INTERIM REMEDIAL MEASURES WORK PLAN
FORMER RED DEVIL PAINT
30 NORTH WEST STREET
MOUNT VERNON, NEW YORK
BCP INDEX #W3-1079-05-09
SITE #3-60-031

Prepared For

SUSA Mt. Vernon, LLC

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1.0 INTRODUCTION

This Interim Remedial Measures Work Plan (IRMWP) for the Former Red Devil Paint Facility site (the "Site") located at 30 North West Street, the City of Mount Vernon, New York was prepared by Leggette, Brashears & Graham, Inc. (LBG) on behalf of SUSA Mt. Vernon, LLC (figure 1 shows the Site location). SUSA has entered into the Brownfield Cleanup Program (BCP) with the New York State Department of Environmental Conservation (NYSDEC) on November 3, 2005. The Site is listed as BCP Index Number W3-1079-05-09 and Site ID #3-60-031. This IRMWP was developed based on the results of the historical remedial investigation activities and historical remedial activities performed at the Site by both past environmental consultants as well as those performed by LBG. The primary site characterization information used to design this IRMWP was outlined in the Remedial Investigation Report prepared by LBG and submitted to the NYSDEC in March 2009. The remedial goals of the proposed IRMWP are the following:

- removal of free-phase product from the subsurface to eliminate the source of dissolved phase contamination;
- reduction of the concentrations of contaminants in the groundwater beneath the site to existing background levels in the area; and,
- prevent lateral and vertical migration of dissolved phase contaminants.

In order to achieve these goals, the following work will be completed at the site:

- install and operate a multi-phase extraction system to remove groundwater and soil vapor contaminated with volatile organic compounds (VOCs) in addition to free-phase product utilizing the previously installed horizontal extraction wells (HEW-1 and HEW-2); and,
- manually remove free product which accumulates in onsite monitoring wells by regularly scheduled bailing events.

The objective of this work plan is to ensure that all tasks are defined and completed adequately and safely. The work plan includes:

- site location and background;
- procedure for laboratory data analysis;
- Health and Safety Plan;
- description and specification of the proposed remedial system; and,
- the schedule for implementation of the interim remedial measures.

Several work plans were implemented during the performance of the remedial investigation activities by LBG. All activities performed in association with the IRMWP will comply with the previously NYSDEC approved Site specific Health and Safety Plan (HASP), which includes the Community Air Monitoring Plan (CAMP). The HASP is included as Appendix I on the attached CD. A Quality Assurance/Quality Control (QA/QC) Plan was also prepared and is included as Appendix II on the attached CD.

2.0 SITE DESCRIPTION AND HISTORY

The Site, presently an Extra Space Storage self-storage facility, is located at 30 North West Street in the City of Mount Vernon, Westchester County, New York. The location of the Site, as shown on figure 1, is at 40°54'54" north latitude and 73°51'35" west longitude. The property is approximately 50,000 sq. ft. (square feet) in area, 73 percent (37,035 sq. ft.) of which is developed. The developed portion of the Site is improved with several buildings constructed at various times and homologated into one composite unit (the "Building"). The components of the Building are referenced as Area A, Area B, Area C and Area D. These areas are shown on the Site Plan included as figure 2.

The Site is located in an industrial area that dates back at least 75 years. A chronology of Site owners and/or operators is as follows:

• SUSA Mt. Vernon, LLC	1991-present
• Insilco	1989-1991
• Red Devil Paint Division of Insilco	1971-1989
• Red Devil Paints & Chemicals, Inc.	1959-1971
• Technical Color and Chemical Works, Inc.	1955-1963

•	Continental Bakery Corporation	1926-1940
•	Bakery Services Corporation	1927-1930
•	Shults Bread Company	1911-1915
•	Egler and Sons Baking Company	1908

The available records indicate that most of the construction on the Site was completed by the Red Devil Paints and Chemicals, Inc. The core of the facility which consisted of the production area, the packing and the garage areas (Areas C and D) was probably built in 1915. A paint remover building was built in 1956 (historically in the parking lot adjacent to Area A) however it has since been razed. The storage/machine shop (Area B) was constructed in 1963. In 1966 the packing and mixing room was completed as an addition to Area C (currently the western portion of Area C). The final office structure (the building on the southern portion of Area A) was completed in 1987.

In 1991 the property and the Building was sold by Insilco to SUSA Mt. Vernon, LLC. Since that time, the Site has continued to be utilized as a commercial self-storage facility.

2.1 Local Land Usage

The surrounding area within a one mile radius of the Site is urban with mixed residential and industrial/commercial development. The Site is bordered on the northwest by Metro North Railroad tracks, on the northeast by Oak Street, on the southeast by North West Street and to the southwest by a small furniture outlet store, a grocery market and a taxi dispatching service. The Bronx River is located approximately 115 feet northwest of the Site.

The property is described by the City of Mount Vernon tax assessor as Section 164.68, Block 1056, Lots 11 and 12.

3.0 SUMMARY OF GEOLOGY AND HYDROGEOLOGY

3.1 Geology

The Site is located in the City of Mount Vernon, in the southern part of Westchester County, New York State. This location falls within the Lower Hudson River Valley of the New England physiographic province. The topography in the area consists of northeast trending ridges, separated by rivers that flow southward in narrow valleys. The Site itself is located approximately 115 feet southeast of the Bronx River. The average topographic elevation at the Site is approximately 95 feet above MSL (mean sea level).

Regional geology in this part of southern Westchester County consists of the Manhattan Schist and Hartland Formation (amphibolite, schist-gneiss-amphibolite, gneiss, schist and granulite), metamorphic bedrock materials, overlain by a generally thin layer of unstratified glacial deposits. The Manhattan Schist is a highly-folded, coarsely-crystalline, micaceous schist. Outcrops of the Manhattan Schist are found in road cuts and on ridges throughout the area, although there are no outcrops on the Site. The Manhattan Schist is relatively impermeable, and does not serve as an important source of water. What little water it does produce is from fractures that decrease in size and frequency with depth. Well records show an average yield of 40 gpm (gallons per minute) from wells which average 320 feet in depth in the schist. The overburden typically consists of an unsorted mixture of clay, boulders, and glacial deposits as ground moraine. This glacial material generally has a low permeability and is a poor source of water. In stream valleys, such as that of the Bronx River, the overburden can be much thicker, and consists of stratified glacial deposits, recent stream sediments and reworked glacial material. The water yielding capacity of the unconsolidated stream valley deposits is highly variable, but can be significant in places.

The Site geology was determined from subsurface borings and excavations performed throughout the Site for environmental characterization which were typically 15 to 35 feet in depth. Immediately below the Site is approximately 5 to 15 feet of fill material. The fill is predominantly sand, plus a mixture of coal dust, bricks, concrete rubble and boulders (construction and demolition debris). The natural sediments beneath the fill are a mixture of glacial material plus recent alluvial sediments. The unconsolidated glacial material is silty with lesser amounts of fine to medium sand and trace amounts of gravel; the glacial sediments are also poorly stratified. Apparent bedrock was encountered throughout the Site at approximately 20-25 ft bg (feet below grade) in the basement of Areas C and D (northern portion of the Site). The bedrock appears to follow the contour of the topography which elevates to the south-southwest.

Utilizing the geologic logs recorded for soil samples collected during the installation of the product delineation wells and GeoProbe borings as well as evaluation of soils exposed during open excavation activities, the subsurface soils at the Site have been characterized.

This information will be/was used to evaluate onsite subsurface geological characteristics at the Site as well as for evaluating contaminant fate and transport at the Site.

Based on the geologic logs recorded during the remedial investigation, the subsurface soils for Area A, Area B, Area C and Area D are described below.

Area A soils (primarily characterized in the parking lot) and first floor Area B soils consisted of approximately 10 feet of construction and demolition (C&D) debris with high percentages of coal ash. This C&D debris layer is approximately 2-5 feet thick in the basement of Area B soils as well as all areas of Area C and Area D. The underlying soils (beneath the C&D debris) consist primarily of very fine to fine sand and silt with trace silt and gravel. The amounts of silt and clay are higher in the northern portion of the Site (Area D and Area C) and decrease to the south.

3.2 Surface Water

The Site is located within approximately 115 feet of the southeastern banks of the Bronx River (figure 2). There are no surface-water bodies on the Site itself. Surface-water run-off throughout the Site drains: to an onsite drywell located in the parking lot of Area A; to a drywell located in the alleyway to the west-northwest of Areas C and D; and, through percolation through the topsoil of the exposed soil present to the south and west of Area A as well as to the west of Area B, Area C and Area D. The majority of storm-water runoff (surface-water runoff and roof drain discharge) flows along the surrounding roads (North West Street, Oak Street and Mount Vernon Avenue), into storm-water catch-basins, and through the storm-water sewer (along the surface topography to the northwest) ultimately discharging to the Bronx River. The Bronx River flows southward, and discharges into Long Island Sound, near the head of the East River.

3.3 Hydrogeology

The main source of groundwater in Westchester County is precipitation which averages 48 inches per year. Runoff averages 22 inches per year.

There are no major aquifers in southern Westchester County. Both the Manhattan Schist and the glacial sediments are capable of yielding small quantities of water to wells, but these aquifers are no longer used. Wells tapping these aquifers have been abandoned due to urbanization. All potable water in the area is supplied by a public water system which is derived principally from surface-water sources.

The depth to groundwater varied across the Site from 25 feet below ground surface to 13 feet below ground surface. Although the presence of product in a number of monitoring wells may have affected the water-level measurements, groundwater appears to be flowing westward towards the Bronx River.

4.0 BACKGROUND

The Site has been characterized by multiple remedial investigations. Additionally, several IRMs have been implemented at the Site to mitigate onsite and offsite impact of subsurface contamination. The IRM activities performed at the Site (both past and present), reduced the subsurface contamination of soil and groundwater beneath the Site. A summary of the historical investigation and remedial activities performed at the Site are presented below.

