Remedial Investigation Report
Fuller Partners LLC
136 Fuller Road
City of Albany
Albany County, New York

June 19, 2007

Chazen Project No. 90618.00

Prepared for:

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1.0 INTRODUCTION AND BRIEF CONCLUSIONS

The Chazen Companies (TCC) have prepared this *Remedial Investigation (RI) Report* to detail the methodology and results of investigation activities executed on the property located at 136 Fuller Road (site) in the City of Albany, Albany County, New York (Figure 1). The RI has been completed in general conformance with NYSDEC *DER-10: Technical Guidance for Site Investigation and Remediation.*

The onsite soil, groundwater, indoor air and soil vapor together with the nearest surface water body were all extensively studied for VOCs, SVOCs and metals. Based upon the results of this investigation and the prior investigations, the following conclusions are proposed:

1. Contaminants of concern (COC's) are limited to volatile organic compounds (VOCs).

2. Elevated concentrations of VOCs are present in the site soil (primarily from 8 to 20 feet below the ground surface) and in the shallow groundwater with the highest concentrations in this same depth interval. An underlying clay confining layer is consistent across the site at 30 – 35 feet below the ground surface and prevents the possibility of contaminant migration below this depth and into any underlying aquifers.

3. The indoor air within the building is not adversely impacted by the identified COC's.

4. There is no evidence that The Patroon Creek (the nearest surface water and the discharge location for the site groundwater) is being or has been adversely impacted by the site COC's. The shallow groundwater discharges to the Patroon Creek where the VOCs, if present at the time of discharge, quickly become non-detect. COC concentrations in groundwater at the furthest downgradient site locations are low and will not create exposure impacts or adversely affect the adjacent donwgradient land use.

5. The ground water up-gradient of the site is impacted by VOCs suggesting that there may be an up-gradient source of VOCs.

6. Almost the entire site is paved or covered with a building; the area is an industrial zone which is crossed by Interstate 90 and its access ramps. The surrounding properties are on public water and public sewer. There are no known or suspected downgradient users of the groundwater and vertical migration of the COC's to a bedrock aquifer is prevented by the presence of a thick clay deposit that was verified throughout the site. There are no known buildings in the area surrounding the site with the potential to be affected by soil gas intrusion, based on the extent of the impacted area delineated during this RI..

The owner's objective is to ensure that the site conditions are sufficiently protective of human health and environment for the anticipated industrial use of the site and that the site does not pose a threat to offsite property. Based upon this investigation, those site objectives appear to be satisfied. The owner desires, however, to facilitate the reduction of contamination in the identified source area and proposes this action in a forthcoming and separate engineering report. The owner also request comments from DEC on the need for additional investigation to confirm that the site objectives are achieved and the above conclusion are confirmed.

1.1 Purpose of the Investigation

The purpose of this RI was to 1) reasonably identify potential sources of soil, groundwater and surface water contamination at the site property and associated off-site impacts and 2) sufficiently identify the nature and extent of all contaminants such that compliance with applicable cleanup objectives can be assessed and 3) assemble the information necessary to develop an appropriate remedial action as a next step.

A Phase I Environmental Site Assessment for this property was performed by The Chazen Companies in July of 2004. The Phase I ESA identified a number of potential contaminant sources on the site property, most of which were part of the former brush manufacturing operations which took place on the subject site by the Mohawk Brush Company/Fuller Brush Company between 1955 and some time in the early 1970's. A copy of the Phase I ESA is attached as Appendix A. During those years a number of petroleum based products, pine oils, alcohols and Freon were stored in both underground and above ground tank systems along the northern side of the site building in a historic bulk storage "tank farm". These chemicals were all used to support the manufacture of brushes and brush related products within the site building. The storage, receipt and transfer of these bulk chemicals and transfer and use in the site building were identified as potential concerns with respect to impacting site media. This and other similar site concerns identified during the Phase I ESA led to the necessity to perform a site-wide subsurface investigation to identify and comprehensively evaluate site subsurface media for evidence of chemical impacts. In addition to the chemical bulk storage issues, the following additional issues were identified as possible contaminant sources and were also addressed during this assessment.

- Two 16,000-gallon fuel oil USTs were removed from the site in 2003. The tanks were located south of the buildings boiler room. Confirmatory soil samples collected in the tank excavation at the time of removal did not exceed applicable NYSDEC soil quality standards; however, given the absence of groundwater quality data, additional exploration was performed to fully evaluate this historic tank system area.

- Historic maps indicate that a 2,500 to 5,000 gallon UST (size varies on drawings) labeled as a "dump tank" was planned for installation on the south-central site area to the east of the two 16,000 gallon fuel oil USTs. The intended use of this tank was not identified. Additionally, it is not known if this tank was ever installed or used or if so, if it has been removed.

- An electric transmission substation is located in the south-central site area. PCB-containing transformers are known to have been present in this substation. No documentation pertaining to the quality of soil in the substation was identified. Given that PCB-containing transformers were present on the site, the potential for adverse impacts to the quality of soil and groundwater in the substation area exists from spills, leaks, transformer malfunction, etc. was investigated.

- A review of area topography indicates that the 136 Fuller Road site is located topographically downgradient from the heavily industrialized area that exists along Railroad Avenue. Industries along Railroad Avenue include the former Paulsen-Holbrook facility (an inactive Hazardous Waste Disposal Site), several building supply businesses, several appliance retail stores, a pallet and box store and a mercury refining plant (Mereco). Given the close proximity and assumed southerly groundwater flow, the potential existed for contaminants from Railroad Avenue to adversely impact soil and/or groundwater quality on the 136 Fuller Road site.

- Bulk chemicals were used within the site building for manufacturing purposes from 1955 through and into the 1970's. Sections of the building included an internal chemical storage and usage area (identified as a "hazardous chemical area" on building design drawings) including one below slab grade depressed pit.

1.2 Site Location and Configuration

The general site layout is identified on a copy of the 1985 site survey included as Figure 2. The site property is a 15.7± acre industrial property situated on the eastern side of Fuller Road, approximately 450-feet south of the intersection of Fuller Road and Railroad Avenue. The site is predominantly located in the City of Albany with less than 0.5-acres along the northern edge of the site situated in the Town of Guilderland. Generally, the subject site lies along the eastern side of Fuller Road, between the Consolidated Rail Corporation Railroad tracks to the north and an Interstate 90 (I-90) access ramp (Exit 2) to the south.

The site property includes approximately 680 feet of frontage along Fuller Road. The site is accessed via two paved driveways from Fuller Road. No other roadways or driveways enter or adjoin the subject site.

The site is developed with one main industrial/warehouse structure and two ancillary buildings. The main building is a 270,000± square foot masonry and steel building constructed in three phases which occurred in 1955, 1962 and 1964. The first ancillary building is a 15-ft. by 20-ft. metal shed located south of the main building. This structure is used as a water pump house for fire protection. The second ancillary building is a 12-ft. by 24-ft. cellular communications equipment building to the east of the main building present within an area leased by Crown Castle International. This area also includes a 160-foot high self-supported cellular telecommunications tower. Paved parking areas and grass areas make up the balance of the site.

Two aboveground water storage tanks for fire protection are present on the site property. An elevated 150,000-gallon steel water tower storage tank is present in the northeastern site area and a 250,000-gallon steel at-grade water storage tank is located southwest of the building boiler room.

An electrical substation is present in the south-central site area. The substation contains three pad-mounted electrical transformers and metering equipment.

1.3 Current Site Uses/Operations

Approximately 60% of the site building from the west end eastward is utilized by UltrePet LLC. UltrePet recycles plastic bottles and manufactures plastic resins. Currently, the only other site occupant is Equal Vision Records, which leases the eastern end of the building for graphic design printing and distribution of printed shirts and other promotional materials associated with the commercial music industry. The remaining portions of the site building are vacant. Crown Castle International leases a 0.06 ± acre portion of the site property on the east end of the site, for a cellular telecommunications tower and associated equipment building.

1.4 Historic Site Uses/Operations

Based on a review of aerial photographs dated 1940 and 1952 the site was undeveloped property at that time. During that period, the area was bounded by a railroad to the north and a city road to the south. There appears to have been a railroad spur crossing a portion of the site. Lake Rensselaer was visible in the west, and areas to the south appeared to be a mix of agricultural and undeveloped properties. There were also man-made features to the south that consisted of elongated segments of cleared land (appears to be a former golf course) which is the present-day location of the State University of New York at Albany campus. To the north, the 1940 aerial photograph revealed Railroad Avenue which appeared to be developed with two or more warehouses. Much more development along Railroad Avenue was evident in the 1952 aerial photo.

The subject site was developed circa 1955 as the Mohawk Brush Company which produced brushes for the Fuller Brush Company. The Mohawk Brush Company/Fuller Brush Company operated at the site until the early 1970s. Following the exit of Fuller Brush, the property apparently fell tax delinquent and was acquired by the City of Albany in 1974.

In 1974, the City of Albany leased the property to Star Textiles, which produced poly-fill material used for the inside of jackets, blankets, and other textiles. Star Textiles discontinued this product line in the late 1980s. During this time Star Textiles became Star Plastics. Star Plastic's operations consisted of plastic recycling and manufacturing of plastic resin. Fuller Realty purchased the property from the City of Albany in 1985 and continued to lease to Star Plastics. In 1997, UltrePet LLC acquired the business from Star Plastic and continued to lease the space from Fuller Realty until 2007 when the property was purchased by the current owner, Fuller Partners, LLC.

The site building is rectangular in shape and is approximately 960 feet long from east to west and 270 feet from north to south with smaller 160 foot by 30 foot northerly bump out along the western end of the northern side. The building areas are discernable by noting structural column lines; the column spacing and column line numbering scheme are shown on Figure 8 of this report. The original building was constructed between east-west columns numbered 1 through 31 in 1955 and consisted of a 168,435-ft^2 building area. In 1959, a 43,467 ft^2 addition was added to the east end of the building between column numbers 31 through 39. In 1962, the building was expanded further eastward by another 54,334 ft^2 between columns 39 through 49.

A 1955 construction drawing entitled "Plan and Elevation of Tank Farm" (included as Figure 3 of this report) details the number of tanks planned for construction at the northern side of the property. Tanks designed for installation underground are shown as one 10,000-gallon and five 5,000-gallon storage tanks with another 5,000-gallon and another 10,000-gallon tank labeled for future use. The figure also indicates the presence of three 7,500-gallon aboveground storage tanks with two additional 7,500-gallon ASTs reserved for future use.

According to Figure 3, chemicals stored in the USTs included pine oil, varsol, polishing oil, and alcohols. The plans indicate that all of the aboveground tanks were to be used for Freon. These chemicals were apparently used in the manufacturing processes of brushes and brush related products. Based on a review of available site drawings, the Freon was likely used for equipment inside the building as a refrigerant in a closed loop de-humidifier system. It appears that chemicals were delivered to the site in bulk by railroad tankers and transferred to the storage tanks from a rail spur along the northern edge of the building.

Figure 3A of this report was taken from the original site development plans for The Mohawk Brush Company and shows the locations of all above and underground petroleum and chemical storage tanks known to have been located on the site. As shown on Figure 3A, there was also a 5,000 gallon (also refered to as 2,500 gallon on other drawings) "Emergency Dump Tank" that was to have been installed twenty-one feet east of the easternmost fuel oil tank, south of the boiler room and west of the sub station. As of this date, it is not known if this tank was ever actually installed at the site.

1.5 Previous Environmental Investigations

In, 2004, before the site was purchased by Fuller Partners, LLC, The Chazen Companies completed a Phase I Environmental Site Assessment as part of their pre-purchase due-diligence All Appropriate Inquiry process. A copy of the 2004 Phase I ESA is attached as Appendix A. As may be noted in reviewing the Phase I ESA, some additional details and clarification about site history and conditions are evident in this RI report as new information that was identified in the time after the Phase I ESA was originally performed. The TCC Phase I ESA and other referenced report information were used as the basis for developing this RI work scope.

A 1988 *Phase I Environmental Site Assessment Report* produced by C.T. Male associates P.C. for Fuller Realty noted that five underground storage tanks (USTs), reportedly containing No. 6 fuel oil, pine oil, soaps, and water, were removed from the northeast side of the site building in the spring of 1988. Information provided in the C.T. Male report indicated that a small amount of pine oil leaked from one of the tanks during removal and that a few loads of contaminated soil were removed during the tank closure. The NYSDEC was reportedly present during the tank closure. There is no reference to confirmatory soil or groundwater sampling in the UST area in the C.T. Male report.

A *Phase I ESA Report* was prepared for the site by Secor International Corp. in 1996 and identified the presence of two 16,000 gallon underground fuel oil storage tanks located near the boiler room south of the site building, which at the time of their inspection were reportedly empty and not utilized. The two 16,000-gallon underground fuel oil storage tanks were removed and closed in October 2003 by West Central Environmental.

A copy of the tank closure report prepared by West Central Environmental was provided to TCC. The report stated that no groundwater was encountered during the excavation and removal of these tanks and that confirmatory (post-excavation) soil samples did not exceed applicable NYSDEC soil quality standards. The two 16,000-gallon USTs were located south of the boiler room and west of the site's electrical substation.

As of the writing of this report, TCC has no knowledge of the presence of any existing underground storage tanks on the site property and no above ground bulk storage of chlorinated solvents or petroleum except for a single 275 gallon diesel fuel storage tank for a fire pumping system. This tank is located adjacent to the elevated water storage tank. Also, mineral oil may exist within the site sub-station transformers. The general consensus derived from reviewing background site information is that all bulk petroleum and chemical storage tanks were removed from the site by previous site owners in the 1970's and 1980's except the two 16,000 gallon fuel oil tanks south of the boiler room, which were removed/closed in 2003.

No documentation of the bulk storage of chlorinated solvents on the site, other than Freon, has been discovered during the source of these investigations. To date there has been no information or discovery that would suggest that the tank identified as a 2,500 or 5,000 gallon "chemical dump tank" (which appears in 1955 site design drawings for The Mohawk Brush Company) was ever installed or used on the site property.

1.6 Report Organization

This Remedial Investigation Report is organized into seven sections.

- **Section 1: Introduction and Brief Conclusions** – Presents the site description and background information regarding site location, history, operations, previous environmental investigations and a general summary of the investigation findings.
- **Section 2: Study Area Investigation** – Presents field methodologies and sample analysis that were utilized to characterize the site and delineate adverse environmental impacts. Activities discussed in this section include soil and ground water sampling, surface water sampling, sub-slab vapor sampling and indoor air quality sampling.
- **Section 3**: **Physical Characteristics of the Study Area** – Provides a description of the site features including: geology, surface water hydrology, and hydrogeology based on available sources and conditions encountered during the investigation
- **Section 4**: **Nature and Extent of Contamination** – Includes an evaluation of the laboratory analyses performed on the subsurface soil, sub-slab soil vapor, groundwater, surface water, and indoor air samples collected during the remedial investigation.
- **Section 5**: **Contaminant Fate and Transport** – Discusses potential migration routes, chemical and physical characteristics, and other factors that affect the migration of site contaminants.
- **Section 6: Exposure Assessment** – Evaluates perceived chemical contaminant exposure risk to human health and the environment based on the contaminants and exposure pathways identified at the site.
- **Section 7**: **Summary and Conclusion** – Presents a summary of the investigation results and conclusions with respect to chemical impacts from identified contaminants of concern (COC's).

2.0 INVESTIGATION ACTIVITIES

The nature and extent of site environmental impacts were investigated through sampling and analysis of various environmental media. TCC utilized both field screening techniques and certified laboratory analysis data to study subsurface soil and groundwater quality, indoor air quality and nearby surface water quality.

2.1 Ground Penetrating Radar Survey

Prior to the invasive sampling investigation, ground penetrating radar (GPR) was utilized at the site to search for potential underground storage tanks (UST's) that may not have been removed.

2.1.1 GPR Theory

GPR operates by transmitting pulses of microwave-range electromagnetic energy into the ground through an antenna (a.k.a. transducer). Some of the energy is reflected where materials with different electrical properties interface. The remaining energy passes through the interface and down to the next interface where it may be reflected or pass through to deeper interfaces. The reflected signals are received by a control unit which registers the reflections against two-way travel time in nanoseconds. The control unit typically contains an output display on which the signals are plotted in profile (a.k.a. radargram).

The depth of radar penetration is determined by the electrical properties of subsurface materials and by the frequency of wave transmission. The electrical conductivity of a natural earth material is related to its moisture content. Clay and shale are examples of high conductivity materials that reduce the depth of wave penetration. Silt, sand, and gravel are examples of materials that have lower moisture content and low conductivity. Electromagnetic energy can propagate deeper through these materials. The water table is often the maximum depth of penetration, especially for high frequency antennas.

With increased frequency comes increased resolution and decreased penetration. Antennas with higher frequencies (300 to 1000 MHz) are used to investigate shallow features. Low frequency antennas (less than 300 MHz) are used to investigate deep, large-scale features. GPR waves can penetrate up to 100 feet using a low frequency antenna through low conductivity materials.

2.1.2 GPR Limitations

GPR works by differentiating the electrical conductivity of subsurface materials. The ability of GPR to identify subsurface features is dependent on a number of physical variables, all of which are beyond the control of the GPR surveyor. Often the depth of penetration is limited by the presence of mineralogical clays or high conductivity pore fluid (groundwater or other liquids in the subsurface). The presence of subsurface features can also be masked in areas where there are changes in stratigraphy, where subsurface soils have been previously disturbed, where buried debris is present, or where overlying objects mask underlying objects. Materials such as plastic, clay, and fiberglass may be difficult detect depending on the surrounding soil types.

GPR is a non-intrusive method that is very useful in the non-intrusive detection of subsurface objects, but is subject to interferences. Because of the wide range of variability in subsurface conditions, no GPR surveyor can ultimately guarantee the effectiveness of subsurface object detection. The only true confirmation of the presence or absence of subsurface objects is excavation and visual observation.

2.1.3 Site GPR Survey

Prior to the initiation of subsurface soil sampling activities, a ground penetrating radar (GPR) survey was performed utilizing Mala Geoscience GPR equipment with a 250 MHz antenna and a portable computer system equipped to display radargrams (2-dimensional representations of the radar data) as data was collected. The GPR survey was conducted in the former tank farm area on the north side of the site and in the fuel oil and suspected/mapped “dump tank” area on the south side of the site to determine if there was evidence of USTs in these locations.

The GPR was traversed across accessible areas in 3- to 5-ft. traverse spacing. A total of 103 radargrams were recorded during the survey. Anomalous features on the radargrams were examined in the field at the time of the survey and compared to known or visible features at the site to determine if the location represented an area of concern.

At the conclusion of the field survey, the GPR data recorded by the control unit was transferred to a desktop computer for review, analysis and storage. GPR survey results are presented in Section 4.2 of this report.

2.2 Subsurface Investigation Activities

Subsurface site investigation activities were completed to assess the nature and extent of contaminants at the 136 Fuller Road property. A comprehensive soil and groundwater investigation was completed at the site. The components of the investigation included:

- 76 soil borings to determine subsurface geologic conditions and environmental quality;
- 174 subsurface soil samples collected from test borings and analyzed by heated headspace analysis utilizing a field gas chromatograph;

- Collecting and analyzing 45 soil samples from test borings at a New York State Department of Health (NYSDOH) ELAP Certified analytical laboratory;

- The installation, sampling and analysis of groundwater from 20 shallow (<20 feet) groundwater monitoring wells. Samples were analyzed at a NYS ELAP Certified analytical laboratory;

- The installation, sampling and analysis of groundwater from four deep (>20 feet) groundwater monitoring wells. Samples were analyzed at a NYS ELAP Certified analytical laboratory

- Collection and analysis of three sub slab soil vapor samples from beneath the site building. Samples were analyzed at a NYS ELAP Certified analytical laboratory

Details of the field activities associated with the investigations are provided in the following subsections.

2.2.1 Soil Boring Installation

During the course of the RI Investigation, TCC installed a series of 76 soil borings throughout the site study area. Drilling activities were conducted during multiple mobilization events including April 3, 2006 to April 7, 2006, April 14, 2006 to April 25, 2006, February 8 to 21, 2007, and April 11 to 13, 2007, TCC installed sixty-eight (68) soil borings using a Geoprobe® drilling rig and eight (8) soil borings using a hollow-stem auger rig. Boring locations are shown in Figure 4.

A Geoprobe® uses a hydraulic direct-push drilling mechanism to advance four-foot stainless steel sampler. A plastic sleeve is placed in the sampler and the soil is cored in-situ.

Hollow stem auger drilling is a rotary drilling method where the borehole is advanced and cuttings removed by a cutter head followed by a continuous flight or helix of auger ramps. When drilling, a cutting head is attached to the first auger flight, and as the auger is rotated downward, additional auger flights are attached, one at a time, to the upper end of the previous auger flight. As the augers are advanced downward, the cuttings move upward. The hollow core of the auger allows drill rods and samplers to be inserted through the center of the augers.

Soil borings were logged by a TCC geologist as they were advanced. Soil boring logs are included in Appendix A. Explorations were monitored by a TCC geologist to advise the driller as to location and depth of borings, to record subsurface activities, and to modify the subsurface investigation as necessary. Soil samples collected during the subsurface investigation were visually classified in the field.

At soil boring locations, composite samples were collected over two- or four-foot depth intervals. Some of the soil samples were initially screened for the general presence of volatile organic compounds (VOC's) in the field with a portable photoionization detector (PID). As soil was removed from each boring location, a composite of each interval was placed in a plastic bag and headspace air over the soil in the bag was screened with the PID. PID readings were recorded on the soil boring logs.

Field Gas Chromatography Analysis

TCC utilized a portable gas chromatograph (GC) to screen soil as it was collected from each of the borings for evidence of volatile organic compounds. The field GC utilizing a dry electrolytic conductivity detector (DELCD) and PID detectors is substantially more sensitive for the detection of VOC compounds than hand held PID field screening instruments and can qualitatively and quantitatively identify individual VOC compounds.

Composite soil samples from each depth interval were placed into 40-ml. septum top gas tight vials and were heated to 80ºC in a constant temperature water bath. One cubic centimeter of headspace air was removed from each sample and was injected directly into a portable GC which had been previously calibrated for detection and quantification of six chlorinated solvents and seven petroleum compounds suspected of impacting various areas of the site.

GC calibration was performed with certified standards through a 3-point calibration curve and was field checked twice per day with a mid-point standard to verify the calibration. All concentrations were recorded as nanograms of compound per cubic centimeter of sample headspace air.

The air headspace concentrations of compounds detected as a result of the GC field screening are quantitatively useful to determine the relative differences in observed concentrations between samples. The screening results are not extracted mass/mass concentrations of these compounds in soil that can be compared with regulatory standards. Qualitatively, the compounds detected/reported are based on qualitative calibration standards prepared by a nationally certified analytical laboratory. Concentrations of compounds in soil detected by the GC screening process are used to identify the types of compounds present and help to establish the extent of the impacts, and to identify locations where samples should be collected to evaluate actual contaminant concentrations by confirmatory laboratory analysis.

The reported concentrations from GC screening were used as the basis of mapping the comparatively high and low concentrations in the subsurface in order to estimate horizontal source area boundaries and to create a vertical profile of the impact. Locations for groundwater monitoring wells and depths for screened intervals were established primarily by use of the field screening data which identified the depths and areas of greatest and least chemical concentrations in soil during the drilling process.

Based on site observations and field screening, select soil samples were collected and submitted to a NYS ELAP-certified analytical testing laboratory

2.2.3 Groundwater Investigations

Twenty-four (24) groundwater monitoring wells were installed at the site concurrently with the soil investigation. The monitoring well locations are indicated on Figure 5. Locations were selected based on visual and PID evidence of impacts during the soil boring installation and to provide reasonably dispersed coverage of the property.

