REPORT

Engineering Evaluation/ Cost Analysis (EE/CA)

Aerovox, Inc.
New Bedford, Massachusetts

August 1998

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

TECHNICAL REPORT

Engineering Evaluation/ Cost Analysis (EE/CA)

Aerovox, Inc.
New Bedford, Massachusetts

August 1998

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

6723 Towpath Road, P.O. Box 66
Syracuse, New York, 13214-0066
(315) 446-9120

Table of Contents

1. Introduction

1. Introduction

1.1 General

This report presents the Engineering Evaluation/Cost Analysis (EE/CA) for implementation of a non-time critical removal action to address chemicals of concern at the Aerovox, Inc. (Aerovox) facility (the site) located in New Bedford, Massachusetts. This EE/CA has been prepared by Blasland, Bouck & Lee, Inc. (BBL) at the request of Ropes & Gray, attorneys for Aerovox, and presents an analysis of removal action alternatives for the site.

The United States Environmental Protection Agency (USEPA) has determined that a removal action is appropriate for the Aerovox facility pursuant to Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and that at least six months of planning time exists before on-site removal activities must be initiated. Accordingly, the removal action to be implemented is non-time critical [40 CFR 300.415(b)(4)].

As presented in USEPA's *Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA* (August 1993), non-time critical removal actions may be interim or final actions depending upon the conditions of the site and the specific goals and objectives of the removal action. The National Contingency Plan (NCP) [40 CFR 300.415(e)] provides some examples of removal actions, including measures that limit access; reduce migration and prevent contact through containment or capping; remove materials that contain chemicals of concern; excavate/consolidate source materials; or provide treatment, disposal or incineration.

1.2 Purpose and Scope of this EE/CA

The purpose and scope of this EE/CA is to identify the objectives and goals of the removal action for the Aerovox facility and to analyze the effectiveness, implementability, and cost of appropriate removal action alternatives that satisfy these objectives. This EE/CA also provides a vehicle for public involvement, as it will be made available for public comment in accordance with 40 CFR 300.415(n). Additionally, this EE/CA, along with other documents/information which form the basis for the removal action to be implemented at the Aerovox facility, will be part of the USEPA's Administrative Record File. As detailed in 40 CFR 300.820(a), the Administrative Record File shall be made available for public inspection when the EE/CA is made available for public comment.

1.3 Removal Action Process

The USEPA issued a July 15, 1998 Approval Memorandum (Memorandum) to initiate the EE/CA process. This Memorandum justifies conducting an EE/CA by documenting that the site conditions at the Aerovox facility meet the NCP criteria for initiating a removal action and that the proposed action is non-time critical. A copy of this Memorandum is provided as Attachment 1.

Prior to the start of the non-time critical removal action public comment period, the USEPA will publish a Notice of Availability and a brief description of the EE/CA. This notice will announce the public comment period during which the public has the opportunity to review and comment on the EE/CA and the proposed removal action. A written response to each significant comment received during the public comment period will be produced and included as the Responsiveness Summary in the Action Memorandum. The results of the EE/CA, along with the USEPA's response decision, will be summarized in the Action Memorandum. Once the Action Memorandum and the Responsiveness Summary are prepared, the removal action will be initiated. An Administrative Record File for the removal action will be established and made available for public inspection as specified in the NCP (Sections 300.820 and 300.825). The non-time critical removal action process is presented on Figure 1.

1.4 Report Organization

This EE/CA report is organized as follows:

- Section 2.0 presents the site characterization, including a summary of the site location and physical setting, regional geology, site history, recently completed removal investigation activities, and a streamlined risk evaluation. This section also presents a summary of information regarding the geology/hydrogeology of the site;
- Section 3.0 identifies the potentially applicable or relevant and appropriate requirements (ARARs) associated with a removal action at the site;
- Section 4.0 identifies the scope, goals, and objectives of the removal action;
- Section 5.0 identifies and presents an analysis of removal action alternatives; and
- Section 6.0 presents a comparative analysis of the removal action alternatives and the recommended removal action.

2. Site Characterization

2. Site Characterization

2.1 General

This section, consistent with USEPA guidance, presents the site characterization information that supports the scope and selection of an appropriate removal action. Accordingly, this section consists of the following subsections:

- Location and Physical Setting;
- Regional Geology;
- Site History;
- Recently Completed Removal Investigation Activities (including a site-specific summary of geology/ hydrogeology information); and
- Streamlined Risk Evaluation.

Much of the information presented in this section regarding location and physical setting, and site history was obtained from the *Building Demolition Alternative Report* (BBL, April 1998) and the *Soil Sampling Plan* (BBL, April 1998). This section also briefly summarizes previous investigations conducted at the facility including the November 1997 PCB Building Material/Equipment Investigation and the February 1998 soil sampling conducted beneath the concrete floor slab of the manufacturing building. A more detailed discussion of these activities and investigation results is presented in the *Building Demolition Alternative Report.*

This section also presents a description and the results of soil and ground-water sampling conducted at the facility during May 1998, in accordance with requirements set-forth in the *Soil Sampling Plan,* as revised to incorporate comments presented in a May 6, 1998 letter from Ms. Kimberly N. Tisa of the USEPA-Region 1 Office. The information associated with these additional sampling activities has not been previously reported; therefore, a detailed summary of these soil and ground-water sampling activities and analytical results is presented herein (Section 2.5.3).

2.2 Location and Physical Setting

The Aerovox facility is located on an approximately 10 acre parcel at 740 Belleville Avenue in New Bedford, Massachusetts. The location of the site is shown on Figure 2. The facility consists of one three-story building currently used to manufacture capacitors and related products. A parking lot is located south of the manufacturing building. Aerovox and various predecessor companies have occupied the site for over 80 years. During 1995, Aerovox purchased a small parcel located west of the original property (opposite Belleville Avenue) which has been used for additional parking space. The site is located within a highly developed urban/industrial area of New Bedford, Massachusetts. The Acushnet River borders the site to the east. The ground surfaee at the site slopes gently from the west to the east. The elevation along Belleville Avenue at the West edge of the original property is approximately 14 feet above mean sea level (MSL) while the elevation toward the eastern edge of the property (prior to reaching a seawall constructed along the bank of the Acushnet River) is generally between 4 and 7 feet above MSL.

The Aerovox manufacturing building, shown on Figure 3, encompasses approximately 450,000 square feet and consists of a western section that contains two floors and an eastern section that contains three floors. The exterior walls of the building are brick while the roof is constructed of wood. The first floor in the western section of the building is estimated to be approximately 6 feet below grade while the first floor in the eastern section of the building is estimated to be approximately 1½ feet below grade. The first floor in both the eastern and western sections of the building is constructed of concrete. Structural components of the building include interior wood columns and steel I-beam floor joists. Wooden floors are present on the second floor of the western section of the building.

2.3 Regional Geology

The site is located in southeastern Massachusetts, near the northern extremity of the Acushnet River estuary, upstream of Apponagansett Bay which opens into the Rhode Island Sound and the Atlantic Ocean. The regional geology is characterized by crystalline bedrock, eroded and contoured by Pleistocene glaciation into a series of low amplitude valleys and ridges. Glaciation is also responsible for the majority of the unconsolidated sediments overlying the bedrock. These glacial deposits range from dense till to highly permeable outwash sand and gravel. A summary of site-specific geology/hydrogeology is presented in Section 2.5.3.2.

2.4 Site History

An investigation of the site was conducted during July and August 1982 pursuant to a Consent Order entered into by Aerovox in May 1982 with the USEPA under Section 106 of CERCLA, 42 U.S.C. 9606. Aerovox also entered into a similar Consent Order with the Massachusetts Department of Environmental Quality Engineering [now known as, and referred to hereafter, as the Massachusetts Department of Environmental Protection (MDEP.)] at the same time. The investigation focused on an unpaved area at the eastern end of the site bordering the Acushnet River and an unpaved strip of land to the north of the manufacturing building. Combined, these areas represent approximately a ½-acre area. The results of the investigation are presented in the *Report of Sampling and Analysis Program at the Aerovox Property, New Bedford, Massachusetts*, prepared by GHR, dated October 7, 1982. The results of the investigation indicated that polychlorinated biphenyls (PCBs) were present in soil at concentrations exceeding 50 parts per million (ppm) and PCBs were also present within the shallow, perched ground-water system at the site.

