.

Personnel shall make all reasonable attempts to conduct themselves in a calm manner in the event of an accident.

9.3 Accidents and Injuries

Every accident is a unique event that must be dealt with by trained personnel working in a calm, controlled manner. In the event of an accident, the prime consideration is to provide the appropriate initial response to assist those in jeopardy without placing additional personnel at unnecessary risk. Several types of emergencies are outlined in the following subsections. These are not intended to cover all emergency situations.

If a person working on the Site is physically injured, basic first-aid procedures will be followed. Depending on the severity of the injury, outside medical assistance may be sought. If the person can be moved, the person will be taken outside of the Work Area, PPE will be removed, and first aid administered. If necessary, transportation to a medical facility will be provided. If the person can only be moved by emergency medical personnel, the HSO will decide what type of PPE (if any) will be required to be worn by emergency personnel.

If the injury to on-site personnel involves chemical exposure, the following first aid procedures will be initiated as soon as possible:

Eye Exposure - If solid or liquid gets into the eyes, wash eyes immediately at the emergency eyewash station using water and lifting the lower and upper lids occasionally. This emergency eyewash station shall be a portable station provided by the Contractor and set up within the CRZ. If an acute exposure is identified, then obtain medical attention immediately. Otherwise, consultation with a doctor shall be discretionary based on the severity of the incident.

Skin Exposure - If solid or liquid gets on the skin causing irritation or pain, wash skin immediately at the emergency eyewash station using water. If an acute exposure is identified, then obtain medical attention immediately. Otherwise, consultation with a doctor shall be discretionary based on the severity of the incident.

Inhalation – In the rare event that a person inhales large amounts of organic vapor or dust, and is overcome, move the person to fresh air at once. Obtain medical attention immediately. If breathing has stopped, appropriately trained personnel and/or medical personnel should perform cardiopulmonary resuscitation. Keep the affected person warm and at rest.

Ingestion - If solid or liquid is swallowed, medical attention must be obtained immediately and the Poison Control Center consulted.

9.4 Fire

On-site personnel will be knowledgeable in fire-extinguishing techniques. They will be instructed in proper use and maintenance of the fire extinguishers supplied at the work areas. Fire extinguishers should be used only for small fires which are in the early stages of development. Where the fire cannot be controlled through extinguisher use, the area should be evacuated immediately, and the local fire department should be called to extinguish the fire. Fire extinguishers shall be provided by the Contractor.

9.5 Emergency Evacuation

In extraordinary circumstances, emergency evacuation of the Site may be necessary. On-site personnel will be notified of the need to evacuate verbally or by signaling with an air horn or similar signaling device. If the situation is deemed an emergency, personnel will be instructed to leave the Site immediately, using the closest available evacuation route; otherwise, personnel will be expected to go through normal decontamination procedures before leaving the Site.

In either case, personnel will be instructed to meet at a central location to be determined by the HSO prior to the start of Work. A head count will be made to ensure that all personnel are safe and accounted for.

The HSO will contact appropriate response agencies, as warranted. Motorized equipment / machinery will be shut off before the Site is evacuated.

9.6 Emergency Response and Area Medical Facilities / Hospitals

In case of emergency, call 911 or the appropriate individual authority:

EMERGENCY CONTACT NUMBERS	
Emergency Response Number	911
Poison Control Center	(800) 222-1222
Dewitt Fire Department / Emergency Medical	(315) 446-3195
Dewitt Police Department	(315) 449-3644

Onondaga County Sherriff's Department	(315) 435-3044
NEAREST MEDICAL FACILITIES / HOSPITAL	
Upstate Medical University (Hospital) 750 East Adams Street Syracuse, New York 13216	(315) 464-5540
WellNow Urgent Care 6227 Thompson Road Dewitt, New York 13206	(315) 937-2007

<u>Directions to Nearest Hospital (UPSTATE MEDICAL UNIVERSITY; Distance ~5.6 miles; Time ~11 minutes)</u>

1. Travel north on Bridge Street to NYS Route 690 westbound.
2. Turn left onto the NYS Route 690 westbound on-ramp and continue onto NYS Route 690;
3. Travel west on NYS Route 690 approximately 2.7 miles to Exit 13 (North Townsend Street); take exit and then turn left onto North Townsend Street;
4. Travel south on North Townsend Street to East Adams Street (approx. 1.0 mile);
5. Turn left onto East Adams Street and follow to UPSTATE MEDICAL UNIVERSITY on right at 750 East Adams Street.