Sixteen monitoring wells were constructed of 1-inch diameter PVC, five monitoring wells were constructed of 1.25-inch diameter PVC, and three wells were constructed of 2-inch diameter PVC. Well diameters were determined/dictated by the drilling method and drill rig capabilities. For each well, filter sand was poured around the well screen and a bentonite clay seal was placed on top of the filter sand to prevent infiltration of surface water into the screened well interval. Select wells installed outside the building were protected with steel flush-mounted covers (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-17, MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, and MW-24).

Monitoring wells were developed and sampled 24 hours or more after construction. Groundwater samples collected from each well were submitted to York Analytical Laboratories of Stratford, Connecticut. Monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 were sampled and analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, and TAL metals to look for a wide spectrum of potential site contaminants. The remaining wells were sampled and analyzed for VOCs by EPA Method 8260 only to delineate the VOC site impacts. Analytical groundwater quality data is discussed in Section 4.3.

Slug Tests

Slug tests were conducted in the 2-inch diameter monitoring wells MW-6, MW-7, and MW-8. Slug test were used to estimate the shallow aquifer's hydraulic conductivity at the subject site.

In a slug test, a small volume (or slug) of water is suddenly removed from a well, after which the rate of rise of the water level in the well is measured. Alternatively, a small slug of water is poured into the well and the rise and subsequent fall of the water level are measured. Often, a solid object of known volume is used in lieu of a slug of water. From these measurements, the aquifer's transmissivity or hydraulic conductivity can be determined.

From a slug test, it is only possible to determine the characteristics of a small volume of aquifer material immediately surrounding the well, and this volume may have been disturbed during well drilling and construction. However, similar results from tests conducted in several wells may provide a rough average of aquifer properties in an area.

The hydraulic conductivity of the aquifer at the subject site was calculated from slug test data utilizing the method of Bouwer and Rice (1976). The Bouwer-Rice method assumes an unconfined aquifer partially penetrated by a well which has its screened interval located below the water table.

Hydraulic conductivity is the proportionality constant (K) which relates the amount of water which will flow through a unit cross-sectional area of aquifer under a unit gradient of hydraulic head. Hydraulic conductivity is expressed in units of length per unit time. In the following table, a range of hydraulic conductivity values is related to, in general terms, relative permeability as well as various soil and rock types.

TABLE 1 – Generalized Hydraulic Conductivity Values

K (cm/s)	10^{2}	10^{1}	10^{0}	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}
K (ft/day)	10^{5}	10,000	1,000	100	10	1	0.1	0.01	0.001	0.0001	10^{-5}	10^{-6}	10^{-7}
Relative Permeability	Pervious				Semi-Pervious				Impervious				
Aquifer	Good					Poor				None			
Unconsolidated Sand & Gravel	Well Sorted Gravel		Well Sorted Sand or Sand & Gravel			Very Fine Sand, Silt, Loess, Loam							
Unconsolidated Clay & Organic					Peat		Layered Clay			Fat / Unweathered Clay			
Consolidated Rocks	Highly Fractured Rocks				Oil Reservoir Rocks			Fresh Sandstone		Fresh Limestone, Dolomite		Fresh Granite	

Source: modified from Bear, 1972

Because the screened intervals were installed across the water table at the time of the slug tests, the 2-inch monitoring wells at the site, MW-6 and MW-8 did not meet all the criteria for the Bouwer-Rice method. The screened interval in MW-7 was below the water table at the time of the slug test and is presumed to have satisfied this analytical assumption.

Changes in water column height within the wells were measured during the slug test utilizing a pressure transducer and a digital control unit. Data were collected and stored in digital format. This method typically provides more accurate results than manually measuring and recording water elevations due to the rapid change in hydraulic head that occurs during the early portion of the test.

Results of slug test analyses are presented in Section 4.4.

2.2.4 Sub-slab Vapor Sampling

Soil vapor can become contaminated when chemicals volatilize from subsurface sources. Chemicals that can emit vapors are called “volatile chemicals.” Subsurface sources of volatile chemicals include groundwater or soil that is contaminated with volatile chemicals, non-aqueous phase liquid, buried wastes and underground storage tanks or buried drums. If soil vapor is contaminated and enters a building, indoor air quality may be affected.

Volatile chemicals can migrate from a subsurface source into the indoor air of buildings. Soil vapor is the air found in the pore spaces between soil particles. Primarily because of the difference between interior and exterior pressures, soil vapor can enter a building through cracks or perforations in slabs or basement floors and walls, and through openings around sump pumps or where pipes and electrical wires go through the foundation.

To determine if the soil vapor under the subject site building contained volatile chemicals, three sub-slab soil gas samples identified as SSG-1, SSG-2, and SSG-3 were obtained from beneath the concrete floor in the interior of the building (Figure 6). The sub-slab samples were collected to determine if volatile organic compounds were present in the soil directly beneath the building and in an area thought to be in the vicinity of the contaminant source area and therefore, potentially the most highly impacted sub-slab building locations.

The samples were collected over an eight hour period utilizing SUMMA® canisters. A 0.5-inch diameter hole was drilled through the concrete slab using a rotary hammer drill with a masonry bit. No air or liquids were used to clear drill cuttings. Dedicated polyethylene tubing was placed into the hole and sealed at the surface with modeling clay. The short length of tubing from the hole was connected to a regulator which controlled the rate of flow into the SUMMA canister. A separate regulator was used for each canister to prevent cross contamination. Regulators were provided, certified and adjusted by the analytical testing laboratory prior to the sampling and sampling canisters were provided by the laboratory as certified clean containers.

Soil vapor samples were analyzed for VOCs by EPA Method TO-15 by an American Industrial Hygiene Association (AIHA) certified laboratory.

Results of sub-slab soil vapor sampling are discussed in Section 4.5

2.3 Surface Water Investigation

One objective of a site characterization study should be to determine if contamination is present in nearby surface water bodies because of the potential for contaminant migration via groundwater transport and discharge to adjacent surface water. Samples are typically collected from locations downstream, upstream, and adjacent to areas suspected to be contaminated. Downstream samples and samples collected adjacent to the site are used to determine if contaminants originating on site are migrating off site. The upstream sample is collected to assist in defining background surface water chemistry.

Three surface water samples identified as Patroon-1, Patroon-2, and Patroon-3 were obtained from the Patroon Creek south of the subject property (Figure 7). The samples were collected to determine if contamination is present in the nearby Patroon Creek. Sample Patroon-1 was a downstream grab sample, Patroon-2 was an upstream grab sample, and Patroon-3 was a grab sample collected closest to where the site stormwater outfall enters the creek and in the general area where site groundwater may discharge to the stream basin.

Samples were collected by submerging clean, dedicated, 1-L glass containers into the stream and slowing filling pre-preserved 40-ml glass vials from the larger containers. The samples were immediately placed on ice to prevent volatilization.

Samples were sent to a New York State Environmental Laboratory Accreditation Program (NYS ELAP) certified laboratory to be analyzed for target compound list (TCL) volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260.

Surface water sampling results are discussed in section 4.6

2.4 Indoor Air Quality Investigation

The New York State Department of Environmental Health (NYSDOH) has developed guidelines for chemicals in air. The purpose of the guidelines is to help guide decisions about efforts to evaluate and reduce human exposure to chemicals in air. The guidance recommends reasonable and practical actions be taken to reduce human exposures when indoor air chemical levels are above background concentrations, even when they are below the concentration guidelines. The urgency to complete remedial actions increases when indoor air chemical concentration levels are above the guidelines. The specific corrective action to be taken is determined on a case-by-case evaluation. The goal of recommended remedial actions is to reduce chemical levels in indoor air as close to background as possible.

On December 26, 2006, TCC collected 10 air samples to evaluate indoor air at the 136 Fuller Road facility. At that time the building was in a normal winter heating mode, was partially occupied by employees from both site businesses and business operations and equipment operations at both were fully operational. Nine samples were collected from interior building locations considered to be representative of the all major building areas that are separated by walls or other physical or special separation features. One sample was collected at an outdoor location to represent background exterior air conditions at the time of the sampling. Figure 8 identifies all sampling locations and sample ID's. These samples were collected to determine if volatile organic compounds (VOCs) identified beneath the building slab are present in the air within the building, and if present, to determine if the VOC concentrations exceeded applicable indoor air quality guidance values.

All indoor samples were collected at a height representative of the breathing zone for building occupants (5-6 feet above the floor level). One outdoor (background) air sample was collected at a height of about 5-6 feet above the ground surface on the south side of the fence surrounding the water tower in the northeast corner of the site. The samples were collected utilizing SUMMA® canisters over an eight hour period during a normal operational work day.

Samples were submitted to Centek Laboratories of Syracuse, New York for analysis. Each sample was analyzed for VOCs via EPA Method TO-15.

The results of the indoor air quality investigation are presented in Section 4.7.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Surface Features and Topography

The site property is a relatively flat parcel with a gradual downward slope southward toward the Patroon Creek. The Patroon Creek valley banks drop off steeply immediately south of the property boundaries and more gradually to the east. A review of the United States Geologic Survey (USGS) Topographic Map of the Albany, New York Quadrangle indicates that surface elevations on the subject property are approximately 250 feet above mean sea level (msl) (see Figure 1).

During construction of the building, land area on the site underwent substantial soil cut and fill placement to shape the site for construction. Historic construction drawings, for the 1955 building construction, indicate that large quantities of soil were cut from the northern portion of the property and from lands east of the current property boundary and were placed along a then more northern Patroon Creek valley to push the stream valley southward for development. Sections of the northern portion of the property, especially in the areas where the second and third building additions were constructed consists mainly of fill material to elevate the building to allow for the building floor slab of 250-ft. above mean sea level and the supporting circulatory roadways and drainage grading around the building. Based on drawing dates, it appears that these site grading activities occurred between the original 1955 construction date and 1959 or 1960.

As shown in the site survey (Figure 2), the existing 270,000-ft^2 structure occupies the majority of the site property. Paved parking areas and lawn areas comprise the balance of the site. The property contains approximately 680 feet of frontage along Fuller Road to the west and is accessed via two paved driveways from Fuller Road.

3.2 Site Hydrology and Hydrogeology

The closest surface water body to the site is the Patroon Creek. The south branch of the Patroon Creek originates from Lake Rensselaer approximately 1,100 feet west of the subject site. The Patroon Creek flows in an easterly direction along the south side of the subject property and flows a total distance of approximately 6 miles east to the Hudson River.

The Plot Plan and Details of the original building plans for Mohawk Brush Company show that the Patroon Creek was relocated from its original path during the original 1955 site development process. The creek, which meandered in the southern portion of the property, was diverted to a more direct route via a culvert that directed the water from Lake Rensselaer at Fuller Road further south of the site. Currently the creek runs underground by way of culverts south of the site and through the NYS I-90 Highway Fuller Road exit ramp property. Culverts direct the stream flow from Fuller Road eastward beneath the highway exit ramp system. Just south of the central area of the site, one of the stream culvert sections surfaces to a small surface water area then re-enters another culvert, traverses beneath another section of the exit ramp and then discharges to the exposed stream valley east of the exit ramp and east of the site property. As noted, creek exposure nearest the property is south of the central portion of the site, in a surficial drainage depression area between the site and the I-90 Highway exit ramp.

Based on a survey of static water elevations in site wells, shallow groundwater on the site flows to the south. Groundwater elevations and interpolated contours are shown on Figure 9. Groundwater elevations are relatively flat in the north and west areas of the site. The gradient increase as groundwater approaches the Patroon Creek to the south and east. The elevation stage of the Patroon Creek in comparison to the groundwater elevations approaching the creek indicate that the two intersect.

In the area of the former tank farm, local groundwater elevations appear to be influenced by the presence or absence of discontinuous shallow clay deposits in the subsurface which create sharply contrasting differences in the potentiometric groundwater surface elevations between adjacent clay and sand units. As shown in Figure 9, Monitoring Wells MW-19 and MW-24 installed in the clay unit were measured as having much higher groundwater elevations, from 2-6 feet higher that the rest of the wells in this area, all of which were installed in the sandy soil unit.

No hydrogeologic information was available for properties which surround the subject site. Based on a review of available information, regional drainage and shallow groundwater flow in the area of the subject site is expected to mimic surface topography and be southward towards the Patroon Creek.

3.3 Geology

The geology of the area is shaped by the glacial history of New York State. Approximately 20,000 years ago in the Wisconsinan Era, New York State was covered by a glacier that extended south to present day Long Island. As the glacier began to melt, it receded northward to present day Albany. As the glacier receded, the melt water was blocked by ice and glacier moraine deposits and formed glacial Lake Albany. Lake Albany spanned from the present day Glens Falls region south to present day Newburgh. The Mohawk River emptied into Lake Albany forming a large delta formation and depositing large amounts of sand and gravel. In addition to the sand and gravel deposits, glacial lakes also deposited very fine grain material that settled out in clay layers to form the lake bottom. The sand, gravel and clay deposits are characteristic of the site area.

A review of the *Geologic Map of New York, Hudson-Mohawk Sheet* (1970) indicates the bedrock in the area of the subject property is mapped as Normanskill Shale which consists of minor mudstone and sandstone. Bedrock was not encountered in the borings installed during this investigation, the deepest being 35 feet below the ground surface.

According to the Natural Resources Conservation Service (NRCS), the majority of the soil on site is mapped as Udipsamments or Smoothed and Urban Land. Soils classified as Udipsamments are described as consisting of coarse sand and are well-drained. Soil classified as Smoothed and Urban Land is described as consisting of a variable texture whose drainage class is not reported.

A review of the *Surficial Geologic Map of New York-Hudson-Mohawk Sheet* (1989) indicates that the soils in the area of the subject property are mapped as lacustrine sand. Sand deposits are typically associated with large bodies of water, generally a near-shore deposit or near a sand source. Lacustrine sand soils are well sorted, stratified, and generally consists of quartz sand with a variable thickness of 2-20 meters.

Soil encountered during drilling activities primarily consisted of silty-sand. Clay was also found in some of the shallow borings completed on the northern side of the building and northern interior locations. A clay layer was encountered during the installation of monitoring wells MW-1, MW-3 and MW-5 at approximately 31-ft, 36-ft, and 30-ft below the ground surface, respectively. The clay layer encountered at depths equal to or greater than 30-feet is interpreted to be a continuous, naturally-occurring clay layer, whereas the shallow clay intervals encountered discontinuously at depths less than 20 feet are believed to be placed fill material. Figure 11 is an interpolated geologic cross section north-south across the center of the site.

Silt and fine sand was present throughout the site, and the difference between fill and naturally occurring sand layers was difficult to distinguish. There appeared to be a slight fining downward gradient in the deepest borings.

Drilling logs are attached as Appendix A.

3.4 Demography and Land Use

Prior to 1955, the subject site was undeveloped land. Based on historic photos, the surrounding area appeared to be cultivated agricultural property. The subject site was developed in 1955 for commercial and industrial use by the Mohawk Brush Company. Properties located to the north and east of the site are presently, and have historically been, utilized for commercial and industrial business along a heavily industrialized rail corridor. Railroad Avenue lies north of the Conrail railroad and is an industrial corridor served by the railroad. To the west of the site are Lake Rensselaer and a recreational public park. To the south of the site is Interstate 90 and an access ramp.

4.0 NATURE AND EXTENT OF CONTAMINATION

Six sources of data were used in defining the nature and extent of contamination at the 136 Fuller Road property:

- Field screening of soil during soil boring installations
- Laboratory analysis of soil samples collected during soil borings installation
- Laboratory analysis of groundwater samples collected from installed monitoring wells
- Laboratory analysis of sub-slab vapor samples.
- Laboratory analysis of indoor air samples
- Laboratory analysis of surface water samples

4.1 ARARs

This section discusses the applicable or relevant and appropriate requirements (ARARs) that govern the remediation of the 136 Fuller Road property. The determination of ARARs ensures that the remedial or corrective actions employed comply with federal and state public health and environmental standards. Review of ARARs highlights site-specific regulatory conditions that might either limit the choice of alternatives or place limits on contaminant concentrations.

Remedial alternatives must ensure protection of human health and the environment, be cost-effective, and use permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. and Title 6 NYCRR Part 375, Environmental Remediation Programs subpart 375.6 and and Title 6 NYCRR Part 703 surface water and groundwater quality standards were identified as the standards applicable to potemtial remedial alternatives.

The Environmental Restoration Program (6 NYCRR Part 375) applies to the development and implementation of the remedial programs for soil and other media and includes soil cleanup objectives based on anticipated land use. The surface water and groundwater quality standards (6 NYCRR Part 703) apply to all surface water and groundwater in the State of NY.

Regulatory guidance requires that hazardous substances or pollutants remaining on-site meet the level or standard of control established by the ARARs unless otherwise negotiated by regulatory agencies based on site and area specific circumstances and goals.

A requirement may be either applicable or relevant and appropriate to remedial activities at a site, but not both. Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a site. A remedial action must satisfy all the jurisdictional prerequisites of a requirement for the requirement to be applicable.

If a regulation is not applicable, it may still be relevant and appropriate. The basic considerations are whether the requirement (1) regulates or addresses problems or situations sufficiently similar to those encountered at the subject site (i.e., relevance), and (2) is appropriate to the circumstances of the release or threaten release, such that its use is well suited to the particular site. Determining whether a requirement is relevant and appropriate is site-specific and based on best professional judgment. This judgment is based on a number of factors, including the characteristics of the remedial action, the hazardous substances present at the site, and the physical circumstances of the site and of the release, as compared to the statutory or regulatory requirement. Any selected remedial alternative must comply with regulations found to be applicable or relevant and appropriate.

To-be-considered materials (TBCs) are nonpromulgated advisories, proposed rules, or guidance documents issued by federal or state governments that are not legally binding and do not have the status of potential ARARs. However, these advisories and guidance are to be considered in the site risk assessment and in determining protective cleanup levels. Where no ARAR exists, or where ARARs are not sufficiently protective of human health and the environment, chemical-specific TBC values may be used to establish cleanup targets.

4.2 GPR Survey Results

Prior to the initiation of subsurface soil sampling activities, a ground penetrating radar (GPR) survey was performed utilizing Mala Geoscience GPR equipment with a 250 MHZ antenna and a portable computer system equipped to display radargrams (2-dimensional representations of the radar data) as data was collected. The GPR survey was conducted in the former tank farm area on the north side of the site and in the fuel oil and suspected/mapped potential location of the "dump tank" (proposed on the original site engineering drawings but installation not confirmed) area on the south side of the site to assess the possible presence of USTs in those locations.

The GPR was traversed across accessible areas in 3- to 5-ft. traverse spacings. A total of 103 radargrams were recorded during the survey. Anomalous features on the radargrams were examined in the field at the time of the survey and compared to known or visible features at the site to determine if the location represented an area of concern.

No indications of underground tanks were discovered using ground penetrating radar. To the extent that conditions were favorable for the collection and interpretation of GPR data at the site at the time of the GPR survey, it does not appear that USTs remain in the tank farm area or in the fuel oil or "dump tank" area to the south of the site building.

4.3 Results of Soil Investigation

The nature and extent of soil contamination was investigated though the installation of exploratory soil borings along with field screening and laboratory analysis of soil samples.

4.3.1 Portable Gas Chromatography

Soil samples from soil borings were screened on-site by heated headspace analysis with a Gas Chromatograph (GC) for the presence of volatile organic compounds. The soil screening process was used to identify the presence of volatile organic compounds, and if present, identify the vertical and horizontal extent of the contamination by a comparison of relative concentration values.

As described in section 2.2.1, the values reported from this screening process are not the same as the laboratory results for soil sample analysis which are reported in parts per billion (ppb) on a compound mass/mass basis. The heated headspace results are presented as nanograms per cubic centimeter of compound in the headspace air above the heated soil matrix in an enclosed container. The result in numeric values reported from this screening process are typically much higher than the corresponding lab analysis data. The screening process is only used to identify impacts, limits of impacts, and distribution of individual compounds on the site based on relative concentration differences.

Based on the screening results, soil samples were selected from the vertical and horizontal boundaries of the plume (the observed outer-limits of the impacted soil) and were submitted for confirmatory laboratory analysis. Samples within the plume were also analyzed in the laboratory to determine actual compounds present and concentrations in soil as defined by approved EPA methods.

The greatest concentrations of compounds were detected in the area of the former tank farm along the north side of the site building and at a depth between 8 feet and 16 feet below ground surface. The field GC screening data is summarized in Appendix B. The compound of concern (COC) identified at greatest concentration, frequency and distribution was found to be tetrachloroethene (PCE). Other chlorinated VOC's including 1,1,1-trichloroetane, trichloroethene, dichloroethane and dichloroethene were also consistently present in the impacted source and plume area but at a lesser frequency and at substantially lower concentrations.

4.3.2 Laboratory Analytical Results for Soil Samples

Volatile Organic Compounds

Forty-one soil samples were submitted to York Analytical Laboratories for VOC analysis. Thirty-three (33) samples contained detected concentrations of VOCs. Of these, two (2) samples had one compound detected above the 6 NYCRR Part 375.6 industrial use soil cleanup standard concentration. Tetrachloroethene (PCE) was detected above the 6 NYCRR Part 375 – Restricted Industrial Use standard of 300, ppm. Soil boring GP-6 has PCE detected at 14,000 ppm at 8-12 feet below ground surface and DB-8 had PCE detected at 400 ppm at 8-12 feet below ground surface.

Utilizing PCE concentrations from laboratory analysis of soil samples, a concentration map was produced illustrating the approximate locations and boundaries of the PCE contaminated soil (Figure 9). The impacted soil area appears to be mainly concentrated in the area of the former tank farm and may extend upgradient and offsite to the north, onto the railroad property.

The laboratory data for VOCs in soil samples is summarized in Table 2. Laboratory analytical reports for all soil samples are attached as Appendix D.

TAL Metals

Five soil samples, GP-1 (28'-32' bgs), GP-2 (16'-20' bgs), GP-13 (12'-16' bgs), GP-13 (32'-36' bgs) and GP-24 (12'-16' bgs), were submitted to York Analytical Laboratories for heavy metal analysis. No concentrations of metals were above the 6 NYCRR Part 375 Restricted Industrial Use guidance values. The laboratory analytical report for metals analysis of these samples is tabulated on Table 3 and included in Appendix D.

Semi-volatile Organic Compounds

Thirteen (13) soil samples were submitted to York Analytical Laboratories for analysis of Semi-volatile Organic Compounds (SVOCs) by EPA Method 8270. The following samples were submitted: GP-1 (28'-32' bgs), GP-6 (8'-12' bgs), GP-10 (16'-20' bgs), GP-13 (12'-16' bgs), GP-13 (32'-36' bgs), GP-14 (12'-16' bgs), GP-15 (16'-20' bgs), GP-16 (16'-20' bgs), GP-16 (28'-32' bgs), GP-18 (8'-12' bgs), GP-22 (12'-16' bgs), GP-23 (12'-16' bgs), and GP-24 (12'-16' bgs).

No semi-volatile organic compounds were detected in any of the samples. A copy of the laboratory analytical report is included in Appendix D.

4.4 Results of Groundwater Investigation

Volatile Organic Compounds

Groundwater samples were obtained from the twenty-four monitoring wells installed on site. Monitoring well locations are presented in Figure 5. Table 4 summarizes the laboratory analytical data. Samples obtained from monitoring wells MW-2, MW-5, MW-7, MW-9, MW-10, MW-13, MW-16, MW-17, MW-18, MW-19, MW-20, MW-21, and MW-22 had concentrations of one or more VOC compounds above the NYSDEC Surface Water and Groundwater Quality Standards and Effluent Limitations (6 NYCRR Part 703.6). The compounds above the 6NYCRR Part 703.6 groundwater quality standards include 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichlorobenzene, cis-1,2-Dichloroethylene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Dichlorodifluoromethane, Ethylbenzene, Naphthalene, Tetrachloroethene (PCE), Toluene, Trichloroethylene, Trichlorofluoromethane, and Xylenes. Monitoring well MW-24 was installed in the clay soil unit at the same location as test boring GP-6 where ths highest concentrations of PCE were identified in soil. To determine the impact to groundwater within the contaminated clay soil. No VOC's were detected in thegroundwater sample collected from this well, suggesting that the VOC's are tightly bound within the clay soil matrix preventing impacts to groundwater from this very low permeability clay.