An evaluation of remedial action alternatives for the Aerovox property was prepared by GHR in accordance with the Consent Orders entered into by Aerovox in May 1982 with the USEPA and the MDEP. The final remedial action alternative selected for the property (as described in an article entitled *On-Site Containment of PCB-Contaminated Soils at Aerovox, Inc., New Bedford, Massachusetts,* prepared by John J. Gushue and Robert S. Cummings) consisted of capping the impacted soil areas (by paving with hydraulic asphalt concrete) and installing a steel sheet pile cutoff wall to serve as a vertical barrier to ground water and tidal flow into and out of the impacted soils. The approximate location of this vertical sheet pile wall is shown on Figure 3. Construction of the final remedial action alternative was started in October 1983 and completed in June 1984. In a letter dated September 21, 1984, the USEPA advised that Aerovox had fully complied with the Consent Order.

An assessment of soil and ground water at and in the vicinity of a former concrete oil containment bunker located south of the manufacturing building boiler room (shown on Figure 3) was conducted during July 1988 by GHR. The assessment was conducted following removal of two 10,000-gallon No. 6 fuel oil storage tanks and one 250-gallon condensate collection tank from the bunker during June and July 1988 by Clean Harbors, Inc. The assessment was conducted pursuant to a request from the MDEP after Aerovox reported that a release of petroleum had occurred at the property. The assessment involved the installation/sampling of soil borings and monitoring wells to determine the extent of petroleum in the vicinity of the former concrete oil containment bunker. An additional assessment of soil and ground water in the vicinity of the former conerete oil containment bunker was conducted during February and March 1989 to provide additional information required by the MDEP.

As required by the MDEP, a short-term measure was implemented at the facility to eliminate (or at a minimum, significantly reduce) the potential for further oil migration by removing the source material from the vicinity of the former concrete oil containment bunker. The short-term measure included the following work: 1) removing petroleum product and water from the concrete oil containment bunker; 2) excavating petroleum-impacted soils for on-site treatment and recycling into an asphalt base course for the parking lot; 3) constructing an oil-water separator to control and recover floating petroleum product; and 4) performing post-construction monitoring of the oil-water separator system to confirm the effectiveness of the short-term measure. Construction activities associated with the short-term measure were completed during November and December 1990. The MDEP determined that no further remedial action was necessary for this matter by a letter dated July 26, 1993.

An inspection of the manufacturing building was conducted by the USEPA during June 1997. As part of that inspection, the USEPA collected wood shaving samples from floor areas inside the manufacturing building and collected oil samples from various oil storage tanks/degreaser operations for PCB analysis. The USEPA data indicated the presence of PCBs in the wood floor samples at concentrations exceeding 50 ppm. PCBs were not detected above laboratory detection limits in the oil samples collected from tanks/equipment at the Aerovox facility. In October 1997, a consultant for Aerovox (East Coast Engineering, Inc.) under USEPA oversight collected wipe samples for PCB analysis. The analytical results indicated the presence of PCBs at concentrations greater than the USEPA-recommended cleanup criteria of 10 micrograms (ug) per 100 square centimeters (cm^2) for low- and high-contact interior surfaces as presented in the USEPA PCB Spill Cleanup Policy (40 CFR Part 761.120).

Subsequent to the June 1997 inspection conducted by the USEPA, BBL conducted additional investigation activities to support the USEPA-required removal action at the Aerovox facility. These activities are described in the following section.

2.5 Recently Completed Removal Investigation Activities

The recently completed removal investigation activities completed at the Aerovox facility are as follows:

- PCB Building Material/Equipment Investigation (November 1997);
- Soil Sampling Beneath Concrete Floor Slab (February 1998); and
- Soil and Ground-Water Sampling Activities (May and June 1998).

Presented below is a summary of the November 1997 PCB Building Material/Equipment Investigation and the February 1998 soil sampling conducted beneath the concrete floor slab of the manufacturing building; a more detailed discussion of these activities and investigation results is presented in the *Building Demolition Alternative Report*. Those summaries are followed by a detailed description and the results of soil and ground-water sampling activities conducted at the facility during May 1998, as this information has not been previously reported. A summary of site-specific geology/hydrogeology is also presented in this section.

2.5.1 PCB Building Material/Equipment Investigation

BBL conducted a PCB Building Material/Equipment Investigation in November 1997. The investigation included the additional sampling of building materials/equipment [i.e., full-core building material samples (wood, brick, and concrete), composite scrape samples of dust/dirt from elevated surfaces, wipe samples from non-porous building material surfaces (tile floor, painted walls, steel surfaces), and wipe samples from equipment]. The purpose of the additional sampling of building materials/equipment was to supplement the existing PCB data base, determine the approximate extent of impacted building materials, develop information regarding the approximate quantities of different building materials, and characterize PCB concentrations on equipment surfaces inside the building.

Table 1 presents the analytical results for each full core sample and each dust/dirt scrape sample along with the sample identification number and building material type (wood, concrete, etc). Table 2 presents the analytical results for each wipe sample collected from non-porous building materials, appurtenances, and equipment inside the building.

The analytical results of full core samples collected during the investigation indicated that PCBs were present at concentrations greater than 50 ppm in samples collected from the following locations:

- The wood floor on the second and third levels of the eastern section of the building;
- The wood floor on the second level in the western section of the building; and
- The concrete floor on the second level in the western section of the building.

PCBs were also detected at concentrations greater than 50 ppm in each of the 12 dust and dirt scrape samples. Seventeen of the 18 wipe samples collected from non-porous building materials and appurtenances (electrical conduits and light fixtures) contained PCBs at concentrations greater than the Toxic Substances Control Act (TSCA) PCB Spill Cleanup Policy cleanup level of 10 ug/100 cm^2 for high- and low-contact surfaces. Ten of the 13 wipe samples collected from the surfaces of equipment at the Aerovox facility contained PCBs at concentrations greater than 10 ug/100 cm^2.

2.5.2 Soil Sampling Beneath Concrete Floor Slab

BBL conducted soil sampling activities beneath the concrete floor slab of the manufacturing building during February 1998. The purpose of the soil sampling was to characterize PCB concentrations in soil located directly beneath the concrete floor slab inside the building. Fifteen soil samples were collected from beneath the concrete floor slab at a depth of 0 to 2 inches beneath the concrete slab for PCB analysis. In addition, soil samples were collected at a depth of 2 to 6 inches beneath the concrete floor slab at 14 of the 15 soil sampling locations. The soil samples collected from the 2- to 6-inch depth interval were submitted to the laboratory and archived until the PCB analytical results for the samples from the 0- to 2-inch depth interval were determined.

The analytical results of the soil samples indicate that 5 of the 15 soil samples collected from the 0- to 2-inch depth interval contained PCBs at concentrations greater than 50 ppm. The 2- to 6-inch soil samples collected from two of these 5 soil sampling locations (which were initially archived) were analyzed for PCBs. The analytical results indicate that each of these samples also contained PCBs at concentrations greater than 50 ppm. Table 3 presents the analytical results for each soil sample analyzed. The location of each soil sample along with the associated PCB analytical result is shown on Figure 4.

2.5.3 Soil and Ground-Water Sampling Activities

This section presents a description of the investigation activities completed during May 1998 to characterize the soil and ground water that currently exist at the Aerovox facility. These investigation activities were conducted in support of the removal action and included the following:

- Soil Investigation; and

- Ground-Water Investigation.

Detailed descriptions of these soil and ground-water investigation activities and results, and a summary of site-specific geology/hydrogeology are prcsented below.

2.5.3.1 Soil Investigation

The soil investigation activities were conducted in accordance with the USEPA-approved *Soil Sampling Plan*, as revised to incorporate comments presented in a May 6, 1998 letter from Ms. Kimberly N. Tisa of the USEPA-Region 1 office.

Thc soil investigation activities consisted of the following:

- Collecting additional soil samples from beneath the floor of the manufacturing building from two sampling locations which exhibited elevated PCB concentrations during previous investigation activities conducted during February 1998; and

- Completing 17 soil borings in order to collect samples to characterize the soil located beneath the parking lot area outside of the manufacturing building.

Soil samples collected as part of the removal investigation activities were handled, labeled, packaged, and shipped in accordance with the protocols outlined in the *Soil Sampling Plan*. Soil samples selected for laboratory analysis were submitted to Galson Laboratories, Inc. (Galson) for laboratory analysis for polychlorinated biphenyls (PCBs) and/or Target Compound List (TCL) volatile organic compounds (VOCs) using the following methods:

Parametcr	Analytical Method
PCBs	USEPA SW-846 Method 8082
VOCs	USEPA SW-846 Method 5035/8260

A detailed discussion of the soil investigation activities is presented below.

