Former ALCO Site
Brownfield Cleanup Project

City of Schenectady
Schenectady County, New York

Parcel A
Remedial Design Report
(RDR)

New York State
Brownfield Cleanup Program
Site No. C447042

December 2015

Barton & Loguidice

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Prepared For:

Maxon ALCO Holdings, LLC
540 Broadway
Albany, New York 12207

Prepared By:

Barton & Loguidice, Inc.
Engineers • Environmental Scientists • Planners • Landscape Architects
10 Airline Drive, Suite 200
Albany, New York 12205

I, the undersigned engineer, certify that I am currently a NYS registered professional engineer and that this Remedial Design Report was prepared in accordance with all applicable statutes and regulations, and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Scott D. Nostrand, P.E.

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1.0 Introduction

Maxon ALCO Holdings, LLC (MAH) entered into Brownfield Cleanup Agreements (BCA) through the New York State Department of Environmental Conservation's (NYSDEC) Brownfield Cleanup Program (BCP) for the property located at 301 Nott Street in Schenectady, New York, identified as the ALCO Site (Property or Site) and historically known as the Nott Street Industrial Park (Park). In 2010, after purchasing the property, the Volunteer (Maxon-ALCO Holdings) divided the Property into three parcels: Parcel A, Parcel B and Parcel C (Site Nos. C447042, C447043, and C447044,) and each Parcel was deemed eligible for the BCP and subject to separate BCAs. In November of 2013, MAH proposed the reconfiguration of Parcels B and C to NYSDEC to more efficiently proceed with potential Interim Remedial Measures and redevelopment planning; the proposed reconfiguration was approved by NYSDEC in the first half of 2014.

The purpose of the BCP is to encourage voluntary remediation of brownfield sites for reuse and development. This includes conducting a complete characterization of the Site by performing a Remedial Investigation (RI). The primary objective of the RI is to identify environmental concerns and to provide the basis for evaluating remedial alternatives, if necessary. The RI was completed in the first half of 2012, and the RI Report (prepared by CHA) was submitted to NYSDEC in August 2012. Though a separate Work Plan was prepared for each Parcel, the Remedial Investigation (RI) Report covered the entire Site since remedial decision making will include activities that involve multiple parcels on the ALCO Site.

Specifically, the objectives of the RI were to:

- Supplement the historic investigations that have been conducted on the Site,
- Further identify source(s) of contamination,
- Define the nature and extent of that contamination,
- Assess the impact of contamination on public health or the environment, and
- Provide information for the development and selection of a remedial work plan across all parcels (A, B, and C) that make up the Alco property.

The RI Report also provided a qualitative human health exposure assessment. An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented.

The results of the exposure assessment indicated that there is currently one complete potential exposure pathway.

- Potential exposure of current tenants of Buildings 306 and 330 to VOCs in indoor air through inhalation.

The following potential exposure pathways were identified:

- Exposure of future on-Site workers, residents, site occupants to soil, groundwater, soil vapor or LNAPL that may be contaminated with VOCs, SVOCs, and/or metals during future intrusive activities at the Site. Routes of exposure to future on-Site workers could include inhalation, ingestion, dermal contact, eye contact, and puncture/injection.
- Exposure to groundwater that may be contaminated with VOCs, SVOCs, and/or metals if groundwater wells are installed and used for drinking water, etc.

By letter dated December 14, 2012, NYSDEC provided comments on the RI Report; general comments were provided for site-wide issues, and comments specific to each parcel were also provided. The comment letter indicated that no further investigation was required for a majority of the areas/issues that were addressed by the RI. Finally, the comment letter requested additional data collection activities to follow-up on and/or reserve some specified issues to finalize the RI.

In January 2013 Barton & Loguidice prepared a Supplemental Remedial Investigation Work Plan (SRI-WP) to provide the procedures for conducting the requested follow-up work. In follow-up discussions with the NYSDEC, there was concurrence that the design investigation tasks proposed in the Remedial Work Plan (RWP) should be combined with the requested follow-up RI work, as the tasks were 1) similar in nature, and 2) needed to be performed prior to the Remedial Design (RD). The tasks performed during the Supplemental Remedial Investigation are summarized below:

Tasks Requested in the NYSDEC 12/14/12 Letter and Follow-up Discussion:

- Follow-up investigation on the geophysical investigation in identified areas;
- Soil Vapor Intrusion investigation in the identified buildings;
- Installation of three monitoring wells between Buildings 306-320;
- Inspection of Buildings 308 Trench;
- Borings in the MW-36 Area (AOC 1A).

Tasks Proposed in the Remedial Work Plan (RWP):

- Chlorinated Solvent Plume Source Investigation (AOC 2);
- Chlorinated Solvent Plume Delineation (monitoring wells) (AOC 2);
- Monitoring well in the MW-45 Area (AOC 1B).

The SRI activities included the installation of soil borings, monitoring wells, soil vapor monitoring points, and test pits along with the collected of subsurface soil, soil vapor, and groundwater to further characterize the site. The planned scope of SRI activities consisted of the following:

- Installation of three monitoring wells between Buildings 306-320 screening the water table and the collection of groundwater samples for VOCs analysis.
- Installation of three monitoring wells screening the water table near MW-45 to determine the approximate extent of previously documented LNAPL at this location.
- Installation of 12-15 Geoprobe borings around MW-36 to assess the extent of previously documented LNAPL at this location.
- Advancement of approximately 30 membrane interface probe (MIP) borings near SV-C9 and MW-19 to determine the source of the previously documented chlorinated solvent plume.
- Collect subsurface soil samples from the MIP borings for VOCs analysis.
- Installation of four monitoring wells to delineate the chlorinated solvent plume and determine an effective means for mitigation.
- Collection of groundwater samples from the four newly installed chlorinated solvent plume delineation wells along with seven existing plume delineation wells to be analyzed for VOCs.
- Installation of test pits around Ground Penetrating Radar (GPR) area 2, 6, and 8 as a follow-up to the geophysical survey performed during the 2012 Remedial Investigation by CHA.
- Installation of six subsurface soil vapor points in Buildings 300, 306, and 330.
- Inspection and confirmation of filling of the former Building 308 trench system.

The Supplemental RI activities were completed during the period from May through August 2013. Field activities were conducted in general accordance with NYSDEC protocols (including DER-10), the Remedial Action Work Plan (Kleinfelder, Inc., 2010), and the Supplemental Remedial Investigation Work Plan (Barton & Loguidice, P.C., 2013). Deviations from these plans are summarized below.

- Due to the presence of a thick concrete slab in the area surrounding SV-C9 and MW-19 the MIP could not be advanced. Instead, a Geoprobe was utilized to advance the MacroCore and a photoionization detector (PID) and field Gas Chromatograph (GC) were used to screen select samples in the field before submitting to the lab for analysis.
- Monitoring well MW-50 was sampled during the RI and was scheduled for re-sampling, but could not be located and was not sampled.
- The NYSDEC and NYSDOH indicated in a phone call on 5/31/13 that soil vapor samples were not required in Building 300 due to extensive mold in the basement and the

building's current unoccupied status. SVI sampling will be required if the building is to be occupied.

Under contemplated future land use, the objective of the selected remedial alternative would be to prevent exposure to contaminated soil, groundwater, and soil vapor.

The Alternatives Analysis Report (AAR) is the next step in the BCP process; the AAR was prepared by Barton & Loguidice, Inc., and was attached to the Remedial Work Plan (RWP) as Appendix A. As part of the AAR, three areas of concern (AOCs) were identified based on the findings of the RI and the Exposure Assessment:

1. Historic aged Free-phase petroleum on the water table around monitoring well MW-36 and MW-45 (AOCs 1A and 1B) and existing underground storage tanks (USTs) that were not properly closed (AOC 1C);
2. A chlorinated solvent plume in a narrow area of the eastern portion of the Site that extends from the vicinity of MW-19 toward the Mohawk River (AOC 2); and
3. Soil impacts from polynuclear aromatic hydrocarbons (PAHs) (AOC 3).

The AAR presents an evaluation of remedial alternatives to eliminate or mitigate potential threats to public health and the environment at the former ALCO site, to support the selection of the preferred remedy.

1.1 Purpose of Report

This Remedial Design Report presents the design for implementing the remedy identified in the AAR. The alternatives are based upon the findings presented in the August 2012 RI Report. This Remedial Design has been prepared in accordance with DER-10, 6 NYCRR Part 375, and the Brownfield Cleanup Program Guidelines.