Site groundwater quality is adversely affected by volatile organic compounds in the shallow portion of the aquifer, while concentrations of VOCs decrease substantially in deeper (>25 ft bgs) portions of the aquifer. Samples collected from monitoring wells MW-1, MW-2, MW-3, and MW-5 were from wells screened at depths greater than 25 feet. MW-2 contained MTBE at 61 ppb and MW-5 contained MTBE at 23 ppb, both above the DEC's 10 ppb cleanup goal for this unleaded gasoline additive VOC. No chlorinated volatile organic compounds (CVOC's) were identified in these deeper screened monitoring wells indicating that the CVOC impact has not migrated vertically below the 20-25 foot below site ground surface depth. Monitoring wells installed with screened intervals across the water table or near the water table showed greatest levels of impacts with both VOC and CVOC compounds.

The groundwater quality at the site is impacted with VOCs in an area extending from the north property boundary in the former tank farm area to the southern site boundary. The plume of contamination widens in the down gradient site areas from a width of about 200 feet in the tank farm area to approximately 700 feet in width near the southern boundary. With the exception of MW-7 which may be influenced by a potential preferential groundwater flow pathway along the site stormwater drainage pipe, groundwater quality at the southern downgradient end of the property was found to have very low concentrations of COC's indicating little evidence of impact at the point where groundwater flows off-site to the adjacent DOT Route I-90 Corridor property. Groundwater in the MW-7 location was initially sampled in April of 2006. Following that sampling date, maintenance to the site stormwater drain beneath the site building included the placement of a low permeability flowable fill material around the main stormwater drain pipe at the south end of the building to fill a void space that had been eroded. In January of 2007, this well was re-sampled and COC levels were found to be substantially lower than had been detected during the initial sampling. The placement of the material with low permeability characteristics during this pipe maintenance repair activity may have contributed to this observed reduction in groundwater quality impacts at the MW-7 location. COC concentrations for both sampling dates are summarized on Figure 5 and in Table 4.

The highest concentrations of VOCs were detected in two monitoring wells installed inside the main site building (MW-9 and MW-10). MW-9 and MW-10 contained elevated concentrations of various chlorinated solvents. MW-9 also contained elevated concentrations of petroleum hydrocarbons, this may be attributed to the fact that MW-9 is closer to the UST's in the tank farm area where Varsol and other petroleum family compounds were historically known to have been stored in bulk quantities.

The laboratory analytical data for groundwater samples are tabulated on Table 5 and laboratory reports are attached as Appendix E.

TAL Metals

Samples obtained from monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 were analyzed for the Target Analyte List (TAL) of metals. MW-1 and MW-2, contained select heavy metal concentrations in excess of the NYSDEC ambient groundwater quality standards. Monitoring wells MW-1 had detections of iron (2,620 ppb) and Manganese (1,200 ppb) above the 6NYCRR part 703.6 groundwater effluent limitations of 600 ppb for both compounds. Monitoring well MW-2 had iron detected at 1,260 in excess of the NYSDEC standard of 600 ppb. Laboratory analytical data for groundwater sample analysis for TAL metals is summarized in Table 5 and the laboratory analytical report for all groundwater samples is attached as Appendix D. No elevated levels of typical industrial metal contaminants such as lead, chromium, mercury, zinc or any of the other common industrial use metals were identified in site groundwater samples or in site soil samples at levels that would likely be correlated to an industrial contaminant impact.

Semi-volatile Organic Compounds

Groundwater samples obtained from monitoring wells MW-1 through MW-5 did not contain any detected concentration of semivolatile organic compounds (SVOCs).

Slug Test Results

Hydraulic conductivity was calculated via slug tests in three monitoring wells. Results of the slug tests indicate a poor aquifer of semi-pervious material. Slug test results are presented in Table 6 in common hydraulic conductivity units.

Table 6 - Results of Slug Test Analyses

Hydraulic Conductivity		MW-6 IN#1	MW-6 IN#2	MW-6 OUT #1	MW-6 OUT#2
ft/sec		1.2E-05	1.3E-05	1.7E-05	1.2E-05
ft/day		1.07	1.15	1.43	1.00
m/day		0.33	0.35	0.44	0.31
		MW-7 IN #1	MW-7 IN #2	MW-7 OUT #1	MW-7 OUT #2
ft/sec		2.1E-05	3.2E-06	1.2E-05	2.1E-05
ft/day		1.77	0.28	1.03	1.85
m/day		0.54	0.08	0.31	0.56
		MW-8 IN #1	MW-8 IN #2	MW-8 OUT #1	MW-8 OUT #2
ft/sec		5.6E-06	2.3E-06	2.4E-06	2.0E-06
ft/day		0.49	0.20	0.21	0.18
m/day		0.15	0.06	0.06	0.05

Results of slug tests indicate a range of hydraulic conductivity typical of very fine sand and silt (see Table 1). These sediment types were the predominant materials found during the subsurface investigation. Clay was also encountered and is considered impervious. Clay has a range of hydraulic conductivity 3 to 7 orders of magnitude lower than fine sand and silt.

The similarity of results between wells MW-6 and MW-8 (screened across the groundwater table) with those of MW-7 (screened below the groundwater table) suggests that any error that may occurr as a result of performing slug tests in site wells with screen intervals across the water table is potentially negligible.

The hydraulic conductivity and sediment types determined to be present in the site subsurface result in an aquifer that can be described as semi-pervious. Based on the shallow gradient in the area of highest contamination, most solute transport would be expected to occur via diffusion; however, if higher permeability pathways are present or were created during the building construction, solute transport could occur much more rapidly via groundwater migration. A stormwater drainage system that principally conveys stormwater from the roof of the site building exists beneath the building in the form of interconnected subslab basins and piping that manifolds to a single outlet pipe. The outlet pipe is a 24-inch diameter stormwater pipe that exits the building in a southward direction between column lines 17 and 18. This stormwater pipe then travels southward and ultimately discharges off-site into the surface water of the Patroon Creek, near the location where surface water sample Number 3 (Figure 7) was collected. There is some concern that the pipe bedding around the pipes in the system may be of greater permeability than the natural soil and may provide a path of least resistance offering a preferred pathway for accelerated mobility of contaminated groundwater from the more impacted groundwater plume areas to the pipe discharge location at the Patroon Creek near Surface Water Sampling Point Number 3.. Elevated concentrations of contaminants in site monitoring well MW-7 may support this theory as this well is very close to the pipe location and the VOC contaminant concentrations in this area of the site heading away from this location in both east and west directions are much lower in concentration. As discussed previously in this report section, repairs activities that replaced bedding around this pipe with low permeability material near the south end of the site building, may have reduced the pipe bedding permeability at that location, reducing the effects of this potential preferential pathway.

4.5 Results of Sub-slab Vapor Sampling

The objective of collecting sub-slab samples was to identify the potential for human exposure to volatile organic compounds through soil vapor intrusion. Three sub-slab vapor samples were collected in the main site building.

Currently New York State does not have any promulgated standards, criteria or guidance values for concentrations of compounds in subsurface vapors. Therefore in the absence of this information, soil vapor sampling results are compared to background outdoor air levels, site-related outdoor air sampling results, and the NYSDOH guidelines for volatile chemicals in indoor air and beneath building slabs as presented in the NYSDOH Vapor Intrusion Program Guidelines. These comparisons are used to (a) identify areas of relatively elevated concentrations of volatile chemicals in soil vapor; (b) select the best approach to conduct sub-slab, indoor air, and outdoor air sampling; (c) identify possible sources of subsurface vapor contamination; (d) monitor the progress, or verify the completion, of efforts to remediate subsurface vapor contamination; and (e) characterize the nature and extent of subsurface vapor contamination.

The results of the laboratory analysis of the three sub-slab samples indicate the presence of VOCs in soils beneath the slab (Table 7). The presence of these compounds in the sub-slab soil vapors indicates a potential for indoor air quality to be impacted through vapor intrusion if vapor migration pathways through the slab exist.

The laboratory analytical report for sub-soil vapor samples is attached as Appendix F.

The air guideline values provided by the NYSDOH for required remedial action when evaluating sub-slab VOC concentrations only include 60 microgram per cubic meter (mcg/m^3) of methylene chloride, 100 mcg/m^3 of tetrachloroethene and 5 mcg/m^3 of trichloroethene. While numerous other VOC's were detected in the sub-slab samples, of these three compounds included in the DOH vapor intrusion guidance document decision matrix, only trichlorethene was detected in SSG-2 at 88 mcg/m^3 which is above the established guideline of 5 mcg/m^3.

The detection of volatile chemicals in sub-slab vapor samples does not necessarily indicate soil vapor intrusion is occurring or that actions are needed to address exposures. The State makes determinations, taking into account: the sampling results – sub-slab vapor, indoor air quality, outdoor air quality and background concentrations of volatile organic compounds in indoor air, the NYSDOHs guidelines for volatile chemicals, human health risks and attenuation factors. In response to the elevated sub-slab vapors, indoor air sampling was also completed. The results of the indoor air sampling are discussed in Section 4.7.

4.6 Results of Surface Water Sampling

Three surface water samples were collected from the Patroon Creek located on the property adjacent to the south side of the subject property (Figure 7). The surface water samples were analyzed for VOCs by EPA Method 8260. Patroon-1 was a downstream surface water sample collected where the stream resurfaces east/southeast of the subject site. Patroon-2 was an upstream sample (upstream of the subject site and upstream of where site groundwater or site stormwater would be expected to discharge to the creek) southwest of subject site where the stream is exposed along the east side of Fuller Road. Patroon-3 was collected where the stream is exposed to the surface adjacent and on the south side of subject site and where the site stormwater discharge pipe outfall enters the creek basin. Two of the three grab samples, Patroon-1 and Patroon-2, contained no detected VOCs. The compound 1,1-Dichloroethane was detected at 9 micrograms per liter (ug/L) in sample Patroon-3. The detection of 9-ug/L is above the New York State Department of Environmental Conservation (NYSDEC) guidance value of 0.6-ug/L for surface water quality.

The Patroon Creek is classified by the State of NY as Class “C” surface water body. The best usage of Class C waters is defined as fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.

The results of the analytical data for Patroon 1, Patroon 2, and Patroon 3 are summarized in Table 4 and the Laboratory Analytical report is included in Appendix E.

4.7 Results of Indoor Air Quality Investigation

The objective of collecting indoor air samples is to assess current human exposure to volatile chemicals in air. The detection of volatile chemicals in indoor air does not necessarily indicate soil vapor intrusion is occurring or actions are needed to address exposures. These determinations are based on an evaluation of all available data.

Nine indoor air samples were collected from the site building. One outdoor air sample was collected for comparison purposes. Sample collection locations are indicated on Figure 8. The indoor air sample results were compared to established occupational exposure guidance values and NYSDOH guideline values in Tables 8 and 9 (2 pages each). There are four exposure guidelines presented. The Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) and the National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs) are time-weighted average concentrations that must not be exceeded during any 8-hour (PELs) or 10-hour (RELs) workday during a 40-hour workweek. OSHA and NIOSH Short-Term Exposure Limits (STELs) are 15-minute time-weighted average exposure limits which should not be exceeded at anytime during the day. No detected volatile organic compound exceeded the published occupational exposure guidance values for detected compounds.

The air samples were also compared to NYSDOH indoor air guidance values as presented in the Vapor Intrusion Program Guidelines. Table 9 presents the analytical results in micrograms per cubic meter of air and the laboratory analytical results are attached as Appendix G. Vapor intrusion guidance values have been established for only five (5) compounds. None of these compounds were detected in the indoor air samples at concentrations that exceeded the DOH guidance values.

For all other compounds, the DOH Vapor Intrusion Guidance recommends comparing sample results to typical background concentrations as an initial benchmark. Studies of residential and commercial air quality are provided in the guidance, and the typical background concentration values determined during these studies are provided in Table 9. In several instances, compounds not considered site compounds of concern were identified at concentrations that were either higher than the site background (outside air concentrations) or higher than the NYSDOH or USEPA published background study values, however, none of these instances were taken to represent an adverse air quality impact within the air quality of this industrial use building. Based on the uses of machinery and other petroleum containing equipment and the printing operations that take place within this building, it is not unreasonable to assume that these chemicals may be present as a function of normal site manufacturing processes and therefore, occupational safety PELs apply. As stated earlier, all OSHA PELs were met. A sample study summary report for this December 2006 study is attached as Appendix H of this report.

5.0 CONTAMINANT FATE AND TRANSPORT*

The fate and transport characteristics of the contaminants of concern identified at the subject site are described in this section. The fate and transport of contaminants are determined by factors such as the physical and chemical properties of the contaminants themselves and the physical and chemical properties of the soil, groundwater, surface water, and sediment in which the chemicals are released. This section identifies the factors controlling the environmental fate and transport of contaminants in site media.

5.1 Potential Routes of Migration

- Surface Water – Contaminants in surface water can migrate away from the source area via dissolved water transport, surface currents, drifts, and other transport processes.

- Groundwater – Chemicals enter the groundwater by a release and occur in groundwater in two phases: dissolved phase and suspended solid phase. The dissolved phase contaminant will generally migrate in the direction of groundwater flow. The suspended solid phase can migrate through the water table in either an insoluble form or adsorbed to small particles.

- Leaching – Chemicals may be transported downward through the unsaturated soil strata by water occurring from precipitation events or by liquids that infiltrate the soils.

- Volatilization – Some chemicals will readily volatize into the atmosphere and structures and will migrate away from the source area by diffusion and air currents.

- Surface Runoff and Erosion – Due to their chemical characteristics, some chemicals are readily adsorbed to soil particles. The contaminants can be conveyed over land by runoff that occurs during precipitation events or by the erosion of contaminated soil.

5.2 Contaminant Persistence

Persistence is the measure of how long a chemical will exist in the environment before it degrades or transforms, either chemically or biologically, into some other chemical. Some of the factors which affect the persistence of a chemical include the physical state of the chemical, the availability of the chemical, exposure to sunlight, oxygen availability, microorganisms present, nutrients, temperature, pH, as well as the presence of other chemicals which may inhibit or enhance degradation. Usually, persistence is expressed in terms of a chemical half-life and can be on the order of days, weeks, or years.

*Information on chemicals obtained from Agency for Toxic Substances and Disease Registry (ATSDR) @ http://www.atsdr.cdc.gov and the Environmental Protection Agency (EPA) @ www.EPA.gov

The primary contaminant constituents identified at the site were cis-1,2-dichlorobenzene, 1,1-dichlorethane, 1,2-Dichlorobenzene, ethylbenzene, 1,1,1-trichloroethane, 1,1-dichloroethane, methyl-tert butyl ether (MTBE), naphthalene, xylenes, tetrachloroethene, trichloroethene, 1,1,2-trichloroethane, 1,2,4-trimethylbenzene, toluene and xylenes.

- Cis-1,2-Dichlorobenzene – may be released to the environment in air emissions and wastewater during its production and use and/or are formed as breakdown products from the reductive dehalogenation of common industrial solvents trichloroethylene, tetrachloroethylene, and 1,1,2,2-tetrachloroethane. When released in soil, cis-1,2-Dichlorobenzene should evaporate and leach into the groundwater where very slow biodegradation should occur (Koc are estimated at 36-49; high to very high mobility in soil).

  If released in water, 1,2-dichloroethylenes will volatilize (vapor pressure is 273mm Hg at 30° C). It is soluble in water (3.5g/L at 25C). When released to the air, cis-1,2-dichlorobenzene is relatively long-lived in the atmosphere and considerable dispersion from source area should occur (Henry's Law Coefficient is 3.37 x 10^{-3} atm-cu m/mole).

  Biodegradation, adsorption to sediment, and bioconcentration in aquatic organisms should not be significant.

- 1,1-Dichloroethane – is released from industrial processes primarily to the air and will rapidly evaporate from water into the air. When released to the soil it can evaporate into the air or move into the groundwater vapor pressure is 591 mm Hg at 25° C. It is also found in the air as a breakdown product of 1,1,1-Trichloroethane. It does not easily dissolve in water as it is insoluble and it is not known how long it stays in soil where it slowly transforms to other less harmful chemicals. In the air, it takes about 4 days for it to break down.

- 1,2 Dichlorobenzene – Some dichlorobenzenes are released into the environment when used to make herbicides and when people use products that contain these chemicals. Dichlorobenzenes do not easily dissolve in water and can quickly evaporate into the air (vapor pressure is 1.2 Hg mm at 20° C. Dichlorobenzenes can sometimes bind to soil and sediment and are not easily broken down. Bioaccumulation in aquatic organisms is expected to occur.

- Ethylbenzene – When released to the soil some ethylbenzene may be adsorbed by sediment and is adsorbed moderately by soil (Koc for silt loam is 164). Ethylbenzene will evaporate rapidly from water (vapor pressure is 10 mm Hg at 25.9° C, Henry's Law Coefficient is 8.4 x 10^{-3}); a half-life for evaporation from moving, shallow water is 3.1 hours it does not easily dissolve in water (solubility is 0.14 g/L). As a component of gas oil, it is completely degraded in groundwater in 8 days. It will leach in soil to the atmosphere, it will exist predominantly in the vapor phase, where it will photochemically degrade by reaction with hydroxyl radicals (half-life 0.5 to 2 days) and partially return to earth in rain. It is not expected to bioaccumulate.

- 1,1,1-Trichloroethane – When released to the soil it is expected to quickly evaporate, it is not expected to biodegrade and is expected to leach into groundwater. When released into the water, this material is expected to quickly evaporate with a half-life ranging from hours to a few weeds depending on wind and mixing conditions. It is not expected to significantly bioaccumulate. When released into the air, it may be removed from the atmosphere to a moderate extent by wet deposition it is fairly stable in the atmosphere and can be transported long distance. The estimated half-life in air is 2.2 to 4.8 years. 1,1,1-Trichloroethane volatilizes rapidly to the atmosphere from water and soil (vapor pressure is 100mm Hg; Henry's law constant is 2.76 x 10-2 atmum3/mole) Once in the atmosphere, it can be transported long distances. It is expected to leach into ground and surface waters from soil and is insoluable in water

- 1,1-Dicholoroethane – When released into the soil it is expected to quickly evaporate, it is expected to leach into groundwater. Under anaerobic conditions, degradation to vinylidene chloride may occur after many months. When released into the water, this material is expected to quickly evaporate with a half-life of 1-6 days and it is not expected to significantly bioaccumulate. When released into the air, this material will degrade with a half-life of 11 hours; it may be removed from the atmosphere to a moderate extent by wet deposition.

- MTBE – When released to soil, MTBE is expected to be highly mobile and (Koc is 12.3) leaching is likely to occur. MTBE released to soil surface is expected to rapidly volatilize. MTBE released in sub-soils may be persistent. MTBE will dissolve in water and remains in groundwater for a long time, it may stick to particles in water, which will cause it to eventually settle to the bottom sediment. Volatilization half-lives from surface waters are estimated to be 2.5 hours (streams) to 9.5 hour (rivers) and 3,296 hours (lakes). MTBE is not expected to hydrolyze, photolyze, or be adsorbed to sediments or suspended particulate matter. When released to air MTBE quickly evaporates (vapor pressure 245 mm Hg; Henry's law constant is 5.5 x 10-4 atm-m3/mole); it is commonly found as a vapor in the air. Because of its rapid reaction with hydrozyl radicals, it is not expected to persist in the atmosphere with a half-life 3.0 – 6.1 days. It is not expected to bioaccumulate.

- Naphthalene – When released to soil biodegradation occurs quickly. The half life of naphthalene is a few hours to days if the soil is contaminated with other polycyclic aromatic hydrocarbons. Naphthalene evaporates quickly at soil surface but slowly decreases as depth increase (Kow is 2.97). Its sorption to soil is slow to moderate depending on the soil's organic carbon content. When released into the water, naphthalene volatilizes, degrades by photolysis, adsorbs to surfaces, or biodegrades (solubility is 31.7 mg/L at 25° C). It biodegrades significantly faster when adsorbed to sediment than when contained in the upper layers of water. Volatilization is primarily responsible for naphthalene's removal in turbulent water (vapor pressure is 8.7 x 10^{-2} at 25° C; Henry's Law Coefficient is 1.88 x 10^{-2}). When released to the air it will quickly evaporate and is readily degraded in the atmosphere by hydroxyl radicals (half life <1 day). The half life of naphthalene in water depends on local conditions and varies from a couple of days to a few months.

- Tetrachloroethene – When released to the soil, sorption and release from soils is dependant upon organic matter content, temperature, saturation and salinity. Approximately 2.2% of the tetrachloroethene present in unsaturated top soils will volatilize into soil air but in saturated soils 26% leaches into groundwater. Substantial chemical sorption to soils is predicted by a relatively high Koc (665) indicating persistence for months to years. It is expected to leach to groundwater. When released to water tetrachloroethene volatilizes rapidly to the atmosphere from water and soil (Henry's law constant is 1.8x10-2 atm m^3/mole). When released to air tetrachloroethene is degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals. The estimated half-life is about 96 days; phosgene and chloroacetylchlorides are the major degradation products.

- 1,1,2-Trichloroethane – When released to soil, 1,1,2-Trichloroethane will quickly volatilize with reported half-lives of 0.2 and 0.5 days for evaporation from soil (vapor pressure of 2,600 mm Hg at 25 degrees C, Henry's Law Coefficient of 5.60 x 10^{-2} atm/cu m-mole). Based on a reported. 1,1,2-Trichloroethane will be expected to be highly mobile in soil (Koc of 56) and it may leach to the groundwater. When released to water, 1,1,2-Trichloroethane will quickly evaporate, it is slightly soluble in water (water solubility of 2,700 mg/L). It will not be expected to hydrolyze in soils or natural waters under normal environmental conditions. When released to the atmosphere, it can be expected to exist mainly in the vapor-phase in the ambient atmosphere and to degrade rapidly in air by gas-phase reaction with photochemically produced hydroxyl radicals with an estimated half-life of 1.5 days. It is not expected to bioaccumulate.

- Trichloroethylene (TCE) – When released to soil, it will be subject to evaporation into the atmosphere and to leaching to the groundwater. When released to groundwater TCE is highly soluble and can persist in groundwater. When released to water, it will be subject to rapid volatilization with estimated half-lives ranging from <1 day to several weeks. It is not expected to significantly biodegrade or significantly adsorb to sediment. At high concentrations in confined groundwater aquifers. TCE may form a DNAPL. In settings where groundwater charges surface water, contaminated groundwater can lead to contaminated surface water and sediment. When released into the air, this material may be moderately degraded through reaction with photo chemically-produced hydroxyl radicals to then form phosgene, dichloroacetyl chloride, and forms chloride. The half life of TCE in air is approximately 7 days. TCE does not easily evaporate from subsurface soils and can leach to groundwater.

- 1,2,4-Trimethylbenzene- When released to soil, the chemical also volatilized from soils (Koc of 472), however, moderate adsorption to soils and sediments may occur. When released to surface water 1,2,4-Trimethylbenzene will quickly volatilize (Henry's law coefficient is 5.18 x 10-3, Vapor pressure is 2.03 mm HG). When released to the atmosphere 1,2,4-Trimethylbenzene has a half-life of approximately 6 hours and, in the presence of hydroxyl radicals 0.5 days. When released in surface water1,2,4-Trimethylbenzene is soluble and will rapidly volatilize (vapor pressure is 2.03 mm HG).

