Corrective Action Plan
Vinyl Chloride Remediation
18420 68th Avenue S.
Kent, Washington

December 8, 2003

Prepared for:

CAM Properties
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Prepared by:

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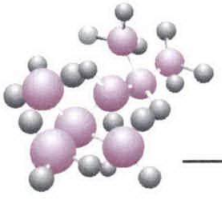

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Attachments

1.0 INTRODUCTION

This document contains the Corrective Action Plan to remediate volatile organic compounds (VOCs), specifically vinyl chloride, in ground water. The property is located at 18250 - 18430 - 68th Avenue South in Kent, Washington and is shown relative to surrounding physical features in the Vicinity Map, Figure 1. The property is currently owned by an investment group headed by Mr. Peter Coates. Greg Snider is the manager of Coatings Unlimited, one of the businesses on the property and is intending to purchase the property. The facility houses several different manufacturing businesses.

As a portion of the due diligence prior to purchasing the property, Mr. Snider authorized a Phase I Environmental Site Assessment (ESA) conducted by Environmental Associates, Inc. (EA). In their report, EA concluded that the site has not received a "No Further Action" determination from the Washington State Department of Ecology (Ecology) for underground storage tanks (USTs) removed from the northern portion of the property in 1987 and subsequent soil remediation conducted in the UST area in 1991. Additionally, EA concluded that the extent of vinyl chloride and other VOCs in ground water discovered in 2000 along the southern property line, had not been characterized.

The Phase I ESA was subsequently reviewed by LSI Adapt, Inc. for Key Bank, the lender for the proposed purchase. In their review dated August 25, 2003, LSI Adapt generally agreed with the conclusions presented in Environmental Associates' report dated August 8, 2003. LSI Adapt recommended evaluating ground water conditions in the areas of the former underground storage tanks and the dissolved vinyl chloride plume along the southern property line.

Environmental Management Services (EMS) performed a characterization of soil and ground water conditions in the areas of the former USTs and the VOC plume in September 2003. The results of the study indicate that soil and ground water do not appear to be impacted in the area of the former USTs. Additionally, vinyl chloride and 1,2 dichloroethane are present in ground water at concentrations greater than the respective Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A cleanup levels as a dissolved-phase plume extending onto the subject property from the south. The limits of the vinyl chloride plume were evaluated and are shown on the Site Plan, Figure 2. The results of our site characterization activities are presented in our report titled "Limited Groundwater Sampling Project" dated October 1, 2003.

EMS has requested a determination of "No Further Action" regarding soil and ground water in the area of the former USTs at the site. An application has been made to Ecology to enter the site under the Voluntary Cleanup Program (VCP). This Corrective Action Plan presents the methodology and scope of work to remediate ground water containing vinyl chloride and 1,2 dichloroethane in the area of the southern property line.

2.0 PURPOSE AND SCOPE

The purpose of the corrective action is to reduce concentrations of vinyl chloride and 1,2 dichloroethane below Ecology's MTCA Method A cleanup level for ground water.

The scope of this corrective action includes the following tasks:

- Install, operate and monitor an air-sparging system in the area of the contaminant plume to aerobically degrade the contaminants of concern.
- Install and monitor ground water monitoring wells in the area of the contaminant plume to evaluate the effectiveness of contaminant degradation during, and after remediation.
- Prepare and submit ground water monitoring reports documenting the reduction in contaminant concentrations during and after remediation.
- Prepare and submit a final corrective action report documenting the successful remediation of the VOC plume along the southern property line.

3.0 METHODOLOGY

3.1 Air-sparging system

Air sparging is a method of ground water remediation that involves injecting air below the water table and allowing the air to bubble through the aquifer into the vadose zone. The air sparging method typically is effective on volatile organic compounds that selectively partition into the air bubbles and are thereby removed from the ground water. Additionally, oxygen from the injected air partitions into the ground water and increases the aerobic activity of microorganisms that metabolize some VOCs such as vinyl chloride.

3.2 Air-sparging wells

Six air sparging wells will be installed in the main portion of the contaminant plume. The approximate locations of the sparging wells are shown in Figure 4 (Attachment A). The wells will be installed using a StrataProbe sampling rig. The wells will consist of 1-inch diameter PVC casing and screen and will extend to a depth of 20 feet below ground surface (approximately 15 feet below the ground water table). The screened interval will be composed of a 5-foot length of 1-inch diameter PVC well screen having 0.010-inch wide slots and will be pre-packed with medium sand as a filter pack. A description of the pre packed well screen is presented in Appendix B.

Each well will be completed inside a bolted steel cover (monument) that will be installed flush with surrounding grade and will be rated to withstand the vehicle traffic in the drive areas of the facility.