1.1.1 Report Organization

This report is organized into four major sections (including this introduction section), with appropriate subsections within each division. Tables, figures and sheets are located following the text, prior to the appendices in the back of the document.

1.2 Site Background

1.2.1 Site Description

The Schenectady Locomotive Engine Manufactory initially developed a portion of the existing Park in 1849. In 1851, the company changed its name to Schenectady Locomotive Works (Works) and continued to develop the Site. In 1901, the Works merged with several other companies to form the American Locomotive Company (ALCO). ALCO operated the Site until 1969. Schenectady Industrial Corporation (SIC) purchased the Park in 1971, with General Electric Company (GE) occupying the Park from 1971 to 1985. Small industrial, manufacturing and fabrication companies have occupied various buildings within the Park since 1985, when occupancy of buildings was returned to SIC.

During April 1992, Coyne Textile Services (CTS), with operations on Front Street, adjacent to the ALCO Site, had a fuel oil release that partially leaked into the municipal storm drain sewer system which flows under the Site, discharging to the Mohawk River at the College Creek Outfall. During inspection of this release, the NYSDEC reportedly observed petroleum seeping from riprap along the bank of the Mohawk River adjacent to Buildings 320 and 324. The NYSDEC requested that a subsurface investigation be performed onshore adjacent to the petroleum seep areas. Following this release, Schenectady Industrial Corporation (SIC) entered into an Order on Consent (OC), (Index No. R4-1338-92-05), with the NYSDEC .

In 1992, SIC performed a subsurface investigation that included advancing a series of five hand-excavated test pits, (TP-A1 through TP-E1), along the riverbank. Soil analytical results indicated total petroleum hydrocarbon (TPH) concentrations up to 12,000 parts per million (ppm). Following these results, two deep soil borings and five shallow soil borings were advanced adjacent to the test pits. The five shallow soil borings were completed at groundwater monitoring wells. Free-phase petroleum was found in two wells and the free-phase petroleum in one well was found to contain trace levels of polychlorinated biphenyls (PCBs). Groundwater analytical results indicated TPH concentrations ranging from 4.6 ppm to 32,200 ppm. Volatile organic compound (VOC) concentrations were detected.

Historically there have been many environmental investigations completed at the former ALCO Site since the initial investigation in 1992. These investigations, some of which were conducted in conjunction with NYSDEC oversight, have taken place across the ALCO-Maxon Site, which has been separated into Parcels A, B and C. In addition to the environmental investigations conducted throughout the former ALCO Industrial property, underground storage tank (UST) removals and remedial activities have been completed on the ALCO-Maxon Site parcels.

Due to the historic industrial impacts identified on the ALCO Site and subsequent to the execution of a BCA, three Remedial Investigation Work Plans (one for each parcel) were prepared by Kleinfelder, Inc. (KLF) and submitted to NYSDEC on May 24, 2010. The Work Plan outlined the procedures and protocols that were to be utilized to conduct a full-scale remedial investigation that would provide the necessary field data to further delineate the nature and extent of contamination at the subject Site. The Work Plan was prepared to conform to the Draft DER-10 *Technical Guidance for Site Investigation and Remediation* issued by the Division of Environmental Remediation (December 2002). The RI Work Plans for Parcels B and C were subsequently approved by the NYSDEC on June 23, 2011. One of the comments received by the NYSDEC was a request for sampling of both the riverbank and Mohawk River sediments adjacent to the Site. Following the submission of a Work Plan Addendum on January 10, 2012, the RI Work Plan for Parcel A was approved by the NYSDEC on January 23, 2012.

1.2.2 Remedial Investigation Findings

1.2.2.1 Geology/Hydrogeology

The Site is underlain by a unit of fill that is present across much of the Site, varying from a minimum depth of 2 feet to a maximum depth observed during the RI of 12.4 feet. In general, the fill material consists of reworked soil (e.g., silt, sand, gravel, and clay) with lesser amounts of brick, concrete, ash/cinders, slag, metal, wood/organics, and glass. In locations where the fill

unit is generally thinner, a fine to coarse grained sand unit of limited thickness is present beneath the fill. Based on the groundwater contours, it is apparent that groundwater flow across the majority of the subject Site is to the North towards the Mohawk River. The horizontal hydraulic gradient from south to north across the Site (i.e. from MW-19 to MW-25D) is approximately 0.006 ft/ft.

1.2.2.2 Surface Soil

The analytical results from this RI indicate that there are no VOC or PCB impacts to surface soil at the Site. These results are generally consistent with results from previous investigations. There are relatively widespread SVOC detections in surface soils at concentrations below Part 375 SCOs, and only limited areas that exceed Part 375 SCOs. The presence of certain VOC and SVOC Tentatively Identified Compounds (TICs) suggest that degradation/breakdown of historic aged petroleum has and/or is occurring across the Site. Lastly, there are limited, isolated areas of arsenic, lead, and/or mercury that slightly exceed Part 375 SCOs; these locations (sample location RB-6 on Parcel A and sample locations SS-A3 and SS-B3 on Parcel B) were identified in the NYSDEC letter of 12/14/12 and will be subject to individual removal actions described in the approved IRM work plan.

1.2.2.3 Subsurface Soil

Analytical results for samples collected from the upper fill/sand unit suggest that there are no significant VOC impacts and only limited SVOC impacts to unsaturated soils. Within the unsaturated zone, the area of highest SVOC concentrations is present in the area just west of Building 308, the area located just south of Building 320, beneath the slab of Building 320, and the area between Buildings 316 and 332.

Based on the analytical results for soil samples that were collected from test pits as part of the current RI and from previous investigations, there is no evidence of any PCB or metal impacts to subsurface soils across the Site.

1.2.2.4 Groundwater

The results obtained during this RI confirm the detection of a historic chlorinated solvent plume, which appears to originate upgradient from or in the vicinity of MW-19 and extends over 1,200 feet in length towards the Mohawk River. The plume appears to be relatively narrow and is well-delineated to the east, south and west. The depth of the plume is relatively shallow (~20 feet bgs) in the vicinity of monitoring well MW-19 and temporary monitoring well TMW-19C and deepens to approximately 50 to 70 feet bgs along the length of the plume. The data confirms that natural degradation is occurring based on the presence of PCE and TCE breakdown products.

The only other areas with impacts to groundwater are those with relatively localized SVOC (PAH) detections that are generally associated with former UST areas or free product recovery areas. However, a comparison of analytical results from this and from previous investigations suggests that contaminant concentrations have generally decreased, with few exceptions. The presence of TICs in most wells across the Site, consisting primarily of petroleum-related

compounds, suggest that degradation/breakdown of historic, aged petroleum has occurred in groundwater across the Site.

1.2.2.5 Soil Vapor Summary

The most apparent impacts to subsurface vapor are present at the southern edge of the Site located just north of Erie Boulevard. The subsurface in this area is primarily impacted by chlorinated VOCs that appear to be related to the underlying chlorinated solvent groundwater plume. Chlorinated VOC impacts extend to the north/northeast and generally follow the direction of the groundwater plume. There are also chlorinated VOC impacts to subsurface soil vapor in a limited area between Buildings 346 and 324 and in the southwestern-most portion of the Site between Buildings 306 and 308. There are various but minor impacts to subsurface soil vapor from petroleum-related compounds; however, the detections do not appear to indicate the presence of any significant petroleum source for soil vapor contamination.

1.2.2.6 Riverbank Soil Summary

The analytical results from this RI indicate that there are no VOC or PCB impacts to soils on the bank of the Mohawk River that runs parallel to the Site, generally consistent with results from previous investigations. Impacts from SVOCs to the riverbank of the Mohawk River associated with the Site are generally limited to areas where historic operations took place, in the immediate vicinity of Buildings 326, 324 and 322.

Based on the results obtained during this RI and the previous remedial measures undertaken, minor detections of inorganics (mainly iron, arsenic, mercury and lead) in riverbank soils appear to also be limited to the western portion of the riverbank that runs parallel to the Site (west of College Creek Outfall). The eastern portion of the riverbank has only limited detections of metals (arsenic and lead) slightly above Part 375 SCOs in the area north of Building 346.

1.2.2.7 River Sediment Summary

Collectively, the RI noted detectable concentrations of contaminants present in Mohawk River sediments both adjacent to the Site and upstream from the Site. The data indicate that an up-gradient source of chlorinated VOCs impacted up-gradient river sediments, but the impacts are relatively localized. There do not appear to be any VOC impacts to sediment immediately adjacent to the site. SVOC impacts are most evident upstream and adjacent to the western-most portion of the site (i.e. in the Building 320 area to the east) and suggest that, in addition to limited contribution from the Site itself, an up-gradient SVOC source is, or was, also present. There are no PCB impacts to the river sediments. The results also indicate that sediments both adjacent to the Site and upstream from the Site have detectable concentrations of metals. It does not appear that the Site is causing significant adverse inorganic impacts to river sediments.