- Toluene - When released to soil, it is moderately retarded by adsorption to soils rich in organic material (Koc = 259), therefore, transport to ground water is dependent on the soil composition it is expected to quickly volatize. In the environment, biodegradation of toluene to carbon dioxide occurs with a typical half life of 1-7 days. When released to water, an important fate process for toluene is volatilization, the rate of which depends on the amount of turbulence in the surface water. The volatilization of toluene from static water has a half life of 1-16 days, whereas from turbulent water the half life is 5-6 hours. Degradation of toluene in surface water occurs primarily by biodegradation with a half life of less than one day under favorable conditions (presence of microorganisms, microbial adaptation, and optimum temperature).When released to the atmosphere toluene will react with photochemically produced hydroxyl radicals. The estimated atmospheric half life for toluene is about 13 hours. No data are available on anaerobic degradation of toluene in deep ground water conditions where aerobic degradation would be minimal.

- Xylene – When released this material is expected to be readily biodegradable, however the rate of biodegradation varies with the source of microbial culture and whether acclimation to the substrate has been accomplished by pre-exposure to xylene. When released to soil, xylene will volatilize and leach into the ground. Xylenes may be degraded during their passage through soil. The extent to the degradation will depend on the concentration, residence time in the soil and the nature of the soil. Xylene is moderately mobile in soil where it is known to persist for several years. When released into the water volatilization appears to be the dominant removal process with a half-life of 1 to 5.5 days. It is not soluble in water. Xylenes are volatile compounds (Henry's Law constant 0.22 for ortho isomer and 0.32 for the m and p isomers). Some adsorption to sediment will occur. Xylene is known to persist for many years in groundwater. When released into the atmosphere, xylene may degrade with a half-life of 1.0-1.7 hours in summer and 10-18 hours in the winter. When released into the atmosphere xylene may photochemcially degrade by reaction with hydroxyl radicals (half-life 1-18 hours). Xylenes have low to moderate adsorption to soil based on the Koc of o-xylene (48-68). Bioconcentration is not expected to be significant.

5.3 Contaminant Migration

- Surface Water – It is possible that contaminants will migrate via surface water transport. Containments could be transported via groundwater flow and enter the Patroon Creek at the location where the groundwater intersects with the Patroon Creek and then travel as dissolved compounds in the surface water downstream. The volatile COC's from the site are likely to evaporate and rapidly dilute upon entry at very low levels as may be demonstrated by the fact that the low level of 1,1-DCA that was identified in sampling point #3 was not identified in the downstream sampling point #1 location.

- Groundwater – The contaminants are suspected of having been originally released to groundwater either directly from storage tanks or surface spills and have migrated from the contaminate source via groundwater transport. Currently, contaminated soil in the source area is a source of the chemical contaminants which enter groundwater as it contacts the contaminated soil area.

- Leaching – Due to the nature of the contaminants found on site it is likely that leaching of the contaminants from the sandy soil into the groundwater could occur as storm water infiltrates downward assisting vertical contaminant movement.

- Volatilization –The contaminants are presently found to the greatest extent in the subsurface sandy soil and groundwater and are not substantially concentrated at the surface thereby limiting their migration away from the source area by air currents. However, the compounds do have a volatilization component and it is likely that volatilization occurs in the subsurface.

- Surface Runoff and Erosion – It is unlikely that site identified COC's will migrate via surface runoff and erosion transport processes away from the source area. The existing site structure covers the majority of the site property and in the apparent source area (tank farm), the bulk of contamination lies at a depth of 8 feet or greater below the ground surface. The remaining area is covered by a paved parked and grassy lawn. This coverage minimizes the likelihood that site contaminants will migrate away from the source area via contact with surface runoff, winds and erosion processes. Additionally, because the majority of the contaminants are found in the subsurface at 8 -16 feet below ground surface, they are not in contact with surface processes, thereby limiting their migration away form the source area via surface runoff or erosion.

6.0 HUMAN HEALTH EXPOSURE ASSESSMENT

According to the New York State Department of Health Qualitative Human Health Exposure Assessment guidance, a qualitative exposure assessment consists of characterizing the exposure setting (including the physical environment and potentially exposed human population), identifying exposure pathways, evaluating contaminant fate and transport.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source; (2) contaminant release and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population.

The source of contamination is the source of contaminant release to the environment (any waste disposal area or point of discharge); if the original source is unknown, it is the environmental medium (soil, air, biota, water) at the point of exposure. Contaminant release and transport mechanisms carry contaminants from the source to points where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (i.e., ingestion, inhalation, dermal absorption). The receptor population is the people who are or may be exposed to contaminants at a point of exposure.

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. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising and exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future.

6.1 Qualitative Public Exposure Assessment

A surface water exposure pathway cannot be eliminated because the Patroon Creek, is the likely recipient of downgradient groundwater discharge and receives stormwater discharge from the site. The potential exists that contaminants may enter the Patroon Creek via groundwater flow at the point where groundwater intersects the creek south of the site. Given this condition, surface water should be considered a potential human health exposure risk at the site.

The groundwater exposure pathway cannot be eliminated because shallow site groundwater appears to discharge to the Patroon Creek. However, groundwater is not currently used as a potable water supply source nor is groundwater anticipated to be utilized as potable water source for future property use. No points of access/exposure to subsurface groundwater are known or are anticipated to exist except potentially at the creek location.

The subsurface exposure pathway can be eliminated because no points of access/exposure to subsurface soil have been identified under current property use conditions. Therefore, exposure to contaminants in subsurface soil under current property use has been eliminated as an exposure pathway.

Although the air exposure pathway cannot be eliminated because the majority of contaminants on site have a volatilization component which has the potential to migrate into the buildings structure or atmosphere; the current data suggests that the pathway is incomplete. Analytical sampling of indoor air quality has confirmed that chemical VOC contaminant's of concern vapors were not present in the site building at the time of sampling; however, the potential for vapor intrusion still exists should pathway conditions change.

The surface runoff and erosion exposure pathway can be reasonably eliminated because the existing site structure covers the majority of the site property. The remaining area is covered by a paved parked and grassy lawn. This coverage minimizes the likelihood that contaminants will migrate away from the source area via contact with surface runoff, winds and erosion processes. Given these conditions, surface runoff and erosion is not considered a potential human health exposure risk at the site.

7.0 SUMMARY AND CONCLUSIONS

7.1 Summary

The results of the assessment of the presence of contaminants in various media encountered in this investigation were compared to applicable NYSDEC standards. The results for each media examined are as follows:

Groundwater

During this site investigation, groundwater samples were collected and analyzed for the presence of contamination; analytical parameters included Target Compound list (TCL) parameters for VOCs and SVOCs, and Target Analyte List (TAL) metals. All groundwater samples analysis were compared to Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitation (NYCRR 375 §703.6). Of the nineteen monitoring wells sampled, ten monitoring wells; MW-2, MW-5, MW-7, MW-9, MW-10, MW-13, MW-16, MW-17, MW-18, and MW-19, had concentrations of volatile organic compounds above groundwater quality standards and groundwater effluent limitation values. No SVOCs or apparent metal contaminant impacts were detected in any of the monitoring wells sampled.

A groundwater VOC contaminant plume appears to be of greatest impact in the former tank farm area and extends southward (downgradient) across the site, passing under the site building and traveling south to where it could eventually discharge off-site to the Patroon Creek Basin. In addition, there is evidence that there is some level of groundwater contaminant impact at the upgradient northern property boundary as evidenced by contaminant levels measured in monitoring wells installed along the northern property boundary north of the former tank farm area.

Currently it appears that contaminated sandy soil in the former tank farm area, and possibly some additional source or sources of VOC's upgradient of the subject site, are the most likely source(s) of continued VOC impacts to site groundwater.

Surface Water

During this site investigation, off-site surface water samples were collected and analyzed for the presence of VOC constituents. The target list included VOCs and SVOCs. Of three samples collected, one sample (Patroon-3) had a concentration of one compound (1,1-Dichloroethane) detected at 9 microgram per liter (ug/L) which is above the guidance value of 0.6 ug/L.

Based on the location of the impacted sample (Patroon-3) at the confluence of the storm water outfall discharge and the Patroon Creek, low level VOC contamination from the site could marginally impact the surface water at this stormwater discharge location; However, due to rapid volitization and dilution of these VOC's the impact would likely be negligible.. No evidence of upstream or downstream impacts were identified.

Also, in 2003 at the Mercury Refining Site at 26 Railroad Avenue in Albany (east of the subject site) a Remedial Investigation was performed and included an extensive evaluation of the Patroon Creek. A copy of this report was obtained from DOH and was reviewed with respect to impacts to the Patroon Creek. The report references several studies performed in the late 1980's and early 90's. The studies included sampling and analysis of surface water, sediment, fish and benthic invertebrates in the creek at locations both downstream of the subject property and upstream and in the reservoir at the headwaters of the creek. These studies included analysis for PCE and TCE (the principal COC's at the Fuller Site) and conclude that there were no significant impacts to the stream from volatile organic compounds (including the COC's identified on the 136 Fuller Road – subject - site) and no VOC impacts at levels of these compounds above standards for fish or invertebrates within the stream.

Based on the combined surface water sampling results of this RI study and the findings of the exhaustive Mercury Refining Study, it appears that effluent discharges from the site plume, if any, are not likely to adversely affect media within the creek system. Because the area at the Patroon 3 Sampling location where the trace levels of 1.1-DCA were detected lies within an inaccessible drainage basin between the site and the highway exit ramp and highway corridor, there is little to no chance of public exposure that could occur based on current and anticipated future land uses.

The Patroon Creek is classified by the State of NY as Class “C” surface water body. The best usage of Class C waters is defined as fishing. These waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. The very low levels of 1,1-DCA that was detected at sampling point #2 is not expected to interfere with this water classification use.

Soil

During the investigation of the subject property, soil samples were collected and analyzed for the presence of target constituents. The sample analysis included a comprehensive list of VOCs, SVOCs and metals that are most likely to be associated with industrial or commercial processes and land uses as defined by the NYSDEC's DER-10 site investigation guidance. All subsurface soil samples were analyzed and compared with NYSDEC Environmental Conservation Law part 375, Environmental Remediation Program soil cleanup standards. VOC compounds which were detected at concentrations that exceeded the soil cleanup standards included Tetrachloroethene in soil borings GP-6 and DB-8. These borings were installed in the former tank farm area north of the site building. Soil substantially impacted with VOC's exists in this tank farm area and in the saturated plume area beneath the site building.

Within the tank farm/contaminant source area there are two distinctive impacted soil units. There is a sandy soil unit with an estimated permeability of approximately 1.0 ft/day and there is a uniform clay deposit with an estimated permeability of approximately 10^{-5} ft./day through the depth of VOC impact. Contaminants detected in the moderately permeable sandy soil are considered mobile and likely to continue affecting groundwater quality in and downgradient of the source area. Contaminants detected in the impervious clay soil are considered to be immobile as groundwater mobility is negligible is these types of soil. As such, the impacted clay soil area is not considered to be a groundwater contaminant source. Groundwater sampling in MW-24 in the most impacted section of this clay was non-detect when analyzed for VOC's, supporting this conclusion.

Indoor Air

Nine indoor air samples were collected from within the site building. The indoor air sample results were compared to occupational exposure guidance (OSHA PELs and NIOSH RELs) and to guideline values included in the DOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York. No detected volatile organic compounds exceeded respective occupational exposure guidance values or the DOH vapor intrusion guideline values. Based on this finding there appears to be no evidence that the VOC impacts to soil and groundwater beneath the site building are migrating up through the building slab at sufficient concentrations to adversely affect air quality within the site building as it is currently utilized.

Sub-slab Soil Gas

To evaluate the potential for suspected site contaminants in soil gas, a soil gas investigation was performed. The purpose of the soil gas investigation was to determine if site contaminants with sufficient volatility are present in the soil gas beneath the site building.

The three samples collected contained elevated levels of VOCs also detected in contaminated soil samples indicating that the sub-slab soil vapor is impacted. New York State does not have standards, criteria, or guidance values for the presence of VOCs in the subsurface. The results of the laboratory analysis indicate the presence of VOCs in soil gas beneath the building; however the indoor air quality study revealed that the sub-slab vapor is not currently entering the building in sufficient quantity to adversely affected indoor air quality.

7.3 Conclusions

The 136 Fuller Road site was developed circa 1955 as an industrial facility for the manufacturing of brushes. Historically, the site received bulk chemicals via railroad tankers that were then transferred to on-site storage vessels. Prior to the storage tanks being removed in the 1980s, they may have contained pine oil, Varsol, polishing oils, alcohols and Freon, based on historic documents.

During the soil investigation, tetrachloroethane (PCE) was identified above the NYSDEC 6 NYCRR Part 375 Industrial Use standards in two locations (GP-6 and DB-8) at eight feet to twelve feet below ground surface. Other VOCs were detected in soil samples at concentrations that do not contravene the industrial use standard.

The results of the groundwater and surface water investigation revealed that the groundwater and surface water has been contaminated. Compounds that exist above the NYSDEC Surface Water and Groundwater Quality Standard and Effluent Concentration Limitations include: 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1- Dichloroethene, 1,2-Dichlorobenzene, cis-1,2-Dichloroethylene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Dichlorodifluoromethane, Ethylbenzene, Naphthalene, Tetrachloroethene, Toluene, Trichloroethylene, Trichlorofluoromethane and Xylenes.

The results of the sub-slab sampling event indicate that contamination exists in the soil air space beneath the building slab. The potential for soil vapor intrusion into the building exists as a result of the continued presence of impacted soil vapor; However, sampling performed in December of 2006 did not identify migration of these chemicals into the indoor air.

The objective of the RI was to identify the nature and extent of potential contamination at the site. Results of the investigation have determined that contamination exists in soil, groundwater, and soil vapor at the site, and that there is some potential for very low levels of COC's to migrate via groundwater transport, offsite to the Patroon Creek south of the site.

Most of the constituents found on the site are indicative of chemicals historically used during the years of brush manufacturing, with the exception of tetrachloroethylene, which has not been documented as a chemical used in the former brush manufacturing process. The highest level of the site's contaminants exists around the former tank farm area where tanks may have leaked or accidental spills or overfills may have occurred. However, the presence of tetrachlorethylene could indicate that some contamination migrated to the site from some currently unknown upgradient offsite source.

VOC contaminants in the site source (former tank farm) area exist in two distinct shallow soil units identified as a fine sand/silt soil and a clay soil unit. Based on the properties of these two soil units, it is likely that contaminants in the sandy soil are mobile and are impacting groundwater quality in the source area and downgradient. COC's in the clay soil unit are bound tightly within a soil matrix that is described as impermeable and would therefore not be a source of groundwater impacts. Contaminants in both source area soil units exist at highest concentrations from the top of the groundwater table at 8 feet below ground surface to a depth of 16-20 feet below ground and then diminish rapidly below this depth. A groundwater sample collected from MW-24 which was placed in the most highly contaminated saturated clay area and screened at the most contaminated soil depth interval was non-detect for VOC's, supporting this conclusion. At a depth of 30 to 35 feet throughout the site is a dense thick clay unit that provides a confining layer preventing the possibility of contaminant migration deeper than the top of this clay unit and to any underlying bedrock aquifer.

TABLES

TABLE 1 – Generalized Hydraulic Conductivity Values

K (cm/s)	10^{2}	10^{1}	10^{0}	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}
K (ft/day)	10^{5}	10,000	1,000	100	10	1	0.1	0.01	0.001	0.0001	10^{-5}	10^{-6}	10^{-7}
Relative Permeability	Pervious				Semi-Pervious				Impervious				
Aquifer	Good					Poor				None			
Unconsolidated Sand & Gravel	Well Sorted Gravel		Well Sorted Sand or Sand & Gravel			Very Fine Sand, Silt, Loess, Loam							
Unconsolidated Clay & Organic					Peat		Layered Clay			Fat / Unweathered Clay			
Consolidated Rocks	Highly Fractured Rocks				Oil Reservoir Rocks			Fresh Sandstone		Fresh Limestone, Dolomite		Fresh Granite	

Source: modified from Bear, 1972

Table 2

Summary of Laboratory Results
Volatile Organic Compounds in Soil Samples
136 Fuller Road, Albany, New York

Analyte	6 NYCRR Part 375 Restricted Industrial Use	GP-1 28-32 ft	GP-2 16-20 ft	GP-6 8-12 ft	GP-10 16-20 ft	GP-13 12-16 ft	GP-13 32-36 ft	GP-14 12-16 ft	GP-15 16-20 ft	GP-16 16-20 ft	GP-16 28-32 ft	GP-18 8-12 ft	GP-22 12-16 ft	GP-23 12-16 ft	GP-24 12-16 ft
		4/3/2006	4/3/2006	4/4/2006	4/5/2006	4/6/2006	4/6/2006	4/6/2006	4/6/2006	4/6/2006	4/7/2006	4/6/2006	4/7/2006	4/7/2006	4/7/2006
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,1,1-Trichloroethane	1,000,000	nd	nd	280,000	nd	nd	18	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	480,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	60,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethylene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	380,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzene	89,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	780,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Isopropylbenzene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Naphthalene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
n-Butylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
n-Propylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m&p Xylenes	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Xylenes (Total)	1,000,000	nd	nd	123,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
p-Isopropyltoluene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
sec-Butylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	300,000	70	98	14,000,000	55	11	350	nd	nd	99	13	nd	nd	130	17
Toluene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethylene	400,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	27,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total VOCs	NS	70	98	14,403,000	55	11	368	0	0	99	13	0	0	130	17

NOTES:

Results that exceed 6 NYCRR Part 375 Restricted Undustrial Use standards have been shaded

NS indicates that there is no listed standard for that analyte

nd = Compound was not detected at the reporting limit

Table 2

Summary of Laboratory Results
Volatile Organic Compounds in Soil Samples
136 Fuller Road, Albany, New York

Analyte	6 NYCRR Part 375 Restricted Industrial Use	DB-2 8-12 ft	DB-3 8-12 ft	DB-3 12-16 ft	DB-4 8-12 ft	DB-5 8-12 ft	DB-6 12-16 ft	DB-7 8-12 ft	DB-8 8-12 ft	DB-9 12-16 ft	DB-11 8-12 ft	DB-14 12-16 ft	DB-15 8-12 ft	DB-20 12-16 ft	DB-21 12-16 ft
		2/8/2007	2/8/2007	2/8/2007	2/8/2007	2/8/2007	2/8/2007	2/8/2007	2/9/2007	2/9/2007	2/9/2007	2/9/2007	2/9/2007	2/15/2007	2/15/2007
	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,1,1-Trichloroethane	1,000,000	22	nd	nd	nd	nd	nd	140	21,000	480	nd	6,600	nd	nd	nd
1,1-Dichloroethane	480,000	20	nd	nd	nd	nd	nd	180	nd	150	320	3,800	nd	1100	nd
1,1-Dichloroethene	1,000,000	nd	nd	nd	nd	nd	nd	50	nd	75	nd	nd	nd	190	nd
1,2,4-Trimethylbenzene	NS	nd	nd	nd	nd	nd	8,800	nd	4,200	nd	nd	26,000	nd	nd	nd
1,2-Dichlorobenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	60,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	5	nd
cis-1,2-Dichloroethylene	1,000,000	12	nd	nd	nd	nd	nd	130	nd	440	nd	nd	160	2000	nd
1,3,5-Trimethylbenzene	380,000	nd	nd	nd	nd	nd	4,900	nd	5,300	nd	nd	9,700	nd	nd	nd
Benzene	89,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	7	nd
Chloroethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	110	nd
Dichlorodifluoromethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	3,500	nd	nd	32	nd
Ethylbenzene	780,000	nd	nd	nd	nd	nd	600	nd	49,000	nd	nd	nd	nd	nd	nd
Isopropylbenzene	NS	nd	nd	nd	nd	nd	nd	nd	7,600	nd	nd	nd	nd	nd	nd
Naphthalene	1,000,000	18	nd	nd	nd	nd	6,100	nd	nd	nd	nd	3,400	nd	nd	nd
n-Butylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	3,000	nd	nd	nd
n-Propylbenzene	1,000,000	nd	nd	nd	nd	nd	11,000	nd	4,000	nd	nd	2,800	nd	nd	nd
o-Xylene	NS	53	nd	nd	nd	nd	970	91	110,000	41	nd	6,400	nd	nd	nd
m&p Xylenes	NS	100	nd	nd	nd	nd	1,500	500	320,000	360	nd	14,000	67	15	13
Xylenes (Total)	1,000,000	153	nd	nd	nd	nd	2,470	591	430,000	401	nd	20,400	67	15	13
p-Isopropyltoluene	NS	10	nd	nd	34	nd	590,000	nd	6,300	nd	nd	260,000	21	nd	nd
sec-Butylbenzene	1,000,000	nd	nd	nd	nd	nd	540	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	300,000	51	160,000	250,000	42	19	750	29,000	400,000	250	nd	nd	10	nd	nd
Toluene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	3,700	nd	nd	nd
Trichloroethylene	400,000	nd	nd	nd	nd	nd	nd	950	3,300	57	nd	nd	nd	nd	nd
Vinyl Chloride	27,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	23	nd	nd	nd	nd
Trichlorofluoromethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total VOCs	NS	286	160,000	250,000	76	19	625,160	31,041	930,700	1,853	3,843	339,400	258	3,459	13

NOTES:

Results that exceed 6 NYCRR Part 375 Restricted Undustrial Use standard

NS indicates that there is no listed standard for that analyte

nd = Compound was not detected at the reporting limit

Table 2

Summary of Laboratory Results
Volatile Organic Compounds in Soil Samples
136 Fuller Road, Albany, New York

	6 NYCRR Part 375 Restricted Industrial Use	**DB-22 16-20 ft**	**DB-25 12-16 ft**	**DB-26 12-16 ft**	**DB-27 16-20 ft**	**DB-29 12-16 ft**	**DB-30 12-16 ft**	**DB-31 12-16 ft**	**DB-32 8-12 ft**	**DB-32 12-16 ft**	**DB-33 12-16 ft**	**DB-35 8-12 ft**	**DB-35 12-16 ft**	**DB-36 12-16 ft**
		2/15/2007	2/16/2007	2/16/2007	2/16/2007	2/19/2007	2/19/2007	2/19/2007	2/21/2007	2/21/2007	2/21/2007	2/21/2007	2/21/2007	2/21/2007
Analyte	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,1,1-Trichloroethane	1,000,000	nd	66	nd	12	nd	nd	15	nd	87	nd	nd	nd	nd
1,1-Dichloroethane	480,000	nd	60	nd	47	1,300	nd	98	nd	21	nd	nd	nd	nd
1,1-Dichloroethene	1,000,000	nd	nd	nd	nd	380	nd	22	nd	39	nd	nd	nd	nd
1,2,4-Trimethylbenzene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	6,900	nd
1,2-Dichlorobenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	12
1,2-Dichloroethane	60,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethylene	1,000,000	nd	92	nd	79	4100	nd	250	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	380,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzene	89,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	780,000	nd	23	nd	22	nd	nd	nd	nd	nd	nd	1,100	22,000	nd
Isopropylbenzene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Naphthalene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	15	nd	940	11,000	nd
n-Butylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	710	8,600	nd
n-Propylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
o-Xylene	NS	nd	52	nd	37	nd	nd	nd	nd	29	nd	2,900	41,000	nd
m&p Xylenes	NS	nd	140	nd	130	270	nd	nd	nd	11	nd	9,400	140,000	nd
Xylenes (Total)	1,000,000	nd	192	nd	167	270	nd	nd	nd	40	nd	12,300	181,000	nd
p-Isopropyltoluene	NS	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
sec-Butylbenzene	1,000,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	300,000	nd	350	nd	100	830	nd	13	580	720	nd	6,900	150,000	nd
Toluene	1,000,000	nd	29	nd	15	230	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethylene	400,000	nd	19	nd	nd	nd	nd	nd	nd	26	nd	nd	nd	nd
Vinyl Chloride	27,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	NS	nd	nd	nd	nd	nd	nd	nd	nd	46	nd	nd	nd	nd
Total VOCs	NS	0	831	0	442	7,110	0	398	580	994	0	21,950	379,500	12