Soil Investigation Beneath the Concrete Floor Slab

As detailed in the *Building Demolition Alternative Report* and summarized above, 15 soil samples were previously collected from the 0- to 2-inch depth interval bencath the concrete floor slab of the manufacturing building and submitted for laboratory analysis for PCBs. In addition, soil samples were collected from the 2- to 6-inch depth interval beneath the concrete floor slab and submitted for laboratory analysis for PCBs from 14 of the 15 sampling locations. The highest concentrations of PCBs in soil samples collected from beneath the concrete floor slab were detected at sampling locations IB-6 and ID-7 (within the pump room, see Figure 4), where samples from the 0-to 2-inch depth interval contained PCBs at concentrations of 18,000 ppm and 14,000 ppm, respectively. Additional soil investigation activities were conducted in order to further characterize the concentrations of PCBs at the maximum feasible depth beneath the concrete floor slab at sampling locations IB-6 and ID-7. A description of these activities is presented below, followed by a discussion of the associated laboratory results.

Soil Located Beneath the Concrcte Floor Slab Sampling Activities

Prior to collecting additional soil samples at soil sampling locations IB-6 and ID-7 (shown on Figure 5), a jackhammer and "Hilti" hammer drill equipped with a pulverizing bit were utilized to remove approximately 4- to 5-inches of cement/bentonite grout which was placed over the sampling locations following the previous investigation activities within the manufacturing building conducted during February 1998. Soil samples were collected using a 1¼-inch outer diameter steel casing (e.g. direct push sampling method) equipped with a dedicated polyethylene liner which was retracted from the outer casing at 4-foot intervals in order to retrieve the soil samples. The sampling device was manually driven into the soil using a pneumatic hammer device. The outer steel casing of the sampling device was decontaminated between sampling locations. Due to the presence of compact soil at both soil boring locations (IB-6 and ID-7), refusal of the sampling device was reached at two feet below ground surface for soil sampling location IB-6 and at four feet below ground surface for soil sampling location ID-7.

At sampling location IB-6, soil samples were collected from depths of 0.5- to 1-foot and 1- to 2-feet. The soil sample collected from the 0.5- to 1-foot depth interval was placed in a jar and archived for future laboratory analysis, if considered necessary. The soil sample collected from the 1- to 2-foot depth interval was submitted to Galson for laboratory analysis for PCBs using USEPA SW-846 Method 8082. No ground water was encountered while conducting sampling activities at soil boring location IB-6.

At sampling location ID-7, soil samples were collected from depths of 1- to 2-feet, and 3- to 4-feet. No soil sample was retrieved from the 2- to 3-foot depth after the sampling tube liner was destroyed during sampling activities. A soil sample was collected from the 3- to 4-foot depth interval using a 4-foot long inner sampling tube and pushing the tube from the 3- to 4-foot depth. The sample collected from this depth was submitted to Galson for laboratory analysis for PCBs using USEPA SW-846 Method 8082. The soil sample collected from the 1- to 2-foot depth interval was placed in a jar and archived for future laboratory analysis, if considercd necessary. Following coring activities, a shovel was used to remove soil to a depth of approximately 1.4 feet below the concrete floor surface. Based on the presence of a noticeable odor, a grab sample was collected at the direction of the USEPA and submitted to Galson for laboratory analysis for TCL VOCs using USEPA SW-846 Method 8260. Because this VOC grab sample was not part of the original scope, it was collected in a glass sampling jar which was not equipped with a teflon lined cap or a septum. Ground water was encountered at sampling location ID-7 at a depth of three feet below ground surface.

Excess soil removed during sampling activities was replaced and a cement/bentonite grout was placed in the sampling locations to restore the floor to the original grade. Detailed field notes describing the activities conducted during the additional investigation of the soil located beneath the floor of the manufacturing building are included as Attachment 2.

Soil Located Beneath the Concrete Floor Slab Sampling Resnlts

Analytical results obtained for the laboratory analysis of soil samples collected from beneath the concrete floor slab within the manufacturing building for PCBs and TCL VOCs are presented below. The discussion includes a comparison of the analytical results obtained from the laboratory analysis of the soil samples with MDEP Soil Category S-3 & GW-3 Standards presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, effective October 31, 1997.

PCBs

Analytical results obtained for the laboratory analysis of soil samples collected from beneath the concrete floor slab of the manufacturing building for PCBs are listed in Table 4 and shown on Figure 6. Total PCBs were detected in soil samples IB-6 (1-2') and ID-7 (3-4') at eoneentrations of 4,100 and 2,000 ppm, respectively. Both of these concentrations exeeed the MDEP Soil Catcgory S-3 & GW-3 Standards of 2 ppm for PCBs presented in MCP 310 CMR 40.0000.

VOCs

Analytical results obtained for the laboratory analysis of the subsurface soil sample collected from ID-7 for TCL VOCs are listed in Table 5 and shown on Figure 7. Analytical results obtaincd for the analysis of the soil sample for TCL VOCs are summarized below.

Detected Constituent	Detected Concentration (ppm)	MDEP S-3 & GW-3 Soil Standard (ppm)
Trichloroethylene	30	500
Tetrachloroethylene	1.2	100
1,2,3-Trichlorobenzene	0.7	-
1,2,4-Trichlorobenzene	1.5	800

Notes:
1. MDEP Soil Category S-3 & GW-3 Standards were obtained from MCP 310 CMR 40.0000.
2. "-" indicates that an MDEP Soil Category S-3 & GW-3 Standard value was not listed for that particular constituent.

The results indicate that the soil sample collected from ID-7 does not contain TCL VOCs at concentrations which exceed the MDEP Soil Category S-3 & GW-3 Standards presented in MCP 310 CMR 40.0000.

Soil Samples Beneath the Parking Lot

A discussion of the aetivities conducted during the investigation of soil located beneath the parking area outside of the manufacturing building is presented below followed by a discussion of the results of the soil and composite asphalt samples which were collected as a part of the investigation activities.

Boring/Sampling Activities

A total of 16 soil borings (soil borings SB-1 to SB-8 and SB-10 to SB-17) were completed within the area outside of the manufacturing building (see Figure 5) to facilitate the collection of soil samples for analysis of PCBs and TCL VOCs. In addition, based on the request of the USEPA, soil boring location SB-18 (shown on Figure 5) was added to investigate the soil in the vicinity of a PCB-oil fill pipe loeated along the north side of the manufacturing building. Preliminary sampling locations were chosen systematically by overlaying a 120-foot by 120-foot grid across the parking area south of the building. Utilizing this systematic sampling loeation scheme, 16 individual grid cells were mapped over the parking area on the site map and preliminary sampling loeations were chosen in a manner which gave a representative distribution across the parking area. The distances from each soil boring location to at least two prominent physical features at the site were measured and recorded on a field site map, and the physieal tie distances were used to create a sample location map to help determine the distribution of the samples within the parking area and identify soil boring locations in the future, if necessary. Soil boring SB-9 was marked on a preliminary sampling location figure; however, the proposed soil boring location was eliminated based on the presence of underground electrical lines. Soil boring SB-17 was added south of the manufacturing building to investigate the soil in the vicinity of a waste trough which formerly conveyed waste material from the facility toward the Acushnet River to the east of the site.

Soil borings were completed by BBL's drilling subcontraetor, Environmental Drilling, Inc. (Environmental Drilling) using a the hollow-stem auger drilling method. Soil borings were advanced using a truck-mounted drill rig in accordance with the protocols presented in the Soil Sampling Plan. Continuous soil samples were obtained from each soil boring using a two-foot long, two-inch outer diameter split-spoon sampling device as described in American Society for Testing and Materials (ASTM) Method D-1586/Split Barrel Sampling (Standard Method for Penetration Test and Split-Barrel Sampling of Soils ASTM D-1586-84) by driving the split spoon device with a 140-lb hammer dropped 30 inches.

Soil sampling for TCL VOCs was conducted in aecordance with the USEPA Region 1 document entitled, *Standard Operating Procedure for Soil Sample Collection and Handling for the Analysis of Volatile Organic Compounds* (March 1997). Immediately after recovering the split spoon deviee, one soil sample was collected for TCL VOCs from the most visually stained portion of each two-foot soil sampling interval using an Encore™ sampling device. One soil sample colleeted from each soil boring was submitted to Galson for laboratory analysis for TCL VOCs using USEPA SW-846 Method 5035/8260. Samples collected from the remaining sampling intervals which were not selected for laboratory analysis were archived by the laboratory for future analysis, if considered necessary. A representative portion of each two-foot soil sampling interval was then placed in a screening jar for headspace screening using a photoionization detector (PID). Each two-foot soil sample was then split into one-foot sections and one soil sample was collected (where feasible) from each one-foot section for PCB analysis. At least one sample from each soil boring (more if staining was observed in more than one section of soil recovered from the bore hole) was submitted to Galson for laboratory analysis for PCBs using USEPA SW-846 Method 8082. If no areas of visible staining were observed in a particular soil boring, the PCB sample was submitted from the one-foot section of soil located immediately beneath the asphalt. Samples colleeted from each one-foot soil segment which were not submitted for laboratory analysis were archived by the laboratory for future analysis, if considered necessary.