1.2.3 Supplemental Remedial Investigation Findings

The additional activities implemented as part of the SRI provided further delineation and identification of historic industrial conditions at the former industrial property. The data gathered was consistent with prior site investigation information.

1.2.3.1 Parcel A

- NAPL was detected in two of the three monitoring wells installed around MW-45; NAPL thicknesses varied from roughly one inch in MW-47 to roughly one foot in MW-48.
- Concentrations of chlorinated VOCs in Parcel A monitoring wells sampled ranged from 136 ug/L to 3082 ug/L.

1.2.3.2 Site-Wide Groundwater Quality

- Monitoring wells installed on Parcels A, B and C provided further delineation of the chlorinated solvent plume, which migrates across the three parcels along the established groundwater flow gradient.
- The source area for the chlorinated solvent plume was identified and delineated in an area of Parcel C around soil vapor point SV-C9.

1.2.4 Current and Intended Use

The City of Schenectady adopted its new Zoning Ordinance (Chapter 264) on March 24, 2008. The ALCO Site is zoned C-3 Waterfront Development District. The purpose of the C-3 district is to provide unique opportunities for the development and maintenance of water-oriented uses within certain areas of the City adjacent to the Mohawk River. The C-3 District permits certain recreational, open space, business, and residential uses which will generally benefit from and enhance the unique aesthetic, recreational, and environmental qualities of the waterfront areas.

The former industrial site is serviced by municipal water and sewer and currently has commercial tenants on a limited portion of the property along Front Street and is otherwise unoccupied with the vacant structures being demolished in 2011. The intended future use of Parcel A is restricted-residential. The ALCO-Maxon Site-Parcel A is zoned C-3 Waterfront Development District. The purpose of the C-3 designation is to provide unique opportunities for the development and maintenance of water oriented uses within certain areas of the City adjacent to the Mohawk River. The C-3 District permits certain recreational, open space, business, and residential uses which will generally benefit from and enhance the unique, aesthetic, recreational, and environmental qualities of the waterfront areas.

2.0 Description of Selected Remedy

2.1 Remedy Selection

The remedial goal is to evaluate options and select a remedial program to provide for appropriate redevelopment of the Site and to eliminate or mitigate threats to public health and the environment that, upon implementation, will allow the NYSDEC to issue a Certificate of Completion for the three BCP parcels and to lead to the redevelopment and reuse of the parcels.

This AAR identified three areas of concern (AOC) based on the findings of the RI Report:

1. Historic Free-phase petroleum product on the water table around monitoring well MW-45 (AOC 1B);
2. The chlorinated solvent plume that extends from the vicinity of MW-19 to the Mohawk River (AOC 2); and
3. Soil impacts from polynuclear aromatic hydrocarbons (PAHs) (AOC 3).

As outlined in the Exposure Assessment, the following are complete or potential exposure pathways associated with the recognized AOC:

The results of the exposure assessment indicate that there is currently one complete potential exposure pathway and two future potential exposure pathways:

- Potential exposure of current tenants of Buildings 306 and 330 to VOCs in indoor air through inhalation (AOC 1 and 2).
- Potential exposure of future on-Site workers to soil, groundwater, soil vapor or LNAPL that may be contaminated with VOCs, SVOCs, and/or metals during future intrusive activities at the Site. Routes of exposure to future on-Site workers could include inhalation, ingestion, dermal contact, eye contact, and puncture/injection (AOC 1, 2 and 3).
- Potential exposure to groundwater that may be contaminated with VOCs, SVOCs, and/or metals if groundwater wells are installed and used for drinking water, etc. (AOC 1, 2 and 3).

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

The following RAOs for the site were identified as a result of the Exposure Assessment in the RI Report:

1. Prevent volatilization of organic constituents from subsurface soils and groundwater (vapor intrusion) in future on-site buildings (AOCs 1 and 2).
2. Prevent ingestion of contaminated groundwater (AOCs 1 and 2).

3. Prevent contact with impacted surficial soils (AOC 3).
4. Develop site management practices to address potential exposure pathways associated with future site work (AOCs 1, 2 and 3).

The AAR recommended Alternative 3 for the final site remedy, which would use a site-wide soil cover to mitigate AOC 3. Alternative 3 also includes measures to remediate groundwater exposure pathways associated with AOCs 1 and 2.

2.2 Description of Selected Remedy

2.2.1 General Description of Selected Remedy

Alternative 3 will use a two-foot thick soil cover (with a geotextile demarcation layer) to address AOC 3; the use of a soil cover is specifically discussed in DER-10 Section 4.1 (f) to mitigate impacted surficial soils and has been used on other parts of the former ALCO site. Clean soils have been stockpiled on the property and can serve as appropriate cover material with the permission of the NYSDEC. Two feet of clean soil cover, due to the restricted residential use of the property, will be applied. Alternative 3 will also employ Institutional Controls to address the remaining potential exposure pathways.

A Site Management Plan (SMP) will be prepared which will identify the necessary procedures to be utilized if future site work were conducted within each AOC, including soil vapor mitigation measures. The property owner will be required to submit a periodic certification of the institutional and engineering controls.

2.2.2 Parcel –Specific Remedial Actions

2.2.2.1 Parcel A

Remedial actions specific to Parcel A are listed below:

- Two-foot soil cover
- Natural attenuation of the chlorinated solvent plume
- Removal of isolated areas of surficial soil impacts at sample locations RB-06and SS-A3 (see appended IRM work plan)
- IRM for AOC 1B
- Institutional controls
- Final Engineering Report
- Site Management Plan

3.0 Remedial Design- Parcel A

A remedial design program was implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques were implemented to the extent feasible in the design, implementation, and site management of the remedy per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

3.1 Parcel A

3.1.1 Site-Wide Soil Cover

As discussed earlier, a soil cover (with a geotextile demarcation layer) was designed to address AOC 3; the use of a soil cover is specifically discussed in DER-10 Section 4.1 (f) to mitigate impacted surficial soils, particularly where soil impacts are low level and widespread. A soil cover has been used on other parts of the former ALCO site (former Big N Plaza and former Ramada Inn sites). Clean soils have been stockpiled on the property and can serve as appropriate cover material with the permission of the NYSDEC. Two feet of clean soil cover will be applied due to restricted residential use of the property. The design for the soil cover may also incorporate grading and areas of thicker soil cover to accommodate future site development needs.

The soil cover has been designed such that a demarcation layer (consisting of orange construction fence, woven geotextile (Appendix B), or other material subsequently approved by NYSDEC) will be placed between site soils and clean fill. Additionally, the soil cover incorporates a minimum of 4 inches of topsoil to promote establishment of vegetation. In areas of the site where less than 2 feet of clean fill is proposed per the site grading plan, site soils will be excavated to a depth of 2 feet and the excavated area will be backfilled with clean soil. This will constitute the required soil cover in areas with that are shown as hatched on the associated site remedial plans. These areas will also receive the standard demarcation layer, which will be

placed at the bottom of the excavation trench and will be brought to grade and tied in to the adjacent demarcation layer. The design for the site-wide soil cover is shown on Figures 1 and 2 and is based on the grading and site plans prepared by Hershberg & Hershberg (provided in Appendix A of this report).

It should be noted that as part of site preparation the implementation of necessary flood hazard mitigation will require alteration of the current river bank, soil removal and the creation of lands under water with hydraulic connection to the Mohawk River. That is, areas of the site adjacent to the Mohawk River will need to be excavated to below the water level of the Mohawk River, allowing the Mohawk River water to extend onto and cover certain areas of the site for flood control (see Appendix A). The establishment of such lands under water is a necessary element of site preparation. The lands under water will not be subject to the protective soil cover or geotextile. Any lands under water created by site preparation within the existing legal description of the site will remain as part of the site and subject to certain provisions of the site management plan. Mohawk Harbor (lands under water) will be maintained by Maxon-ALCO Holdings and any additional removal of material will be subject to the Excavation Work Plan (Exc-WP) dated May 2014.