3.3 Air-sparging system

Air for the sparging system will be supplied by two Gast rotary vane compressors, each capable of supplying 10 cubic feet of air per minute (SCFM) at a pressure not exceeding 15 psi. Information regarding Gast compressors is contained in Attachment A. The compressors will be powered with 240 volt, single-phase power. Each compressor will be piped to a manifold serving three air-sparging wells. Delivery lines to each well will be fitted with a vane rotometer to measure air flow, a pressure gage and a regulating valve. Manifold and delivery lines will consist of 1-inch diameter or larger PVC piping.

Delivery lines will be installed below grade at a depth of 12 to 18 inches and bedded in native soil that is free from stones or other sharp objects. Prior to burial, piping will be pressure tested to 50 psi and the joints and connections evaluated for leakage. Following backfilling and compaction, piping trenches will be resurfaced with native soil, concrete or asphalt as appropriate. Connections of delivery piping at each sparging wellhead will be made with a "Tee" connection so that the well may be accessed for maintenance if needed. A schematic drawing of a wellhead connection is presented in Appendix A.

3.4 Operation and maintenance

The air sparging system will be operated continuously during remediation until contaminant concentrations are reduced below MTCA Method A cleanup levels. Operation of the system will be monitored on a regular basis and will consist of maintaining records of airflow and pressure at each well. If airflow drops below 50 percent of the initial flow, the well will be considered "plugged" and will require maintenance.

The Gast compressors are generally maintenance free. Maintenance will consist of inspecting the compressors for proper operation and flow, noting if the pressure relief valve is operating properly and periodically cleaning or changing air filters at the inlet ports.

3.5 Ground water monitoring wells

Three ground water monitoring wells will be installed within the known limits of the VOC plume in the general locations shown in Figure 3. Ground water monitoring wells will be installed using a StrataProbe rig and will consist of 1- or 2-inch diameter PVC casing and well screen. Ground water monitoring wells will extend to a depth of approximately 20 feet below ground surface and will have 15 feet of screened interval. Wells will be completed in locking, traffic-rated well covers that will be installed flush with surrounding grade. Top of casing elevations for each well will be surveyed relative to an arbitrary benchmark.

3.6 Ground Water Monitoring

Ground water monitoring will be conducted on a quarterly basis during remediation and for one year following remediation to document degradation of contaminants in ground water and to confirm that remediation has been completed successfully. Representative ground water samples will be collected from each of the three ground water monitoring wells during each monitoring event. Prior to sampling, the depth to the top of the water table will be measured using an electric water level indicator. Water depths will be referenced to the top of the monitoring well casing. Wells will be purged of stagnant water prior to sample collection. Purged water will be placed into a drum for classification prior to disposal.

Representative ground water samples will be collected following purging. Samples will be collected into laboratory-supplied glass vials having lids with Teflon-lined septa. Ground water samples will be collected using the submerged fill technique to reduce the loss of volatile compounds. Each vial will be labeled with the date, time of collection, well number and sampler's initials. Each vial shall be filled completely and tightly fitted with a lid following filling. Each vial shall be checked for the presence of entrapped air by inverting the vial and visually checking for air bubbles. If air bubbles are present, the vial shall be uncapped, refilled, sealed and rechecked. Vials not having entrapped air will be placed into an ice chest having frozen

blue ice for transport to the analytical laboratory. Chain of custody forms shall be completed in the field and shall accompany the samples to the analytical laboratory.

Samples will be analyzed using EPA Method 8021B for volatile organic compounds. Detection limits shall be less than the respective MTCA Method A cleanup level for each contaminant. Laboratory quality assurance/quality control (QA/QC) results shall be within acceptable limits.