4.1 Historical Environmental Investigations

The previous investigations at this Site indicate that soil and groundwater beneath the Site have been impacted from industrial operations during the past century and that residual contamination remains in the subsurface beneath the Site. The historical investigations performed at the Site prior to the 2006-2008 LBG RIR include but are not limited to: underground storage tanks (USTs) and above-ground storage tanks (ASTs) closures; investigation activities performed by Environmental Resources Management (ERM) and reported to NYSDEC; IRMs instituted by ERM; a feasibility study performed by ERM; remediation of soil and groundwater performed by ERM; and, Non-Aqueous Phase Liquid (NAPL) recovery activities using a product recovery system operated by ERM.

4.2 LBG Initial Site Characterization

Prior to implementing the NYSDEC approved RI, LBG conducted file searches at NYSDEC offices and performed a preliminary evaluation of environmental conditions at the Site. These activities were a part of the requirements for site characterization outlined in the BCP guidance for identifying potential areas of concern based on record review, site inspection, and sampling.

The results of the initial Site characterization activities verified that free-phase product (NAPL) detected historically in monitor wells continued to be present beneath the northeastern portion of the Site.

4.3 2006-2009 LBG Remedial Investigation

The LBG remedial investigation activities performed at the Site from 2006-2009 consisted of subsurface characterization activities performed at the Site and offsite to delineate the extent and concentration of soil, groundwater and soil vapor/indoor air contamination present at the Site. In addition to site characterization activities, preliminary IRMs implemented at the Site and several remedial alternative pilot studies were performed to evaluate potential future remedial technologies.

As a result of the subsurface investigation activities as well as the IRM activities performed at the Site, the Site has been comprehensively characterized. This Site characterization has defined the extent of soil vapor/indoor air, soil and groundwater contamination in the subsurface beneath the Site.

The results of the onsite soil vapor intrusion sampling rounds (performed prior to onsite IRM activities) indicated that soil vapor VOC concentrations beneath the Site are minimal. Additionally, none of the indoor air samples collected contained concentrations of PCE, TCE and/or methylene chloride (the only compounds with established indoor air guidance values) above the established New York State Department of Health (NYSDOH) air guidance values. Based on the NYSDOH Soil Vapor/Indoor Air Matrices (which correlate soil vapor concentrations and indoor air), the most conservative recommended courses of action for the Site (for the two sampling rounds) were: Monitor/Mitigate in Area A; Monitor/Mitigate in Area B; Monitor in Area C; and, take reasonable and practical actions to identify source(s) and reduce exposures in Area D. Following the soil vapor intrusion sampling rounds, mitigation activities were performed in Areas A, B, C and D. In Area A, this activity consisted of removal of an asphalt cap, UST closure activities and excavation/removal of contaminated soil within the parking lot. In Areas B, C and D, these mitigation activities consisted of: removal of the slab on grade; UST closure activities; excavation/removal of contaminated soil and free-phase product; backfill with a highly permeable gravel (the first floor of Area B and the majority of the basement of Area C and all of Area D); the installation of several sub-slab depressurization pipes within the gravel layer; and installation of new reinforced concrete slab. These sub-slab depressurization pipes are currently passively venting to the atmosphere via a roof-mounted wind turbine (producing minimal vacuum). If necessary, the passive sub-slab depressurization system can be converted to an active system by connecting these pipes to vacuum blowers, and would provide active remediation of contamination within unsaturated soils.

The results of the onsite soil sampling activities (consisting of hollow-stem auger split-spoon sampling, GeoProbe macro-core sampling and excavation endpoint sampling indicate that residual soil contamination exists in the subsurface throughout the Site. Based on the sub-surface investigation, the areas at the Site where the highest concentration and distribution of VOC impacted soil is present include: the location of the former drywell in the parking lot of Area A; the western perimeter of Area C and the northeastern corner of the former UST-W excavation in Area C; and, the highest concentration of VOC contamination was detected in the south/southwestern portion of Area D. This is the area of the Site where the majority of the soil excavation was completed. The elevated metals concentrations in the subsurface soils (where detected) are most likely attributed to a combination of factors including the historic use of coal ash and urban fill as backfill material as well as regional site background concentrations. However; considering the depth of several soil samples containing metals at concentrations exceeding NYSDEC Restricted Use Soil Cleanup Objectives (RUSCO), the exceedance of metals throughout the Site is attributed to local and regional background concentrations resulting from the surrounding area history.

Although residual soil contamination remains beneath the Site, based on the fact that the entire Site is capped with asphalt/concrete the potential for exposure due to dermal contact or ingestion is insignificant. Additionally, engineering controls (in addition to the concrete and asphalt cap and sub-slab depressurization piping) can be utilized at the Site to remediate the residual soil contamination.

The results of the onsite groundwater sampling activities (GeoProbe sampling and groundwater monitoring well and product delineation well sampling), groundwater contamination exists in the subsurface throughout the Site in excess of NYSDEC Technical and Operational Guidance Series (TOGS) guidance values. Based on the subsurface investigation, the areas at the Site where the highest concentration and distribution of VOC impacted groundwater is present include: the location of the former drywell in the parking lot of Area A (R-3A);

the western perimeter of Area C; and, the highest concentration of VOC contamination was detected in the southwestern portion of Area D (DW-23D). These are the areas of the Site where the majority of the soil excavation activities were conducted for eliminating source material as well as free-phase product (NAPL). The results of the laboratory analysis indicated that nearly all semivolatile organic compound (SVOC) concentrations in groundwater samples collected from the Site are below the NYSDEC TOGS guidance values (with the exception of naphthalene in several locations).

Although residual groundwater contamination remains beneath the Site, groundwater in the vicinity of the Site is not utilized as a source of potential drinking water. In addition to the fact that the entire Site is capped with asphalt/concrete and the groundwater is a minimum of approximately 12 feet below ground surface, the potential for exposure via dermal contact or ingestion of contaminated groundwater is insignificant. Additionally, engineering controls (in addition to the concrete and asphalt cap and sub-slab depressurization piping) can be utilized at the Site to remediate the residual groundwater contamination as well as free-phase product/non-aqueous phase liquid (NAPL).

The pilot tests and pumping tests in conjunction with the IRMs performed at the Site were effective in removing a significant volume of contaminated material from the subsurface and to determine the remedial alternatives at the Site. As a result of the onsite UST/AST closure activities and excavation activities: sixteen (16) bulk storage tanks and their residual contents were removed from the Site; more than 2,550 tons of non-hazardous soil was removed from the Site (disposed of offsite at approved/licensed facilities); more than 11 tons of hazardous wood was removed from the Site (disposed of offsite at an approved/licensed facility); and, more than 224 tons of hazardous contaminated soil was removed from the Site (disposed of offsite at approved/licensed facilities).

The results of the vertical groundwater pumping test indicated that due to the limited available saturated thickness of groundwater and the low transmissivity of the subsurface soils, vertical groundwater wells are not a feasible remedial alternative for treating contaminated groundwater or for removal of free-phase product (NAPL) at the Site. The results of the vertical soil vapor extraction well pilot test revealed that due to the tight formation present in the subsurface, neither high or low vacuum from a vertical soil vapor extraction well yields significant radius of influence to effectively remediate residual soil contamination at the Site.

Lastly, based on the grout injection pilot test, a ground barrier (via multiple injection points along the downgradient perimeter of the Site) was ruled out as a method for installing a barrier to prevent the offsite migration of free-phase product (NAPL).

Although several future potential remedial alternatives were deemed to be not feasible for use at the Site, several alternatives were determined to be viable at the Site. Firstly, the results of the horizontal wells HEW-1 and HEW-2 pumping tests demonstrated that due to the geology at the Site (low transmissivity soil), a horizontal well has the potential to remove groundwater with dissolved phase VOCs and free-phase product from the subsurface. Based on the drawdown data generated during both pumping tests, continuous pumping would induce a cone of depression sufficient to control further migration of both free-phase product (NAPL) and groundwater with dissolved VOCs and/or to potentially remove free-phase product from the subsurface. Accordingly, it is feasible for the groundwater and free-phase product remediation at the Site to be accomplished by the pump and treat technology utilizing a series of horizontal groundwater/product extraction wells in conjunction with periodic product removal from vertical monitoring/delineation/extraction wells. Secondly, the horizontal soil vapor extraction well HSVE-1 pilot test demonstrated a substantial vacuum influence throughout the subsurface resulting from the increase in screened area provided by the horizontal well. As a result of this pilot test, it was determined that horizontal soil vapor extraction well(s) is effective in removing vapor phase from the subsurface of the Site. Additionally, operation of a horizontal soil vapor extraction well will act as an additional preventative measure reducing any potential for indoor air soil vapor intrusion.

In conclusion, subsurface residual contamination remains beneath the Site, primarily in dissolved phase (VOCs). As a result of the contaminant concentrations remaining at the Site, additional remedial action(s) are required at the Site to actively remediate the onsite groundwater, to control offsite contaminant migration, to recover residual NAPL and to make the Site protective of human health and the environment.

5.0 PROPOSED INTERIM REMEDIAL MEASURES

This section details the proposed IRM method and technologies for the remediation of contamination beneath the Site. The IRM remedial action selected for the Site is contaminant extraction, treatment, discharge and monitoring. This IRM system will also control the migration of dissolved-phase contamination as well as free-phase product. Therefore, this IRM with its intended goal is to reduce the contaminant volume and mobility through hydraulic containment. This selected IRM will protect human health and the environment, will be effective at reducing contamination, is implementable and is a cost-effective acceptable remedial technology.