The Exc-WP provides the procedures that will be followed when remedial and/or development activities require excavation into the existing site soils (prior to placement of cover soils or creation of lands under water) or that in the future will penetrate the cover soil system or access the lands under water. The Ex-WP is applicable to the three parcels that comprise the ALCO site: Parcel A, Parcel B and Parcel C (Site Nos. C447042, C447043, and C447044.)

3.1.2 Chlorinated Solvent Plume

A source area for the chlorinated solvent plume was identified in the SRI Report. Because of the location and dimensions of the source area (particularly with respect to the City of Schenectady sewers), in-situ remediation (chemical oxidation) will be employed to destroy the contaminant source area (on Parcel C) and higher concentration areas of the plume itself (on Parcel B), as discussed in the next sections.

The portion of the chlorinated solvent plume located on Parcel A will be addressed through monitored natural attenuation (MNA), which has been recognized by USEPA as an effective means of addressing residual groundwater contamination, particularly after application of remedial measures addressing contaminant source areas (USEPA, 1999). From the standpoint of remediating overall contaminant mass, there are often areas in a contaminant plume where active remedial measures provide minimal or no incremental benefit relative to natural processes, such as biodegradation, sorption, dispersion, volatilization and dilution. It should be recognized that MNA is not a “walk away” or “do nothing” remedy; it entails a careful examination of site data to verify that active remedies been applied to the extent feasible and development/ implementation of a monitoring program to verify MNA processes are at work and that the residual contamination is no longer a threat to human health and the environment.

A minimum of three monitoring wells will make up the Maxon-ALCO Site- Parcel A Performance Monitoring network to replace the former network consisting of MW 52, MW 63, and MW-25D (see Figure 3). The wells will be installed and sampled prior to in-situ remediation

to establish pre-injection baseline quality to assess contaminant concentration reductions. The three installed wells will be to a depth of 65-70 feet with 10 foot screens.

To determine the effectiveness of the injection events, performance monitoring will be conducted roughly two months after the injection event(s). The performance monitoring program will consist of collection of groundwater samples from the Parcel A Performance Monitoring Network. Confirmatory soil samples will be analyzed for volatile organic compounds by USEPA Method 8260B.

The interim groundwater samples will be compared to the pre-injection baseline quality to assess contaminant concentration reductions. If the groundwater samples VOC levels are within closure levels, B&L will prepare an injection summary/closure report for NYSDEC review and a second injection described below may not be necessary.

4.0 Remedial Action Implementation

4.1 Parcel–Specific Remedial Action Implementation

Remedial actions specific to Parcel A are listed below:

- Two-foot soil cover
- Natural attenuation of the chlorinated solvent plume
- Removal of isolated areas of surficial soil impacts at sample location RB-06 and SS-A3
- IRM for AOC 1B
- Institutional controls
- Final Engineering Report
- Site Management Plan

4.2 Stormwater Management

A Stormwater Pollution Prevention Plan (SWPPP) has already been prepared for the site for the stockpiling of clean soils for the soil cover, and is incorporated here by reference. The SWPPP will be updated as needed to address the movement and placement of the stockpiled soils and the creation of the clean soil cover.

4.3 Institutional Controls

As defined in DER-10, an institutional control (IC) "means any non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness and/or integrity of site management activities at or pertaining to a site". Because of the intended future use of the site, it has been anticipated that ICs will be a part of the remedial program for site soils and for future redevelopment of the properties.
The contemplated ICs for the site are expected to cover the following issues:

- A requirement that a clean soil cover of a minimum thickness of two feet, due to the actual restricted-residential use, be maintained on the site.
- Notification to be filed with the property deed that residually-impacted soils are present below the clean soil cover.
- A requirement that any excavation below the clean soil layer entail 1) 10 day prior notification to NYSDEC and NYSDOH, 2) notification to contractors of the potential hazard (contractor personnel may be subject to 29 CFR 1910.120 – HAZWOPER), and 3) restoration of the clean soil layer Development of a Flood Hazard Mitigation Plan to comply with Chapter157 –Flood Hazard Control of the City of Schenectady Code, as the ALCO site lies within FEMA mapped Zones A-16 and B.

- The maintenance and monitoring of Mohawk Harbor (lands under water).
- A prohibition on the use of all groundwater on the property without NYSDEC and NYSDOH approval.

4.4 Reporting

4.4.1 Schedule and Progress Reports

A Remedial Action Schedule will be prepared and submitted to NYSDEC once the remedial design work has been completed and approved. Per DER-10 Section 5.7, the Remedial Action Schedule will include:

- Dates for submission of deliverables
- Timeframes for contractor procurement
- Timeframes for review of deliverables by NYSDEC
- Timeframes for application/issuance of permits, if needed
- Timelines for developing access agreements or easements
- Timelines for the preparation of the Site Management Plan and the Final Engineering Report

The Remedial Action Schedule will be updated periodically to reflect progress and/or changes in the Remedial Action Implementation Program. Also per DER-10 Section 5.7, a monthly progress report will be prepared and submitted to NYSDEC during the Remedial Action Implementation phase. The progress report will contain the following, at a minimum:

- Project progress and significant activities
- Pending/planned significant activities in the next two months
- Updated project schedule
- Discussion of project problems and/or delays
- Proposed corrective actions, if needed
- Additional pertinent information

4.4.2 Final Engineering Report

Per DER-10 Section 5.8, a Final Engineering Report will be prepared following completion of the Remedial Action activities and will contain:

- Signature page, stamped by a licensed NYS Professional Engineer
- A description of the remedy, as constructed
- A summary of the remedial actions completed
- Listing of the remedial action objectives

- Supporting tables and figures
- Detailed description of remedial action compliance
- As-built drawings
- Identification of institutional controls and environmental easements
- Appropriate supporting figures for groundwater remediation

4.5 Site Management Plan

A Site Management Plan will be prepared, which will include the following:

a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

   Institutional Controls: As described in a previous section.

   Engineering Controls: The soil cover previously described.

   This plan includes, but may not be limited to:

   - An Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
   - Descriptions of the provisions of the environmental easement including any land use, {and/or} groundwater {and/or} surface water use restrictions;
   - A provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
   - Provisions for the management and inspection of the identified engineering controls;
   - Inspection and maintenance of the Mohawk River shoreline;
   - Maintaining site access controls and Department notification; and
   - The steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.
   - A Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - Monitoring of groundwater to assess the performance and effectiveness of the remedy;
   - A schedule of monitoring and frequency of submittals to the Department;

- Monitoring for vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

5.0 References

Barton & Loguidice 2011. Stormwater Pollution Prevention Plan, Former ALCO Site.

CHA, August 2012. Remedial Investigation Report, ALCO-Maxon Sites, Parcels A,B&C.

Hershberg & Hershberg, 2014. ALCO Site Development Plans

Kleinfelder, Inc., September 2010. Remedial Investigation Work Plan, Parcel A of the ALCO-Maxon Site.

Kleinfelder, Inc., September 2010. Remedial Investigation Work Plan, Parcel B of the ALCO-Maxon Site.

Kleinfelder, Inc., September 2010. Remedial Investigation Work Plan, Parcel C of the ALCO-Maxon Site.

New York State Department of Environmental Conservation, May 2010. DER-10 / Technical Guidance for Site Investigation and Remediation. DEC Program Policy, Office of Remediation and Materials Management.

New York State Department of Environmental Conservation, December 2006. 6 NYCRR PART 375, Environmental Remediation Programs, Subparts 375-1 to 375- 4 & 375-6. Division of Environmental Remediation.

New York State Department of Environmental Conservation, May 2004. Draft Brownfield Cleanup Program Guide. Division of Environmental Remediation.

New York State Department of Environmental Conservation, 1997. Environmental Restoration Projects, Program ID No. DER-97-4058. Division of Environmental Remediation, Bureau of Program Management.

New York State Department of Environmental Conservation, 1998. "Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations', Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. Reissued June 1998.

New York State Department of Health, 2006. "Guidance for Evaluating Soil Vapor Intrusion in the State of New York."

United States Environmental Protection Agency, 1994. "Radon Prevention in the Design and Construction of Schools and Other Large Buildings."

United States Environmental Protection Agency, April 1999. "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites", OSWER Directive 9200.4-17P.

Wiedemeir, et al, 1999. "Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water". USEPA-NRML. EPA/600/R-98/128.

Figure 1

Soil Cap Site Plan

NOTES:

1. HATCHED AREAS SHALL BE SUBJECT TO THE DETAIL ON THIS SHEET, TO ENSURE A MINIMUM DEPTH OF 2 FEET OF CLEAN SOIL COVER TO PROVIDE AN ADEQUATE SOIL CAP SYSTEM.