NOTES:

Results that exceed 6 NYCRR Part 375 Restricted Undustrial Use standards

NS indicates that there is no listed standard for that analyte

nd = Compound was not detected at the reporting limit

Table 3

Summary of Laboratory Results
Metals In Soil Samples
136 Fuller Road, Albany, New York

Analyte	**6NYCRR Part 375 Restricted Industrial Use**	**GP-1 28-32 ft**	**GP-2 16-20 ft**	**GP-13 12-16 ft**	**GP-13 32-36 ft**	**GP-24 12-16 ft**
		4/3/2006	4/3/2006	4/6/2006	4/6/2006	4/7/2006
	ppm	ppm	ppm	ppm	ppm	ppm
Aluminum	NS	2,690	12,200	3,000	2,600	2,830
Arsenic	16	1.47	4.8	1.53	2.03	1.15
Barium	10,000	9.54	105	9.79	12.6	7.92
Calcium	NS	20,400	26,200	444	21,700	626
Chromium	800	4.3	14.5	3.89	3.91	3.28
Cobalt	NS	3.49	10.4	2.83	3.47	3.06
Copper	10,000	9.65	26	6.91	10.4	7.58
Iron	NS	7,250	21,500	6,420	7,390	5,930
Lead	3,900	3.81	14.8	3.15	3.76	3.39
Magnesium	NS	5,660	7,750	834	6,310	911
Manganese	10,000	202	426	131	235	163
Nickel	10,000	6.94	18.1	5.34	6.77	5.46
Potassium	NS	393	1,850	252	427	269
Sodium	NS	295	609	314	289	244
Vanadium	NS	7.33	23.1	6.11	7.04	5.83
Zinc	10,000	25	63.9	22.3	25.4	22.2

NOTES:

ppm = parts per million; ppb = parts per billion

NS indicates that there is no listed standard for that analyte

Table 4

Summary of Laboratory Results
Volatile Organic Compounds in Groundwater and Surface Water Samples
136 Fuller Road, Albany, New York

Analyte	6 NYCRR Part 703.6	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13
		4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/13/2006	4/20/2006	4/20/2006	1/3/2007	4/20/2006	4/26/2006	4/26/2006	4/26/2006	4/26/2006	4/26/2006
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,1,1-Trichloroethane	5 ppb	nd	nd	nd	nd	nd	nd	1,900	nd	nd	750	1000	nd	nd	nd
1,1,2-Trichloroethane	1 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	5 ppb	nd	nd	nd	nd	nd	nd	17,000	2,000	nd	1300	nd	nd	nd	nd
1,1-Dichloroethene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	110	nd	nd	nd	nd
1,2-Dichlorobenzene	3 ppb	nd	nd	nd	nd	nd	nd	820	300	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethylene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	550	1900	nd	nd	32
1,2,4-Trimethylbenzene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Dichlorodifluoromethane	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	200	nd	nd	nd	nd
Ethylbenzene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	410	nd	nd	nd	nd
Methyl tert-Butyl Ether (MTBE)	*	nd	61	nd	nd	23	nd	nd	140	nd	nd	nd	nd	nd	nd
Naphthalene	10 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Tetrachloroethene	5 ppb	nd	nd	nd	nd	nd	nd	730	240	nd	160	5000	nd	nd	75
Toluene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	1200	nd	nd	nd	nd
Trichloroethylene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	2200	nd	nd	nd	nd
Xylenes (Total)	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	2700	nd	nd	nd	nd

NOTES:

Results that exceed 6 NYCRR Part 703.6 NYS groundwater effluent limitations have been shaded

nd = Compound was not detected at the reporting limit

* Not regulated by the principal organic contaminant (POC) groundwater standard

ppb = parts per billion

Table 4

Summary of Laboratory Results
Volatile Organic Compounds in Groundwater and Surface Water Samples
136 Fuller Road, Albany, New York

Analyte	6 NYCRR Part 703.6	MW-14	MW-15	MW-16	MW-17	MW-18	MW-19	MW-20	MW-21	MW-22	MW-23	MW-24	Patroon - 1	Patroon - 2	Patroon - 3
		4/26/2006	4/26/2006	1/3/2007	1/3/2007	2/22/2007	2/22/2007	4/19/2007	4/19/2007	4/19/2007	4/19/2007	4/30/2007	5/8/2006	5/8/2006	5/8/2006
		ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb	ppb
1,1,1-Trichloroethane	5 ppb	nd	nd	32	nd	nd	nd	440	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	1 ppb	nd	nd	7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	5 ppb	nd	nd	6	nd	6	nd	1700	nd	nd	nd	nd	nd	nd	9
1,1-Dichloroethene	5 ppb	nd	nd	330	nd	nd	nd	66	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	3 ppb	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethylene	5 ppb	nd	nd	nd	nd	11	nd	140	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	5 ppb	nd	nd	nd	nd	nd	nd	52	nd	220	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	5 ppb	nd	nd	nd	nd	nd	nd	nd	nd	90	nd	nd	nd	nd	nd
Dichlorodifluoromethane	5 ppb	nd	nd	nd	nd	nd	nd	110	nd	nd	nd	nd	nd	nd	nd
Ethylbenzene	5 ppb	nd	nd	nd	nd	nd	nd	160	nd	nd	nd	nd	nd	nd	nd
Methyl tert-Butyl Ether (MTBE)	*	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Naphthalene	10 ppb	nd	nd	nd	nd	nd	nd	nd	nd	2100	nd	nd	nd	nd	nd
Tetrachloroethene	5 ppb	nd	nd	nd	12	14	57	73	120	nd	nd	nd	nd	nd	nd
Toluene	5 ppb	nd	nd	nd	nd	nd	nd	490	nd	nd	nd	nd	nd	nd	nd
Trichloroethylene	5 ppb	nd	nd	62	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichlorofluoromethane	5 ppb	nd	nd	nd	nd	nd	nd	340	nd	nd	nd	nd	nd	nd	nd
Xylenes (Total)	5 ppb	nd	nd	nd	nd	nd	nd	1300	88	250	nd	nd	nd	nd	nd

NOTES:

Results that exceed 6 NYCRR Part 703.6 NYS groundwater effluent limitations have been shaded

nd = Compound was not detected at the reporting limit

* Not regulated by the principal organic contaminant (POC) groundwater standard

ppb = parts per billion

TABLE 5

Summary of Laboratory Results
Metals in Groundwater Samples
136 Fuller Road
Albany, NY

Analyte	**6 NYCRR Part 703.6**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**
		ppb	ppb	ppb	ppb	ppb
Aluminum	2,000 ppb	1390	570	355	163	175
Barium	2,000 ppb	44.5	34.9	54.1	15.4	43.5
Calcium	NS	142000	101000	83400	117000	78600
Chromium	100 ppb	8.7	5.4	nd	nd	nd
Copper	1,000 ppb	9.3	7.6	5.7	nd	nd
Iron	600 ppb	2620	1260	580	226	303
Magnesium	35,000 ppb	29600	22900	19000	13500	18700
Manganese	600 ppb	1200	337	284	537	82.9
Nickel	200 ppb	5.6	5.8	nd	nd	nd
Potassium	NS	3220	1840	1300	2280	1540
Sodium	**	112000	84600	53700	5810	81600

NOTES:

Results that exceed 6 NYCRR Part 703.6 NYS groundwater dffluent limitations have been shaded

NS - indicates that there is no listed standard for that analyte

nd - Compound was not detected at the reporting limit

Table 6 - Results of Slug Test Analyses

Hydraulic Conductivity		MW-6 IN#1	MW-6 IN#2	MW-6 OUT #1	MW-6 OUT#2
ft/sec		1.2E-05	1.3E-05	1.7E-05	1.2E-05
ft/day		1.07	1.15	1.43	1.00
m/day		0.33	0.35	0.44	0.31
		MW-7 IN #1	MW-7 IN #2	MW-7 OUT #1	MW-7 OUT #2
ft/sec		2.1E-05	3.2E-06	1.2E-05	2.1E-05
ft/day		1.77	0.28	1.03	1.85
m/day		0.54	0.08	0.31	0.56
		MW-8 IN #1	MW-8 IN #2	MW-8 OUT #1	MW-8 OUT #2
ft/sec		5.6E-06	2.3E-06	2.4E-06	2.0E-06
ft/day		0.49	0.20	0.21	0.18
m/day		0.15	0.06	0.06	0.05

Table 7

Summary of Laboraatory Results of Sub-Slab Vapors
136 Fuller Road
Albany, NY

Analyte	**SSG-1**		**SSG-2**		**SSG-3**	
	µg/m^3	ppmV	µg/m^3	ppmV	µg/m^3	ppmV
1,1,1-Trichloroethane	460	83	120,000	21,000	6.2	1.1
1,1,2,2 Tetrachloroethane	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethan	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	3.7	0.90	110,000	28,000	0.91	0.22
1,1-Dichloroethylene	0.48 J	0.1 J	94,000	23,000	0.81	0.20
1,2,4Trichlorobenzene	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	4.6	0.93	5.6	1.1	4.7	0.94
1,2-Dichloroethane	0.62	0.15	nd	nd	0.58	0.1 J
1,2-Dichlorobenzene	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	2.4	0.48	4.0	0.80	2.4	0.48
1,3-butadiene	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	1.5	0.24	1.9	0.31	1.2	0.20
1,4-Dichlorobenzene	nd	nd	nd	nd	nd	nd
1,4-Dioxane	nd	nd	0.84 J	0.2	nd	nd
2,2,4-Trimethlypentane	nd	nd	1.0	0.21	0.47 J	0.1 J
4-ethyltoluene	1.7	0.35	2.0	0.40	1.8	0.36
Acetone	36	15	46	19	180	74
Ally Chloride	nd	nd	nd	nd	nd	nd
Benzene	1.5	0.46	7.5	2.3	2.5	0.77
Benzyl chloride	nd	nd	nd	nd	nd	nd
Bromodichloromethane	nd	nd	nd	nd	nd	nd
Bromoform	nd	nd	0.95 J	0.09 J	nd	nd
Bromomethane	nd	nd	nd	nd	nd	nd
Carbon Disulfide	5.0	1.6	3.5	1.1	6.1	1.9
Carbon tetrachloride	nd	nd	nd	nd	nd	nd
Chlorbenzene	nd	nd	nd	nd	nd	nd
Chloroethane	nd	nd	5,300	2,000	nd	nd
Chloroform	nd	nd	11	2.3	nd	nd
Chloromethane	nd	nd	nd	nd	nd	nd
cis-1,2-Dichloroethene	nd	nd	66,000	16,000	2.3	0.56
cis-1,3-Dichloropropene	nd	nd	nd	nd	nd	nd
Cyclohexane	0.66	0.19	150	42	1.4	0.40
Dibromochloromethane	nd	nd	nd	nd	nd	nd
Ethyl acetate	nd	nd	nd	nd	1.1	0.29
Ethylbenzene	1.6	0.37	2.2	0.49	1.9	0.43
Freon 11	72	13	11,000	1,900	48	8.4
Freon 113	0.62 J	0.08 J	nd	nd	nd	nd
Freon 114	1.8	0.25	2,100	300	nd	nd
Freon 12	4.8	0.95	4,100	810	3.7	0.74
Heptane	nd	nd	nd	nd	nd	nd
Hexachloro-1,3-butadiene	nd	nd	nd	nd	nd	nd
Hexane	1.6	0.46	15	4.1	2.2	0.62
Isopropyl alcohol	nd	nd	nd	nd	nd	nd
m&p-Xylene	4.9	1.1	6.2	1.4	5.5	1.2
Methyl Buytl Ketone	2.2	0.53	3.2	0.78	2.2	0.53
Methyl Ethyl Ketone	19	6.3	39	13	34	12
Methyl Isobutyl Ketone	0.71 J	0.2 J	1.1 J	0.3 J	0.92 J	0.2 J
Methyl tert-butyl ether	nd	nd	0.37 J	0.1 J	nd	nd
Methylene Chloride	0.67	0.19	5.1	1.4	0.92	0.26
o-xylene	2.3	0.51	2.7	0.61	2.3	0.51
Propylene	nd	nd	nd	nd	nd	
Styrene	1.1	0.26	1.3	0.30	1.1	0.26
Tetrachloroethylene	5.0	0.73	3.2	0.46	1.7	0.24
Tetrahydrofuran	22	7.5	100	33	48	16
Toluene	14	3.7	19	5.0	25	6.6
trans-1,2-Dichloropropene	nd	nd	400	99	nd	nd
trans-1,3-Dichloropropene	nd	nd	nd	nd	nd	nd
Trichloroethylene	2.3	0.42	88	16	nd	nd
Vinyl Acetate	0.32	0.09	nd	nd	nd	nd
Vinyl Bromide	nd	nd	nd	nd	nd	nd
Vinyl Chloride	nd	nd	16	6.1	nd	nd

NOTES:

results reported in ppmV - parts per million volume and µg/m^3- micrograms per meter ^{3}

nd - indicates the analyte was not detected at the reporting limit

J - indicates the analyte was detected at or below the quantitation limits

Table 8

Indoor Air Quality 8-hour Sampling Study
December 26, 2006
136 Fuller Road

Analyte	**Short-Term Exposure Guidelines**		**Time-Weighted Average Exposure Guidelines**		**FLROD-1 Outdoor Air**	**FLRIAQ-1**	**FLRIAQ-2**	**FLRIAQ-3**	**FLRIAQ-4**	**FLRIAQ-5**	**FLRIAQ-6**	**FLRIAQ-7**	**FLRIAQ-8**	**FLRIAQ-9**
	OSHA STEL	**NIOSH STEL**	**OSHA PEL**	**NIOSH REL**	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06
	ppm	ppm	ppm	ppm	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV
1,1,1-Trichloroethane	--	--	350	350-C	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	--	--	5	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	--	--	10	10	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	--	--	100	100	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	--	--	--	25	0.00013 J	0.00027	0.0033	0.00032	0.00044	0.00032	0.0088	0.002	0.0018	0.0128
1,2-Dibromoethane	--	0.13_C (15 min)	20	0.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	--	2	50	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	--	--	75	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	--	--	--	25	nd	0.00012 J	0.00127	0.00017	0.00019	0.00018	0.0029	0.00111	0.00074	0.0046
1,3-Butadiene	5	--	1	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	--	--	--	75	nd	nd	nd	nd	nd	nd	0.00016	nd	nd	nd
1,4-Dioxane	--	--	100	1-C	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,2,4-Trimethylpentane	--	--	--	--	nd	nd	nd	0.00010 J	0.00011 J	0.00010 J	0.00127	0.00031	0.00024	0.00028
4-Ethyltoluene	--	--	--	--	nd	0.00011 J	0.00077	0.00015	0.00015	0.00016	0.005	0.00194	0.00148	0.0029
Acetone	--	--	1,000	250	0.0037	0.0045	0.004	0.0096	0.0092	0.087*	0.670*	0.086*	0.094*	0.076*
Allyl Chloride	--	2	1	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Benzene	5	1	1	0.1	0.00041	0.00034	0.003	0.00041	0.00042	0.0009	0.0004	0.00041	0.00036	0.024*
Benzyl Chloride	--	1-C (15 min)	1	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromoform	--	--	0.5	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Carbon Disulfide	--	10	20	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	--	2	10	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	--	--	75	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	--	--	1,000	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroform	--	2	50-C	--	nd	nd	0.00010 J	0.00011 J	0.00054	0.00037	nd	0.00018	nd	nd
Chloromethane	300-C	--	100	--	0.00043	0.00045	0.00042	0.00045	0.00048	0.00067	0.00052	0.00044	0.00046	0.00051
cis-1,2-Dichloroethene	--	--	--	--	nd	nd	nd	nd	nd	0.00018	nd	nd	nd	nd
cis-1,3-Dichloropropene	--	--	--	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Cyclohexane	--	--	300	300	nd	nd	nd	nd	0.00012 J	0.00017	nd	nd	nd	nd
Dibromochloromethane	--	--	0.5	0.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethyl Acetate	--	--	400	400	nd	nd	0.00086	0.00075	nd	0.00067	0.00055	nd	nd	nd
Ethylbenzene	--	125	100	100	0.00012 J	0.00014 J	0.00139	0.00015	0.00022	0.00018	0.00022	0.00016	0.00014 J	0.00201

Table 8

Indoor Air Quality 8-hour Sampling Study
December 26, 2006
136 Fuller Road

Analyte	Short-Term Exposure Guidelines		Time-Weighted Average Exposure Guidelines		FLROD-1 Outdoor Air	FLRIAQ-1	FLRIAQ-2	FLRIAQ-3	FLRIAQ-4	FLRIAQ-5	FLRIAQ-6	FLRIAQ-7	FLRIAQ-8	FLRIAQ-9
	OSHA STEL	**NIOSH STEL**	**OSHA PEL**	**NIOSH REL**	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06
	ppm	ppm	ppm	ppm	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV	ppmV
Freon-11	--	--	1,000	--	0.00023	0.00075	0.0064	0.0119	0.0106	0.0056	0.00095	0.00188	0.00188	0.0034
Freon-113	--	125	1,000	1,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Freon-114	--	--	1,000	1,000	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Freon-12	--	--	1,000	1,000	0.00047	0.00052	0.00058	0.00082	0.00098	0.00202	0.00071	0.00072	0.00068	0.00079
Heptane	--	440-C (15 min)	500	85	0.00013 J	0.00019	0.00017	0.00061	0.00036	0.00109	0.067*	0.0131	0.0124	0.0149
Hexachloro-1,3-Butadiene	--	--	--	0.02	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Hexane	--	--	500	50	0.00026	0.00079	0.00037	0.00048	0.00059	0.00069	nd	0.0007	0.00075	0.00094
Isopropyl Alcohol	--	500	400	400	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m & p-xylene	--	150	100	100	0.00026 J	0.00035	0.0085	0.00033	0.00048	0.0032	0.00082	0.00045	0.00038	0.023
Methyl Butyl Ketone	--	--	100	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methyl Ethyl Ketone (2-butanone)	--	300	200	200	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methyl Isobutyl Ketone	--	75	100	50	nd	nd	nd	0.00015 J	0.00015 J	0.00016 J	nd	nd	nd	nd
Methyl Tert-Butyl Ether	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methylene Chloride	--	5-C	--	1	0.00027	0.00026	0.00023	0.00029	0.0003	0.00036	0.00049	0.00111	0.00101	0.00089
o-Xylene	--	150	100	100	0.00010 J	0.00015	0.0028	0.00014 J	0.00021	0.00014 J	0.00066	0.00029	0.00024	0.0075
Propylene	--	--	100	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Styrene	--	100	100	50	nd	nd	0.0023	0.00022	0.00021	0.00034	0.00011 J	nd	nd	0.009
Tetrachloroethylene	--	--	100	--	nd	nd	0.00035	0.00041	0.004	0.0003	0.00047	0.0066	0.0023	0.00023
Tetrahydrofuran	2	250	200	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	500	150	200	100	0.00092	0.00137	0.0113	0.00108	0.0015	0.00123	0.0057	0.00173	0.00148	0.0368
Trans-1,2-Dichloroethene	--	--	200	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	--	--	--	1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	--	--	100	--	nd	nd	nd	nd	0.00007	0.000030 J	nd	0.00003 J	0.00003 J	0.00003 J
Vinyl Acetate	--	4-C (15 min)	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Bromide	--	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	5-C	--	1	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

Notes:

Data reported in parts per million by volume (ppmV)

C - OSHA ceiling concentrations and value should not be exceeded at any time

J - Estimated value, analyte detected at or below quantitation limits

* - Initial results exceeded the linear working range of instrument/ sample rerun with higher method detection limit (MDL)

Table 9

Indoor Air Quality 8-hour Sampling Study
December 26, 2006
136 Fuller Road

Analyte	NYSDOH Vapor Intrusion Guideline	Background Study - NYSDOH 2003 (1)	Background Study - USEPA 2001 (2)	FLROD-1 Outdoor Air	FLRIAQ-1	FLRIAQ-2	FLRIAQ-3	FLRIAQ-4	FLRIAQ-5	FLRIAQ-6	FLRIAQ-7	FLRIAQ-8	FLRIAQ-9
		Upper Fence	90th percentile	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06
	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
1,1,1-Trichloroethane	100	2.5	20.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2,2-Tetrachloroethane	--	0.4	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1,2-Trichloroethane	--	0.4	<1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethane	--	0.4	<0.7	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,1-Dichloroethene	--	0.4	<1.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trichlorobenzene	--	0.5	<6.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2,4-Trimethylbenzene	--	9.8	9.5	0.650 J	1.35	16.5	1.60	2.20	1.60	44.0	11.0	8.99	64.0
1,2-Dibromoethane	--	0.4	<1.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichlorobenzene	--	0.5	<1.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloroethane	--	0.4	<0.9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,2-Dichloropropane	--	0.4	<1.6	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3,5-Trimethylbenzene	--	3.9	3.7	nd	0.600 J	6.35	0.849	0.949	0.899	14.5	5.55	3.70	23.0
1,3-Butadiene	--	--	<3.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,3-Dichlorobenzene	--	0.5	<2.4	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
1,4-Dichlorobenzene	--	1.2	5.5	nd	nd	nd	nd	nd	nd	0.978	nd	nd	nd
1,4-Dioxane	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
2,2,4-Trimethylpentane	--	--	--	nd	nd	nd	0.475 J	0.522 J	0.475 J	6.03	1.47	1.14	1.33
4-Ethyltoluene	--	--	3.6	nd	0.550 J	3.85	0.750	0.750	0.800	25.0	9.69	7.40	14.5
Acetone	--	115	98.9	8.93	10.9	9.66	23.2	22.2	210*	1600*	210*	230*	180*
Allyl Chloride	--	--	--	nd	nd	nd	nd	nd	nd	1.30	nd	nd	nd
Benzene	--	13	9.4	1.33	1.10	9.74	1.33	1.36	2.92	nd	1.33	1.17	64.3
Benzyl Chloride	--	--	<6.8	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromodichloromethane	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromoform	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Bromomethane	--	0.5	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Carbon Disulfide	--	--	4.2	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Carbon Tetrachloride	5	1.3	<1.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	--	0.4	<0.9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroethane	--	0.4	<1.1	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Chloroform	--	1.2	1.1	nd	nd	0.496 J	0.546 J	2.68	1.84	nd	0.893	nd	nd
Chloromethane	--	4.2	3.7	0.903	0.945	0.882	0.945	1.01	1.41	1.09	0.924	0.966	1.07
cis-1,2-Dichloroethene	--	0.4	<1.9	nd	nd	nd	nd	nd	0.725	nd	nd	nd	nd
cis-1,3-Dichloropropene	--	0.4	<2.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Cyclohexane	--	6.3	--	nd	nd	nd	nd	0.420 J	0.595	nd	nd	nd	nd
Dibromochloromethane	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Ethyl Acetate	--	--	5.4	nd	nd	3.15	2.75	nd	2.45	2.01	nd	nd	nd
Ethylbenzene	--	6.4	5.7	0.530 J	0.618 J	6.13	0.662	0.971	0.794	0.971	0.706	0.618 J	8.87