5.1 Extraction Strategy and Technologies

Although several future potential remedial alternatives were deemed to be not feasible for use at the Site based on activities performed during the Remedial Investigation, several alternatives were determined to be viable at the Site. The results of the horizontal wells HEW-1 and HEW-2 pumping tests demonstrated that, due to the geology at the Site (low transmissivity soil), a low volume pumping rate combined with the increased saturated thickness of a horizontal well has the potential to remove groundwater with dissolved phase VOCs and free-phase product from the subsurface, as well as control the onsite hydraulic gradient. The pumping test data showed that the drawdown was continuing to increase in a linear fashion (excluding the influence from storm events) during both pumping tests. The data also show that continuous pumping would induce a cone of depression sufficient to control further migration of both free-phase product (NAPL) and groundwater with dissolved VOCs and/or to remove free-phase product from the subsurface. Based on the horizontal wells pumping test, it was determined that the groundwater and free-phase product remediation at the Site can be accomplished by the pump and treat technology utilizing a series of horizontal groundwater/product extraction wells in conjunction with periodic product removal from vertical monitoring/delineation/extraction wells. Additionally, the horizontal soil vapor extraction well HSVE-1 pilot test demonstrated a substantial vacuum influence throughout the subsurface resulting from the increase in screened area provided by the horizontal well. As a result of this pilot test, it was determined that a horizontal soil vapor extraction well is effective in removing vapor phase from the subsurface of the Site. Additionally, operation of a horizontal soil vapor extraction well will act as an additional preventative measure reducing any potential for indoor air quality to be impacted by soil vapor intrusion.

Total fluids recovery systems can be effective in removing dissolved-phase VOCs and free-phase product (NAPL) from the subsurface, thereby reducing concentrations of VOCs in both the saturated and unsaturated zones of the subsurface.

Extraction processes will be conducted via the horizontal groundwater extraction wells HEW-1 and HEW-2. The locations of these wells are shown on figure 3. The horizontal groundwater extraction wells are located in the approximate source zone at the Site. The horizontal groundwater extraction wells are constructed of 4-inch diameter stainless-steel well screen and stainless-steel riser pipe. Groundwater pumping tests performed on HEW-1 (2007) and HEW-2 (2008) indicated that groundwater and free-phase product remediation at the Site could be accomplished by the pump and treat technology utilizing horizontal groundwater/product extraction wells. Additionally, the results of the pumping test performed at the Site indicated that groundwater and free-phase product remediation at the Site could be accomplished by the pump and treat technology utilizing horizontal groundwater/product extraction wells. The results of the pumping tests demonstrated that long-term sustained flow pumping rates of 0.25-0.3 gpm for HEW-1 and 3 gpm for HEW-2 have the potential to hydraulically control further migration of both free-phase product and groundwater with dissolved VOCs while removing free-phase product.

In addition to the total fluids recovery system used for HEW-1 and HEW-2, the horizontal soil vapor extraction well HSVE-1 (figure 3) and the twelve sub-slab depressurization system pipe legs (figure 4) will be connected via a manifold to the treatment shed. Each soil vapor extraction (SVE)/sub-slab depressurization system (SSDS) pipe leg will be independently controlled and will be able to be actively operated as necessary.

5.2 Treatment Strategy and Technologies

The following treatment technologies will be implemented for contamination remediation:

- **Pre-Treatment** – Prior to treating the contaminated groundwater and the condensate generated as a result of the SVE/SSDS system, all water will be transferred through an oil-water separator to remove any recovered NAPL, and then separated water will be pumped through bag filters to screen out particulates.

- **Liquid-Phase Activated Carbon** – Liquid-phase activated carbon will be used to treat contaminated groundwater for VOCs. The carbon will be replaced once the adsorbent is saturated. The target contaminant group for liquid-phase carbon adsorption is VOCs. The following factors may limit the applicability and effectiveness of liquid-phase carbon adsorption:
    - the solubility and concentration of the contaminants can impact process performance;
    - metals can foul the system;
    - costs are high if used as the primary treatment on waste streams with high contaminant concentrations; and,
    - type and pore size of the carbon, as well as the operating temperature, will impact the process performance.
- **Vapor-Phase Activated Carbon** – Vapor-phase activated carbon can be used to treat vapor streams which contain VOCs. Similar to liquid-phase carbon, a vapor-phase carbon filter will eventually need replacement once the adsorbent is saturated. The adsorptive capacity of activated carbon significantly increases when it is used with vapor phase rather than with aqueous phase contaminants.

Copies of the operating manuals for the vacuum extraction blowers/pumps and manufacturer information sheets of system components will be provided following approval of the IRMWP.

5.3 Discharge

Contaminated groundwater and soil vapor extracted from the subsurface will be treated prior to discharge to meet applicable discharge limits. The projected groundwater extraction rate (and subsequent treated groundwater discharge rate) will be approximately 3 gpm. The contaminated groundwater will be treated to comply with the discharge requirements established by Westchester County Department of Environmental Facilities (WCDEF) prior to discharge to the sanitary sewer system. Prior to discharge, an influent and effluent groundwater sample will be collected and submitted for laboratory analysis of pH, arsenic, barium, cadmium, chromium (total), chromium (Hex), copper, cyanide (total), lead, mercury, nickel, oil

& grease, phenols, selenium, silver, total toxic organics and zinc. These results will be used to acquire the sanitary sewer discharge permit with the WCDEF.

Extracted soil vapor will be discharged to the atmosphere in compliance with NYSDEC Division of Air Resources (DAR) air discharge requirements. If necessary, extracted soil vapor will be treated with vapor phase carbon prior to discharge to the atmosphere to comply with DAR air discharge requirements. If necessary, an air discharge permit will be obtained as per requirements set forth in the NYSDEC Air Guide 1 Guidelines for the Control of Toxic Ambient Air Contaminants.

Although not anticipated, State Pollution Discharge Elimination System (SPDES) substantive requirements will be established for each new discharge not running to the sanitary sewer and necessary permit(s) will be obtained (if necessary). This information will include, but is not limited to, descriptions of treatment units with schematic drawings and design criteria, operation and maintenance procedures, results of chemical analyses of untreated groundwater (influent), projected maximum concentrations, projected flow rates, and topographic maps showing exact locations of proposed discharges.

5.4 Protectiveness

The selected remedy is protective of human health and the environment in the short term and long term, and the actions are intended to increase protection until the final Site remedial action is selected. Protection is achieved by:

- remediating onsite dissolved phase contamination to existing background levels in the area through groundwater and soil vapor extraction, treatment, and discharge;
- removing areas of free-phase contamination via the total fluids recovery system and manual bailing activities; and,
- preventing migration of contaminated groundwater using groundwater extraction, treatment, and discharge; and monitoring to confirm the stability of the plume and to evaluate the potential beneficial effects of natural attenuation.

6.0 IRM REMEDIATION SYSTEM SPECIFICATIONS

6.1 IRM Remedial System Description

The IRM treatment system will consist of a total fluids recovery system as well as a separate vapor-phase treatment system. The treatment system components will be installed in a treatment trailer constructed offsite and transferred to the Site. The treatment trailer will be staged in the southeastern corner of Area D, adjacent to where HEW-1, HEW-2, HSVE-1 and the SSDS pipe ends are located. Figure 5 shows the proposed location of the IRM treatment system trailer and figure 6 shows the proposed layout of the remedial system in the treatment trailer.

6.1.1 Treatment Trailer Enclosure

The trailer which will be used to house the remedial equipment will be constructed and delivered to the Site by ProAct Services Corporation (ProAct) of Southbury, Connecticut. The trailer will be 30 feet long, 8 feet wide and 8 feet tall and will consist of two rooms. One room will be the control room and the second room will be the process room that will contain the extraction and treatment equipment. The control room will be considered a non-classified room based on National Electric Code (NEC). As defined by the NEC, the process room will be classified as a "Haz. 1/Div. 2" explosion-proof room. The double doors on the back of the trailer will allow access to the Dual Phase Extraction (DPE) room (Haz 1/Div.2 room). A passenger side door will allow access to the control room.

At this time, it is anticipated that a 200 amp, 240 volt, three-phase power supply will be needed. A main fused disconnect will be installed on the outside of the trailer. The main disconnect, as shown on Figure 6, will be located above the trailer hitch assembly on the front of the trailer. A telephone line box will also be located near the front of the trailer to allow a telephone line connection.

The trailer will contain an aluminum diamond plate floor throughout the trailer for longer life. The trailer will be completely insulated for winter time operations and soundproofing. All electrical components in the process room (lights, a heater with a thermostat and a fan with a thermostat) will be explosion-proof. The process room will also contain a sump and float that when activated it will shut down the system.

The control room will also contain lights, a heater with a thermostat and a fan with a thermostat items; however, they will not be classified as explosion proof. Both rooms will contain louvers over the fan and additional louvers will allow fresh air in when fan is operational. All fresh air louvers will contain mosquito screening to prevent debris and other unwanted pests into the trailer.

The trailer will be constructed with multiple inlet hose connections on the outside. These inlet hose connections will include:

- two (2) 2" male camlock connections on the side of the trailer for water pumps;
- one (1) 4" male camlock connections on side of trailer for the SVE system; and,
- twelve (12) 2" male camlock connections on side of trailer for the SSDS pipes.

The treatment trailer will contain a total fluids recovery phase (groundwater/NAPL) manifold that will have two legs (HEW-1 and HEW-2). Each leg will contain a pressure gauge, site glass, flow control valve, check valve, and pressure transmitter. The manifold is constructed of carbon steel and will have unions in key locations to allow easy disassembly and cleaning. One totalizing flow meter will be placed in line of the manifold to determine water production from the two wells. Each leg of the manifold will extend outside the trailer and have a 4" male camlock fitting for well connection.

The treatment trailer will also contain a 13-leg intake manifold constructed of stainless steel for the SVE well (HSVE-1) and for the twelve (12) SSDS pipes. One leg will consist of a 4" line that will exit the trailer and contain a 4" male camlock. This leg will connect to the 4" HSVE-1 well. The other twelve legs will include the following: 12 flow meters, 12 flow control gate valves and 12 vacuum gauges. The outside of the trailer will contain twelve 2" male camlock connections for connecting up to the twelve (12) SSDS wells. Each leg on the manifold will be set up to allow air to bypass the flow meter. This bypass will lengthen the life of the flow meter and minimize maintenance. The legs and entire manifold will be constructed with unions in key locations to allow easy disassembly of the components for routine cleaning and servicing. The SVE/SSDS manifold will be connected to an air/water separator knock out tank. Figure 6 shows layout of the proposed remedial system.