2. AREAS OF THE SITE NOT HATCHED SHALL NOT BE SUBJECT TO THE DETAIL ON THIS SHEET, BUT SHALL ENSURE A MINIMUM OF 2 FEET OF CLEAN FILL PLACED OVER EXISTING GRADE.

3. BUILDINGS MAY REQUIRE ADDITIONAL ATTENTION TO SOIL VAPOR MITIGATION, AND WILL BE ANALYZED UPON FINAL SITE PLANNING. EACH BUILDING WILL BE REVIEWED FOR POTENTIAL FOR SOIL VAPOR INTRUSION AND A MITIGATION PLAN WILL BE SUBMITTED TO THE NYSDEC AND NYSDOH FOR REVIEW AND APPROVAL AS NECESSARY.

4. EXISTING AND PROPOSED ASPHALT SHALL BE CONSIDERED ADEQUATE SOIL COVER TO SERVE AS A SOIL CAP SYSTEM, AND IS NOT SUBJECT TO THE SOIL CAP DETAILS ON THIS SHEET.

5. EXCAVATION OF CONTAMINATED SOIL SHALL ADHERE TO THE APPROVED "EXCAVATION WORK PLAN" DATED MAY, 2014.

6. ON ALL UNHATCHED AREAS, DEMARCATION LAYER CONSISTING OF SNOW FENCE TO BE INSTALLED PRIOR TO INSTALLING ADDITIONAL SOIL AS SHOWN. ENSURE A MINIMUM OF 2' OF CLEAN FILL OVER THE DEMARCATION LAYER. DEMARCATION LAYER SHALL FOLLOW DETAIL, THIS SHEET. SEE DETAIL, THIS SHEET, FOR ALL HATCHED AREAS.

NOTES

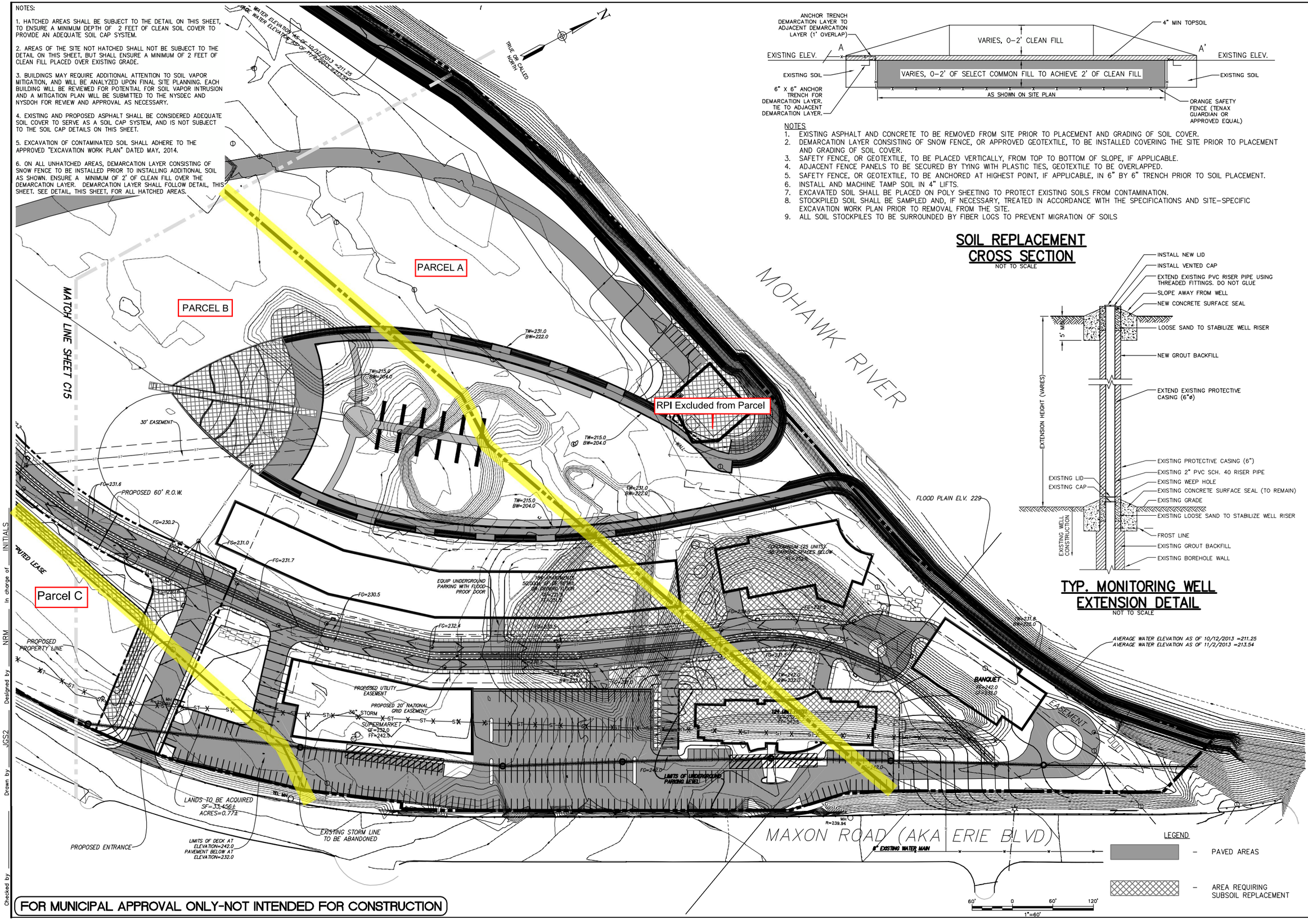
1. EXISTING ASPHALT AND CONCRETE TO BE REMOVED FROM SITE PRIOR TO PLACEMENT AND GRADING OF SOIL COVER.
2. DEMARCATION LAYER CONSISTING OF SNOW FENCE, OR APPROVED GEOTEXTILE, TO BE INSTALLED COVERING THE SITE PRIOR TO PLACEMENT AND GRADING OF SOIL COVER.
3. SAFETY FENCE, OR GEOTEXTILE, TO BE PLACED VERTICALLY, FROM TOP TO BOTTOM OF SLOPE, IF APPLICABLE.
4. ADJACENT FENCE PANELS TO BE SECURED BY TYING WITH PLASTIC TIES, GEOTEXTILE TO BE OVERLAPPED.
5. SAFETY FENCE, OR GEOTEXTILE, TO BE ANCHORED AT HIGHEST POINT, IF APPLICABLE, IN 6" BY 6" TRENCH PRIOR TO SOIL PLACEMENT.
6. INSTALL AND MACHINE TAMP SOIL IN 4" LIFTS.
7. EXCAVATED SOIL SHALL BE PLACED ON POLY SHEETING TO PROTECT EXISTING SOILS FROM CONTAMINATION.
8. STOCKPILED SOIL SHALL BE SAMPLED AND, IF NECESSARY, TREATED IN ACCORDANCE WITH THE SPECIFICATIONS AND SITE-SPECIFIC EXCAVATION WORK PLAN PRIOR TO REMOVAL FROM THE SITE.
9. ALL SOIL STOCKPILES TO BE SURROUNDED BY FIBER LOGS TO PREVENT MIGRATION OF SOILS

SOIL REPLACEMENT CROSS SECTION

NOT TO SCALE

TYP. MONITORING WELL EXTENSION DETAIL

NOT TO SCALE



FOR MUNICIPAL APPROVAL ONLY-NOT INTENDED FOR CONSTRUCTION

NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

GALESI GROUP
MAXON ALCO HOLDINGS, LLC
REMEDIAL DESIGN

SOIL CAP SITE PLAN
Parcel A, C447042

SCHENECTADY COUNTY, NEW YORK

CITY OF SCHENECTADY

Barton & Loguidice, D.P.C.

Date
DECEMBER 2015

Scale
1"=60'

Sheet Number
1

File Number
1368.001.001

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Checked by _____ Drawn by JGS2 Designed by NRM In charge of _____ INITIALS

Figure 2

Soil Cap Site Plan

NOTE:

THE SITE PLAN, INCLUDING ALL UTILITIES, BUILDINGS, TRANSPORTATION INFRASTRUCTURE, APPURTENANCES, AND EXISTING AND PROPOSED GRADING ORIGINATED FROM HERSHBERG & HERSHBERG PLAN SET DATED APRIL 2013.