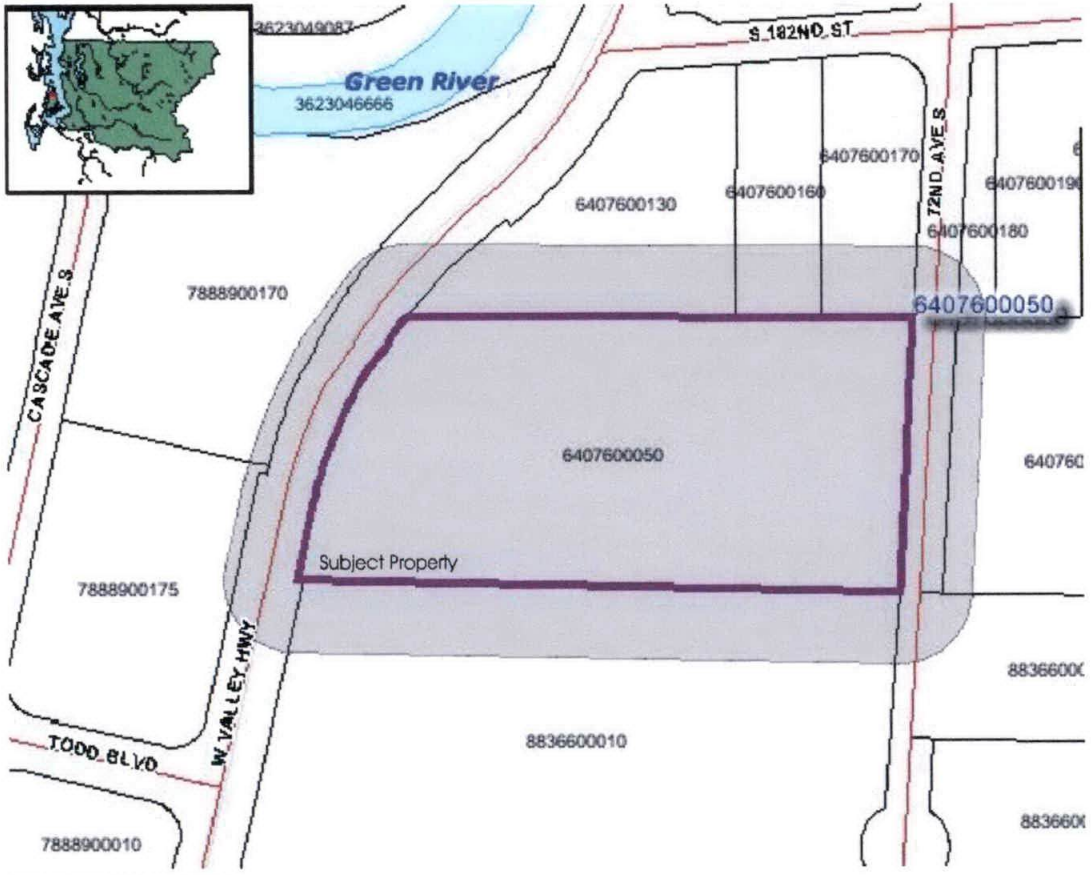
3.7 Ground Water Monitoring Reports

Reports containing the results of ground water monitoring will be prepared and submitted to Ecology for review following each sampling event. Reports will contain ground water contour maps, summary tables of analytical results, summaries of airflow and pressure readings for each well and any significant maintenance issues during the past quarter.

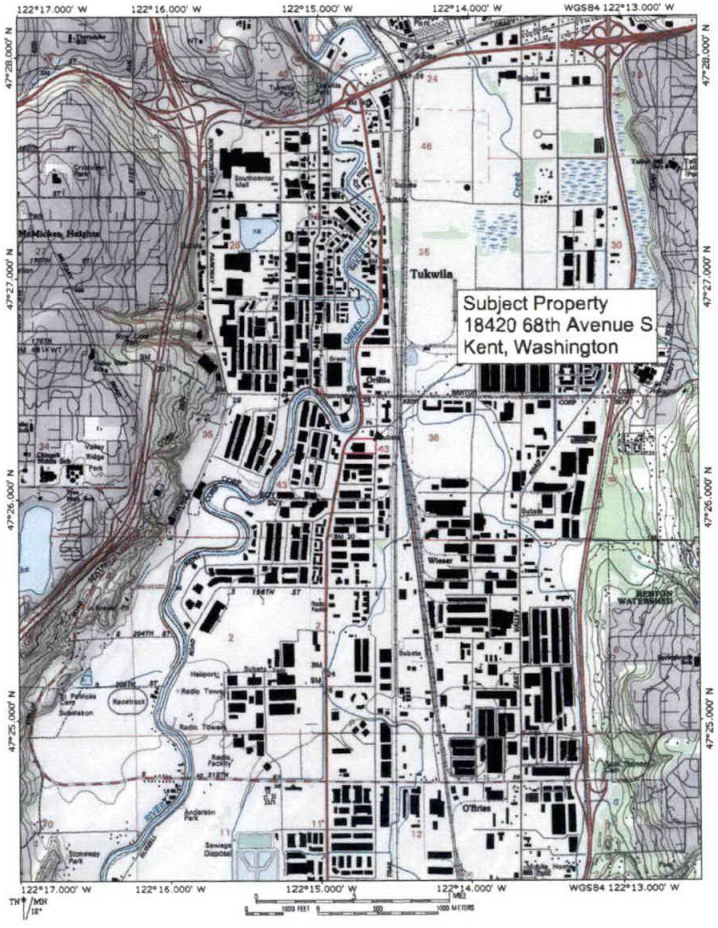
4.0 FINAL CORRECTIVE ACTION REPORT

A final Corrective Action Report will be prepared and submitted to Ecology at the conclusion of remediation and following four quarters of ground water monitoring documenting that remediation has been successful. The report will contain a summary of ground water monitoring results and ground water contour maps. The report will contain a request for a determination of "No Further Action" by Ecology under the Voluntary Cleanup Program.