6.1.2 Total Fluids Recovery and SVE/SSDS Treatment System

The remedial technology that will be used to address the residual contamination at the Site is a total fluids recovery system combined with a SVE system and SSDS.

The total fluids recovery technology will extract groundwater and free-phase (NAPL) via the horizontal extraction wells HEW-1 and HEW-2 using recycling eductor-jet pumps (utilizing a water reservoir holding tank for continuous operation). Extracted fluids will be collected for treatment and/or disposal. The locations of these wells are shown on figure 3. The jet pump systems will have two (2) eductor-jet pumps for pumping water from the two 4" horizontal water wells. The system will consist of two J-T Eductor model 1¼" – SL eductors, and two Goulds transfer pumps (model 1BF-1 centrifugal pumps with 1½ hp explosion-proof motors). The eductor will have a ¾" motive connection, a 1¼" suction connection and a 1¼" outlet connection. Each eductor will operate at a recirculation flow rate of 10.07 gpm @ 50 psi (pounds per square inch) while being capable of lifting and entraining 4.88 gpm of suction flow. The limiting factor for the extraction volume will be the well yield. The jet pumps will be mounted in the process room. Water/oil will be pumped to the oil/water separator from the two eductor jet pumps. Additionally, any condensate from the knock-out tank will also be pumped to the oil water separator via a transfer pump (TP1).

The contaminated water/NAPL from the jet pumps will be constantly recycled through a 30 gpm oil/water separator. All contributing pre-treatment water flow sources (two horizontal groundwater extraction wells and the SVE knock-out tank) can be individually managed to ensure that there is no exceedance of the oil/water separator capacity. The stainless-steel oil/water separator is specifically designed for groundwater remediation. The selected parallel-corrugated plate oil/water separator will remove essentially 100% of all free and dispersed non-emulsified oil droplets larger than 20 microns in diameter and with a specific gravity of 0.90 or less and Reynolds Number of less than 500. The separator will be constructed of 12 gauge 304 stainless steel. Basic specifications for the groundwater treatment system components are:

Separator Volume:	238 Gallons
Effluent Tank Volume:	90 Gallons
Sludge Storage Volume:	25 Gallons
Coalescing area:	8 cubic feet
Operational weight:	2,316 pounds

The unit comes standard with a gasketed stainless-steel lid to allow for easy removal of the coalescing pack, if required. One inch (1") drain valves will be located in key locations to allow complete draining of the oil/water separator. The oil/water separator will also be equipped with an emergency high shut-off float switch.

A product line will be plumbed from the oil/water separator to the outside of the trailer where a product recovery tank (drum with emergency high shut-off float switch) will be connected. The product recovery tank will be supplied with the system. An explosion-proof high level switch will alarm the system on high level. The product tank will be a 55-gallon drum with a modified lid to contain an air stack and high float assembly.

A centrifugal transfer pump (TP2) will be used to pump the water from the oil/water separator through bag filters and then through liquid phase carbon prior to being discharged to the sanitary sewer. The centrifugal pump will be plumbed the same as the knock out tank transfer pump (TP1) discussed above.

The treatment system will utilize two Rosedale Model LCO8 bag filter housings mounted before the water passes through the carbon. This model will be 30" in length and 6" in diameter. This unit features quick opening covers, large area cartridge and basket for greater particulate holding capacity. They will be constructed of carbon steel with a Buna N standard cover gasket. The housings will be plumbed in parallel to allow changing of the bag filters without shutting down the system. The bag filters will have unions before and after each housing for easy service and removal. The bottom of the bag filter housing will contain a 1" valve and drain. ProAct will set up a simple procedure to allow extracting water from the bag filter housing back into the knock out tank by utilizing a 1" suction line. This arrangement will allow easy removal of free standing water from the bag filter when servicing the bag filters is required.

Water leaving the bag filter housings will be treated by the carbon adsorbers, then pass through a flow meter, check valve and then exit the trailer. The treatment system will contain two stainless-steel high-pressure (100 psi rated) liquid granular activated carbon adsorption units. Each carbon adsorber will contain 800 pounds of granular activated carbon for a total of 1,600 pounds. The carbon adsorbers will be placed in series and be designed with quick disconnect fittings to allow easy changing of the adsorbers. Each adsorber will contain sample ports and a pressure gauge to monitor operational conditions across the carbon bed. The following is the liquid-phase carbon adsorption usage based on the following influent parameters:

Carbon Usage Based on Assumed Influent Quality and Flow

Benzene	0.000
Toluene	0.235
Ethylbenzene (mg/l)	0.038
Xylene (mg/l)	0.078
Gallons per Minute	5.0
Pounds of Carbon/minute	0.001
Pounds of Carbon/hour	0.05
Pounds of Carbon/day	1.20
Pounds of Carbon/month	36.07

A proposed remediation system process diagram is presented on figure 7. The manufacturer's equipment specifications for the components of the multi-phase extraction and treatment system are included in Appendix III on the attached CD.

6.1.3 SVE/SSDS System

To activate the onsite SVE/SSDS systems, ProAct will outfit the trailer with a Roots URAI 59 Positive Displacement Blower with a 20 Hp XP motor. The following are some specifications on this blower:

System model:	URAI 59
Rotational Speed:	1450 RPM
Nominal Capacity:	600 Inlet CFM @ 5" Hg
Max Vacuum Capacity:	12" HG
Motor Size:	20 HP
Noise Level @ 3 Ft:	89 dBA
Foundation:	14,000 pound double axle trailer
Onsite power requirements:	3 phase, 240 volt, 200 Amp service (54 Amp requirement for blower)
Knock out Tank:	120-gallon capacity
Fluid Removal pump:	1 Hp controlled by switches and floats
Control Panel:	Separate room NEMA 4
Gauges and controls:	In-line flow meter, vacuum, pressure and temperature gauges, transmitters and valving

The contaminated air/water from the vacuum blower will enter the 120 gallon air/fluids separator tank. This tank will separate the fluids and the air. The air will pass through a strainer and enter the SVE blower system. Liquids will be pumped via a Moyno (progressive cavity) transfer pump (TP1) out of the system at a flow rate of up to 10 gpm. The knock out tank will contain a 6" man-way for cleaning purposes. The side of the knock out tank will contain a site tube with three level float switches. These float switches will control the pump. The high/high float switch will shut down the SVE system. If the high/high float is activated, the SVE system will not run in Hand or in Auto mode until the water is drained below the high float switch. The float switch assembly is installed in a way that allows easy removal and cleaning without draining of entire tank. The pump will be positioned to allow for easy servicing and removal, if necessary. The pump is plumbed to allow for a recirculation line and valving to accurately control the water flow rate from the knock out tank. A pressure transmitter will be in line to monitor the pump's pressure. If the pressure becomes either too high or too low, this will cause the pump to shut down. A pressure gauge will be situated to allow monitoring of pump pressures during operation. Water pumped from the knock out tank will be pumped to the oil/water separator (discussed above).

Air leaving the knock out tank will go through a particulate filter on the top of the knock out tank. This feature will allow any moisture or particulates to fall back into the knock out tank. The air will then pass through a totalizing air flow meter and then into the Roots URAI SVE Blower. A dilution air inlet just before the blower will allow additional control of the air stream from the wells. Air leaving the positive displacement blower will pass through a silencer and out of the trailer (for treatment with vapor phase carbon if required) prior to discharge to the atmosphere.

The manufacturer's equipment specifications for the components of the SVE/SSDS are included in Appendix III on the attached CD.

6.2 Equipment Controls

The control panel, PLC based, will be located inside a separate control room within the treatment trailer. Controls will include the following:

- Hand/Off/Auto – SVE Blower
- Hand/Off/Auto – Two groundwater pumps (GW1 and GW2)
- Hand/Off/Auto – Knock Out tank Transfer Pump (Transfer Pump 1 [TP1])
- Hand/Off/Auto – Oil/water separator Transfer Pump (Transfer Pump 2 [TP2])
- Hand/Off/Auto - Process room fan
- Hand/Off/Auto - Control room fan
- Alarm Clear light
- Control panel power light
- Alarm reset button
- Emergency Stop button (as the treatment components are in the process room), an additional emergency stop button will be in place within the process room. Upon activation the entire system is de-energized.

The following are the fault conditions that will occur, all of which will initiate a remote notification.

Fault Condition	Action	System Shut Down
Blower motor overload tripped	Deactivates the SVE blower	Yes
Sustained low vacuum in the DPE, >20 seconds after blower starts	Deactivates the SVE system	Yes
Any transfer pump motor overload tripped	Deactivates SVE blower and Transfer pump	Yes
Jet (Centrifugal) pump 1 and 2 motor overload tripped	Deactivates Centrifugal pump	No
High pressure on Jet (Centrifugal) pump 1 and 2	Deactivates Centrifugal pump	No
Low pressure on Transfer pumps (TP1 and TP2)	Deactivates SVE blower and Transfer pump	Yes
High/high level in SVE k/o tank	Deactivate SVE blower	Yes
High SVE Blower Temperature	Deactivate SVE blower	Yes
High SVE Blower pressure	Deactivate SVE blower	Yes
High/high level in oil water separator	Deactivates SVE blower and TP 1	Yes
High bag filter pressure	Deactivates SVE blower, TP1 and TP2	Yes
High level in product tank	Deactivates SVE blower and TP 1	Yes
Trailer floor sump leak detection	Deactivates SVE blower, TP1 and TP2	Yes
Fault from auxiliary inputs	Deactivates the DPE system	Yes

The system will utilize the Proview PLC software which is Windows®-based and allows remote or local site access and optional control of the system via a telephone line or cellular phone connection through a laptop or desktop computer. This system can display all system components, motors and switches. The operator can access real time and historical data for tracking fault conditions, vacuum and pressure histories, hour meters for each motor, as well as liquid and vapor flow rates and total flow analysis. The system will be able to provide routine faxes and status reports and provide notification when the system shuts down. Additionally, the system has the capability of providing immediate control of all system components.