Table 9

Indoor Air Quality 8-hour Sampling Study
December 26, 2006
136 Fuller Road

Analyte	NYSDOH Vapor Intrusion Guideline	Background Study - NYSDOH 2003 (1)	Background Study - USEPA 2001 (2)	FLROD-1 Outdoor Air	FLRIAQ-1	FLRIAQ-2	FLRIAQ-3	FLRIAQ-4	FLRIAQ-5	FLRIAQ-6	FLRIAQ-7	FLRIAQ-8	FLRIAQ-9
		Upper Fence	90th percentile	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06	12/26/06
	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3	ug/m^3
Freon-11	--	--	--	1.31	4.28	36.6	68.0	60.5	32.0	5.43	10.7	10.7	19.4
Freon-113	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Freon-114	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Freon-12	--	--	--	2.36	2.61	2.92	4.12	4.93	10.2	3.57	3.62	3.42	3.97
Heptane	--	--	--	0.542 J	0.791	0.708	2.54	1.50	4.54	280*	54.6	51.7	62.1
Hexachloro-1,3-Butadiene	--	0.5	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Hexane	--	--	--	0.931	2.83	1.33	1.72	2.11	2.47	nd	2.51	2.69	3.37
Isopropyl Alcohol	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
m & p-xylene	--	11	22.2	1.15 J	1.54	37.5	1.46	2.12	1.41	3.62	1.99	1.68	89*
Methyl Butyl Ketone	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methyl Ethyl Ketone (2-butanone)	--	16	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methyl Isobutyl Ketone	--	1.9	--	nd	nd	nd	0.625 J	0.625 J	0.666 J	nd	nd	nd	nd
Methyl Tert-Butyl Ether	--	14	11.5	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Methylene Chloride	60	--	10.0	0.953	0.918	0.812	1.02	1.06	1.27	1.73	3.92	3.57	3.14
o-Xylene	--	--	7.9	0.441 J	0.662	12.4	0.618 J	0.927	0.618 J	2.91	1.28	1.06	33.1
Propylene	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Styrene	--	1.4	1.9	nd	nd	9.96	0.953	0.909	1.47	0.476 J	nd	nd	39
Tetrachloroethylene	100	2.5	15.9	nd	nd	2.41	2.83	27.6	2.07	3.24	45.5	1.59	1.59
Tetrahydrofuran	--	0.8	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	--	57	43.0	3.52	5.25	43.3	4.14	5.75	4.71	21.8	6.63	5.67	120*
trans-1,2-Dichloroethene	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
trans-1,3-Dichloropropene	--	<0.25	<1.3	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Trichloroethene	5	0.5	4.2	nd	nd	nd	nd	0.382	0.164 J	nd	0.164 J	0.164 J	0.164 J
Vinyl Acetate	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Bromide	--	--	--	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Vinyl Chloride	--	0.4	<1.9	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd

Notes:
Data reported in micrograms per cubic meter
Shaded results indicate that concentration of constituent exceeds typical background levels
J - Estimated value, analyte detected at or below quantitation limits
* - Initial results exceeded the linear working range of instrument/ sample rerun with higher method detection limit (MDL)
-- - no value published
(1) NYSDOH 2003: Study of volatile organic chemicals in air of fuel oil heated homes
(2) USEPA 2001: Building assessment and survey evaluation (BASE) database, SUMMA ® canister method

Figure 1:
Site Location Map

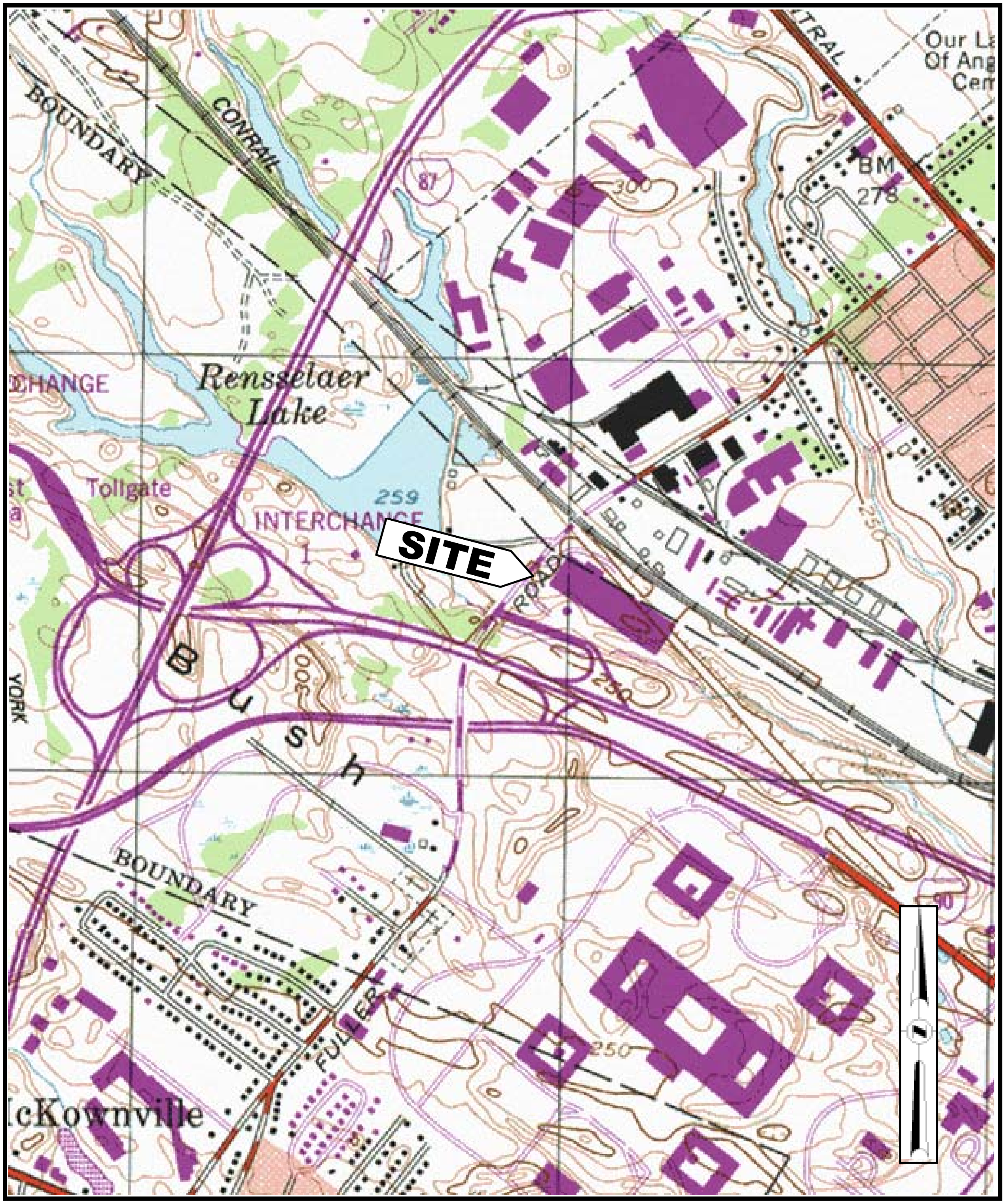

FIGURE 1- SITE LOCATION MAP

136 Fuller Road
City of Albany & Town of Guilderland
Albany County, NY
USGS Topographic Map of the Albany Quadrangle, 1953
photorevised 1980 7.5 Minute Series

Date:	2006
Scale:	1:24000
Project #:	90618.00

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Troy, NY 12180
(518) 273-0055

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21 Fox Street Poughkeepsie, NY 12601

Orange County Office:
263 Route 17K Newburgh, NY 12550

Glens Falls Office:
110 Glen Street Glens Falls, NY 12801

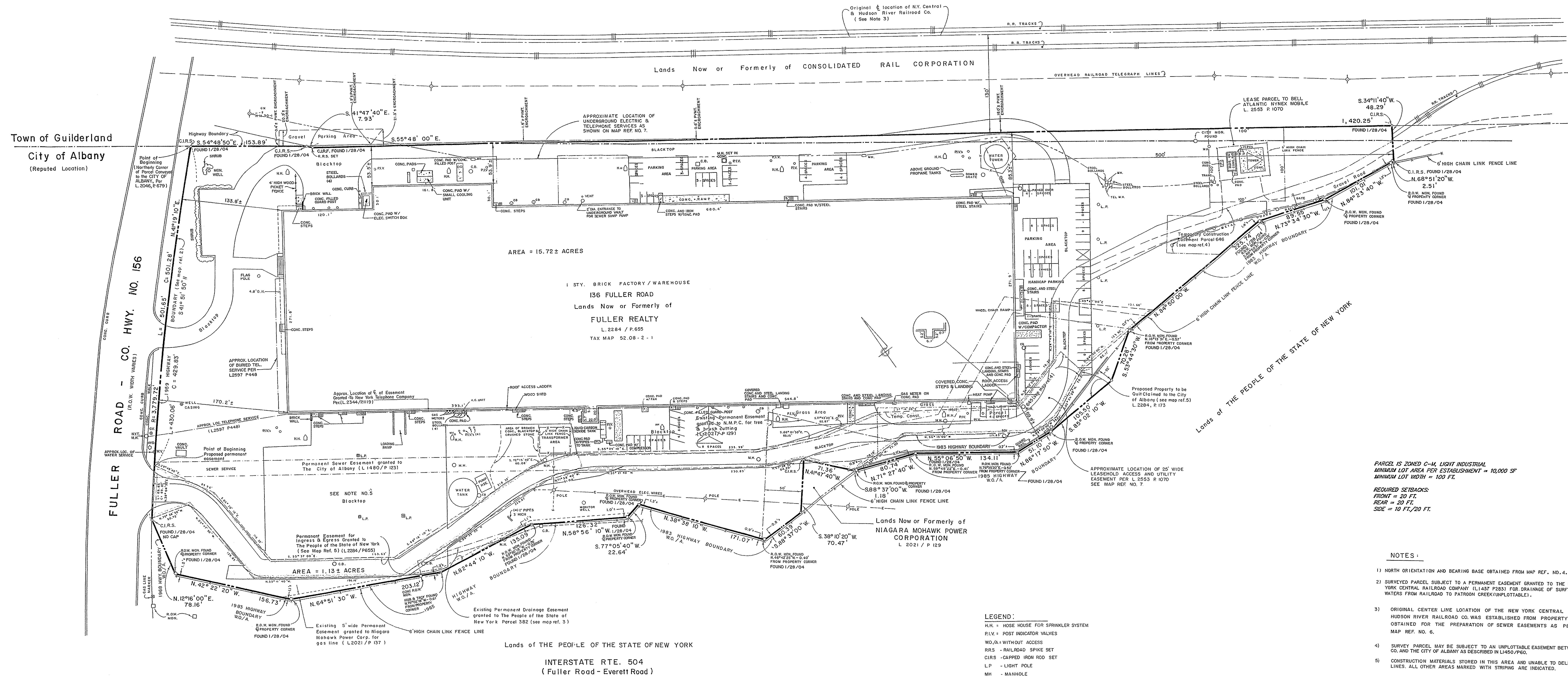
Figure 2:
Copy of 1985 Site Survey

MAP REFERENCES:

1. "MAP OF PROPERTY OF MOHAWK BRUSH CO.", CITY OF ALBANY & TOWN OF GUILDERLAND, ALBANY COUNTY, NY, DATED NOV 1, 1955, BY NORDIN J. SHAMBROOK SURVEYOR.
2. APPROPRIATION MAP "FULLER ROAD, TOWN OF GUILDERLAND, ALBANY COUNTY-P.S.C. NO.18538", MAP NO.2 PARCEL NO.2, BY NEW YORK STATE DEPT. OF PUBLIC WORKS ON FILE AT DISTRICT OFFICE NO.1, ALBANY, NY.
3. "INTERSTATE ROUTE CONNECTION 541-1-1, INTERSTATE ROUTE 502 TO INTERSTATE ROUTE 540," CITY & COUNTY OF ALBANY, NY, APPROPRIATION MAP NO.7 PARCEL NO.9 & 10, PERMANENT EASEMENT MAP NO.327 PARCEL NO. 382, APPROPRIATION MAP NO.456 PARCEL NO.528, BY NEW YORK STATE DEPT. OF PUBLIC WORKS ON FILE AT DISTRICT OFFICE NO.1, ALBANY, NY.
4. "INTERSTATE ROUTE 504 (FULLER ROAD-EVERETT ROAD)", ALBANY, CO., NY, APPROPRIATION MAP NO.524, PARCEL NO.642, 643, 644, TEMPORARY EASEMENT MAPS NO.525 PARCEL NO.645, NO.526 PARCEL NO.646, BY CLOUGH, HARBOUR & ASSOCIATES, ON FILE AT NEW YORK STATE DEPT. OF TRANSPORTATION REGIONAL OFFICE NO.1, ALBANY, NY.
5. "INTERSTATE ROUTE 504 (FULLER ROAD-EVERETT ROAD)", ALBANY CO., NY PROPERTY TO BE QUITCLAIMED TO THE CITY OF ALBANY MAP NO.539C PARCEL NO.664, PERMANENT EASEMENT MAP NO.541 PARCEL NO.665, BY NEW YORK STATE DEPT. OF TRANSPORTATION, ON FILE AT REGIONAL OFFICE NO.1, ALBANY, NY.
6. "ALBANY COUNTY SEWER DISTRICT, ALBANY COUNTY, NEW YORK, INTERCEPTOR AND TRUNK SEWERS, PATROONS CREEK TRUNK SEWER", DATED SEPT 17, 1970, BY C.T.MALE ASSOCIATES.
7. "SITE PLAN, FULLER ROAD CELL SITE, CITY OF ALBANY, ALBANY COUNTY N.Y.", DATED JUNE 28, 1995, BY CLOUGH, HARBOUR & ASSOCIATES.

TITLE REFERENCE:

1. COMMITMENT FOR TITLE INSURANCE ISSUED BY LAWYERS TITLE INSURANCE CORP. S&C NO.A-65759, SCHEDULE "B" CONTAINING 22 ITEMS, DATED NOVEMBER 2, 1987 PREPARED BY SNEERINGER AND CARMODY ABSTRACT CORP.
2. COMMITMENT FOR TITLE INSURANCE ISSUED BY LAWYERS TITLE INSURANCE CORP. S & C NO. A-66557, SCHEDULE "B" SECTION 2 CONTAINING 14 ITEMS, DATED SEPT. 25, 1988, REVISED OCT. 5, 1988, PREPARED BY SNEERINGER AND CARMODY ABSTRACT CORP.
3. COMMITMENT FOR TITLE INSURANCE ISSUED BY LAWYERS TITLE INSURANCE CORP., SPR NO. A-88575, DATED OCT. 15, 1996, PREPARED BY SNEERINGER, PROVOST, REDGRAVE TITLE AGENCY, INC.
4. COMMITMENT FOR TITLE INSURANCE ISSUED BY LAWYERS TITLE INSURANCE CORP. TITLE NO. AI09312 DATED JANUARY 20, 2004, PREPARED BY SNEERINGER MONAHAN PROVOST REDGRAVE TITLE AGENCY, INC.



LEGEND:

H.H. = HOSE HOUSE FOR SPRINKLER SYSTEM
P.I.V. = POST INDICATOR VALVES
W.O./A. = WITHOUT ACCESS
R.R.S - RAILROAD SPIKE SET
C.I.R.S - CAPPED IRON ROD SET
L.P - LIGHT POLE
MH - MANHOLE
CB - CATCH BASIN

PARCEL IS ZONED C-M, LIGHT INDUSTRIAL
MINIMUM LOT AREA PER ESTABLISHMENT = 10,000 SF
MINIMUM LOT WIDTH = 100 FT.

REQUIRED SETBACKS:
FRONT = 20 FT.
REAR = 20 FT.
SIDE = 10 FT./20 FT.

NOTES:

1) NORTH ORIENTATION AND BEARING BASE OBTAINED FROM MAP REF. NO.4.

2) SURVEYED PARCEL SUBJECT TO A PERMANENT EASEMENT GRANTED TO THE NEW YORK CENTRAL RAILROAD COMPANY (L1437 P283) FOR DRAINAGE OF SURFACE WATERS FROM RAILROAD TO PATROON CREEK(UNPLOTTABLE).

3) ORIGINAL CENTER LINE LOCATION OF THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD CO. WAS ESTABLISHED FROM PROPERTY LINE DATA OBTAINED FOR THE PREPARATION OF SEWER EASEMENTS AS PER MAP REF. NO. 6.

4) SURVEY PARCEL MAY BE SUBJECT TO AN UNPLOTTABLE EASEMENT BETWEEN MOHAWK BRUSH CO. AND THE CITY OF ALBANY AS DESCRIBED IN L1450/P60.

5) CONSTRUCTION MATERIALS STORED IN THIS AREA AND UNABLE TO DELINEATE PARKING LINES. ALL OTHER AREAS MARKED WITH STRIPING ARE INDICATED.

6) SUBJECT PARCEL ZONED LIGHT INDUSTRIAL.
MINIMUM SETBACK LINES
FRONT - 10 FEET
REAR - 20 FEET
SIDE MIN. OF 10 FEET, TOTAL BOTH SIDES 30 FEET.

7) SURVEY PARCEL MAY BE SUBJECT TO A RIGHT OF WAY FOR THE PASSAGE OF WATER ACROSS SAID PARCEL AS STATED IN AGREEMENT L.1450 P. 60. LOCATION IS UNPLOTTABLE.

8) BASED ON FLOOD INSURANCE RATE MAP, CITY OF ALBANY, N.Y., COMMUNITY - PANEL NO. 3600010002C DATED APRIL 15, 1980, SUBJECT PARCEL IS NOT LOCATED WITHIN THE 100 YEAR FLOOD PLAIN.

9) STATUS OF TEMPORARY CONSTRUCTION EASEMENT PARCELS 645 AND 646 UNKNOWN AS OF 11/18/88. AWAITING CONFORMATION FROM N.Y.S.D.O.T. REALESTATE DIVISION.

10) ALL PROPERTY CORNERS WERE RECOVERED OR RESET OCTOBER 28, 29, 1996.

11) PROPERTY CORNERS SHOWN WERE RECOVERED JAN. 28, 2004.

12) THIS SURVEY DOES NOT CONSTITUTE A RECORD SEARCH BY C.T. MALE ASSOCIATES, P.C. TO DETERMINE OWNERSHIP OR EASEMENTS OF RECORD. FOR ALL INFORMATION REGARDING EASEMENTS, RIGHTS OF WAY AND TITLE OF RECORD, THE SURVEYOR RELIED UPON TITLE COMMITMENT NUMBER AI09312. PREPARED BY SNEERINGER, MONAHAN, PROVOST, REDGRAVE TITLE AGENCY, INC. DATED JANUARY 20, 2004.

All that parcel of land, situate partially in the City of Albany and partially in the Town of Guilderland, Albany County, State of New York, lying on the southeasterly side of Fuller Road and northerly and northeasterly of Interstate Route 504 (Fuller Road-Everett Road) and being more particularly bounded and described as follows:

BEGINNING at a bend point in the southeasterly boundary of Fuller Road (County Highway No. 156), said point being the most northerly corner of a parcel of land conveyed to the City of Albany in Liber 2046 of Deeds, page 679, said point also being on the reputed City line between the Town of Guilderland on the northeast and City of Albany on the southwest; running thence from said point of beginning along said reputed City line, South 54° 48' 50" East, 153.89 feet to a point on the southwesterly boundary of lands now or formerly of Consolidated Rail Corporation; thence along said southwesterly boundary the following two courses: South 41° 47' 40" East, 7.93 feet to a point; South 55° 48' 00" East, 1,420.25 feet to a point; thence through the lands now or formerly of the City of Albany, South 34° 11' 40" West, 48.29 feet to a point on the northerly boundary of Interstate Route 504 (Fuller Road-Everett Road); thence along said highway boundary the following four courses: North 68° 51' 20" West, 2.51 feet to a point; North 84° 23' 40" West, 101.01 feet to a point; North 73° 34' 30" West, 89.55 feet to a point; and North 84° 50' 00" West, 225.74 feet to its intersection with the easterly line of property deeded to the City of Albany by the People of the State of New York; thence along said highway boundary and along the easterly and southerly line of said premises deeded to the City of Albany, the following five courses: South 53° 44' 30" West, 70.28 feet to a point; South 85° 02' 10" West, 105.50 feet to a point; North 86° 17' 50" West, 51.10 feet to a point; North 55° 06' 50" West, 134.11 feet to a point; North 71° 27' 40" West, 80.74 feet to a point on the northerly highway boundary of said Interstate Route 504; thence along said highway boundary South 88° 37' 00" West, 1.18 feet to its intersection with the division line between lands now or formerly of the City of Albany on the northeast and the lands now or formerly of Niagara Mohawk Power Corp. on the southwest as described in Liber 2021 of Deeds, page 129; thence along the above last mentioned division line, North 41° 47' 40" West, 71.36 feet to its intersection with the division line betwen said lands now or formerly of the City of Albany on the northwest and the lands now or formerly of said Niagara Mohawk Power Corp. on the southeast; thence along the above last mentioned division line, South 38° 10' 20" West, 70.47 feet to its intersection with the said Interstate Route 504 highway boundary; thence along said highway boundary the following three courses: South 88° 37' 00" West, 60.39 feet to a point; North 38° 38' 10" West, 171.07 feet to a point; and South 77° 05' 40" West, 22.64 feet; thence along said highway boundary the following three courses: North 58° 56' 10" West, 126.32 feet to a point; North 82° 44' 10" West, 135.09 feet to a point; North 64° 51' 30" West, 203.12 feet; thence along said highway boundary North 42° 22' 20" West, 156.73 feet; thence along said highway boundary North 12° 16' 00" East, 78.16 feet to its intersection with the above mentioned southeasterly boundary of Fuller Road; thence along said southeasterly boundary, along a curve to the right of radius 3,779.72 feet, an arc distance of 501.65 feet, to the point or place of beginning (the chord for the above described curve being, North 41° 19' 10" East, 501.28 feet), containing 15.72± acres of land.

C.T. MALE ASSOCIATES, P.C.
MAY 21 2004
PRINTED AND ISSUED

DATE	RECORD OF WORK	Drawn	Check	Appr.
1-18-88	UPDATE SURVEY, RECERTIFICATION	RM	JTC	JTC
11-2-88	UPDATE SURVEY, RECERTIFICATION	RM	JTC	JTC
11-18-88	NOTES ADDED, MISC. REVISIONS	M.R.H.	JTC	JTC
10/31/96	UPDATE SURVEY, RECERTIFICATION	JF	JTC	JTC
1-28-04	SURVEY UPDATE	MDD	JTC	JTC
2-10-04	MISC. REVISIONS	MDD	JTC	JTC

DRAWN BY L.A.M.
CHECKED BY JTC

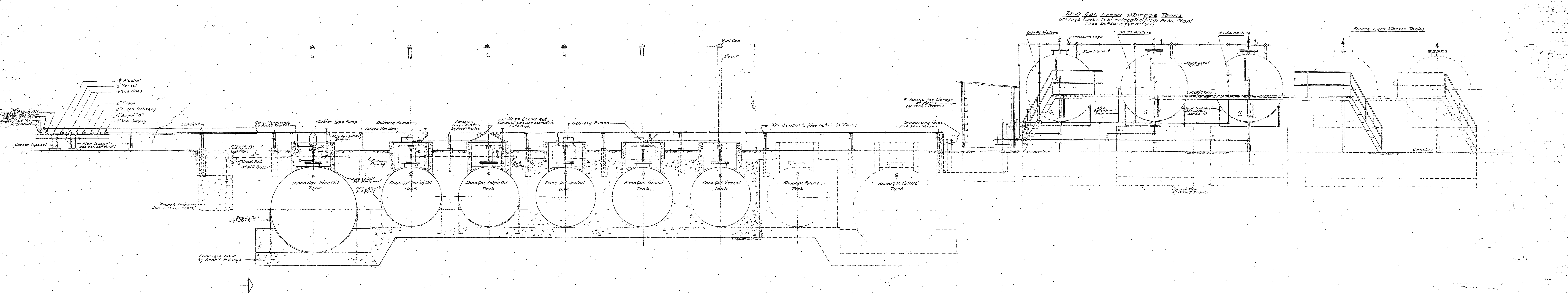
SURVEY OF A PORTION OF LANDS OF
THE CITY OF ALBANY
To Be Conveyed to
STAR TEXTILE AND RESEARCH, INC.