ATTACHMENT A

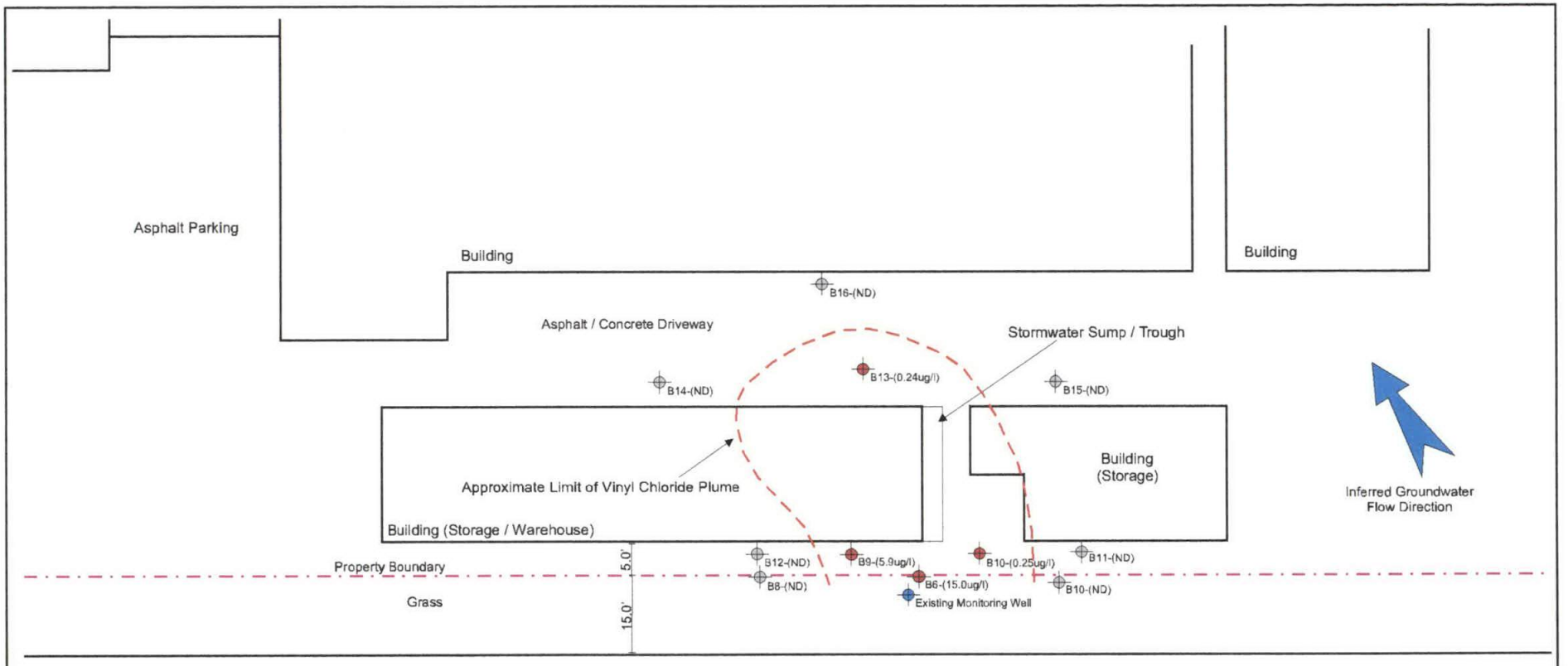


Site Vicinity & Parcel Map



USGS Topographic Map

EMS www.emsgroupllc.com		Project No./Name: Corrective Action Plan v1 Vinyl Chloride Remedial Action Location: 18420 68th Avenue Kent, Washington	Date: December 8, 2003 Drawn / Created By: S.Spencer Checked By: B.Halbert	Site Location & Parcel Map Site Topographic Map 18420 68th Avenue S. Kent, Washington	Figure No. FIGURE 01



Legend

N

Groundwater Sample Location Point

Groundwatyer Sample Location Exceeding MTCA Method A Cleanup Levels

S9 (5.9ug/l) Sample ID and Vinyl Chloride Concentration (ug/l)