Each soil boring was completed to the depth of bedrock or the water table, whiehever was encountered first. Upon completion of each soil boring, Enviroumental Drilling hand shoveled grout into each borehole to the original grade using a cement/bentonite grout mixture (based on the relatively shallow depth of the bore holes, tremie grouting was not considered necessary). Subsurface eonditions encountered at each boring location are detailed on the soil boring logs included as Attachment 3, and depicted on geologic cross sections that are presented in the following section.

As part of the soil investigation activities, composite samples of the asphalt pavement from the parking area were collected and submitted for laboratory analysis for PCBs. A total of four composite samples were collected by combining discrete asphalt pavement samples collected at each of the boring locations. Composite samples COMP-1, COMP-2, and COMP-3 were each comprised of discrete samples collected from four borings and composite sample COMP-4 was comprised of two discrete asphalt samples.

Detailed field notes describing these investigation activities are presented in Attachment 4.

Parking Area Soil Sampling Results

Analytical results obtained for the laboratory analysis of the soil and composite asphalt samples collected during the soil investigation activities for PCBs and TCL VOCs are presented below. The discussion includes a comparison of the analytical results obtained from the laboratory analysis of the soil and asphalt samples with the MDEP Soil Category S-3 & GW-3 Standards presented in MCP 310 CMR 40.0000.

PCBs

PCB analytical results obtained for the laboratory analysis of soil samples are listed in Table 6 and shown on Figure 6. Total PCBs were detccted in each soil sample at coneentrations ranging from 0.05 ppm in sample SB-3-2 (1-2') to 2,900 ppm in sample SB-7-5 (4-5'). As presented in MCP 310 CMR 40.0000, the MDEP Soil Category S-3 & GW-3 Standard for PCBs is 2 ppm. As indicated in Table 6, this standard was exceeded in 12 samples that were analyzed for PCBs as part of the soil investigation activities.

Analytical results obtained for the laboratory analysis of composite asphalt samples for PCBs are listed in Table 7. The concentrations of PCBs within the composite asphalt samples ranged from 1.13 ppm in COMP-4 to 140 ppm in COMP-2.

VOCs

Analytical results obtained for the laboratory analysis of subsurface samplcs for TCL VOCs are listed in Table 8 and shown on Figure 7. TCL VOCs were detected at coneentrations above laboratory deteetion limits in soil samples collected at six of the seventeen sampling locations. Analytical results obtained for the laboratory analysis of the subsurface soil samples for TCL VOCs are summarized below.

Detected Constituent	Number of Sampling Locations Where Compound was Detected	Range of Detected Concentrations (ppm)	Sample Exhibiting Maximum Concentration	MDEP S-3 & GW-3 Soil Standard (ppm)
Methylene Chloride	1	0.22	SB-11-2 (0.5-2')	700
Trichloroethylene	4	0.24-0.30	SB-16-2 (0-2')	500
1,2,4-Trichlorobenzene	1	0.44	SB-07-5 (4-5')	800
Naphthalene	2	0.33-0.39	SB-05-2 (0-2')	1,000
1,2,3-Trichlorobenzene	1	1.1	SB-07-5 (4-5')	-

Notes:
1. MDEP S-3 & GW-3 Soil Standards were obtained from MCP 310 CMR 40.0000.
2. "-" Indicates that an MDEP S-3 & GW-3 Soil Standard was not listed for that particular constituent.

The results indicate that none of the soil samples collected during the boring activities contained concentrations of TCL VOCs which exceed the MDEP S-3 & GW-3 Soil Standards for TCL VOCs presented in MCP 310 CMR 40.0000.

2.5.3.2 Ground-Water Investigation

This section presents a summary of information regarding the geology/hydrogeology of the site and a description of a the ground-water investigation activities which were conducted as part of the removal investigation at the Aerovox facility.

<u>Site-Specific Geology</u>

The following summary of the site-specific geology has been prepared based on information generated through previous investigations performed by GHR Engineering Corporation (GHR). This information was presented in the following GHR reports:

- *Report of Sampling and Analysis Program at the Aerovox Property, New Bedford, Massachusetts, October 7, 1982;*

- *Report of Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, Massachusetts, February 11, 1983;*

- *Site Assessment Report of Soils and Groundwater in the Vicinity of a Concrete Oil Containment Bunker at the Aerovox Property, New Bedford, Massachusetts, August 23, 1988;* and

- *Phase 1 - Limited Site Investigation Addendum of Soils and Groundwater in the Vicinity of a Concrete Oil Containment Bunker at the Aerovox Property, New Bedford, Massachusetts, June 30, 1989.*

GHR prepared and presented a series of cross sections (A-A' through E-E') illustrating the subsurface geology across the northern and eastern portions of the site (GHR, 1983). Copies of these cross sections, as well as the figure showing the locations of these sections, are presented in Attachment 5 for ease of reference. Site-specific stratigraphic information acquired since 1982 does not change the interpretation of subsurface conditions reflected in the GHR cross sections. Geologic data was also generated through the drilling of 17 soil borings by BBL for the soil investigation activities described in Section 2.5.3.1. To supplement GHR's cross sections, BBL has utilized data from the recently performed soil borings activities to prepare an additional cross section (X-X') beginning in the northwestern corner of the site, continuing across the center of the site, and extending through the parking lot along the southern portion of the site. This cross section is presented as Figure 8. The location of this cross section is illustrated on Figure 5.

As depicted on these cross sections, the sequence of overburden materials encountered below the surface at the site include: a layer of fill; a sand and gravel layer; a peat layer; a fine to medium sand; a medium to coarse sand; and a till. A brief description of these overburden materials follows.

- The heterogeneous backfill materials encountered at the surface across the entire site are composed of sand and gravel with various refuse and construction debris.

- The shallow sand and gravel layer encountered below the fill was a light brown to gray fine to coarse sand and fine to medium gravel characterized as homogeneous, unsorted deposit.

- The layer of peat was consistently encountered between approximately 5 and 10 feet below grade in borings located within the eastern portion of the site, along thc Acushnet River. However, this peat layer is laterally discontinuous as it was not observed at boring locations within the western or central portions of the site.

- The deposits of light brown to yellow fine to medium sand as well as the medium to coarse sand were observed primarily below the peat, however, these deposits were also observed to be interbeded within the peat at some locations.

- The elay-rich glacial till was encountered at only a single location (MW-5) in the northwest corner of the site.

Bedrock was encountered at the site during the investigation and removal of the concrete oil containment bunker (see Section 2.4). The bedrock was characterized by GHR (GHR, 1989) as a chlorite gneissic schist, with some high angle fractures parallel to the foliation, and a two to three foot zone of weathering at the bedrock surface. The schist appears as a localized knob or ridge, found as shallow as 1.5 feet below grade near the eastern edge of concrete bunker area, but sloping away to the north and east. Rock was not been observed in any well or boring drilled more than 120 feet from the conerete bunker, exeept at SB-2 near the western property boundary, at just 5 feet below grade.

<u>**Gronnd-Water Investigation Activities**</u>

Based on the objectives of the removal investigation, ground-watcr investigation activities were conducted whieh consisted of the following:

- Assessing the condition at each of the 13 existing ground-water monitoring wells at the facility, including volatile headspace measurement and mcasuring depth to ground water, total well depth, and the extent of sedimcnt deposition in the well;

- Collecting low-flow ground-water samples for unfiltered PCBs and TCL VOCs analyses from each of the existing ground-water monitoring wells; and

- Obtaining onc round of ground-water elevation measurements from each of the 13 existing ground-water monitoring wells over a relatively short period of time, and using this information, as well as previously existing site information, to develop a comprehensive understanding of hydrogeologic conditions at the site.

A detailed description of the activities and results of the ground-water investigation is presented below.

<u>**Ground-Water Monitoring Well Assessment and Sampling Activities**</u>

The ground-water sampling activities were conducted in accordance with the USEPA document entitled *Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground-Water Samples from Monitoring Wells* Revision 2, dated June 30, 1996. Prior to sampling each ground-water monitoring well, monitoring well assessment activities were conducted which included probing each well to determine the presence and depth (if any) of sediment within the well, measuring headspace coneentrations of VOCs using a PID, measuring the depth to water, and determining the total depth of the well. Based on these inspection activities, small amounts of sediment were found at the bottom of eight out of the thirteen existing on-site monitoring wells. Measurable headspace VOC concentrations were not obtained at any of the thirteen existing ground-water monitoring wells. Field notes summarizing the conditions observed during the monitoring well assessment activities are presented as Attachment 6.