<u>Directions to Nearest Urgent Care (WELLNOW URGENT CARE; Distance ~2.4 miles; Time ~6 minutes)</u>

1. Travel north on Bridge Street to NYS Route 690 westbound.
2. Turn left onto the NYS Route 690 westbound on-ramp and continue on on-ramp/service road to exit 16N - Thompson Road North (NYS Route 635 North);
3. Travel north on Thompson Road (NYS Route 635) to WELLNOW URGENT CARE on left at 6227 Thompson Road.

APPENDIX D

Community Air Monitoring Plan (CAMP)

COMMUNITY AIR MONITORING PLAN

Interim Remedial Measures Work Plan
Celi Drive BCP Site, AOC-4
Dewitt, New York

January 2021

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1.0 INTRODUCTION

A Community Air Monitoring Plan (CAMP) requires real-time observation / monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites.

The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and / or work shutdown.

Continuous monitoring will be required for all ground intrusive activities, including but not limited to, site clearing; soil / sediment excavation, handling, staging, and loading; placement of clean fill; and grading.

2.0 GENERAL SITE CONDITIONS

The prevailing wind generally blows from west to east. However, monitoring locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least one downwind monitoring station. The attached Figure 1 illustrates the likely location of monitoring stations associated with the site.

At this time, the primary chemicals of concern include the following:

- Particulates (containing metals)

As the investigation progresses and soil and groundwater data is collected for these other classes of chemicals, this CAMP will be updated to reflect this information.

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

VOCs will be monitored at the downwind perimeter of the immediate work area (i.e. – exclusion zone) on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring of VOCs will be performed using a photo-ionization detector (PID), which will be calibrated daily. The PID will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level half the distance to the nearest potential receptor or residential / commercial structure (but not less than 20 feet), is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shut down.

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All 15-minute readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

4.0 PARTICULATE MONITORING, RESPONSE LEVELS, AND ACTIONS

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the work area or exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using a DUSTTRAK™ Aerosol Monitor Model 8520 (or similar). The device will be capable of measuring particulate matter less than 10 micrometers in size (PM-10), integrating over a period of 15 minutes for comparison to the airborne particulate action level, and equipped with an audible alarm to indicate exceedance of the following action levels:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level, and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and an evaluation of activities will be initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

In addition, fugitive dust migration will be visually assessed during all work activities.

All readings will be recorded and be available for NYSDEC and NYSDOH review.

5.0 REPORTING

CAMP data summary tables will be provided to the NYSDEC and NYSDOH on a weekly basis (at a minimum), and any exceedances of CAMP action levels and corrective measure taken will be reported to the Departments immediately (within 24 hours).

Furthermore, CAMP data will be provided as an attachment within the Remedial Construction Completion Report.

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APPENDIX E

Quality Assurance Program Plan (QAPP)

QUALITY ASSURANCE PROJECT PLAN

Interim Remedial Measures Work Plan
Celi Drive BCP Site, AOC-4
Dewitt, New York

January 2021

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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) is an appendix to the Interim Remedial Measures Work Plan (IRMWP), which is required as an element of the remedial program at the Celi Drive BCP site (hereinafter referred to as the “Site”) under the New York State (NYS) Brownfield Cleanup Program (BCP), administered by New York State Department of Environmental Conservation (NYSDEC). The Site is being remediated in accordance with Brownfield Cleanup Agreement (BCA) Index # C734108 which was executed in January 2008.