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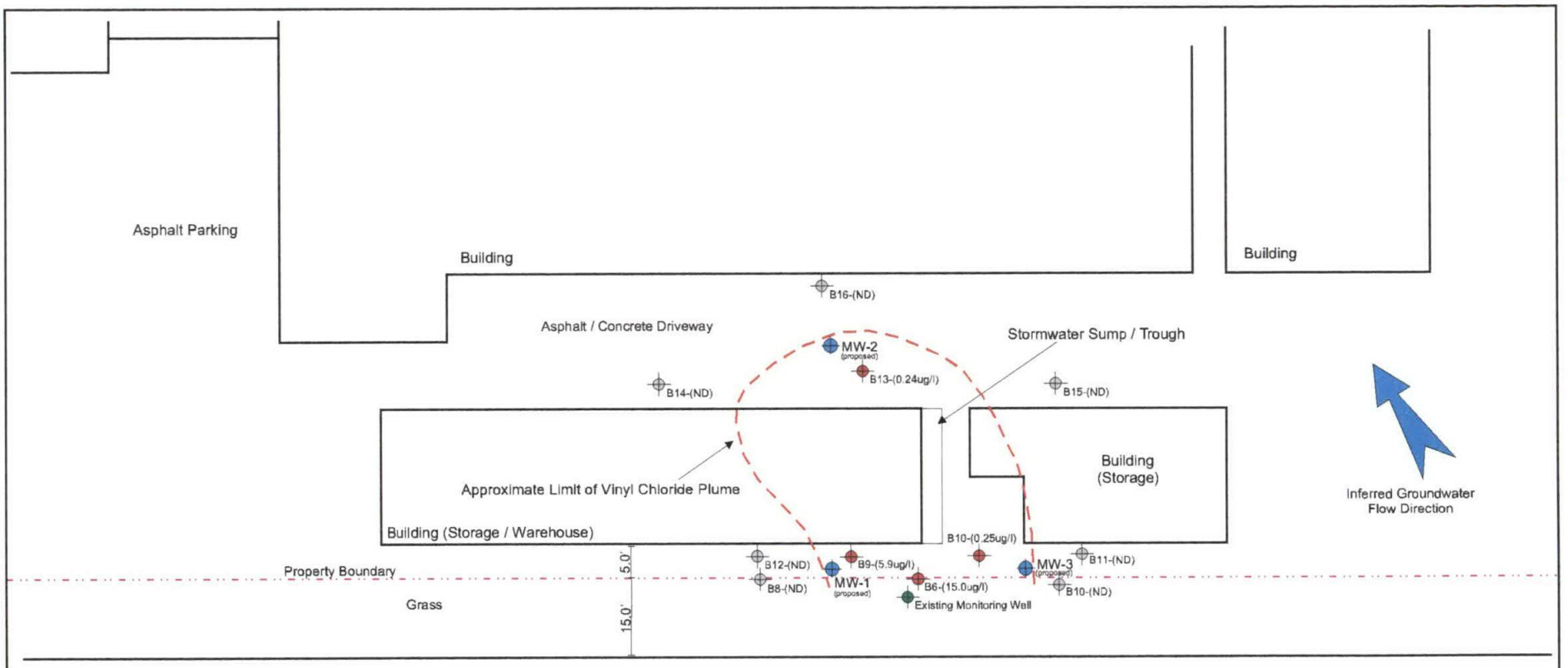
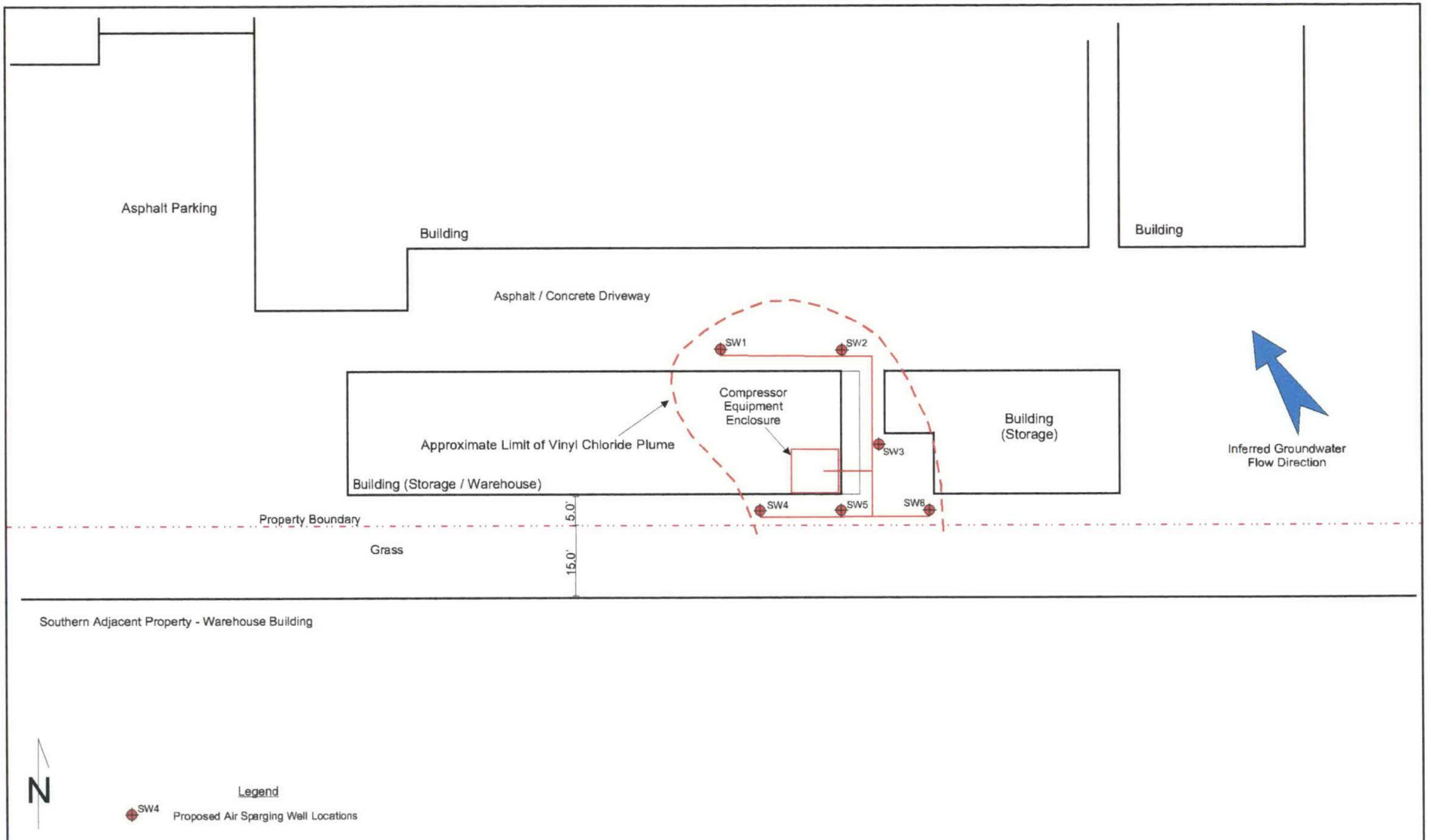
0' 20' 40'
Approximate Scale