CITY OF ALBANY
COUNTY OF ALBANY
SCALE 1" = 50'
DATE APRIL 25, 1985

C.T. MALE ASSOCIATES, P.C.
50 Century Hill Drive, P.O. Box 727, Latham, NY 12110
Engineering Surveying. Architecture Landscape Architecture
Laboratory Services Computer Services

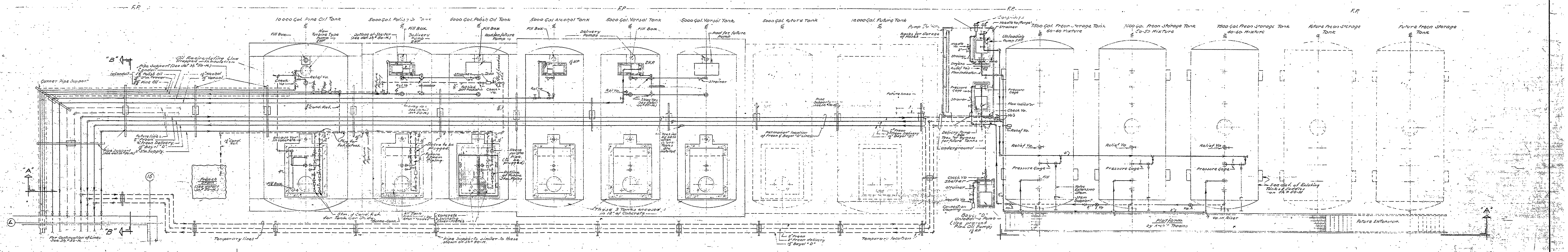
APPROVED BY:
LIC. NO. 49,112
DWG. NO. 85-160R

Figure 3:
Plan and Elevation of Tank Farm (1955)



SECTION "A-A"

Scale ¼"=1'-0"



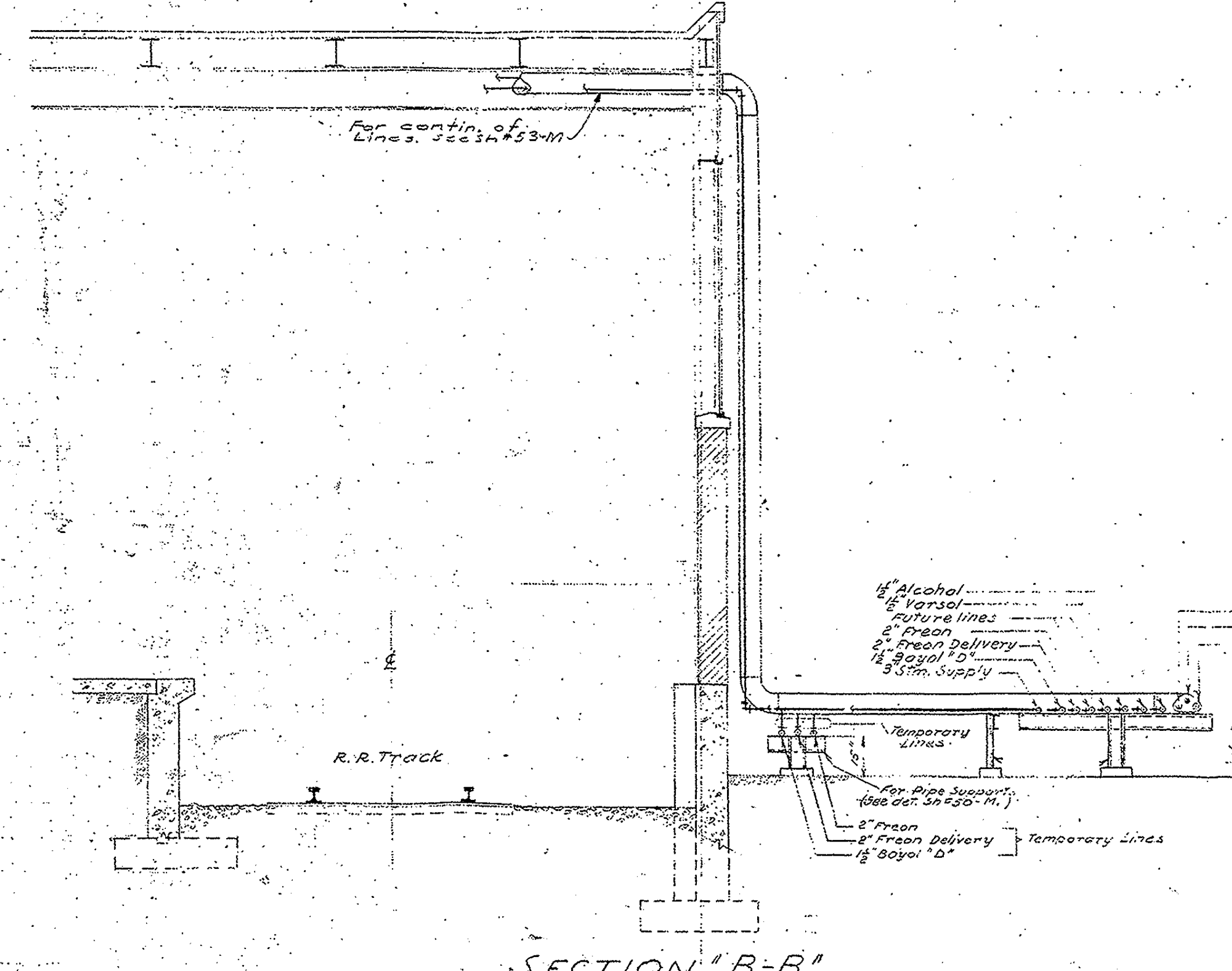
PLAN OF TANK FARM

Scale: ¼"=1'-0"

N

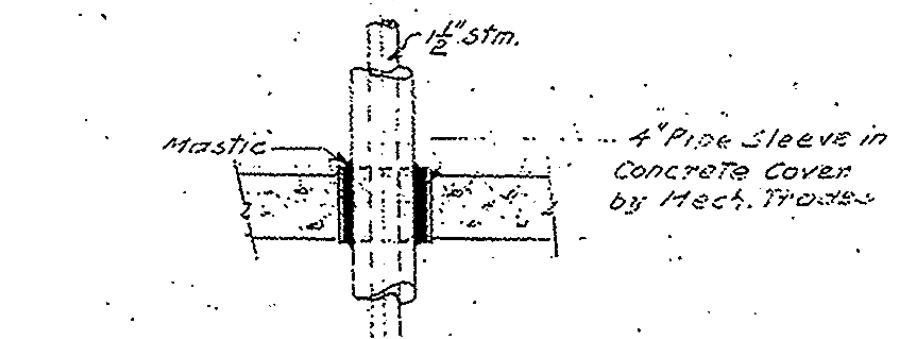
(FOR TANK DETAILS SEE SH. #50-M.)

Notes: Pump Connections to be varied to suit existing Pumps
Piping shall be kept as simple & neat as possible.
Pumps may be reversed to suit connections.
(For Tank & Misc. Details see Sheet #50-M. See Spec. for list of Existing Equipment to be re-used.)
Arrows on pipe lines show direction of flow.



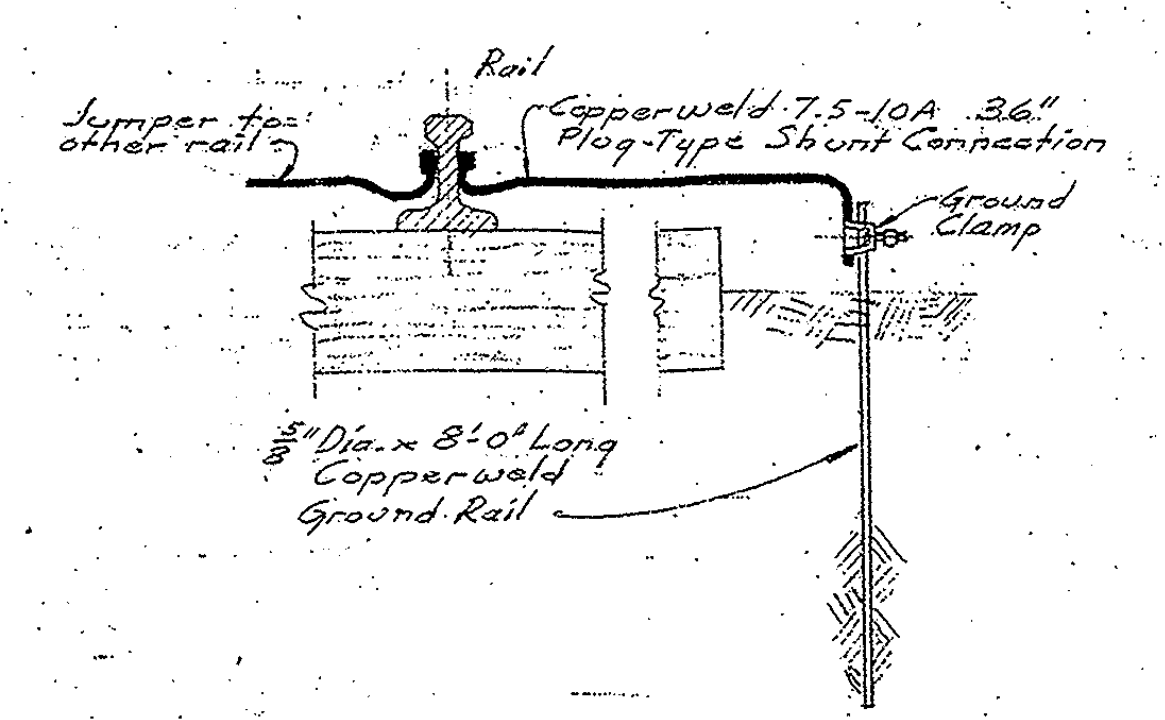
SECTION "B-B"

Scale: ¼"=1'-0"



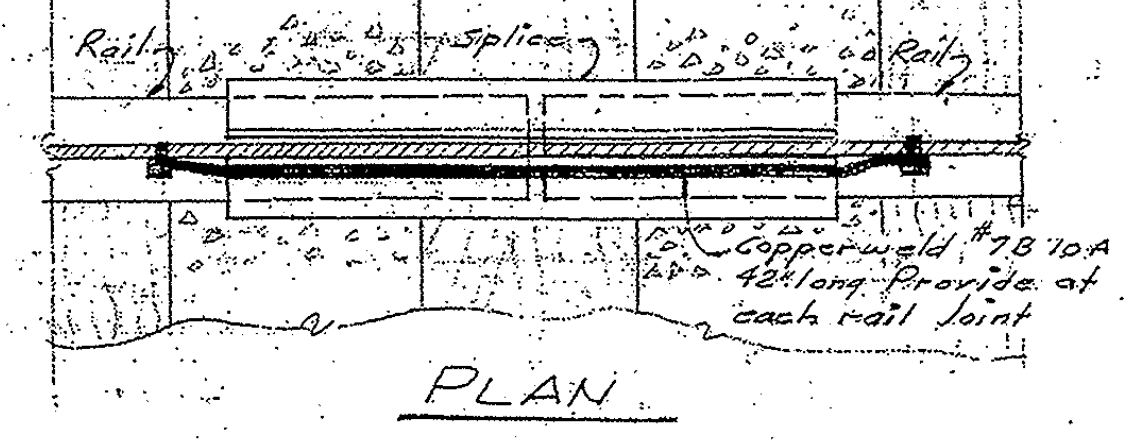
DETAIL OF PIPE SLEEVE

No Scale

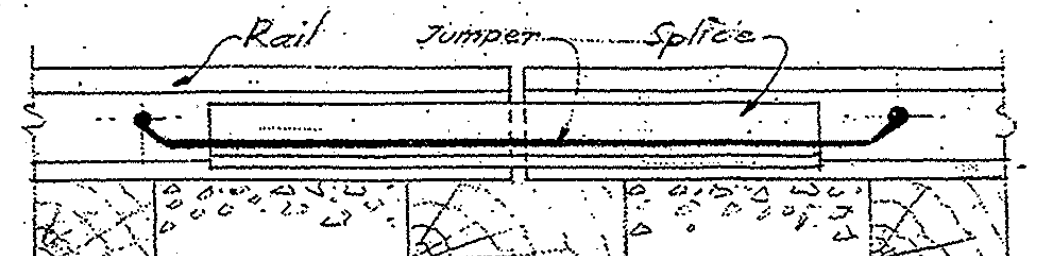


DETAIL OF RAIL GROUND

No Scale



PLAN



ELEVATION OF RAIL BOND DETAILS

No Scale

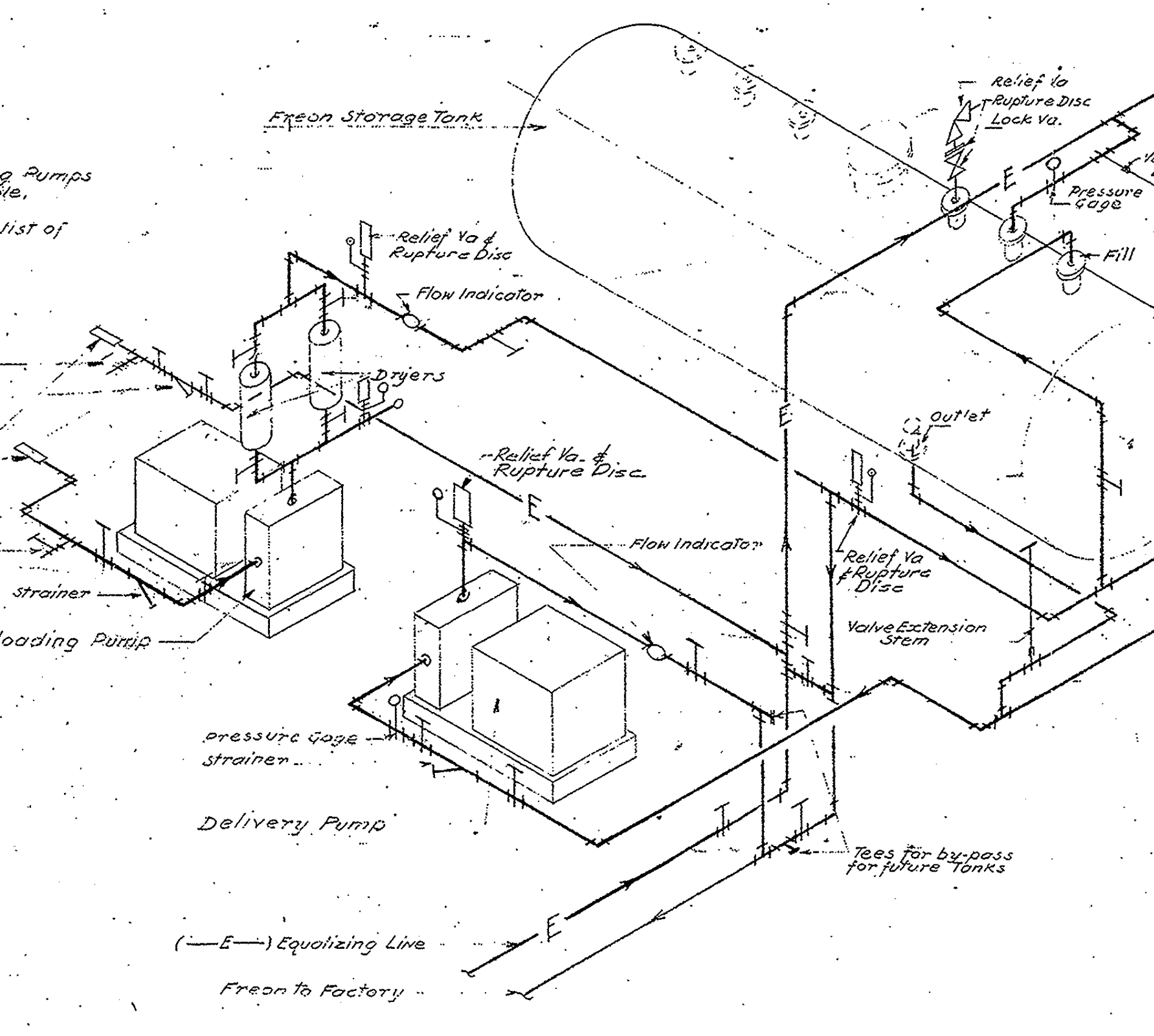
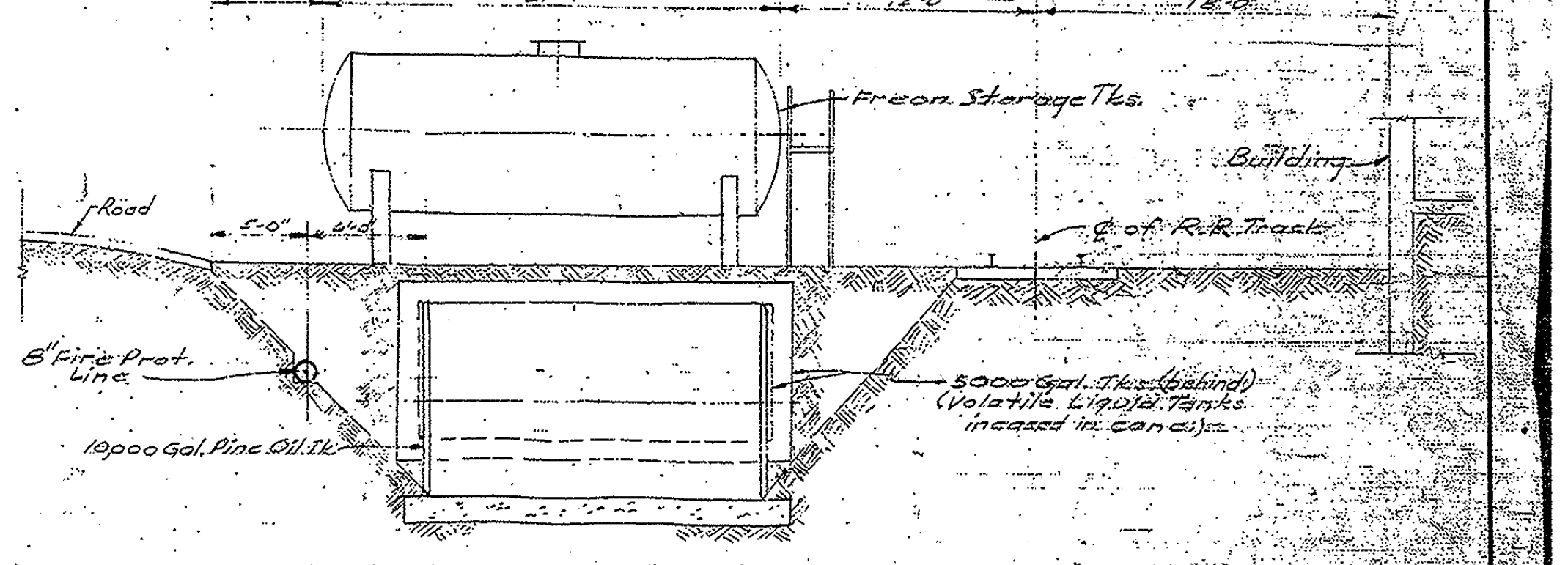


DIAGRAM OF PIPING OF FREON STORAGE

No Scale



SECTION "B"-"B"

Scale – ⅛"=1'-0"

All Dimensions to be verified in field

REVISIONS		
DATE	BY	BULL'N.

FACTORY & OFFICE
FOR
MOHAWK BRUSH COMPANY
ALBANY NEW YORK
F.A. FAIRBROTHER, ARCHITECT
GEO. H. MIEHLS, ENGINEER
345 NEW CENTER BUILDING, DETROIT, MICHIGAN
ALBERT KAHN-ASSOCIATED ARCHITECTS & ENGINEERS, INC. CONSULTANTS

PLAN & ELEVATION OF TANK FARM

JOB No 2105

TRADE	DSN.	TRAC'D	CHK'D.
PLBG	—	—	—
HEAT	D.R.T.	S.Z.	Adw
VENT	—	—	—
PROC.	D.R.T.	S.Z.	Adw

RECORDED 9-7-53
APPROVED

SHEET No 51-M

Figure 3A:
1955 Site Plan Map

PLOT PLAN

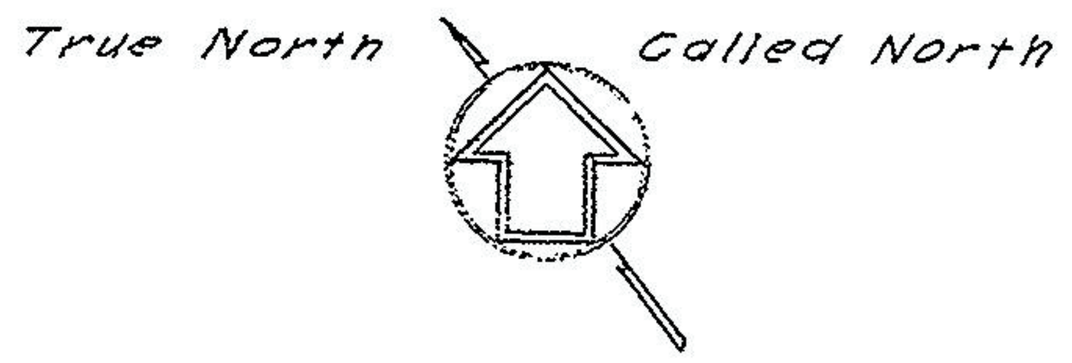


FIGURE 3A
1955 SITE PLAN MAP

136 Fuller Road
City of Albany, Albany County, New York

Figure 4:
Soils Borings Location Map

Date: 2007

Scale: As Indicated

Project #: 90618.00

FIGURE 4
SOIL BORING LOCATION MAP

136 Fuller Road
City of Albany, Albany County, New York

THE Chazen COMPANIES

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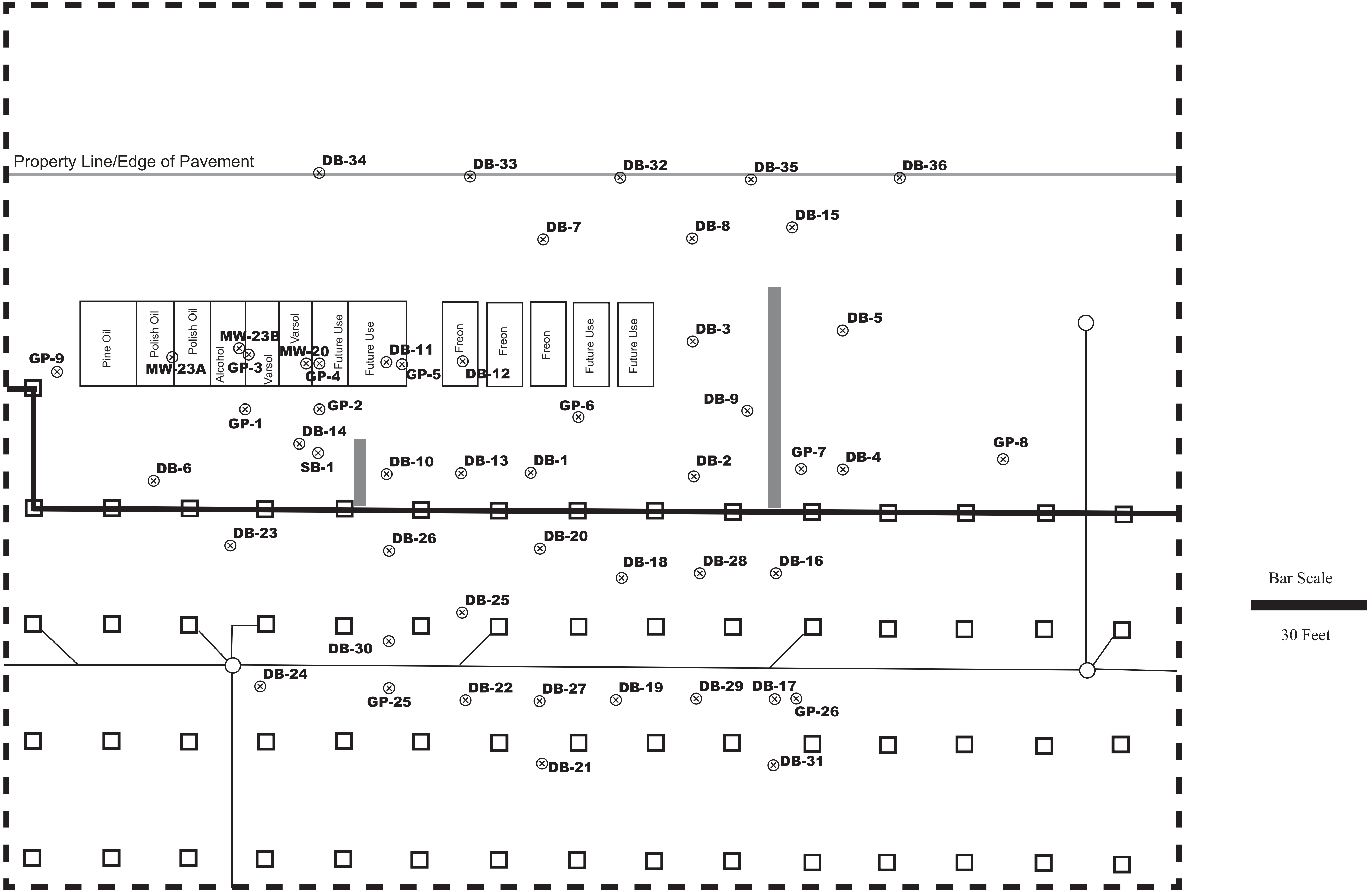
Phone: (845) 454-3980