N

TRUE OR CALLED NORTH

MOHAWK RIVER

PARCEL A

PARCEL B

PARCEL C

BIKE PATH AT 215.0

DAYLIGHT COLLEGE CREEK

NEW HEAD WALL

COLLEGE CREEK INVERT=206.4±
TOP OF PIPE=217.42±
BOT OF PIPE=205.12±

AVERAGE WATER ELEVATION AS OF 10/12/2013 =211.25
AVERAGE WATER ELEVATION AS OF 11/12/2013 =213.54

APPROX. LOCATION COLLEGE CREEK

FUTURE PHASE 2 AREA DEMAND OF 5.4 MW (6.3 KVA)

TW=230.0
BW=216.0

TW=230.0
BW=224.5

TW=215.0
BW=204.0

EASEMENT RIGHTS TO BE ABANDONED

WORK IN THIS AREA MAY BE CHANGED DUE TO LAND ACQUISITION, SEWER DESIGN, AND ROUNDABOUT DEDICATION

PROPOSED 60' R.O.W.

MATCH LINE SHEET C14

30' EASEMENT

PROPOSED 60' R.O.W.

COLLEGE CREEK INVERT=205±
TOP OF PIPE=219±
BOT OF PIPE=207±

FG=232.0
FG=231.8
FG=231.6
FG=232.6
FG=231.7
FG=230.2
FG=231.6
FG=231.0
FG=230.7
FG=231.3
FG=232.05
FG=231.9
FG=231.3

STS Not Part of Parcel

EXISTING BUILDING

30' TEMPORARY EASEMENT FOR PROTECTION OF INTERCEPTOR SEWER

TW=229.4
BW=226.0

FG=231.8
BW=226.0
FG=231.2

WALL

REPUTED LEASE

EXISTING BUILDING

PROPOSED PROPERTY LINE

MH
R=227.60

MH
R=230.83

4' x 6' SANITARY
0.025% SLOPE

R=226.84
BOTTOM=220.00

SCOTT STREET

FRONT STREET

MAXON ROAD (AKA ERIE BLVD)

TEL MH

ACCESS RIGHT TO BE ABANDONED

60' 0 60' 120'
1"=60'

LEGEND

– PAVED AREAS

– AREA REQUIRING SUBSOIL REPLACEMENT

FOR MUNICIPAL APPROVAL ONLY-NOT INTENDED FOR CONSTRUCTION

COMPLETED CONSTRUCTION

Significant Construction Changes Are Shown

By _____ Date _____

Ck'd _____ Date _____

REVISIONS

GALESI GROUP

MAXON ALCO HOLDINGS, LLC
REMEDIAL DESIGN

SOIL CAP SITE PLAN
Parcel A, C447042

SCHENECTADY COUNTY, NEW YORK

CITY OF SCHENECTADY

Barton & Loguidice, D.P.C.

Date
DECEMBER 2015

Scale
1"=60'

Sheet Number
2

File Number
1368.001.001

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Checked by _____ Drawn by JGS2 Designed by NRM In charge of _____ INITIALS

Figure 3

Locations of Chemical Oxidant Injection Areas

CHLORINTED SOLVENT PLUME (AOC 2)

FLOOD PLAIN ELV. 229

39.49-2-1.311

OUTFALL D42

OUTFALL A43

COLLEGE CREEK OUTFALL

MW-45 AREA (AOC-1B)

PARCEL A

PARCEL B

PARCEL C

GPR AREA 2

GPR AREA 8 (AOC-1C)

MW-36 AREA BORINGS (AOC-1A)

Chlorinated Solvent Plume Injection Area

New Piezometer

CHLORINATED SOLVENT PLUME SOURCE AREA (AOC 2)/ Injection Area

BUILDING 300

FORMER BUILDING LOCATIONS 312 & 314

FORMER ERIE BOULEVARD SUBSTATION

*INSTALL NEW TEE AND VALVE

MW-54 MW-55 MW-56 MW-57 MW-58 MW-59 MW-60 MW-61 MW-62 MW-63

324 39.41-1-1.1

322 39.41-1-2

346 39.41-1-2

344 39.41-1-3

316 39.49-2-7

308 39.49-2-5

306 39.49-2-6

304 39.49-2-8

300 39.49-2-1.2

BUILDING 320

BUILDING 332

BUILDING 338

BUILDING 346

BUILDING 324

BUILDING 316

BUILDING 308

BUILDING 306

BUILDING 304

BUILDING 300

OFFICE TRAILER

BLDG. ADDITION

LEGEND

- PROPERTY BOUNDARY
- BCP SITE BOUNDARY
- MANHOLE WITH DRAINAGE STUCTURE NUMBER
- CATCH BASIN WITH DRAINAGE STRUCTURE NUMBER
- LIFT STATION WITH DRAINAGE STRUCTURE NUMBER
- MANHOLE (M.H.)
- CATCH BASIN (C.B.)
- OW-2 MONITORING WELL (MW)
- TMW-6 TEMPORARY MONITORING WELL (TMW)
- RW-01 RECOVERY WELL
- P-2 PIEZOMETER
- DB-18 GEOPROBE BORING
- SS-5 SURFACE SOIL SAMPLE LOCATION (SS)
- SB-2 SOIL BORING LOCATION

AREA DEFINITIONS

- BUILDINGS/STRUCTURES
- FORMER BUILDINGS (PREVIOUSLY DEMOLISHED)
- "EVI" PARCEL
- "RPI" PARCEL
- OTHER PROPERTIES NO PART OF S
- REMEDIATION AREA
- FORMER UST/AST LOCATIONS

MW-63 MONITORING WELL (SRI INVESTIGATION 2013)

Performance Monitoring Network for Parcel A (subject to change)

MAP REFERENCE

1) "SURVEY OF LANDS, ALCO LOCOMOTIVE, INC., CITY OF SCHENECTADY, COUNTY OF SCHENECTADY", DATED MARCH 1970, AS PREPARED BY C.T. MALE ASSOCIATES.

2) "A SUBDIVISION OF A PORTION OF LANDS OF SCHENECTADY INDUSTRIAL CORPORATION", DATED JUNE 30, 1988, AS PREPARED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP.

3) "SITE PLAN, PROPOSED C & D RECYCLING FACILITY, NOTT STREET INDUSTRIAL PARK", DATED FEBRUARY 1995, AS PREPARED BY NGALLS SMART ASSOCIATES.

SOURCE:

1) ABD ENGINEERS AND SURVEYORS FEBRUARY 1988, REVISED NOVEMBER 1999.

2) HISTORIC BUILDING (HB) LOCATIONS BASED ON A "FUEL OIL PIPING" PLAN, PREPARED FOR AMERICAN LOCOMOTIVE CO., REVISED AUGUST 22,195.

Barton & Loguidice, D.P.C.