Following these inspection activities, a low flow submersible pump with polyethylene tubing was placed within the well and ground water was purged from the well until indicator field parameters were stabilized within the ranges presented in the above-referenced USEPA document (indicator field parameters included turbidity, dissolved oxygen, specific conductance, temperature, pH, and oxidation/reduction potential). Ground-water samples collected as part of the removal investigation activities were submitted to Galson for laboratory analysis for PCBs (using USEPA SW-846 Method 8082) and TCL VOCs (using USEPA SW-846 Method 8260). In addition, three trip blank samples (one for each day of sampling) and one rinse blank sample were collected for quality assurance/quality control (QA/QC) purposes.

Ground-water monitoring well MW-4A was pumped dry during purging activities conducted on May 27, 1998 at approximately 9:30 a.m. A ground-water sample was collected the following morning at approximately 6:30 a.m. after the well had recharged just enough to collect the ground-water samples. Detailed ground-water well sampling logs summarizing the field parameters measured during ground-water sampling activities are included as Attachment 7. Detailed field notes describing the ground-water investigation field activities are presented in Attachment 8.

Ground-Water Sampling Results

Analytical results obtained for the laboratory analysis of ground-water samples collected during the ground-water investigation activities for PCBs and TCL VOCs are presented below. The discussion includes a comparison of the analytical results obtained for the laboratory analysis of the ground-water samples with MDEP Ground-Water Category GW-3 Standards presented in MCP 310 CMR 40.0000.

PCBs

Analytical results obtained for the laboratory analysis of ground-water samples for PCBs are listed in Table 9 and shown on Figure 9. Total PCBs were detected in four of the thirteen ground-water samples collected during the ground-water investigation at concentrations ranging from 3 ppb in sample MW-8S to 36 ppb in sample MW-4A. As indicated in MCP 310 CMR 40.0000, the MDEP Ground-Water Category GW-3 Standard for PCBs is 0.3 ppb. As indicated in Table 9, this standard is exceeded in all four of the ground-water samples in which PCBs were detected. In addition, analytical detection limits for several of the ground-water samples collected at the facility were elevated due to matrix interference (due to siltation, salinity, hydrocarbon interferences, etc.).

VOCs

Analytical results obtained for the laboratory analysis of ground-water samples for TCL VOCs are listed in Table 10 and shown on Figure 10. TCL VOCs were detected at concentrations above laboratory detection limits in samples collected at 12 of the 13 sampling locations. Analytical results obtained for the laboratory analysis of the ground-water samples for TCL VOCs are summarized below.

Detected Constituent	Number of Sampling Locations Where Compound was Detected	Range of Detected Concentrations (ppb)	Sample Exhibiting Maximum Concentration	MDEP GW-3 Ground-Water Standard (ppb)
Vinyl Chloride	4	76-520	MW-7	40,000
cis-1,2-Dichloroethylene	6	29-2,900	MW-7	50,000
1,1-Dichloroethylene	1	37	MW-4B	50,000
Methylene Chloride	1	12 B	MW-4B	50,000
1,1-Dichloroethane	1	9	MW-4B	50,000
Chloroform	1	9	MW-4B	10,000
1,1,1-Trichloroethane	1	41	MW-4B	50,000
Benzene	2	35-60	MW-3A	7,000
Trichloroethylenc	2	3,600-8,900	MW-7	20,000
Tetrachloroethylene	2	17-33	MW-4B	5,000
Chlorobenzene	5	19-1,000	MW-3A	500
Ethylbenzene	2	95-150	MW-3	4,000
1,3-Dichlorobenzene	1	150	MW-2	8,000
1,4-Dichlorobenzene	4	7-220	MW-2	8,000
1,2,4-Trichlorobenzene	1	5	MW-4B	500
Naphthalene	1	18	MW-2A	6,000

Notes:
1. MDEP Ground-Water Category GW-3 Standards were obtained from MCP 310 CMR 40.0000.
2. "B" indicates that the constituent was detected in both the sample and the associated method blank.

The results indicate that Chlorobenzene was detected in ground-water samples collected from monitoring wells MW-2 (570 ppb) and MW-3A (1,000 ppb) at concentrations which exceeded the MDEP Ground-Water Category GW-3 Standard of 500 ppb as presented in MCP 310 CMR 40.0000.

Ground-Water Elevations and Hydrogeologic Characterization

Ground water was encountered under water table conditions across the site at depths ranging from approximately 3.5 below grade near the river to nearly 12 feet below grade at the western edge of the site. Along the eastern portion of the site ground water was also observed to exist perched above the fines-rich peat layer. Water level measurements obtained from the 13 existing wells at the site on May 21, 1998 (provided in Table 11) were used to generate the ground-water potentiometric surface contour maps illustrating the hydraulic gradient across the site within the deeper water-bearing unit as well as the shallow/perched water-bearing unit. These maps are presented as Figures 11 and 12, respectively.

Ground-water level data have also been recorded from select monitoring wells at this site on a regular basis by SAIC Engineering, Inc. (SAIC), as part of the Site Post-Closure Monitoring Program associated with the site remediation activities completed in 1984. As discussed in Section 2.4 and the previously mentioned article entitled *On-Site Containment of PCB-Contaminated Soils at Aerovox, Inc., New Bedford, Massachusetts*, those remediation activities included installation of a vertical sheet pile wall to serve as a barrier to ground water and tidal flow into and out of the impacted soils located at the eastern end of the site. The sheet piling cutoff wall is from 9 to 13 feet in depth, the actual depth is dictated by the depth to the peat layer into which the wall is keyed. The wall has been installed along the eastern boundary of the property. In the area directly behind the manufacturing building, the sheet pile wall extends west up to the building foundation; thereby, forming a containment cell with the building foundation serving as the fourth side of this cell. The approximate location of the sheet pile wall is shown on Figure 3.

The Site Post-Closure Program includes obtaining periodic high and low tide water level measurements from a tide gauge and from the eight monitoring wells located at the eastern end of the site (MW-2, MW-2A, MW-3, MW-3A, MW-4, MW-4A, MW-7, and MW-7A). The water level measurements obtained by SAIC during the past three years are provided as Attachment 10. After reviewing this data set, representative water level data obtained during both high-tide and low-tide periods within the shallow and deep wells (provided in Table 12) were used to prepare the ground-water potentiometric contour maps presented as Figures 13 through 16.

The observed hydraulic gradients indicate the direction of ground-water flow would generally be from west to east, in the direction of the river. The deep water-bearing zone appears to respond to high-tide periods with a temporary reversal in the hydraulic gradient in the immediate vicinity of the Acushnet River.

The perched ground-water bearing zone appears to be isolated from hydraulic interaction with the adjacent river to some degree by the presence of the vertical sheet pile wall installed along the river and in the eastern corner of the site to form a containment cell (see Figure 3). A review of water level monitoring data recorded by SAIC over the past several years (provided as Attachment 10) indicate that the ground water within this perched water-bearing unit does not appear to respond to tidal fluctuations in the river, as observed in the deeper monitoring wells within this portion of the site. A review of the water level data at well clusters within the area of the site observed to have a perched water table indicate that downward vertical gradients exist consistently during both high and low tide periods.

2.6 Streamlined Risk Evaluation

2.6.1 Introduction

Consistent with USEPA guidance, the streamlined risk evaluation presented in this section focuses on those risk issues that the EE/CA removal action is intended to address and provides justification for the removal action. This streamlined risk evaluation addresses both soil and ground water, as well as the building at the facility.

2.6.2 Soil and Ground Water

At this facility, the applicable category of soil is S-3 Soils, and the applicable category of ground water is GW-3 Ground Water. These categories have been established by the MDEP for use in characterization of risk posed by a site. The categories are used to determine the applicability of the soil and ground-water standards listed and described in the MCP, 310 CMR 40.0000, issued by the MDEP Bureau of Waste Site Cleanup, effective October 31, 1997. The categories are also considered when determining the appropriate removal action alternative to be implemented at the site.

The soil at the site has been categorized as S-3 Soils based on the criteria listed in Section 40.0933 of the MCP. Site, receptor, and exposure information identified in Sections 40.0904 - 40.0929 of the MCP, in conjunction with current and potential future site activities and uses, were also used to categorize the soil. Category S-3 Soils are appropriate because soil at the facility is essentially inaccessible (i.e., covered with asphalt pavement or concrete), children are not present at the facility, and the frequency and intensity of exposure to the soil by adults is low.