Each element of the treatment system will have a green light on the control panel when it is activated. The system will contain an emergency stop located in the control room and a second one located at the main door entrance to the process room. When activated it will register on the control panel but not activate the auto dialer. The control panel will include lights indicating all operations. The panel will also have Hand/Off/Auto control settings for all components. On an alarm condition, a red alarm light will illuminate.

In addition to system monitoring, the following data logging will occur:

- SVE vacuum level;
- SVE blower pressure;
- SVE blower discharge temperature;
- transfer pump pressures (both pumps);
- eductor-jet pumps (centrifugal);
- bag filter pressure;
- carbon filter pressure;
- discharge pressure;
- discharge water flow rates and totalizer;
- air discharge flow rates and totalizer;
- the fault conditions mentioned above; and,
- operational hours.

The control panel will contain power surge protection and also an uninterrupted power supply (UPS) to allow for notification of personnel in the event of power outages that cause system failures. The UPS provides power for an additional 15 to 30 minutes after a power outage.

The manufacturer's equipment specifications for the equipment controls for the treatment system are included in Appendix III on the attached CD.

6.3 IRM System General Operation, Maintenance and Monitoring

6.3.1 System Start-Up (Shut-Down) Procedures

To start the treatment system, the following general procedure should be used (although final procedures will be established following system installation):

1. Open all valves (liquid phase and vapor phase) on the individual supply and exhaust lines to be operated.
2. Close all sample ports.
3. Turn on the individual disconnects for all system components (if fitted).
4. Turn pumps/blowers on by turning on power control switch, located on the control panel, to the "ON" position.
5. Reset any alarms on the control panel.
6. Fine tune the flow rates from the horizontal groundwater extraction wells, the horizontal SVE well and the SSDS pipes.
7. Check and record all system gauges and sensors associated with the system and establish normal operating ranges.

To stop operation of the total fluids recovery system, the power to the system components will be turned off by using the individual disconnect switches and/or the main switch from the control panel.

The product recovery system will function automatically as the total fluids recovery system is operated.

6.3.2 Routine Operating Procedures

The total fluids recovery system operates by extracting groundwater and any entrained free-phase product together. The SVE and SSDS systems extract soil vapor (with minimal liquid via condensate from the extracted air). This vacuum pressure for both systems will be controlled by the damper(s) located on the pump(s)/blower(s) and/or the flow control valves on individual pipe legs.

6.4 IRM System Inspections and Monitoring

The treatment system will be inspected and sampled according to the schedule shown in Appendix IV on the attached CD. The treatment system monitoring will include evaluation of general Site conditions, weather conditions, and system equipment operating parameters. Any failures, faults or unusual observations will be investigated fully. All observations during treatment system inspection and sampling rounds will be recorded on treatment system Operation, Maintenance and Monitoring (OM&M) field sheets, which are included in Appendix V on the attached CD. These OM&M field sheets may be modified following installation of the IRM system. Any equipment that is found to be out of adjustment or in disrepair will be repaired or serviced. Manufacturer's information for the major pieces of equipment will be provided following approval of the IRMWP.

The operation of the remediation system will be monitored once per week for the first month, twice per month for the operational months two and three, and once per month thereafter. The following items will be monitored during each Site visit: (1) weather conditions; (2) equipment operation; (3) total fluids extraction rate and volume; and, (4) air flow rate(s). The weather parameters to be monitored include air temperature, wind direction, cloud cover, barometric pressure and precipitation status. The status of the groundwater extraction/depression pump, transfer pumps, vacuum blowers, and the oil/water separator will be checked and appropriate gauges read and recorded. The fluid levels in the groundwater wells adjacent to the horizontal extraction wells will also be recorded. The extracted soil vapor air stream will be monitored to record flow rates. Additionally, the air stream will be screened using a photoionization detector (PID) to characterize VOC contamination prior to and after carbon treatment. The vapor airflow will be used in conjunction with pressure data to determine the preferential system flow settings.

Influent and effluent water samples will be collected once per week for the first month, and once per month thereafter. All groundwater samples will be analyzed by EPA Method 8260. Additionally, the effluent groundwater will be analyzed at the frequency and for the necessary analysis, as required by the WCDEF for discharge into the sanitary sewer system. A sampling and monitoring schedule is presented in Appendix IV on the attached CD.

The effluent air stream from the vapor phase extraction system will also be sampled once per month. If vapor phase treatment is required, the influent and effluent (and midcarbon if required) air samples will be sampled once per month. The air samples will be collected in Tedlar bags and submitted to a New York State certified laboratory and analyzed by EPA Method TO-15. A sampling and monitoring schedule is presented in Appendix IV on the attached CD.

Sampling results will be continuously reviewed and evaluated for decreases or increases from the previous month's sample results. Based on the results, system modifications may be made as frequently as once a month. Notification of a system modification (i.e., change in groundwater pumping rate/vacuum or adjusting the SVE/SSDS flow rate/vacuum/pressure) will be made to the NYSDEC in monthly progress reports.

The amount of product recovered by the system will be monitored once per month in conjunction with the multi-phase extraction system. The status of the oil/water separator and the onsite recovery tank will be monitored and the volume of product recovered will be recorded. Additionally, the product level in the product delineation wells (primarily DW-14D, DW-21D and R-4D) will be recorded. The locations of these wells are shown on figure 3. After the treatment system monitoring and sampling activities are performed, the product delineation wells which contain product will be bailed to remove any accumulated product.

Inherent in the operation of the total fluids recovery system (and subsequent product recovery) and the SVE/SSDS system, waste material will be generated. The anticipated sources of waste which will be subject to offsite treatment and/or disposal are: 1) free-phase product from the oil/water separator; 2) carbon from carbon change-outs; and, sediment/sludge from oil/water separator and bag filters.

The removal and disposal of waste shall be completed following guidelines defined by Occupational Safety and Health Administration (OSHA), NYSDEC, New York State Department of Transportation (NYSDOT) and the United States Environmental Protection Agency (USEPA). A disposal or regeneration facility and waste transporter shall be contacted and scheduled for the removal of the waste. All product recovered from the subsurface will be disposed of under manifest at an approved facility according to all applicable State and Federal regulations. The collection and off-site transport of waste will be noted on the OM&M field sheets provided in Appendix V on the attached CD.

6.5 IRM System Maintenance

The total fluids recovery system and the SVE/SSDS system should require little maintenance to perform as designed. Maintenance activities should involve keeping the filters clean and ensuring proper operation of the oil/water separator. The treatment system will be inspected and sampled according to the schedule shown in Appendix IV on the attached CD. Any failures, faults or unusual observations will be investigated fully within reasonable time after occurrence or at time of routinely scheduled maintenance visit. Any equipment that is found to be out of adjustment, or in disrepair will be repaired or serviced. The proposed extraction pumps and/or blowers are difficult to disassemble and reassemble; therefore, prior to any attempts to repair this equipment, the manufacturer will be consulted. Manufacturer's information for the major pieces of equipment will be provided following approval of the IRMWP.

6.6 IRM System Reporting

The performance of the treatment system will be tracked using Site-specific O&M data sheets. These data sheets will be generated following the complete assembly of the IRM remedial system. Keeping data up to date will allow the performance of the system to be monitored by comparing new data with past operating data. Data that shall be continuously updated during O&M activities includes:

- summary of system operation;
- water and air flow data and calculations;
- summary of temperatures;
- laboratory data for all sample ports sampled;
- PID data for all air sample ports sampled;
- summary of gauge readings;
- summary of measured monitor well water and/or product levels;
- total fluids volume recovered (monthly period and total to date); and,
- summary of O&M activities.

Any additional data that may provide insight into the operation of the IRM treatment system will also be compiled. Performance data will be reported to the NYSDEC on a monthly basis.

7.0 GROUNDWATER MONITORING PROGRAM

Groundwater monitoring of the Site will continue while the IRM remedial system is operational to document the effect of the systems effectiveness. Data will be evaluated on a quarterly basis to determine the effectiveness of extraction remedies. At the Site, if data indicate the plume is not stable, additional actions to stabilize the plume will be evaluated.

The current groundwater monitoring program will continue to be conducted quarterly at the Site to document contaminant concentrations throughout the Site and to evaluate the effectiveness of the remedial action. Groundwater samples will be collected from all onsite and offsite monitor wells. Prior to sampling, the depth to groundwater will be measured using an electric interface probe.

Following water-level measurements, groundwater samples will be collected using the low-flow sampling method (EPA Low Flow Groundwater Sampling Procedures April 1996, Appendix VI on the attached CD). During sampling, onsite field parameters will be monitored continuously using a Horiba U-22XD multiparameter water-quality monitoring system. Measurements for pH, conductivity, turbidity, dissolved oxygen (DO), temperature, and oxygen reduction potential (ORP) will be obtained as the groundwater will be purged through a flowcell at a rate of 100 to 500 ml/minute (milliliter per minute) using a peristaltic pump. In addition, the turbidity of the water will be measured. Upon reaching stabilization of all parameters, the influent end of the flow-through cell will be detached and a groundwater sample will be collected for laboratory analysis. The groundwater sample will be stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory.

QA/QC samples, including a trip blank will accompany the ground-water sample shipment. The ground-water samples will be analyzed by a NYSDOH certified laboratory for VOCs by EPA Method 8260.

8.0 SCHEDULE

LBG will implement the IRM following NYSDEC approval of the IRMWP. The following schedule outlines the milestones toward completion of the installation and implementation of the IRM:

- IRMWP approval;
- installation of the treatment trailer (complete with all necessary remedial equipment) within Area D;
- connecting all associated piping and/or hoses, electric and framing to the remediation system;
- an initial treatment system start-up and sampling confirming that the groundwater effluent discharge meets all Westchester County Discharge Permit requirements;
- full term start-up of IRM remedial system; and,
- long-term OM&M to evaluate the effectiveness of the remedy.

In addition to the IRM system OM&M, the current Groundwater Monitoring Program will continue to be conducted quarterly and the manual product bailing will continue to be performed two to four times per month (or as product recovery rates allow).