MAXON ALCO HOLDINGS, LLC
REMEDIAL DESIGN

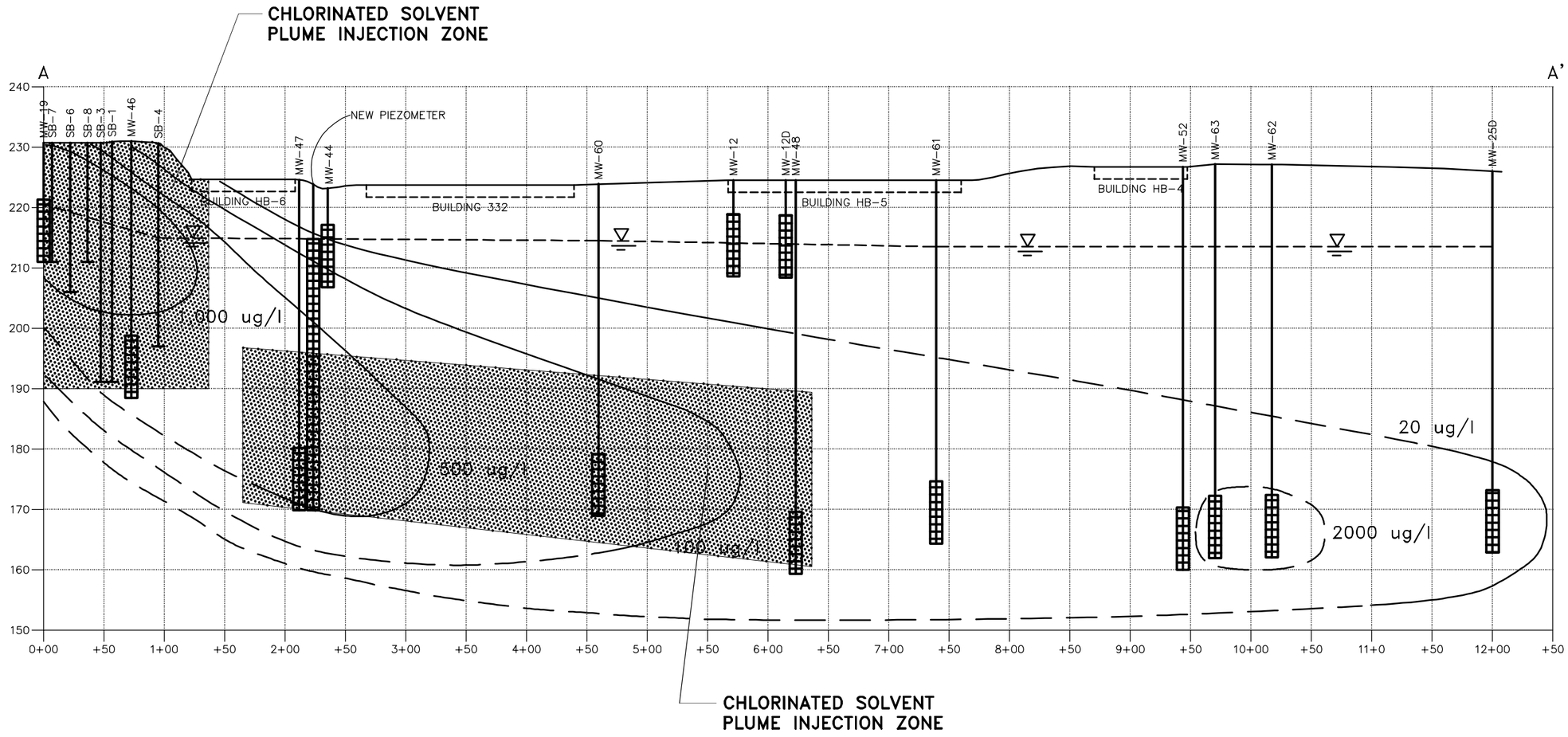
Location of Chemical Oxidant Injection Areas

CITY OF SCHENECTADY, NEW YORK

Figure 3
Project No. 1368.001.001
Date 11/23/2015

Figure 4

Chemical Oxidant Injection Zones



LEGEND:

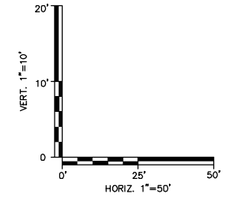
– WATER TABLE

– MONITORING WELL

– SOIL BORING

NOTES:

1. DASHED WHERE INFERRED
2. WELLS/BORINGS ARE PROJECTED ONTO CROSS SECTION LINES
3. WATER LEVELS COLLECTED DURING JUNE 2013 SAMPLING EVENT.
4. TOTAL CHLORINATED VOCs (TCVOC) OF GROUND WATER PRESENTED IN ug/l (PPB).
5. TCVOCs OF SOIL PRESENTED IN mk/kg.



Barton & Loguidice, P.C.
Engineers-Environmental Scientists-Planners-Landscape Designers

MAXON ALCO HOLDINGS, LLC
REMEDIAL DESIGN REPORT

CHEMICAL OXIDANT
INJECTION ZONES

CITY OF SCHENECTADY, NEW YORK

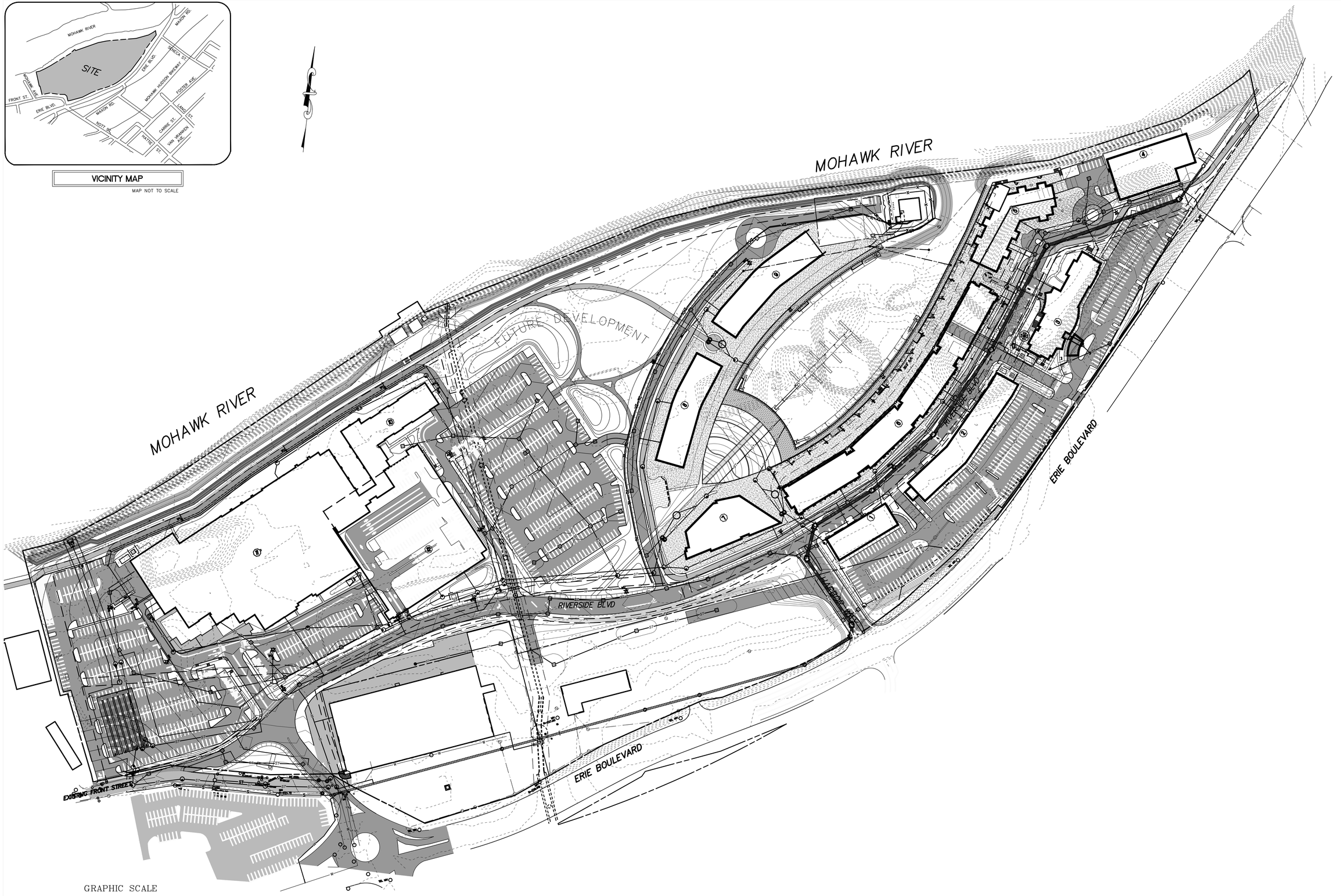
Figure
4
Project No.
1368.001.001
Date
12/15/2015

Appendix A

Hershberg & Hershberg Development Plans

VICINITY MAP

MAP NOT TO SCALE



GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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HERSHBERG & HERSHBERG
Consulting Engineers and Land Surveyors
18 Locust Street
Albany, New York 12203