1.1 Scope of the QAPP

This QAPP was prepared to provide quality assurance (QA) guidelines to be implemented during the Remedial Action (RA). The QAPP will assure the accuracy and precision of data collection during the RI. The QAPP identifies procedures for sample collection to mitigate the potential for cross-contamination, as well as analytical requirements necessary to allow for independent data validation. The QAPP has been prepared in accordance with USEPA’s Requirements for Quality Assurance Project Plans for Environmental Data Operations; the EPA Region II CERCLA Quality Assurance Manual, and NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010). This document may be modified for subsequent phases of investigative and remedial work, as necessary. The QAPP provides:

- A means to communicate to the persons executing the various activities exactly what is to be done, by whom, and when
- A culmination to the planning process that ensures that the program includes provisions for obtaining quality data (e.g., suitable methods of field operations)
- A document that can be used by the Project Managers and QA Officer to assess if the activities planned are being implemented and their importance for accomplishing the goal of quality data
- A plan to document and track project data and results
- Detailed descriptions of the data documentation materials and procedures, project files, and tabular and graphical reports

The QAPP is primarily concerned with the quality assurance and quality control aspects of the procedures involved in the collection, preservation, packaging, and transportation of samples; field testing; record keeping; data management; chain-of-custody procedures; laboratory analyses; and other necessary matters to assure that the investigation activities, once completed, will yield data whose integrity can be defended.

QA refers to the conduct of all planned and systematic actions necessary to perform satisfactorily all task-specific activities and to provide information and data confidence as a result of such activities. The QA for task-specific activities includes the development of procedures, auditing, monitoring and surveillance of the performance.

QC refers to the activity performed to determine if the work activities conform to the requirements. This includes activities such as inspections of the work activities in the field (verification that the items and materials installed conform to applicable codes and design specifications). QA is an overview monitoring of the performance of QC activities through audits rather than first time inspections.

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2.0 PROJECT ORGANIZATION AND RESPONSIBILITY

The following section provides a generic organization for sampling activities, including roles, responsibilities, and required qualifications of these organizations.

2.1 Project Team

2.1.1 NYSDEC and NYSDOH

It is the responsibility of the NYSDEC, in conjunction with the New York State Department of Health (NYSDOH), to review the project documents for completeness and conformance with the site-specific cleanup objectives and to make a decision to accept or reject these documents based on this review. The NYSDEC also has the responsibility and authority to review and approve QA documentation collected during investigative and remedial activities and to confirm that the QA Plan was followed.

2.1.2 Property Owner

For this BCP project, the property owner (Owner) is also the BCP Partipant. The Owner will be responsible for complying with the QA requirements as specified herein and for monitoring and controlling the quality of the Brownfield cleanup activities either directly or through their designated environmental consultant and/or legal counsel. The Owner will also have the authority to select Contractor(s) to assist them in fulfilling these responsibilities. The Owner is responsible for implementing the project, and has the authority to commit the resources necessary to meet project objectives and requirements.

2.1.3 Environmental Consultant

On behalf of the Owner, AECC and Lakeside Engineering will be responsible for the coordination and oversight of the RA activities, interpretation of the analytical data, and preparation of the Construction Completion Report.

<u>Project Manager</u>

The Project Manager has the responsibility for ensuring that the project meets the overall project objectives, reports directly to the Owner, coordinates with the NYSDEC/NYSDOH Project Coordinators, and is responsible for technical and project oversight. The PM will:

- Define project objectives and develop a detailed work plan schedule
- Establish project policy and procedures to address the specific needs of the project as a whole, as well as the objectives of each task
- Acquire and apply technical and corporate resources as needed to assure performance within budget and schedule constraints
- Develop and meet ongoing project and/or task staffing requirements, including mechanisms to review and evaluate each task product
- Review the work performed on each task to assure its quality, responsiveness, and timeliness
- Review and analyze overall task performance with respect to planned requirements and authorizations
- Review and approve all deliverables before their submission to NYSDEC
- Develop and meet ongoing project and/or task staffing requirements, including

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mechanisms to review and evaluate each task product

- Ultimately be responsible for the preparation and quality of interim and final reports
- Represent the project team at meetings

Field Team Leader

The Field Team Leader has responsibility for implementation of specific project tasks identified at the Site, including supervision of project field personnel, subconsultants, and subcontractors. The Field Team Leader reports directly to the Project Manager and will:

- Define daily develop work activities
- Orient field staff concerning the project's special considerations
- Monitor and direct subcontractor personnel
- Review the work performed on each task to ensure its quality, responsiveness, and timeliness
- Assure that field activities, including sample collection and handling, are carried out in accordance with this QAPP

Quality Assurance Officer

The QA Officer will have direct access to corporate executive staff as necessary, to resolve any QA dispute, and is responsible for auditing the implementation of the QA program in conformance with the demands of specific investigations and policies, and NYSDEC requirements. Specific function and duties include:

- Performing QA audits on various phases of the field operations
- Reviewing and approving QA plans and procedures
- Providing QA technical assistance to project staff
- Reporting on the adequacy, status, and effectiveness of the QA program on a regular basis to the Project Manager for technical operations
- Responsible for assuring third party data review of all sample results from the analytical laboratory

2.1.4 Subcontractors

During the remedial action, subcontractors and subconsultants will be utilized to perform various project tasks, likely including:

- Environmental Drilling Contractor - to install soil borings and groundwater monitoring wells and other sampling points to monitor environmental media (as needed)
- Environmental Laboratory - to analyze soil and groundwater samples
- Data Validator - to prepare Data Usability Summary Reports
- Licensed Land Surveyor - to determine location and/or elevation data associated with excavations, monitoring wells, sample locations, etc.

2.1.5 Key Personnel

Key personnel anticipated for this project are as follows:

Team Member	Organization	Telephone	Role/Title
			Owner/BCP Participant
Christopher Mannes	NYSDEC	315.426.7515	DEC Project Manager
Mark S. Sergot	NYSDOH	518.402-7897	DOH Project Manager
Richard McKenna	AECC	315.432.9400	Project Manager
Robert G. Harner	Lakeside Engineering	607.725.5824	Project Engineer
George Fischer	AECC	315.432.9400	Field Team Leader
George Fischer	AECC	315.432.9400	Health & Safety Officer
Richard McKenna	AECC	315.432.9400	QAPP Officer

2.2 Laboratory Responsibilities

Environmental laboratories utilized for sample analysis for this project must be an independent, NYSDOH Environmental Laboratory Approval Program (ELAP)-certified facility approved to perform the analyses prescribed herein.

Laboratory Director

The Laboratory Director is a technical advisor and is responsible for summarizing and reporting overall unit performance. Responsibilities of the Laboratory Director include:

- Provide technical, operational, and administrative leadership
- Allocation and management of personnel and equipment resources
- Quality performance of the facility
- Certification and accreditation activities
- Blind and reference sample analysis

Quality Assurance Manager (QA Manager)

The QA Manager has the overall responsibility for data after it leaves the laboratory. The QA Manager will be independent of the laboratory but will communicate data issues through the Laboratory Director. In addition, the QA Manager will:

- Oversee laboratory QA
- Oversee QA/QC documentation
- Conduct detailed data review
- Determine whether to implement laboratory corrective actions, if required
- Define appropriate laboratory QA procedures
- Prepare laboratory SOPs

3.0 QA/QC OBJECTIVES

The overall objectives and criteria for assuring quality for this effort are discussed below. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented. The objectives of this QAPP are to address the following:

- The procedures to be used to collect, preserve, package, and transport soil, groundwater and air samples

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- Field data collection
- Record keeping
- Data management
- Chain-of-custody procedures
- Precision, accuracy, completeness, representativeness, for sample analysis and data management under EPA analytical methods

3.1 Data Quality Objectives

Data Quality Objectives (DQOs) are statements that describe the desired quality of data necessary to meet the objectives of the sampling program. The DQOs for the project were prepared in anticipation of the various media that would require sampling for laboratory analysis. DQO Forms have been completed for each type of sampling media and are located in Attachment A.

The DQO forms include information on the type of media sampled, the intended use of the data being collected, the type of analyses that will be requested, the level of analytical methodology and documentation required, sampling procedures, and the type of QAPP field samples that will be collected in support of the project. The sections of the DQO forms are described below.