A firm time schedule will be submitted following the approval of the IRMWP by the NYSDEC.

LEGGETTE, BRASHEARS & GRAHAM, INC.

Sean Groszkowski, Associate

Dan C. Buzea, CPG, Senior Vice President

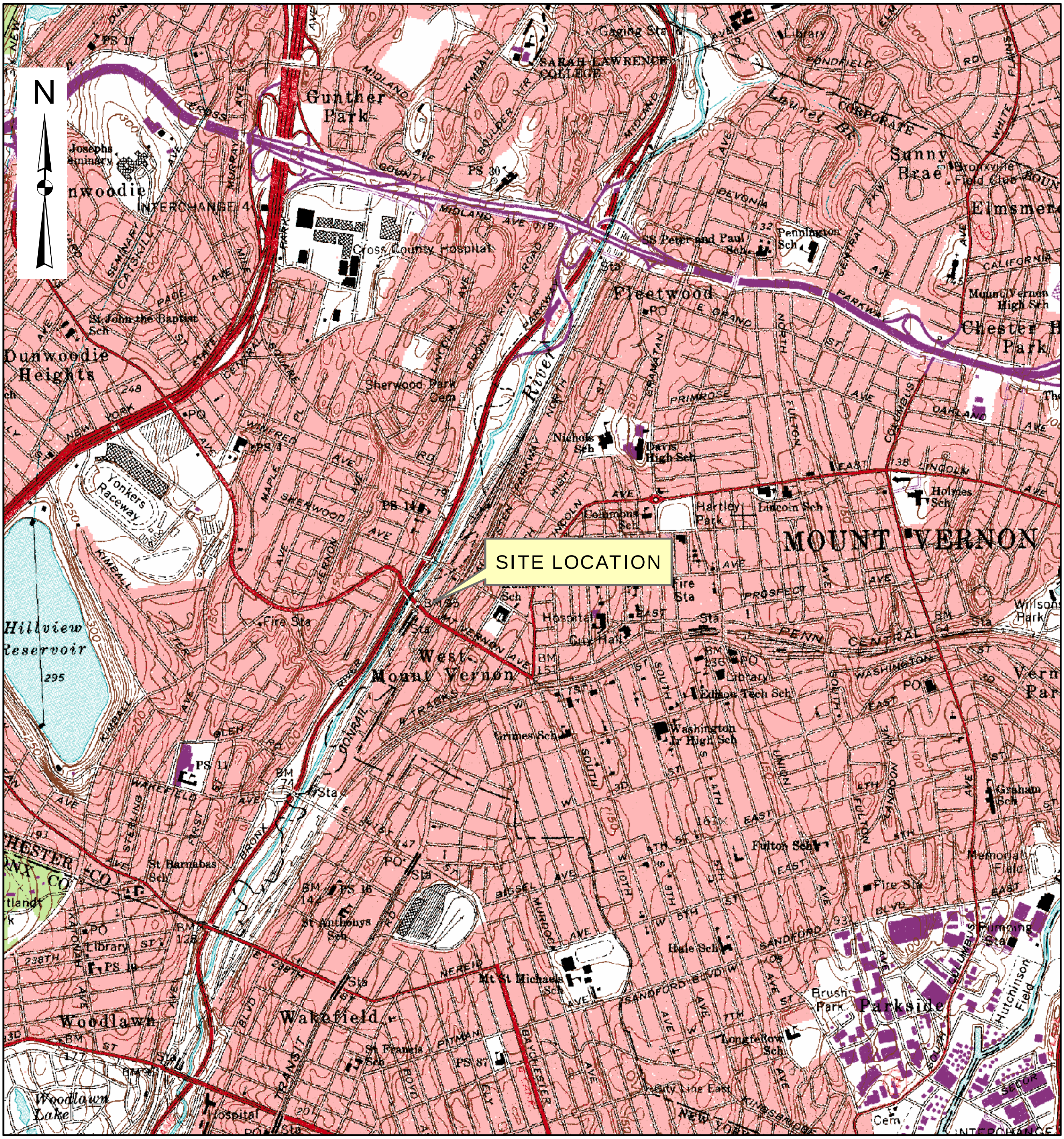
LBG ENGINEERING SERVICES, P.C.

William K. Beckman, P.E., President

STATE OF NEW YORK
WILLIAM KARL BECKMAN
063219-1
LICENSED PROFESSIONAL ENGINEER

dmd
August 26, 2010
/F:\REPORTS\Furman\Red Devil Paints\2010\IRM Work Plan\FINAL workplan hwv00380-2 2010-08 irmworkplan rpt.docx

FIGURES



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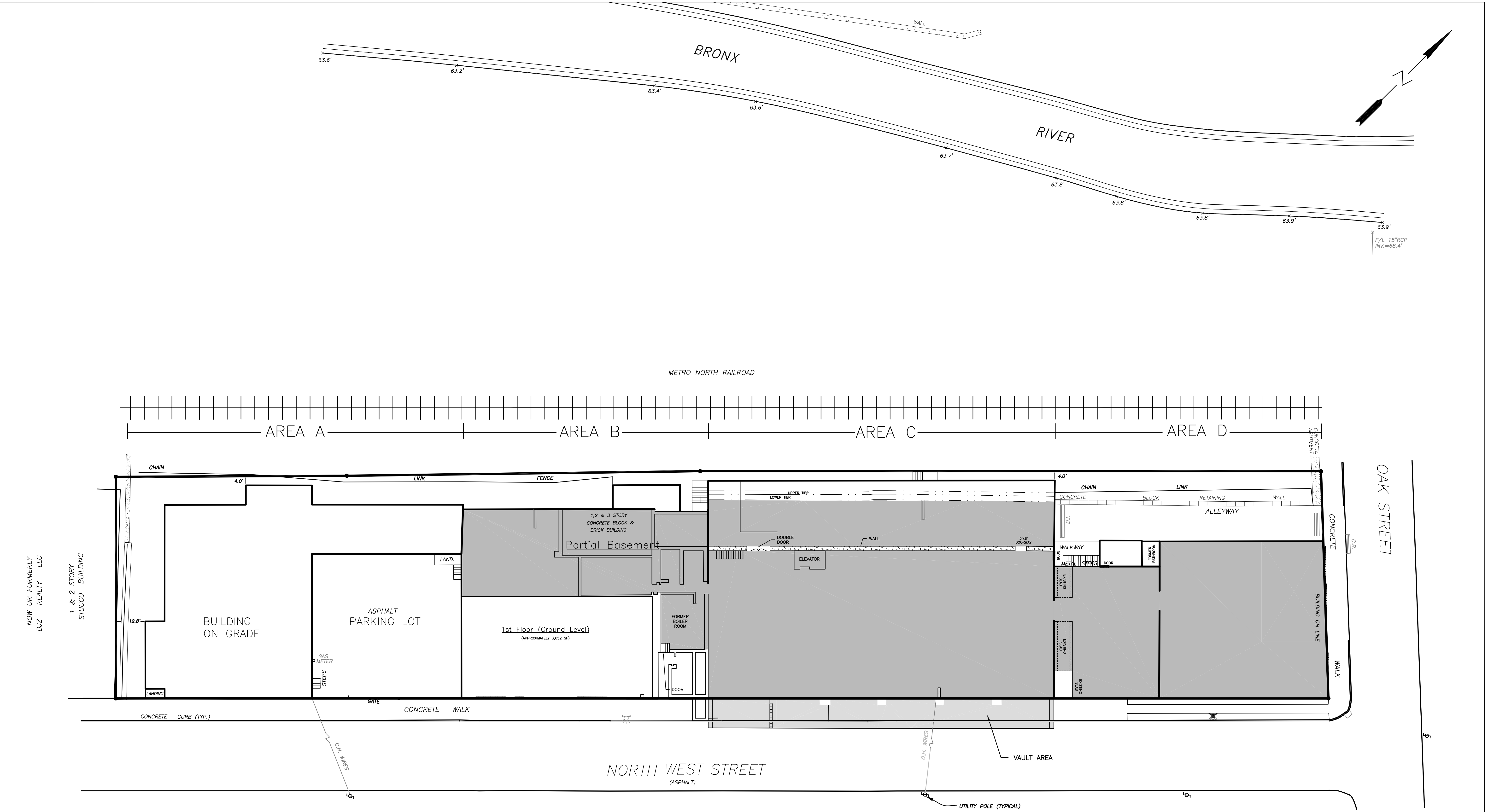
FORMER RED DEVIL PAINT FACILITY
30 NORTH WEST STREET
MOUNT VERNON, NEW YORK
SITE NO. 3-60-031

SITE LOCATION

Prepared by:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and Environmental Services
110 Corporate Drive, Suite 112
White Plains, NY 10604
(914) 694-5711 www.lbgweb.com

FILE: B:LBG_NY_red_devil	DRAWN BY: BK	CHECKED BY: JAM	DATE: 1/6/09 FIGURE: 1



LEGEND

PROPERTY BOUNDARY

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0 40
SCALE IN FEET

FORMER RED DEVIL PAINT FACILITY
30 NORTH WEST STREET
MOUNT VERNON, NEW YORK
SITE NO. 3-60-031

SITE PLAN

DATE	REVISED

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and Environmental Engineering Services
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White Plains, NY 10604
(914) 694-5711