Project No./Name:	Corrective Action Plan v1 Vinyl Chloride Remedial Action	Date:	December 8, 2003	Phase II Sample Location Map Southern Property Line	Figure No.
		Drawn / Created By:	S.Spencer		FIGURE 02
Location:	18420 68th Avenue Kent, Washington	Checked By:	B.Halbert	18420 68th Avenue S. Kent, Washington	



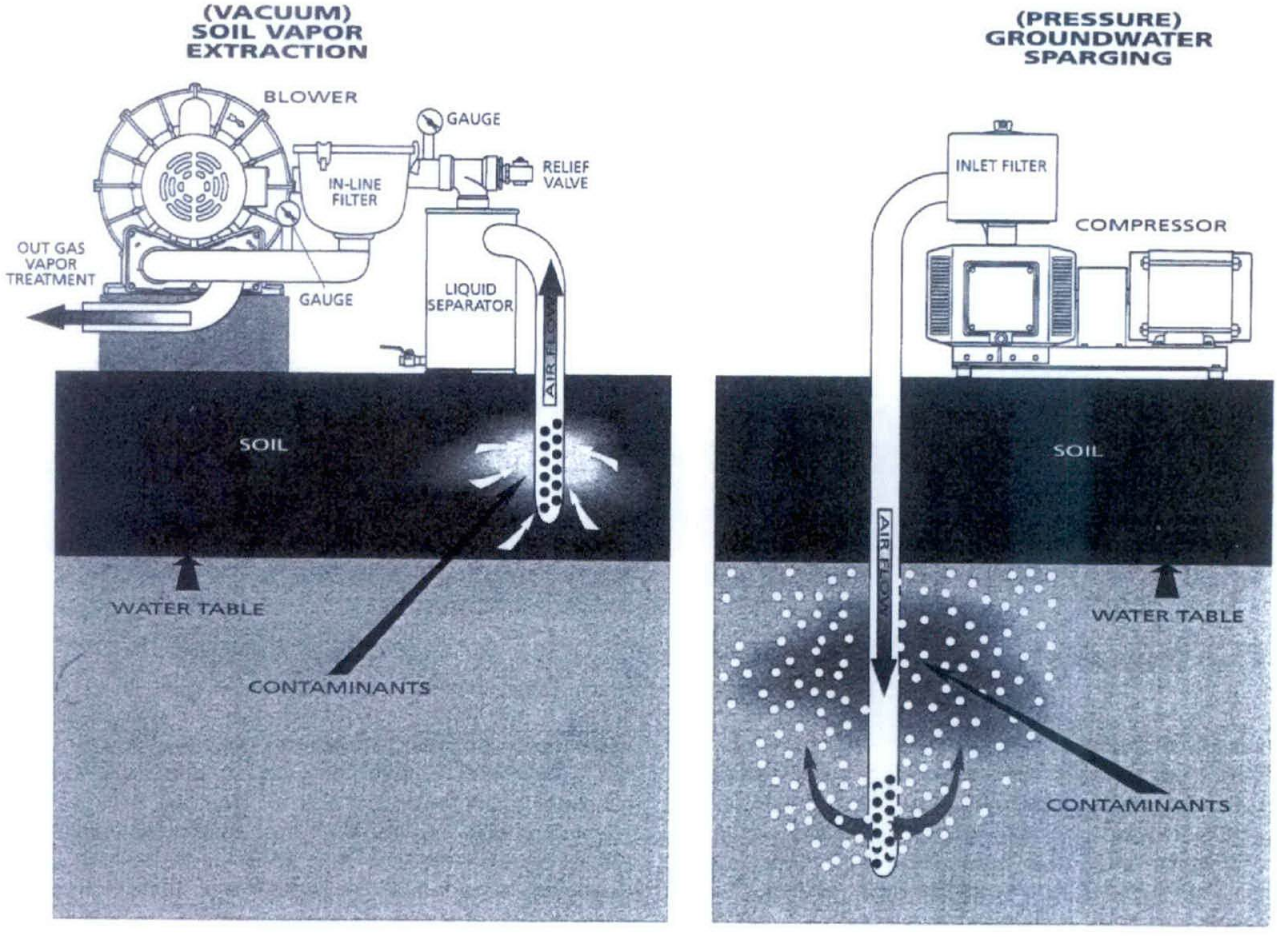
EMS www.emsgroupllc.com	0' 20' 40' Approximate Scale	Project No./Name: Corrective Action Plan v1 Vinyl Chloride Remedial Action Location: 18420 68th Avenue Kent, Washington	Date: December 8, 2003 Drawn / Created By: S.Spencer Checked By: B.Halbert	Proposed Monitoring Well Location Map 18420 68th Avenue S. Kent, Washington	Figure No. FIGURE 03