STATE OF NEW YORK
DANIEL R. HERSHBERG
LICENSED PROFESSIONAL ENGINEER & LAND SURVEYOR
044228

REMARKS	DATE
ALL PARCELS UPDATED	7-2-2015
GENERAL REVISIONS	8-3-2015

REVISIONS

MOHAWK HARBOR OF SCHENECTADY, NEW YORK

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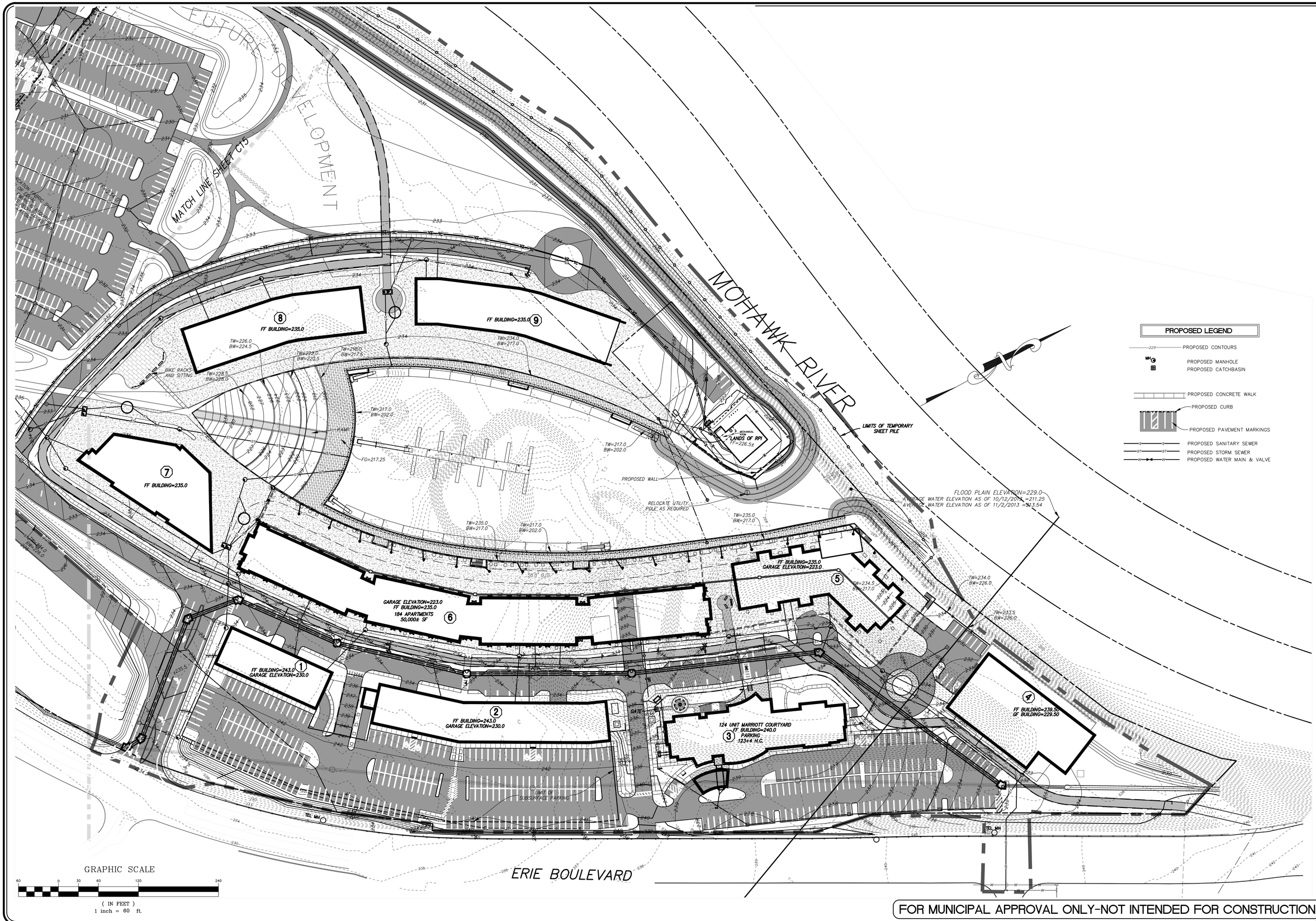
SP-A



GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

1 inch = 60 ft.

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HERSHBERG & HERSHBERG

Consulting Engineers and Land Surveyors

18 Locust Street
Albany, New York 12203

STATE OF NEW YORK
DANIEL R. HERSHBERG
044228
PROFESSIONAL ENGINEER & LAND SURVEYOR

REVISIONS		DATE
PRELIMINARY SUBMISSIONS	3-30-2015	
PRELIMINARY SUBMISSIONS	4-2-2015	
SUBMISSION UPDATE	4-14-2015	
GENERAL PLAN REVISIONS	4-20-2015	
GENERAL PLAN REVISIONS	7-1-2015	
GENERAL UPDATE	7-13-2015	

GRADING PLAN A FOR
ALCO REDEVELOPMENT SITE
OF SCHENECTADY, NEW YORK

FILE: 120159-1.dwg | SCALE: 1"=60' | BY: SMcC | CHK: DRH | DATE: 4/17/2013 | 2012-0159-1

C14

PROPOSED LEGEND
PROPOSED CONTOURS
PROPOSED MANHOLE
PROPOSED CATCHBASIN
PROPOSED CONCRETE WALK
PROPOSED CURB
PROPOSED PAVEMENT MARKINGS
PROPOSED SANITARY SEWER
PROPOSED STORM SEWER
PROPOSED WATER MAIN & VALVE
UTILITIES WERE IMPORTED FROM PLANS BY BOHLER ENGINEERING
MOHAWK RIVER
FLOOD PLAIN ELEVATION=230.0'
AVERAGE WATER ELEVATION AS OF 10/12/2013 =211.25
AVERAGE WATER ELEVATION AS OF 11/2/2013 =213.54
LIMITS OF TEMPORARY SHEET PILE
LOOKOUTS
DAYLIGHT COLLEGE CREEK
FUTURE DEVELOPMENT
MATCH LINE SHEET C14
FF=233.5
FF=234.0
FF BUILDING=235.0
BIKE RACKS AND SEATING
TOP OF EXISTING COLLEGE CREEK=222.4
EXISTING BUILDING
REMOVE BUILDING
END CONCRETE WALL
COLLEGE CREEK ACCESS
ERIE BOULEVARD
FRONT STREET
TEL MH
12" NEW VALVE
NEW 12"x12"x12" TEE
EXISTING 12" WATER MAIN (APPROXIMATE LOCATION)
GRAPHIC SCALE
(IN FEET)
1 inch = 60 ft.

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HERSHBERG & HERSHBERG
Consulting Engineers and Land Surveyors
18 Locust Street
Albany, New York 12203

STATE OF NEW YORK — LICENSED PROFESSIONAL ENGINEER & LAND SURVEYOR — 044226

REMARKS	DATE
STRUCTURES REVISIONS	1-30-2015
PRELIMINARY SUBMISSIONS	3-30-2015
PRELIMINARY SUBMISSIONS	4-2-2015
SUBMISSION UPDATE	4-14-2015
GENERAL PLAN REVISIONS	4-20-2015
GENERAL UPDATE	7-13-2015

REVISIONS

GRADING PLAN B FOR ALCO REDEVELOPMENT SITE OF SCHENECTADY, NEW YORK

FILE: 120158-1.dwg | SCALE: 1"=60' | BY: SMcC | CHK: DRH | DATE: 4/17/2013 | 2012-0158-1

C15

Appendix B

WINFAB 200W Data Sheet

WINFAB INDUSTRIAL FABRICS

PRODUCT DATA SHEET

WINFAB 200W

SEPARATION STABILIZATION

WINFAB 200W is manufactured using high tenacity polypropylene yarns that are woven to form a dimensionally stable network, which allows the yarns to maintain their relative position.
WINFAB 200W resists ultraviolet deterioration, rotting, and biological degradation and is inert to commonly encountered soil chemicals.

PROPERTY	TEST METHOD	MARV English	MARV Metric
Tensile Strength (Grab)	ASTM D-4632	200 x 200 lbs	890 x 890 N
Elongation	ASTM D-4632	15%	15%
CBR Puncture	ASTM D-6241	700 lbs	3114 N
Trapezoidal Tear	ASTM D-4533	75 x 75 lbs	330 x 330 N
UV Resistance (500 hrs)	ASTM D-4355	70%	70%
Apparent Opening Size (AOS)*	ASTM D-4751	40 US Std. Sieve	0.425 mm
Permittivity	ASTM D-4491	0.05 sec^{-1}	0.05 sec^{-1}
Water Flow Rate	ASTM D-4491	5 gpm/ft^2	204 lpm/m^2

***Maximum Average Roll Valve**

Notes:
- Mullen Burst ASTM D-3786 has been removed. It is not recognized by ASTM D-35 on Geosynthetics.
- Puncture ASTM D-4833 has been removed. It is not recognized by AASHTO M288 and has been replaced with CBR Puncture ASTM D-6241

PROPERTY	Typical English	Typical Metric
Roll Dimensions	12.5 x 432 ft 15 x 360 ft 17.5 x 309 ft	3.81 x 131.7 m 4.6 x 109.7 m 5.3 x 94.2 m
Roll Area	600 yd^2	502 m^2

Willacoochee Industrial Fabrics, Inc.
PO Box 599 • 769 West Main Street • Willacoochee, GA 31650
Ph: (912) 534-5757 • Fax: (912) 534-5533

GMA Geosynthetic Materials Association