The ground water at the site has been categorized as GW-3 Ground Water based on the criteria listed in section 40.0932 of the MCP. Category GW-3 Ground Water, while considered a potential source of discharge to surface water, represents the minimum-risk ground-water category. The ground water at the site has not been additionally categorized as GW-1 or GW-2 because it is not located within either a current or potential drinking water source area and the building will be demolished as part of the removal action. Therefore, as set forth in the MCP, the total PCB cleanup standard is 0.3 ppb for the GW-3 Ground-Water samples collected from the site.

The MCP Risk Characterization Method I was utilized at the site through the use of promulgated standards described in Sections 40.0970 - 40.0979 of the MCP. Method I relies upon the use of the numerical standards given above for chemicals in ground water and soil to accurately characterize the risk posed by the site. The potential risks posed by the soil and ground water at the facility are characterized by comparing detected concentrations to their respective Method I Standard.

As outlined in Section 40.0975 of the MCP, "the MCP Method 1 Soil Standards consider both the potential risk of harm resulting from direct exposure to the oil and/or hazardous material in the soil and the potential impacts on the ground water at the disposal site. The applicability of a specific numerical Standard is thus a function of both the soil and the ground-water category identified." Therefore, the Soil Category S-3 Standards for the combination of soil and ground-water categories are S-3 and GW-3, respectively, are given in Table 4 in Section 40.0975 of the MCP. These soil standards are identified in Tables 4 through 8 which present the soil analytical data associated with the recent investigation activities conducted at the facility. Ground-Water Category GW-3 Standards are identified in Tables 9 and 10 which present the recent ground-water analytical results. Detected concentrations exceeding Standards have been shaded in these tables.

As shown in these tables, PCBs are the only constituents detected in the soil samples at concentrations in excess of their respective Soil Category S-3 & GW-3 Standard (2 ppm); and PCBs and chlorobenzene are the only constituents detected in the ground-water samples at concentrations in excess of Standards. PCBs were detected in excess of the Category GW-3 Standard of 0.3 ppb in 4 of the 13 samples collected, at a maximum concentration of only 36 ppb. The only other constituent detected in the ground-water samples at concentrations in excess of the Standard was chlorobenzene, which was detected in only 2 out of the 13 ground-water samples. The Category GW-3 Standard for chlorobenzene is 500 ppb. The ground-water samples collected from MW-2 and MW-3A contained chlorobenzene at 570 ppb and 1,000 ppb, respectively. These monitoring wells, however, are located in the eastern portion of the property, within the area addressed by the remedial action completed in 1984, and not subject to this removal action. That remedial action was completed in compliance with a 1982 Consent Order entered into by Aerovox with the USEPA (September 21, 1984 letter from the USEPA).

Thus, PCBs in soils represent the only constituents of interest in environmental media at the facility. Because concentrations of PCBs at the site considerably exceed Standards in a number of soil sampling locations both beneath the building and the parking lot, implementation of a PCB removal action is appropriate to mitigate potential exposure and migration pathways.

2.6.3 Building Materials

The results of the PCB Building Material/Equipment Investigation conducted by BBL on November 24 and 25, 1997 are presented in Section 2 of the *Building Demolition Alternative Report*. These analytical results are summarized below.

- The wood floor on the second and third floors of the eastern section of the building contains PCBs at concentrations greater than 50 ppm.
- Two of the three wood floor full core samples collected from the second floor in the western section of the building contained PCBs at concentrations greater than 50 ppm.
- One of the two concrete floor full core samples collected from the second floor in the western section of the building contained PCBs at concentrations greater than 50 ppm.
- The PCB concentrations in all of the full core dust and dirt scrape samples ranged from 2.48 ppm to as high as 56,000 ppm.
- PCBs were detected in each of the 12 dust and dirt scrape samples at concentrations greater than 50 ppm.
- 17 of the 18 wipe samples collected from non-porous building materials and appurtenances contained PCBs at concentrations greater than 10 ug/100cm^2, which is the TSCA PCB Spill Policy cleanup objective for low- and high-contact interior surfaces.
- 10 of the 13 wipe samples collected from the surfaces of building equipment contained PCBs at concentrations greater than 10 ug/100 cm^2. The PCB concentrations in all of the wipe samples ranged from 2.5 ug/100 cm^2 to 520 ug/100 cm^2.

Based on these data these data, PCB concentrations at many different sampling locations within the Aerovox facility exceeded 50 ppm within building materials and 10 ug/100 cm^2 on the surfaces of building materials. Accordingly, demolition of the building is an appropriate removal action to mitigate potential exposure and migration pathways.

3. Potentially Applicable or Relevant and Appropriate Requirements (ARARs)

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

3. Potentially Applicable or Relevant and Appropriate Requirements (ARARs)

This section presents a list of potential ARARs under federal and Massachusetts environmental laws. The purpose of this list is to present each potential ARAR identified and define its applicability to the removal action for this facility.

In accordance with the NCP, removal actions taken pursuant to Section 106 of CERCLA must, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental or facility siting laws [40 CFR 300.415(j)]. ARARs are state and federal human health and environmental regulations and statutes generally used to evaluate the appropriate extent of site cleanup, formulate and scope removal action alternatives, and govern the implementation and operation of a selected removal action alternative.

For a federal regulation or statute to be considered an ARAR, it must be substantive and not administrative, formally promulgated by the effective date of the decision document by a federal or state agency, and of general applicability and legally enforceable. If they are legally enforccable statewide, state requirements may also be considered ARARs. However, only state requirements that are promulgated, more stringent than federal requirements, and identified by the state in a timely manner may be considered ARARs [40 CFR 300.400(g)(4)].

The NCP defines two types of ARARs:

- **Applicable Requirements:** Cleanup standards, standards of control and other substantive requirements, criteria, or limitations promulgated under federal or state environmental laws that specifically address a hazardous substance, pollutant, contaminant, response action, location, or other circumstance found at the CERCLA site (40 CFR 300.5). These include federal requirements that are directly applicable as well as those incorporated by a federally authorized state program.

- **Relevant and Appropriate Requirements:** Promulgated cleanup standards, standards of control, and other substantive requirements, criteria, or limitations that, while not applicable to a hazardous substance, pollutant, eontaminant, response action, or other circumstance at the CERCLA site, address problems or situations sufficiently similar to those encountered at the site so that their use is well suited to the particular site (*ibid*). To fall within this category, the requirements must be both relevant and appropriate to the site-specific circumstances. Factors considered in the determination of the relevance and appropriateness of a requirement are presented in 40 CFR 300.400(g)(2).

Removal actions under Section 106 of CERCLA must attain ARARs only to the extent practicable considering the exigencies of the situation [40 CFR 300.415(j)]. In determining whether compliance with an ARAR is practicable, the lead agency may consider all appropriate factors including: 1) the urgency of the situation; and 2) the scope of the removal action [40 CFR 300.415(j)(1) and (2)].

In addition, even if compliance with an ARAR is deemed practicable based on the consideration of the above factors, compliance may nevertheless be waived under any of the circumstances for which CERCLA allows a waiver for remedial actions [see Section 121(d)(4) of CERCLA; 40 CFR 300.430(f)(1)(ii)(C)]. These circumstances, which also apply to removal actions [40 CFR 300.415(j)]; include the following:

(1) The alternative is an interim measure and will become part of a total remedial action that will attain the applicable or relevant and appropriate federal and state requirement;

(2) Compliance with the requirement will result in greater risk to human health and the environment than other alternatives;

(3) Compliance with the requirement is technically impracticable from an engineering perspective;

(4) The alternative will attain a standard of performance that is equivalent to that required under the otherwise applicable standard, requirement, or limitation through use of another method or approach;

(5) With respect to a state requirement, the state has not consistently applied or demonstrated the intention to consistently apply the promulgated requirement in similar circumstances at other remedial actions within the state; or

(6) For Fund-financed response actions only, an alternative that attains the ARARs will not provide a balance between the need for protection of human health and the environment at the site and the availability of Fund monies to respond to other sites that may present a threat to human health and the environment.

The identified potential ARARs that pertain to the removal action at this facility are listed in Tables 13 and 14:

- Table 13 summarizes the potential chemical-specific ARARs. Chemical-Specific ARARs are health or risk-based numeric values or methodologies that establish the acceptable amount or concentration of a chemical that may be found in or discharged to the ambient environment. These ARARs govern the extent of site remediation by providing either actual cleanup concentrations or the basis for the calculation of such concentrations. These ARARs may also be used to indicate the acceptable concentrations of discharge in determining treatment and disposal requirements and to assess the effectiveness of future remedial alternatives; and

- Table 14 summarizes the potential action-specific ARARs. Action-Specific ARARs are technology- or activity-based requirements or limitations on actions involving the management of hazardous substances, pollutants, or contaminants. These ARARs often set controls or restrictions on the design, implementation, and/or performance of the removal actions. These ARARs also provide a basis for assessing the feasibility and effectiveness of various proposed alternatives by specifying performance requirements and limitations, actions or technologies, and/or specific discharge or residual concentrations.