EMS www.emsgroupllc.com	0' 20' 40' Approximate Scale	Project No./Name: Corrective Action Plan v1 Vinyl Chloride Remedial Action Location: 18420 68th Avenue Kent, Washington	Date: December 8, 2003 Drawn / Created By: S.Spencer Checked By: B.Halbert	Proposed Air Sparging Well Location Map 18420 68th Avenue S. Kent, Washington	Figure No. FIGURE 04

ATTACHMENT B

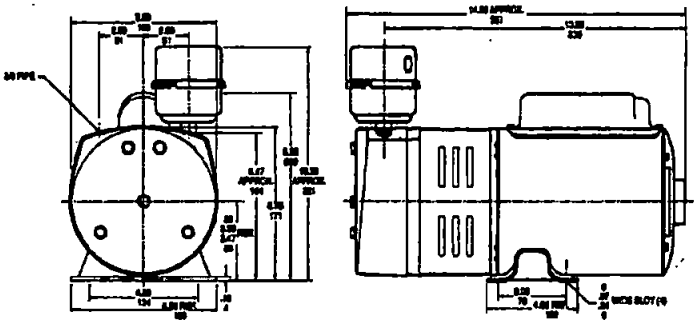
Typical soil remediation systems shown here. One utilizes a Gast compressor for sparging and the other a soil vapor extraction blower in combination with a liquid separator and filtration for extracting contaminants from the soil.



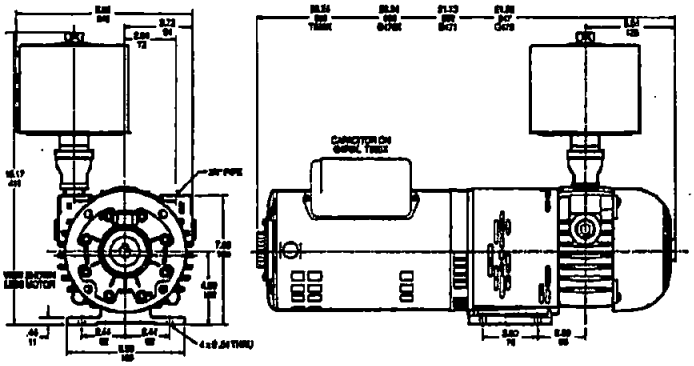
The information presented in this catalog is based on technical data and test results of nominal units. It is believed to be accurate and is offered as an aid in the selection of Gast products. It is the user's responsibility to determine suitability of the product for his intended use and the user assumes all risk and liability whatsoever in connection therewith.