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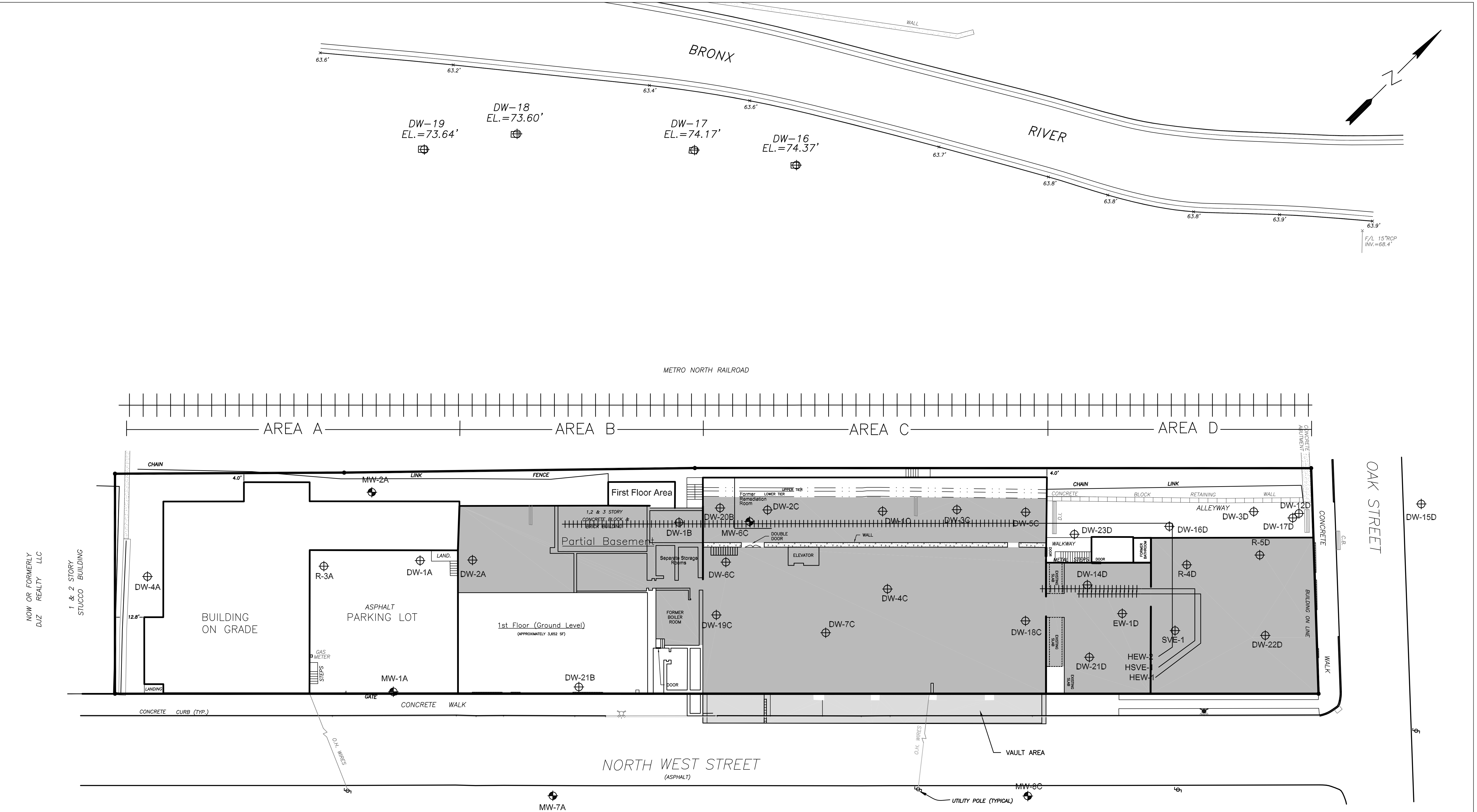

LEGEND

PROPERTY BOUNDARY

GROUND WATER MONITOR WELL LOCATION

PRODUCT DELINEATION WELL LOCATION

HORIZONTAL WELL

NOTES: BASE MAP SOURCE IS ERM–NORTHEAST
JOB # 488.004.6, PLATE 1
R–3A, R–4D AND R–5D ARE REPLACEMENT WELLS

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FORMER RED DEVIL PAINT FACILITY
30 NORTH WEST STREET
MOUNT VERNON, NEW YORK
SITE NO. 3-60-031

WELL LOCATION MAP - 2009

DATE	REVISED

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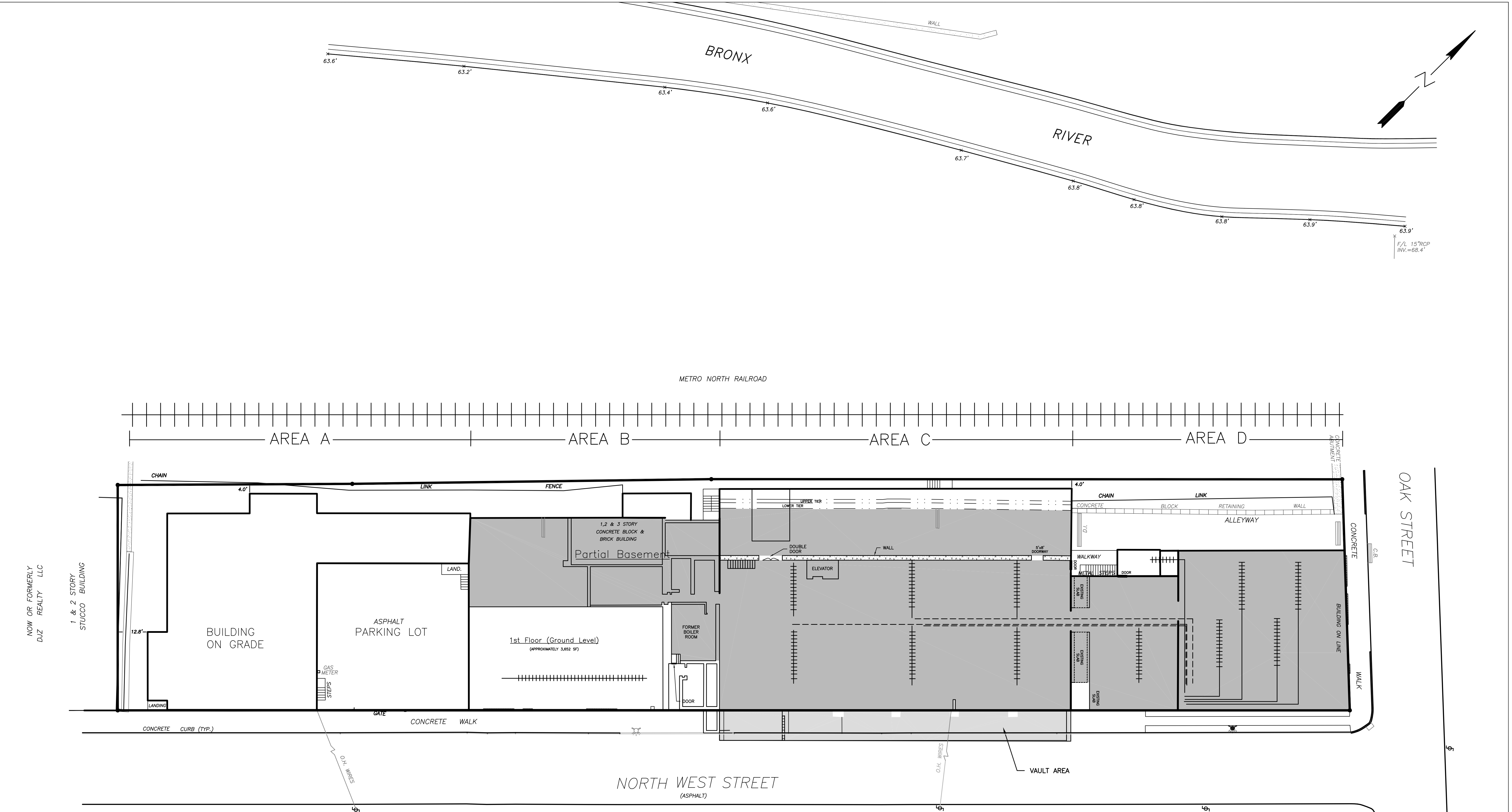

LEGEND

PROPERTY BOUNDARY

SUB-SLAB DEPRESSURIZATION PIPE

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0 40
SCALE IN FEET

FORMER RED DEVIL PAINT FACILITY
30 NORTH WEST STREET
MOUNT VERNON, NEW YORK
SITE NO. 3-60-031

SUB-SLAB DEPRESSURIZATION PIPING LOCATIONS

DATE	REVISED

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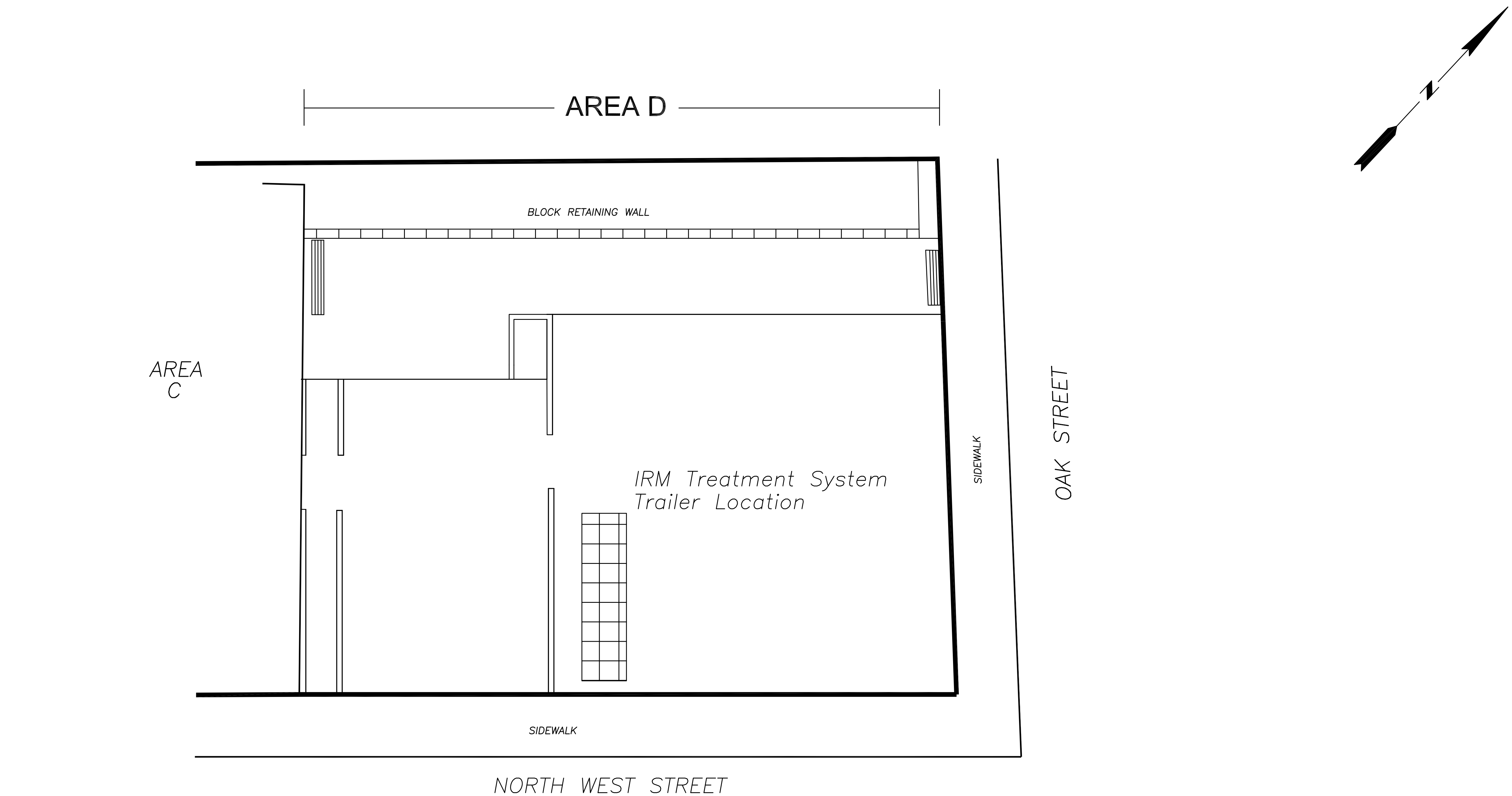