Orange County Office:
263 Route 17K Newburgh, NY 12550

Capital District Office:
547 River Street, Troy, NY 12180

Glens Falls Office:
110 Glen Street Glens Falls, NY 12801

Figure 4A:
Soil Boring Locations Detail Area



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20 Gurley Avenue, Troy, NY 12182

Glens Falls Office:
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FIGURE 4A-SOIL BORING LOCATION DETAIL

136 Fuller Road
City of Albany, Albany County, New York

Date:
2007

Scale:
As Shown

Project #:
90618.00

Figure 5:
Groundwater Monitoring Well Location Map

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Glens Falls Office:
110 Glen Street Glens Falls, NY 12801

Date: 2007
Scale: As Shown
Project #: 90618.00

FIGURE 5
GROUNDWATER MONITORING WELL LOCATION MAP
136 Fuller Road
City of Albany, Albany County, New York

Figure 6:
Sub-slab Vapor Sampling Locations Map

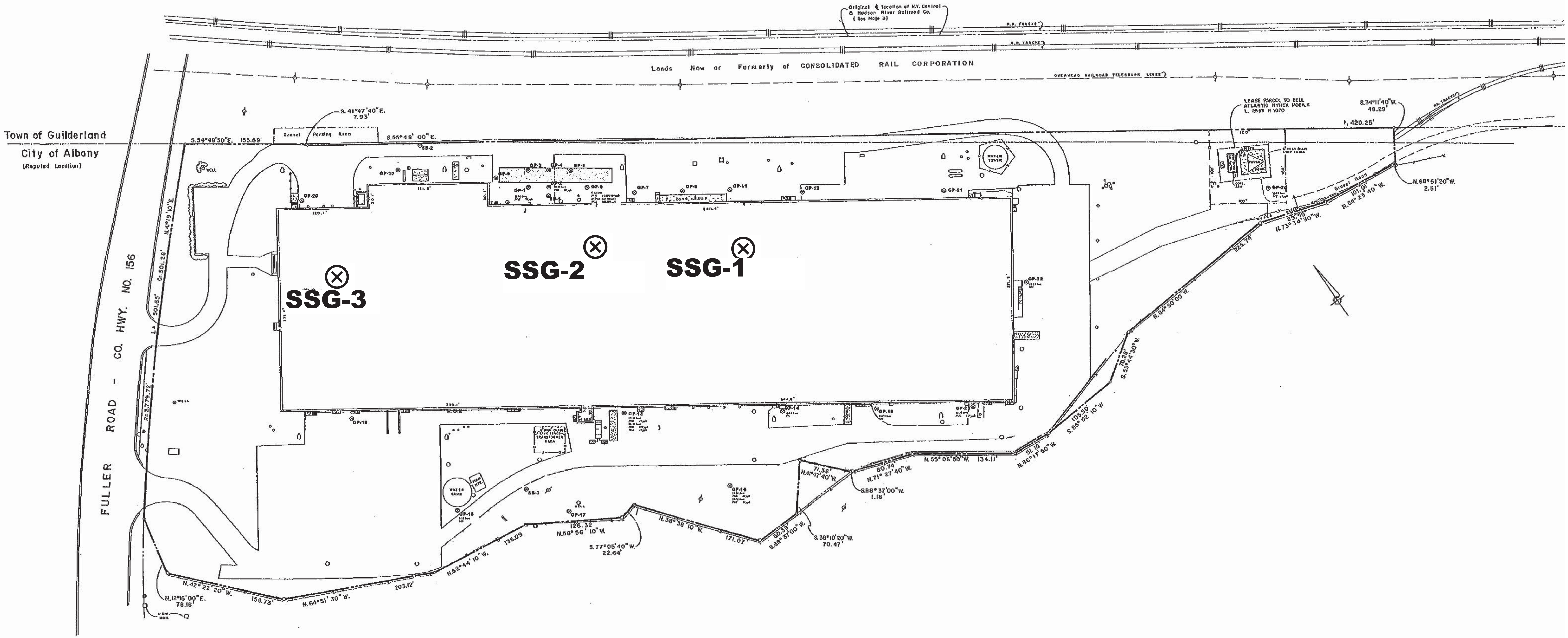

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FIGURE 6-SUB-SLAB SOIL VAPOR SAMPLE LOCATIONS

136 Fuller Road

City of Albany, Albany County, New York

Date: 2007

Scale: As Shown

Project #: 90618.00

Figure 7:
Surface Water Sampling Locations Map

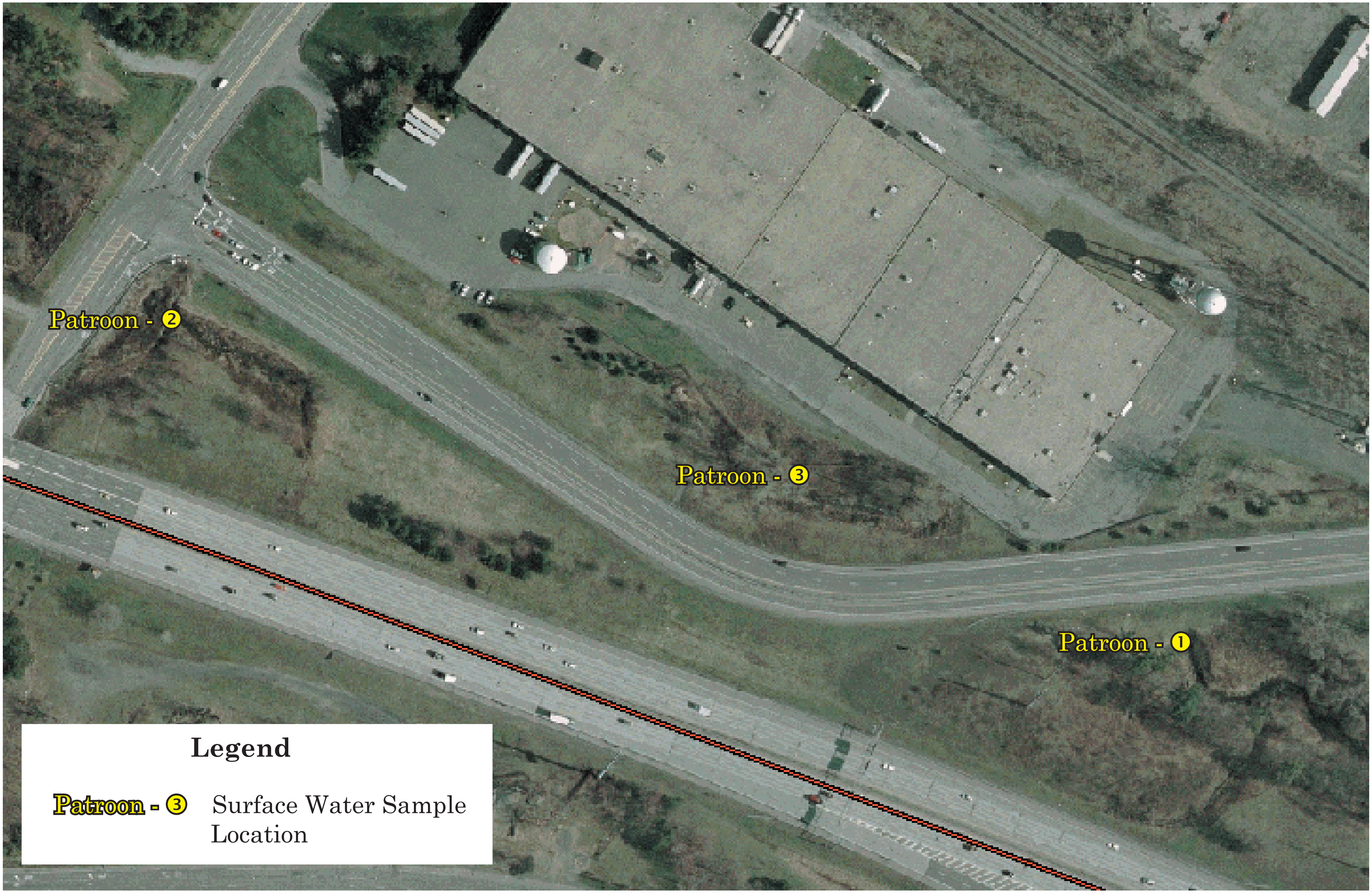

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FIGURE 7 -SURFACE WATER SAMPLE LOCATION MAP

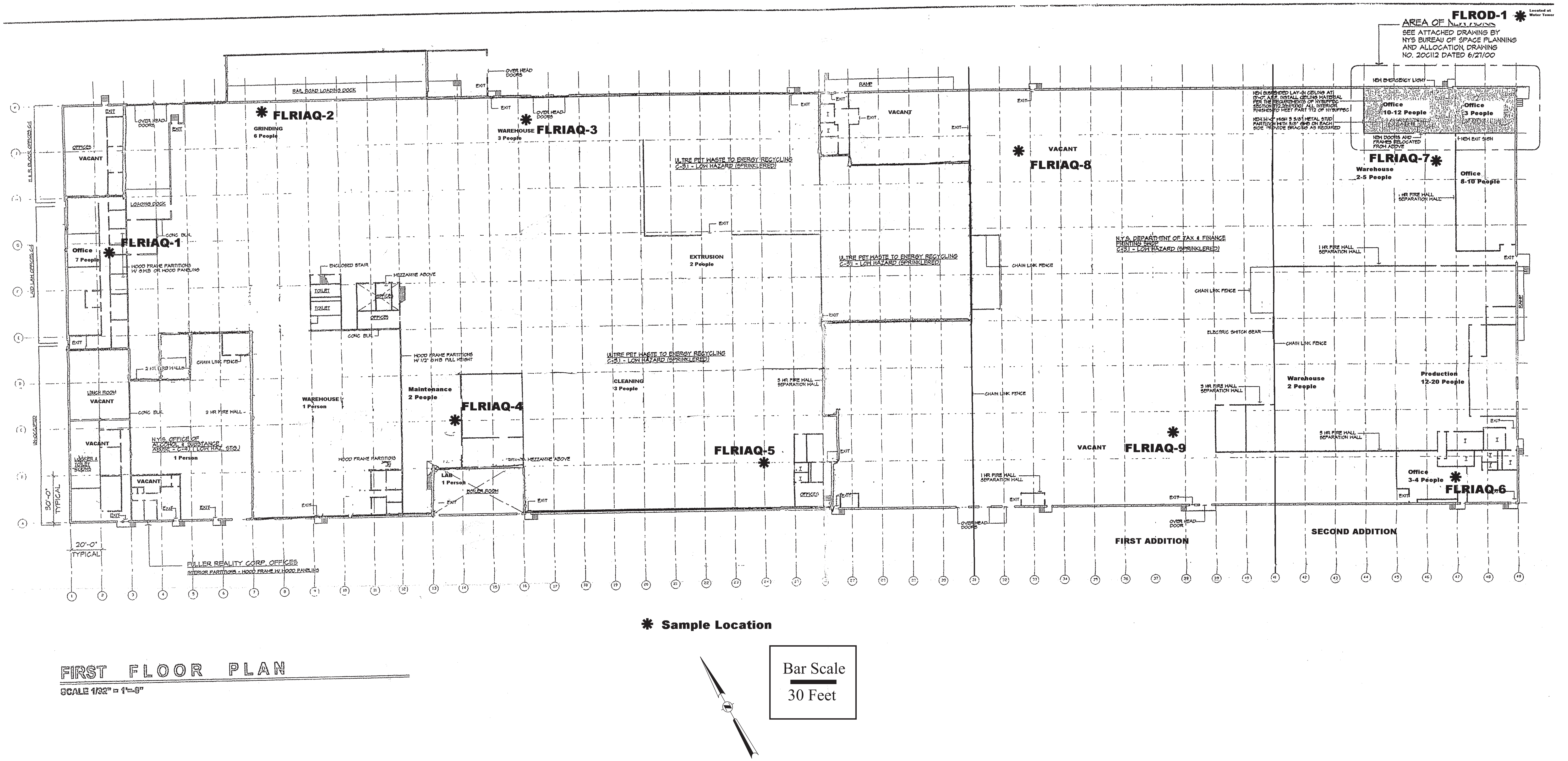
136 Fuller Road
City of Albany, Albany County, New York

Date:
2006

Scale:
Not Indicated

Project #:
90618.00

Figure 8:
Indoor Air Quality Sampling Location Map



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Glens Falls Office:
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FIGURE 8 - INDOOR AIR QUALITY SAMPLE LOCATIONS

136 Fuller Road
City of Albany, Albany County, New York

Date:
2007

Scale:
As Shown

Project #:
90618.00

Figure 9:
Groundwater Contour Map

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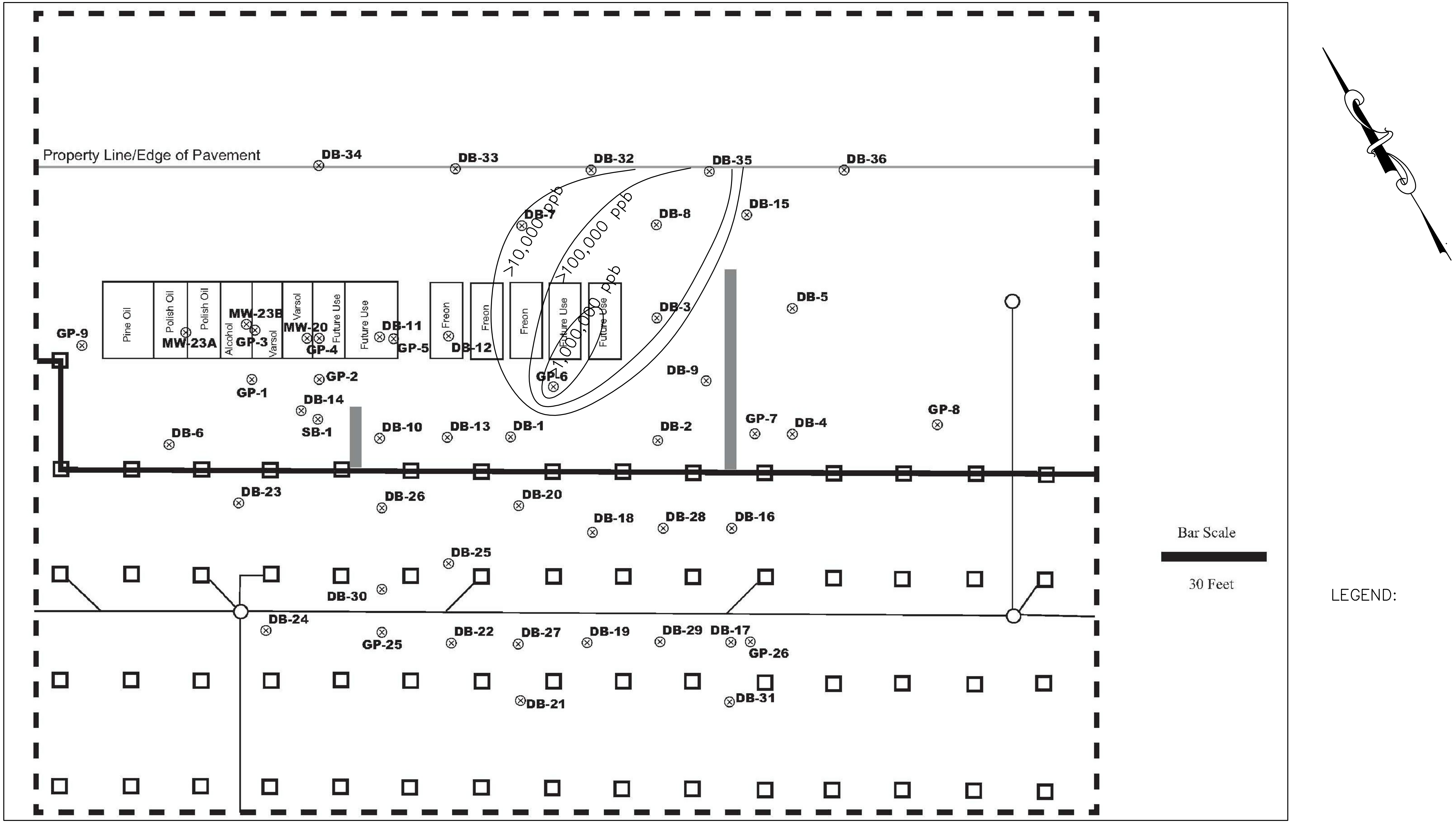
Glens Falls Office:
110 Glen Street Glens Falls, NY 12801

Date: 2007
Scale: As Shown
Project #: 90618.00

FIGURE 9
GROUNDWATER CONTOUR MAP

136 Fuller Road
City of Albany, Albany County, New York

Figure 10:
Tetrachloroethylene in Soil Concentration Map



THE
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Planners
Environmental Scientists

CHAZEN ENVIRONMENTAL SERVICES, INC.

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Newburgh, N.Y. 12550
Phone: (845) 567-1133

New England Office:
99 Derby Street, Suite 200
Hingham, Mass. 02043
Phone: (781) 556-1037

Dutchess County Office:
21 Fox Street
Poughkeepsie, N.Y. 12601
Phone: (845) 454-3980

North Country Office:
110 Glen Street
Glens Falls, N. Y. 12801
Phone: (518) 812-0513

136 FULLER ROAD

FIGURE 10

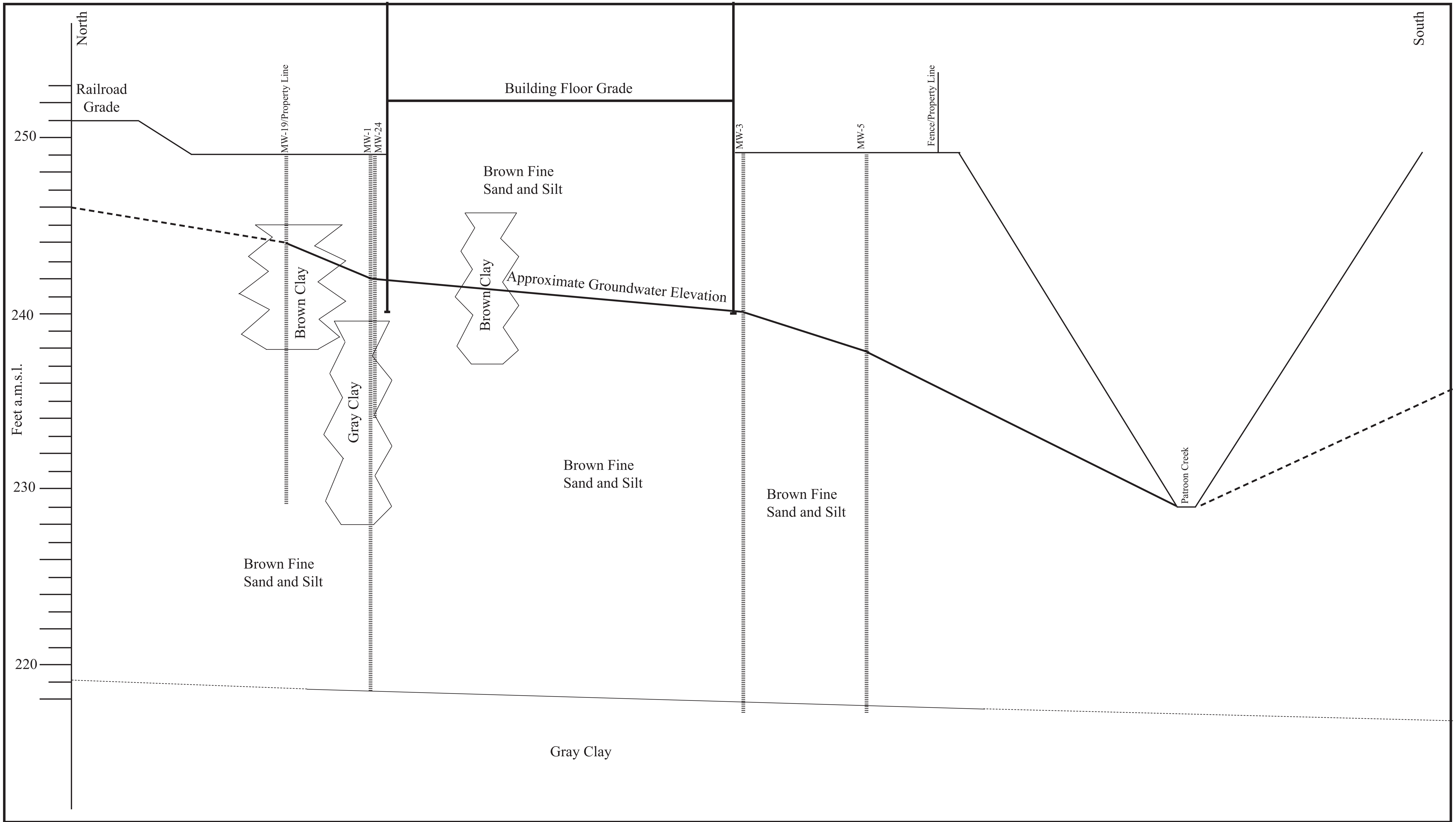
CONCENTRATION OF PCE IN SOIL

CITY OF ALBANY
ALBANY COUNTY, NEW YORK

drawn: CST	check: K.L.B
date: 5/14/2007	scale: AS SHOWN
project no. 90618.00	
sheet no. 1 OF 1	

Drawing Name: S: 9 90600-90699 90618_00 Soil Delineation PCE Map.dwg
Xrefs Attached:
Date Printed: May 15, 2007, 3:09pm

Figure 11:
Geologic Cross Section



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Glens Falls Office:
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FIGURE 11-CROSS SECTION

136 Fuller Road
City of Albany, Albany County, New York

Date:
2007

Horz. Scale:
1"=70'

Project #:
90618.00