(mm) (Inches)

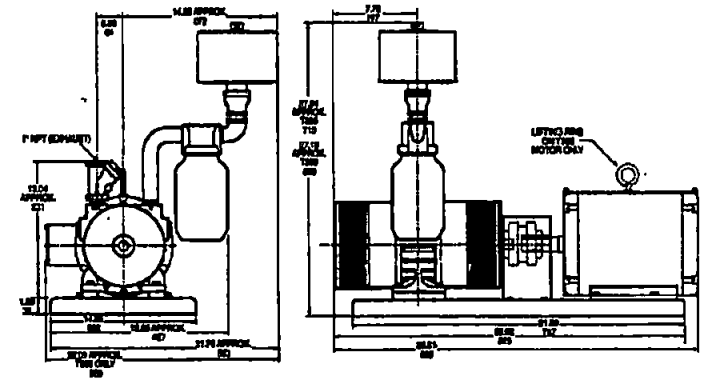
Model 0823



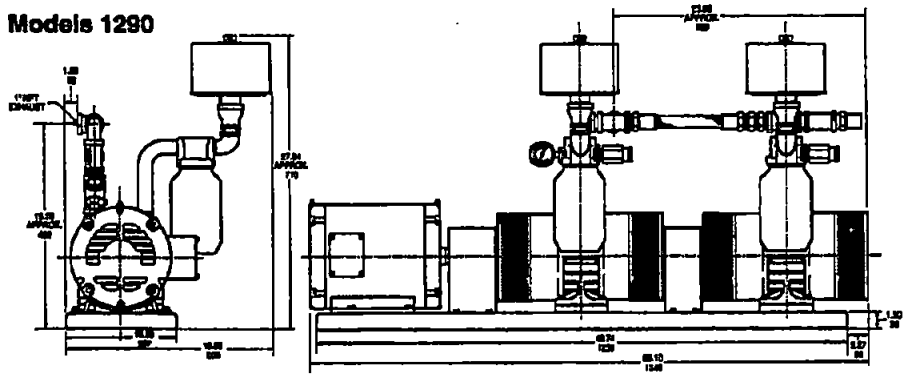
Models 2067, 2567



Models 6066

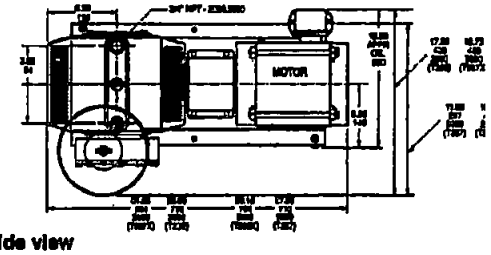


Models 1290

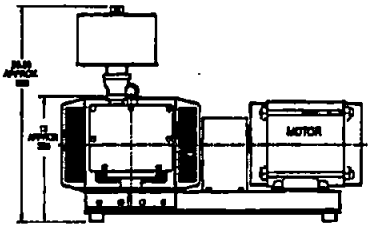


Models 2080, 3080

Top view



Side view



NOTICE: Overall length dimensions are reference only, due to optional motor sizes available

Product Specifications Model Number	Motor Specifications Phase	Hz	Voltage	HP	Max. Pressure @ 60Hz psig	1 bar	Max. Flow @ 60Hz cfm	m^3h	Net Wt. lbs	kg
0823-P155-G608X*	Single	50	100-110/220-240	0.75	10 (15 inter)	0,7 (1,0)	8	14	50	23
		60	100-115/208-230							
2080-P124-T337	Three	60	230/460	2.0	15	1,0	25	42	135	61
2080-P124-T906X	Single	60	115/230	3.0	15	1,0	25	42	135	61
3080-P124-T338	Three	60	208-230/460	3.0	15	1,0	35	59	160	72
3080-P124-T907X	Single	60	208-230	5.0	15	1,0	35	59	160	72
2067-P118-G470X†	Single	60	115/230	1.5	20	1,4	17	29	84	38
2067-P118-G471*†	Three	50	220/380-415	1.0	20	1,4	17	29	84	38
		60	208-230/460	1.5						
2567-P132-G475†	Three	60	230/460	2.0	20	1,4	21	36	85	38
2567-P132-T908X†	Single	60	115/230	2.0	20	1,4	21	36	85	38
6066-P122-T339***†	Three	60	208-230/460	5.0	15	1,0	55	93	205	92
6066-P122A-T905**†	Three	60	208-230/460	5.0	20	1,4	37	63	205	92
6066-P122A-T909†	Three	60	208-230/460	7.5	20	1,4	55	93	205	92
1290-P110-T904***†	Three	60	208-230/460	10	15	1,0	112	190	430	194
1290-P110A-T910†	Three	60	208-230/460	15	20	1,4	112	190	440	198

*For 50Hz performance reduce air flow on grid by approximately 17%

**6 pole motor; 1140 RPM

***These models are capable of 15 psi max. performance, reference performance grid below

†Also available as separate drive, less the motor. To order as a separate drive version, specify the first two sets of digits only of this model number. Consult factory or distributor for the correct Nema frame size motor to use. Customer supplied motor must have minimum service factor of 1.15.