Sampled Media: This section describes the material that is being sampled (groundwater, soil, surface water, waste material, etc.).

Data Use: This section is used to indicate the intended purpose of the sampling and analytical data. (i.e., for site characterization, evaluation or remedial alternatives, risk assessment, monitoring of existing sampling points, or waste characterization, etc.).

Data Type: This section identifies the compounds/analytes that samples collected during the program will be analyzed for. Also indicates whether field parameters such as pH, specific conductivity, temperature and turbidity will be monitored during sample collection.

Level of Analysis: This section identifies the level of analytical support required of the samples collected for a specific purpose as described below:

- Level I - Field Screening: This level is characterized by the use of portable type instruments that provide real-time data.

- Level II - Field Analysis: This level is characterized by the use of portable analytical instruments in an on-site lab or transported to the site. This section identifies the field analysis to be used.

- Level III - Standard Analytical Protocols: This level may include standard analytical protocols in accordance with NYSDOH Environmental Laboratory Approval Program (ELAP) certification requirements, without the NYSDEC Analytical Services Protocol (ASP) Category B QAPP and deliverables / reportables documentation.

- Level IV - NYSDEC ASP Reportables / Deliverables: This level is characterized by rigorous QAPP NYSDEC ASP protocols and Category B reportable / deliverable documentation that is suitable for data validation.

Sampling Procedures: This section provides information on sampling procedures to be used in

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sample collection, or provides directions to where to find this information in the project plans.

Data Quality Factors: This section describes factors that influence the quality or quantity of data to be collected. Primary contaminants and associated levels of concern are identified concerning ARARs or potential risks. The required detection limits are also given or referenced.

QAPP Samples: This section indicates additional samples to be collected to support QA/QC procedures. Additional samples to be collected include:

- Split Samples –Split samples (or duplicates) are two samples taken from the same source; digested, distilled or otherwise processed; and then analyzed. Duplicate sample analysis is used to determine reproducibility or consistency in the analysis. For this RI, spilt samples will noted in AECC's log book, but will not be identified on the sample label (known as a blind duplicate), preventing the laboratory from knowing which samples are duplicates. Duplicate / split samples shall be collected at a rate of 1 per 20 samples (5%).

- Matrix Spike / Matrix Spike Duplicates – Matrix spike duplicate samples are collected as a duplicate sample, to which the analytical laboratory will add known amounts of analyte. These QA/QC samples are intended to assess the extraction procedure used by the laboratory. These samples shall be collected at a rate of 1 per 20 samples (5%) or sample delivery group whichever is smaller and for each sample matrix.

- Trip Blanks – Trip blanks are samples that are prepared prior to the sampling event in the same type of sample container and are kept with the collected samples throughout the sampling event. Trip blank vials are not opened in the field and are analyzed for volatile organics only, and trip blanks are only collected when the sampling program includes samples that are being analyzed for VOCs. Trip Blanks shall accompany any shipment of aqueous samples for VOCs.

- Equipment Blanks – Equipment blanks are samples that are obtained by running analyte-free water through or over the sample collection equipment in a way that is identical to the sample collection procedures. Field blanks may be used during QA/QC procedures to evaluate if sampling equipment has contributed contaminants to the samples. These samples shall be collected daily whenever re-usable sampling equipment is used.

3.2 Sampling Procedures

Objectives and procedures for soil/sediment and water sampling have been designed to allow for the acquisition of accurate and precise data, and are detailed in the Standard Operating Procedures attached to this IRMWP.

3.3 Laboratory Coordination

Laboratory coordination will be conducted under the direction of the Project Manager and QA Officer.

All chemical analyses for matrices will be completed by a laboratory capable of performing project-specific analyses as indicated in this QAPP and approved by the NYSDOH/NYSDEC as having the appropriate standard operating procedures, QA/QC programs, resumes, and organizational structure to complete analytical work as specified in this Work Plan. The laboratory will have current certification for standard methodologies and QA/QC, and will be required to remain certified as such throughout the project.

The laboratory utilized for laboratory analysis required under this project will be certified under the NYSDOH Environmental Laboratory Approval Program (ELAP) and will be required to maintain this certification for the duration of the program.