LEGEND

PROPERTY BOUNDARY

IRM TREATMENT SYSTEM TRAILER LOCATION

0 20
SCALE IN FEET

FORMER RED DEVIL PAINT FACILITY
30 NORTH WEST STREET
MT. VERNON, NY
SITE NUMBER 3-60-03

PROPOSED IRM TREATMENT SYSTEM LOCATION MAP

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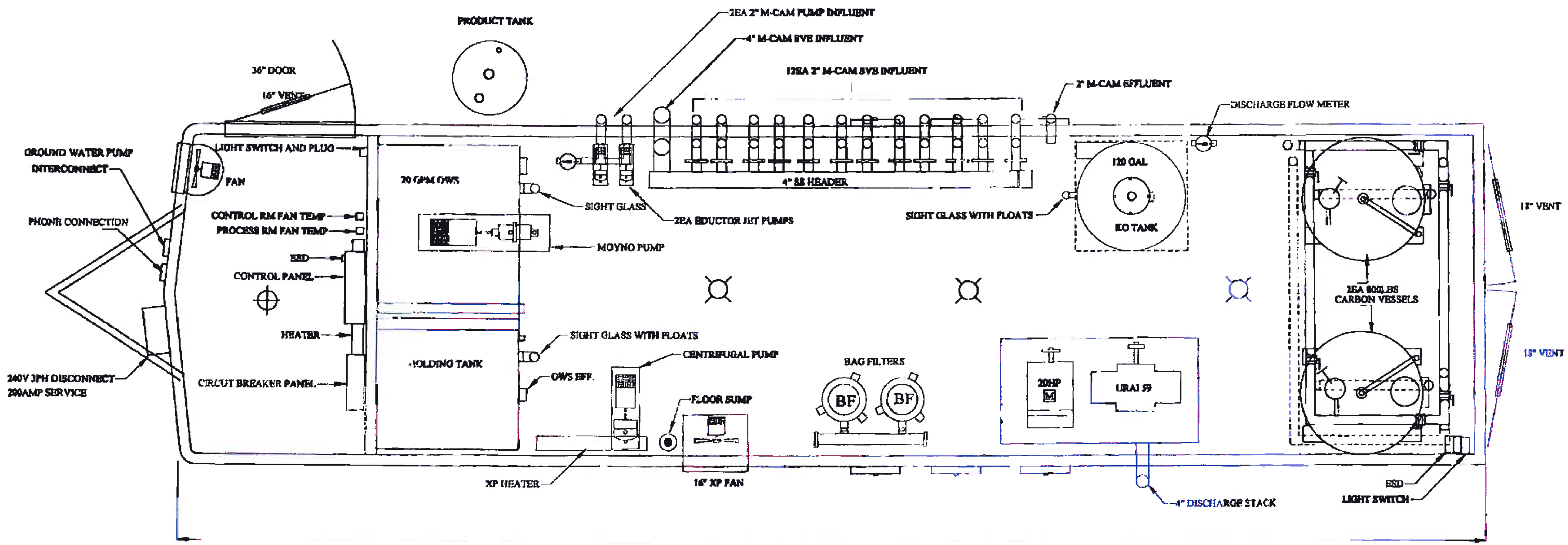
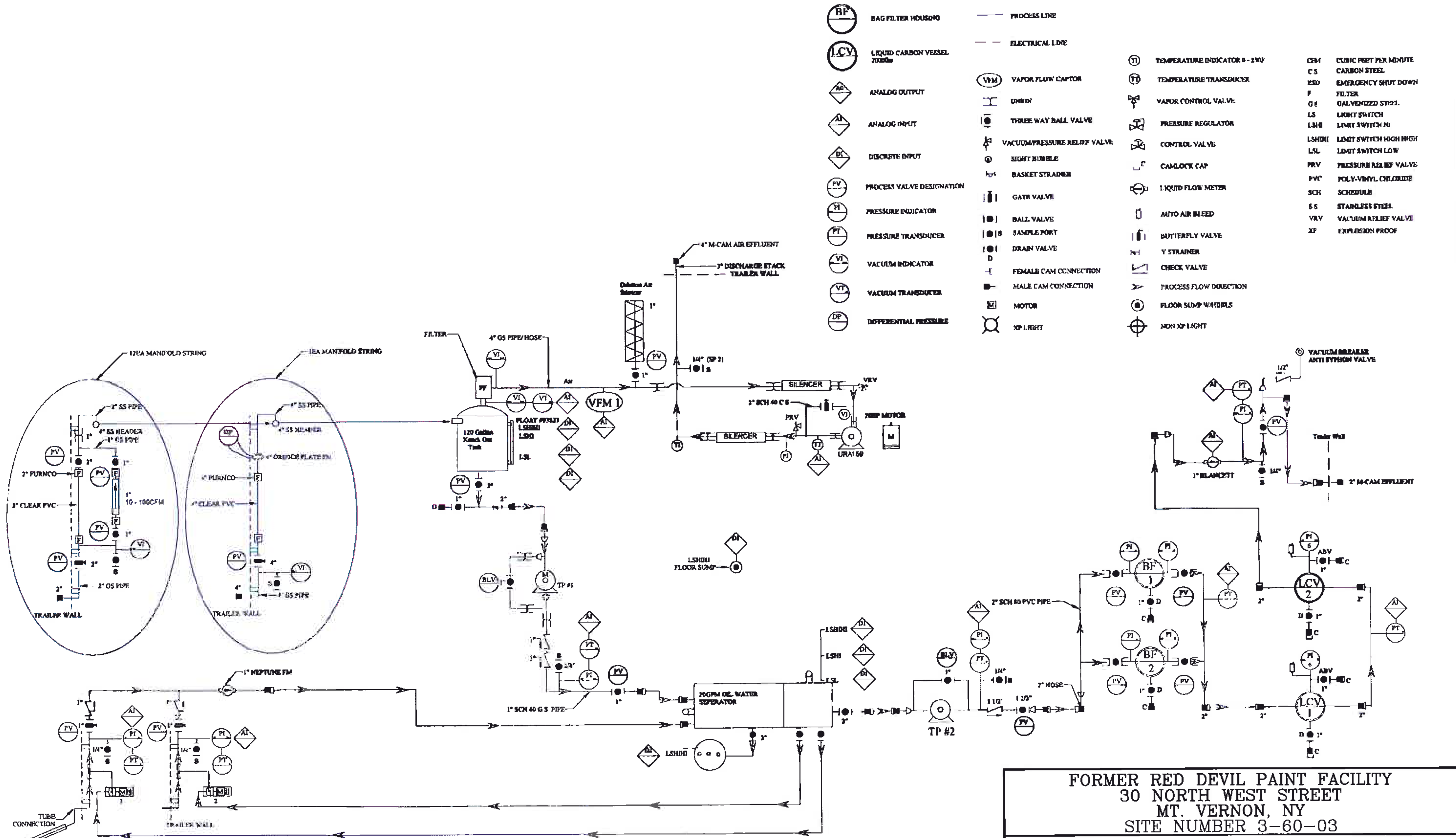
			DATE: 11/14/08
FILE: Area D-UST locations	DRAWN BY: JAM	CHECKED BY: SG	FIGURE: 5



Note: Layout Diagram provided by ProAct Services Corporation

FORMER RED DEVIL PAINT FACILITY 30 NORTH WEST STREET MT. VERNON, NY SITE NUMBER 3-60-03	
PROPOSED REMEDIAL SYSTEM LAYOUT DIAGRAM	
PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC. Professional Ground-Water and Environmental Services 110 Corporate Park Drive; Suite 112 White Plains, New York (914) 694-5711	DATE: 12/8/08
Area D-horizontal well detail · DRAWN BY: JAM · CHECKED BY: SG	FIGURE: 6



Note: Process Diagram provided by ProAct Services Corporation

FORMER RED DEVIL PAINT FACILITY
30 NORTH WEST STREET
MT. VERNON, NY
SITE NUMBER 3-60-03

PROPOSED REMEDIAL SYSTEM PROCESS DIAGRAM

PREPARED BY:

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			DATE: 12/8/08
Area D-horizontal well detail	DRAWN BY: JAM	CHECKED BY: SG	FIGURE: 7