These tables identify each ARAR, outline its requirements, define its applicability or appropriateness, and include a proposal as to whether it will be attained by the removal action at the facility.

4. Identification of Removal Action Scope, Goals, and Objectives

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

4. Identification of Removal Action Scope, Goals, and Objectives

4.1 General

This section presents the goals and objectives for conducting a removal action at the Aerovox facility.

4.2 Statutory Limits on Superfund-Financed Non-Time Critical Removal Actions

Section 300.415(b)(2) of the NCP lists eight factors for the USEPA to consider in determining if a removal action is appropriate at a particular site. One factor applicable to this facility includes the actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants. Aeeordingly, site conditions meet the criteria listed in the NCP and provide appropriate justification for the decision to implement a removal action at the Aerovox facility. This removal action will be non-time critical because more than six months planning time is available before on-site activities must be initiated.

In the event that this EE/CA must be undertaken by the USEPA rather than the potentially responsible parties, there are certain statutory and regulatory requirements that must be addressed. In particular, as stated in 40 CFR 300.415(b)(5), "Fund-finaneed removal actions, other than those authorized under Section 104(b) of CERCLA, shall be terminated after $2 million has been obligated for the action or 12 months have elapsed from the date that the removal activities begin on site" unless the lead agency grants an exemption in accordanee with the criteria set forth in CERCLA Section 104(c)(1).

The criteria set forth in 40 CFR 300.415(b)(5) include two exemptions for the $2 million and 12 month statutory limits. They are the "emergency" waiver and the "consistency" waiver. The "emergency" waiver allows for actions to exceed the statutory limit if there is an immediate risk to public health or welfare, or the environment, and continued response actions are immediately required to prevent, limit, or mitigate an emergency and such actions would not otherwise be provided on a timely basis. The "consistency" waiver allows for the action to continue if the removal action is otherwise appropriate and consistent with the anticipated future use of the site.

As discussed in Sections 5 and 6, the alternatives evaluated by this EE/CA would, if implemented, exceed the $2 million and one year statutory limits applicable to USEPA fund-lead removal actions. If USEPA were to be required to perform the removal action using Superfund money, a consistency waiver would likely be sought on the grounds that the removal action is appropriate and consistent with anticipated future use of the site.

4.3 Removal Action Objectives

The general removal action goals for the site are to minimize future potential impacts to human health and the environment caused by the presence of PCBs in the manufacturing building materials/equipment and site soils. Based on this general removal action goal, the following specific removal action objectives have been developed:

1. Demolish the manufacturing building in a manner, to the extent practicable, that is both in compliance with applicable ARARs and cost effective; and

2. Prevent future direct contact with site soils containing PCBs at concentrations greater than 2 ppm through the installation of a low-permeability cap that will facilitate future reuse of the property.

5. Identification and Analysis of Removal Action Alternatives

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

5. Identification and Analysis of Removal Action Alternatives

5.1 General

This section presents detailed descriptions of three removal action alternatives developed to achieve the removal action objectives presented in Section 4.3. Descriptions of the criteria outlined in the EE/CA guidance document (USEPA, 1993) are also presented below.

5.2 Description of Evaluation Criteria

Removal action alternatives are evaluated against the short- and long-term aspects of three broad criteria presented in the CERCLA Guidance document: effectiveness, implementability, and cost. Subcriteria to be evaluated under each of these criteria are identified and discussed below.

5.2.1 Effectiveness

The effectiveness of an alternative refers to it's ability to meet the objective within the scope of the removal action. Each alternative is evaluated against the scope of the removal action and against each specific objective for final disposition of the wastes and the level of cleanup desired. The following subcriteria will be evaluated under this criterion.

Overall Protection of Public Health and the Environment - How the alternative, as a whole, protects human health and the environment and will reduce, control or eliminate risks at the site through the use of treatment, engineering, or institutional controls. This evaluation will also identify any unacceptable short-term impacts associated with the alternative.

Compliance with ARARs - How the alternative complies with the chemical, local, and action specific ARARs, or other advisories and guidance. The applicable requirements associated with each alternative will be identified, and it will be determined how (or if) the alternative meets the applicable requirements.

Long-Term Effectiveness and Permanence - Assesses the extent and effectiveness of the controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes at the site. The following components will be considered for each alternative:

Magnitude of Risk - Assesses the risk from waste and residuals remaining at the conclusion of site activities. Also evaluates whether the alternative contributes to future remedial objectives.

Adequacy and Reliability of Controls - A completed removal action may require post-removal site controls (PRSC) to sustain the integrity of a removal action following its conclusion.

Reduction of Toxicity, Mobility, or Volume through Treatment - Evaluate the treatment technologies used by the degree of expected reduction in toxicity, mobility, or volume of hazardous material. This criterion also evaluates the irreversibility of the treatment process and the type and quantity of residuals remaining after treatment.

Short-Term Effectiveness - Addresses the effects of the alternative during implementation before the removal objectives have been met. The following factors will be addressed as appropriate for each alternative.

Protection of the Community - Addresses any risk to the affected community that results from implementation of the proposed action, whether from air quality, fugitive dust, transportation of hazardous materials, or other sources.

Protection of the Workers - Assesses any threats to site workers and the effectiveness and reliability of protective measures that would be taken.

Environmental Impacts - evaluates the potential adverse environmental impacts from the implementation of each alternative. Also assesses the reliability of mitigation measures in preventing or reducing the potential impacts.

Time Until Response Objectives are Achieved - Estimates the time needed to achieve protection for the site itself or for individual elements or threats associated with the site.

5.2.2 Implementability

The implementability of an alternative refers to the ability to construct and operate the technology; the reliability of the technology; the ease of undertaking additional remedial actions; and the ability to monitor the effectiveness of the remedy. The following factors will be considered under this criterion.

Technical Feasibility - The ability and reliability of the technology to implement the remedy. Each alternative will be evaluated for implementation factors such as assembling, staffing, and operating the alternative within the time frames in the removal schedule. Each alternative will also be evaluated for technology maturity, prior use under similar conditions for similar wastes, and possible difficulty in operation once it is constructed. This evaluation will also take into consideration environmental conditions, potential future remedial actions, and the ability to monitor the effectiveness of the alternative.

Administrative Feasibility - Evaluate those activities needed to coordinate with other offices and agencies. The administrative feasibility of each alternative should be evaluated including the need for permits, adherence to applicable non-environmental laws, and concerns of other regulatory agencies. Factors that will be considered include statutory limits and required permits and waivers.

Availability of Services and Materials - Evaluate whether off-site treatment, storage and disposal capacity, equipment, personnel, services and materials, and other resources necessary to implement an alternative will be available in time to maintain the removal schedule.

State Acceptance - Evaluates the technical and administrative concerns the State may have regarding a removal alternative. This will be addressed once the State's comments on the EE/CA have been received.

Community Acceptance - Evaluates the issues and concerns the public may have regarding a removal alternative. This will be addressed once the public's comments on the EE/CA have been received.

5.2.3 Cost

Each removal action alternative will be evaluated to determine its projected costs. Each alternative's capital and PRSC costs will be compared. The present worth of alternatives that will last longer than 12 months will be calculated. To compare the cost of each alternative, the direct and indirect capital costs and PRSC costs of each alternative will be projected. The following items are examples of direct and indirect capital costs and PRSC costs:

Direct Capital Costs

- construction costs
- equipment and material costs
- transport and disposal costs
- trcatment and operating costs

Indirect Capital Costs

- engineering and design costs
- legal fecs and license or permit costs
- start-up costs

PRSC Costs

- operational eosts
- maintenance costs
- monitoring costs
- support costs

5.3 Identification of Removal Action Alternatives

Under each of the removal action alternatives presented in this EE/CA, the manufacturing building at the Aerovox facility would be demolished and the site would be restored by installing an impermeable liner and an asphalt cap following placement of backfill materials at the former location of the building. Each of the removal action alternatives would consist of the seven major work activities listed below.

- Work Activity 1 - Additional Building Characterization;
- Work Activity 2 - Equipment/Appurtenances Inventory;
- Work Activity 3 - Pre-Demolition Cleaning;
- Work Activity 4 - Post-Cleaning Verification Sampling;
- Work Activity 5 - Utility Modifications and Removal;
- Work Activity 6 - Building Demolition and Disposal; and
- Work Activity 7 - Site Restoration/Asphalt Cap Construction.