The laboratory will be capable of producing ASP Category B deliverables, as needed for subsequent data validation / data usability evaluation purposes.

3.4 Analytical Methodologies

All analyses will be performed by SW-846 methodologies with QAPP guidelines of 2005 ASP Category B. The following criteria will describe the appropriate methodologies for extraction, digestion, and analysis of the previously listed matrices. The specific analytes to be identified by each method, along with the Contract Required Quantitation Limits, are listed in Appendix C of the NYSDEC ASP (http://www.dec.ny.gov/data/der/asp2005cd/asp2005cd.zip).

Soil / Sediment Verification Samples – Soil / sediment verification samples will be analyzed for certain parameters listed above, based on location (see Section 3.0 - Sampling and Analysis Plan of the RIWP). In addition, groundwater samples will also be field-analyzed for a limited group of field parameter analyses to include pH, specific conductance, dissolved oxygen (DO), redox potential (ORP), temperature, and turbidity.

Parameter Group	Analytical Method
Total Chromium	USEPA Method 6010
Hexavalent Chromium	USEPA Method 3060A
Total Copper	USEPA Method 6010
Total Nickel	USEPA Method 6010
Total Cyanide	USEPA Method 9014

Imported Fill Material Samples – Samples of materials proposed for import and use as fill material will be analyzed for the parameters listed below.

Parameter Group	Analytical Method
TCL VOCs	USEPA Method 8260B + TICS
TCL SVOCs	USEPA Method 8270C +TICS
TAL Metals	USEPA Method 6010, 7470/7471 (Hg), 9014 (CN)
PCB Aroclors	USEPA Method 8082
Herbicides	USEPA Method 8151
Organochlorine Pesticides	USEPA Method 8081

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1,4-Dioxane*	USEPA Methods 8270SIM (soil) and 522 (groundwater)
PFAS**	NYSDOH Method 537 (Modified) – Groundwater Only

*The detection limit for 1,4-Dioxane in aqueous samples is to be no greater than 0.35 ug/L
**Polyfluoroalkyl substances, 2ng/L reporting limit for PFOA and PFOS

Waste Characterization Samples – Samples collected for waste characterization/disposal purposes will be analyzed in accordance with the appropriate SW-846 methodologies, for the parameters required by the disposal facility.

3.5 Analytical Quality Control

As stated previously, analytical quality for samples collected for site characterization or monitoring purposes will be in accordance with NYSDEC-ASP Category B. Analysis in accordance with NYSDOH-ELAP certification requirements may be used for samples collected for waste characterization or disposal purposes. The following holding times will be required from the contracted analytical laboratory, regardless of sample matrix:

Parameter	Task	Aqueous Holding Time	Solids Holding Time
VOCs	Analysis*	14 days	14 days
SVOCs	Extraction	7 days	14 days
	Analysis**	40 days	40 days
PCBs	Extraction	7 days	14 days
	Analysis**	40 days	40 days
Pesticides	Extraction	7 days	14 days
	Analysis**	40 days	40 days
Herbicides	Extraction	7 days	14 days
	Analysis**	40 days	40 days
Metals	Analysis	180 days	180 days
Mercury	Analysis	28 days	28 days
Cyanide	Analysis	14 days	14 days
1,4-Dioxane	Extraction	7 days	7 days
	Analysis**	40 days	40 days
PFAS	Analysis	14 days	Not Applicable

* The extraction time for Encore samplers is 48 hours.
** Days after extraction.

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3.6 Laboratory Deliverables

The analytical data will be presented in 2005 ASP Category B reportable/deliverables format. Category B deliverables will not be requested for waste characterization samples.

4.0 SAMPLE CUSTODY PROCEDURES

Sample custody is controlled and maintained through the chain-of-custody procedures. Chain of custody is the means by which the possession and handling of samples will be tracked from the source (field) to their final disposition, the laboratory. A sample is considered to be in a person's custody if it is in the person's possession or it is in the person's view after being in his or her possession or it was in that person's possession and that person has locked it in a vehicle or room. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site.

4.1 Sample Storage

Samples are stored in secure limited-access areas. Walk-in coolers or refrigerators are maintained at 4°C, ± 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location if necessary.

4.2 Sample Custody

Sample custody is defined by this document as when any of the following occur:

- It is in someone's actual possession
- It is in someone's view after being in his or her physical possession
- It was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering
- It is placed in a designated and secured area

Samples are removed from storage areas by the sample custodian or analysts and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure. If required by the applicable regulatory program, internal chain-of-custody is documented in a log by the person moving the samples between laboratory and storage areas.

Laboratory documentation used to establish COC and sample identification may include the following:

- Field COC forms or other paperwork that arrives with the sample
- The laboratory COC
- Sample labels or tags are attached to each sample container
- Sample custody seals
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the

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chemist
- Sample storage log (same as the laboratory COC)
- Sample disposition log, which documents sample disposal by a contracted waste disposal company

4.3 Sample Tracking

All samples are maintained in the appropriate coolers prior to and after analysis. The analysts remove and return their samples as needed. Samples that require internal COC are relinquished to the analysts by the sample custodians. The analyst and sample custodian must sign the original COC relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original COC returning sample custody to the sample custodian. Sample extracts are relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department tracks internal COC through their logbooks/spreadsheets.
Any change in the sample during the time of custody will be noted on the COC (e.g., sample breakage or depletion).

5.0 CALIBRATION PROCEDURES AND FREQUENCY

This section describes the calibration procedures and the frequency at which these procedures will be performed for both field and laboratory instruments.

5.1 Field Instruments

Field equipment that will likely be used for the project includes:

- Photoionization detector (PID)
- Peristaltic pump
- Multi-parameter water quality meter (includes pH, turbidity, temperature, Eh, and specific conductance)
- Electric water level indicator
- Hand-held Global Positioning System (GPS) device

5.2 Preventative Maintenance

Each piece of field equipment is checked according to its routine maintenance schedule and before field activities begin. Field personnel will report all equipment maintenance and/or replacement needs to the Project QA Officer and will record the information on the daily field record.

5.3 Field Instrument Calibration

All instruments and equipment used during sampling and analysis will be operated, calibrated, and maintained according to the manufacturer’s guidelines and recommendations as well as criteria set forth in the applicable analytical methodology references. Operation, calibration, and maintenance will be performed by personnel properly-trained in these procedures. Brief descriptions of calibration procedures for field and laboratory instruments follow.

- Photoionization detector (PID) – Standard operating procedures for the PID require that routine maintenance and calibration be performed every six months. Field calibration will be performed on a daily basis. The packages used for calibration are non-toxic analyzed gas mixtures available in pressurized containers. All calibration procedures will follow the manufacturer recommendations.

- Peristaltic pump – No calibration required.
- Multi-parameter water quality meter - This instrument is factory-calibrated, and is also re-calibrated on a regular interval by the equipment rental company. The certification of calibration is provided by the equipment rental company.
- Electric water level indicator – No calibration required.
- Hand-held GPS device – This instrument is self-calibrating.

Further calibration procedures can be reviewed in AECC Standard Operating Procedure #110 – Field Monitoring Equipment Calibration, which attached to the RIWP.

6.0 DATA VALIDATION AND REPORTING

All data generated through field activities, or by the laboratory operation shall be reduced and validated (as required in the RIWP) before reported.

6.1 Data Usability Evaluation

Data evaluation will be performed by a third-party data validator using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review*, and Contract Laboratory Program*, National Functional Guidelines for Inorganic Data Review*.

6.1.1 Procedures Used to Evaluate Field Data Usability

The performance of field activities, calibration checks on field instruments at the beginning of each day of use, manual checks of field calculations, checking for transcription errors and review of field log books is the shared responsibility of the Field Team Manager and Head Field Technician.

6.1.2 Procedures Used to Evaluate Laboratory Data Usability

The data review guidance will be used only to the extent that it is applicable to the SW-846 methods. SW-846 methodologies will be followed primarily and given preference over CLP when differences occur. Also, results of blanks, surrogate spikes, MS/MSDs, and laboratory control samples will be reviewed / evaluated by the data validator. Sample analytical data for each sample matrix will be evaluated. The third-party data validation expert will also evaluate the overall completeness of the data package. Completeness checks will be administered on all data to determine whether deliverables specified in this QAPP are present. The reviewer will determine whether all required items are present and request copies of missing deliverables.

6.2 Data Reporting

6.2.1 Field Data Reporting

All field documents will be accounted for when they are completed. Accountable documents include items such as field notebooks, sample logs, field data records, photographs, data packages, computer disks, and reports.

6.2.2 Laboratory Data Reporting

Analytical data will be summarized in tabular format with such information as sample identification, sample matrix description, parameters analyzed and their corresponding detected concentrations, and the detection limit. Analytical results will be incorporated into reports as data tables, maps showing sampling locations and analytical results, and supporting text.

Furthermore, electronic data deliverables (EDDs) will be submitted in EQuIS format, as described at: http://www.dec.ny.gov/chemical/62440.html

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7.0 CORRECTIVE ACTION

Corrective action is the process of identifying, recommending, approving, and implementing measures to counter unacceptable procedures or out of quality control performance that can affect data quality. Corrective action can occur during field activities, laboratory analyses, data validation, and data assessment. Corrective actions proposed and implemented should be documented in the regular quality assurance reports to management. Corrective action should be implemented only after approval by the Project Manager, or his/her designee. If immediate corrective action is required, approvals secured by telephone from the Project Manager should be documented in an additional memorandum.

7.1 Field Corrective Action

If errors in field procedures are discovered during the observation or review of field activities by the Project QA Officer or his/her designee, corrective action will be initiated. Nonconformance to the QA/QC requirements of the field operating procedures will be identified by field audits or immediately by project staff who know or suspect that a procedure is not being performed in accordance with the requirements. The Project QA Officer or his/her designee will be informed immediately upon discovery of all deficiencies. Timely action will be taken if corrective action is necessary.

Corrective action in the field may be needed when the sample network is changed (i.e., more/less samples, sampling locations other than those specified in the Work Plan, etc.) or when sampling procedures and/or field analytical procedures require modification due to unexpected conditions. In general, the Project Manager and QA Officer may identify the need for corrective action. The Project Manager will approve the corrective measure that will be implemented by the field team. It will be the responsibility of the Project Manager to ensure that corrective action has been implemented.

If the corrective action will supplement the existing sampling using approved procedures in the QAPP, the corrective action approved by the Project Manager will be documented. If the corrective actions result in less samples (or analytical fractions), alternate locations, etc., which may result in non-achievement of project QA objectives, it will be necessary that all levels of project management, including the NYSDEC Project Coordinator, concur with the proposed action.

Corrective actions will be implemented and documented in the project field record book. No staff member will initiate corrective action without prior communication of findings through the proper channels. If corrective actions are insufficient, work may be stopped by the NYSDEC Project Coordinator.

If at any time a corrective action issue is identified which directly impacts project data quality objectives, the NYSDEC Project Coordinator will be notified immediately.

7.2 Laboratory Corrective Action

Corrective actions may be initiated if the quality assurance goals are not achieved. The initial step in a corrective action is to instruct the analytical laboratory to examine its procedures to assess whether analytical or computational errors caused the anomalous result. If no error in laboratory procedures or sample collection and handling procedures can be identified, then the Project Manager will assess whether reanalysis or resampling is required or whether any protocol should be modified for future sampling events.

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7.3 Data Validation & Assessment Corrective Action

The need for corrective action may be identified during the data validation or assessment processes. Potential types of corrective action may include resampling by the field team, or reinjection / reanalysis of samples by the laboratory.

These actions are dependent upon the ability to mobilize the field team, whether the data to be collected is necessary to meet the QA objectives (the holding time for samples is not exceeded, etc.). If the data validator identifies a corrective action situation, the Project Manager will be responsible for approving the corrective action implementation. All required corrective actions will be documented by the laboratory Quality Assurance Coordinator.

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