Each of these work activities is discussed below.

Work Activity 1 - Additional Building Characterization

Prior to implementing building demolition activities, additional sampling would be conducted to confirm that the brick walls in the pump room located on the first floor and the brick walls in the impregnation room (tank room) located on the second floor directly above the pump room do not contain PCBs at concentrations greatcr than or equal to 50 ppm. The additional sampling work would involve collecting an appropriate number of discrete core samples from the brick walls in these two rooms (i.e., six samples) for laboratory analysis for PCBs.

If the analytical results of the core samples indicate that PCBs are present at concentrations less than 50 ppm, the brick walls would be handled with other non-TSCA demolition debris. However, if the analytical results of the core samples indicate that PCBs are present at concentrations greater than or equal to 50 ppm, the brick walls would require disposal at a TSCA landfill.

Work Activity 2 - Equipment/Appurtenances Inventory

Under this work activity, a detailed inventory of equipment/appurtenances at the facility (both inside and outside the building) would be dcveloped. In addition to listing equipment/appurtenanccs, the invcntory would identify which equipment/appurtenances would be transferred from the facility and returned to commerce at a proposed new facility, which equipment/appurtenances would be offered for sale, and which equipment/appurtenances would be scrapped. In order to develop the inventory, the following work would be conducted:

- A site reconnaissance to identify each piece of equipment/appurtenance in its eurrent location, record applicable information from manufacturer's plates on the equipment/appurtenances, and assess the condition of the equipment/appurtenances; and

- A review of applicable records pertaining to each piece of equipment (if available) and coordination with engineering/operations personnel at the facility. The review/coordination work would be conducted in an effort to identify the age and repair history of the equipment/appurtenances, to estimate the market value for the equipment/appurtenances, and to determine the role (if any) for the equipment/appurtenances in future manufacturing operations.

Aerovox would be responsible for determining which equipment/appurtenances would be retained for future use at a new manufaeturing location, which equipment/appurtenances would be offered for sale, and which equipment/ appurtenances would be scrapped.

Work Activity 3 - Pre-Demolition Cleaning

This work activity would consist of washing interior horizontal surfaces with detergent to remove PCB-containing dust and dirt in order to facilitate general demolition of the building. The pre-demolition cleaning would involve the cleaning of the steel I-beams, HVAC duct work, and other metal surfaces to reduce PCB concentrations to less than 100 ug/100 cm^2 in order to allow for the rcmoval and disposal of the material at a steel smelting facility.

As part of the pre-demolition cleaning activities, equipment surfaces containing PCBs at concentrations greater than or equal to 10 ug/100 cm^2 would require cleaning prior to transferring the equipment off-site.

Based on the presence of vinyl floor tile, pipe insulation materials, and boiler insulation matcrials within the building that may potentially contain asbestos, an asbestos survey will be conductcd to determine if asbestos abatement is required prior to building demolition. For the purpose of this report we have assumed that these materials contain asbestos and would be removed as part of the pre-demolition cleaning activities.

Work Activity 4 - Post-Cleaning Verification Sampling

Following completion of the pre-demolition cleaning activities, a visual inspection will be conducted to confirm that visible dust and dirt has been removed followed by a post-cleaning verification wipe sampling program to:

- Confirm that metal surfaccs scheduled for smelting do not contain PCBs at concentrations greater than or equal to 100 ug/100 cm^2; and

- Confirm that equipment surfaces scheduled for reuse do not contain PCBs at concentrations greater than or equal to 10 ug/100 cm^2.

Work Activity 5 - Utility Modifications and Removal

Upon completion of the post-cleaning verification sampling activities, modifications to existing utilitics and removal of interior utilities would occur. The utility modifications would include the following:

- Disconnection and plugging of sanitary sewer piping and any additional drain piping;
- Disconnection of the existing potable water supply; and
- Disconnection of electrical services.

The following utility removal actions would also be conducted:

- Removal of electrical equipment, boilers, and compressors;
- Removal of light fixtures (fluorescent light ballasts may contain PCBs);
- Removal of fire protection and potable water piping; and
- Removal of HVAC system components (excluding steel duct work).

Work Activity 6 - Building Demolition and Disposal

As part of this work activity, the building would be demolished and concrete/brick debris generated by demolition of the building which does not contain PCBs at concentrations greater than or equal to 50 ppm would either be transported for off-site disposal or used as backfill on-site depending on which of the following removal action alternatives is selected: 1) leave the first floor concrete slab in-place; 2) remove a portion of the first floor concrete slab; or 3) remove the entire first floor concrete slab (details associated with the demolition work to be conducted under each of these alternatives are presented below). Materials within the building which do not contain PCBs at concentrations greater than or equal to 50 ppm have been identified based on the analytical results for samples previously collected. The actual amount of building materials which do not contain PCBs at concentrations greater than or equal to 50 ppm may decrease (resulting in an increase in TSCA-regulated building materials) depending on the results of additional sampling that will be conducted prior to the building demolition within the pump room and the tank room.

The demolition Contractor will be required to comply with a set of special conditions specific to project. The special conditions will include, but not be limited to, the following plans and procedures:

- Air monitoring procedures;
- Dust control procedures;
- Surface water control procedures;
- Equipment decontamination procedures;
- Waste Handling Plan;
- Health and Safety Plan; and
- Contingency plans.

A set of the special conditions will be provided to the USEPA prior to implementing the demolition activities. A description of the work to be conducted by the Contractor under removal action alternatives 1 through 3 are presented below in Sections 5.3.1 through 5.3.3.

Work Activity 7 - Site Restoration/Asphalt Cap Construction

Under this work activity, a capping system would be constructed over the entire facility, ineluding the area where the building was located following the placement and compaction of backfill over the area. The capping system would be constructed in accordance with the precedent that was established for remediation of PCB-impacted soils located outside the building footprint (to the north and east of the building). The capping system may consist of the following materials (referenced, in order, from the surface to the base of the capping system):

- A 1½-inch thick bituminous concrete wearing surface over a 2½-inch thick bituminous concrete base course;
- An 8-inch subbase course to provide bearing support for vehicles which will be parked on the bituminous concrete surface. The subbase course would consist of approximately 6 inches of run-of-crush stone over approximately 2 inches of sand. The sand would serve as a protective barrier to help prevent the underlying materials from being damaged during placement of the run-of-crush; and
- A geosynthetie drainage composite overlying a 40 mil impcrmeable polyvinyl ehloride (PVC) or high-density polyethylene (HDPE) membrane. The purpose of the geosynthetic composite would be to convey water (which may penetrate the bituminous concrete surface and would otherwise be trapped above the impermeable PVC or HDPE membrane) away from the capping system in an effort to prevent premature failure of the bituminous concrete resulting from frost action.

The capping system described above was developed for the purposes of preparing a cost estimate. The details of the final cap system for the facility will be selected during the design phase based, in part, on the site conditions and future reuse of the property.

5.3.1 Alternative 1 - Leave the First Floor Concrete Slab In-Place

Under this alternative, the wood and concrete floors that contain PCBs at concentrations greater than or equal to 50 ppm (excluding the first floor concrete slab) would be removed from the building and transported for off-site disposal at a TSCA landfill permitted to accept debris containing PCBs at concentrations greater than or equal to 50 ppm. Based on a preliminary review of the building, BBL has assumed that the wood and concrete floors could be removed (prior to demolition of the entire building) without jeopardizing the structural integrity of the building. However, before preparing a Contractor scope of work for the building demolition, a more comprehensive structural review of the building will be conducted by a Licensed Professional Engineer experienced in performing structural evaluations in order to confirm that the wood and concrete floors can be removed without impaeting the structural integrity of the building shell prior to general demolition activities. The Engineer will also provide recommendations for temporary structural support that may be needed during the floor removal activities.

Following removal of the wood and concrete floors that contain PCBs at concentrations greater than or equal to 50 ppm, the building would be demolished using traditional demolition techniques (i.e., a wrecking ball, excavators). Dust control measures will be implemented to minimize dust levels generated by the demolition work. The actual techniques/methods to be employed will be recommended by the demolition Contractor and reviewed and approved by the Engineer. The selected Contractor would be required to furnish details regarding demolition techniques/methods and the locations of debris staging/loading areas.

Debris (concrete, wood, brick) which does not contain PCBs at concentrations greater than or equal to 50 ppm would be transported for off-site disposal at a non-TSCA landfill permitted to accept the debris. Steel building components and associated metal materials generated during the demolition activities which do not contain PCBs on the surfaces at concentrations greater than or equal to 100 ug/100cm^2 (as determined by verification sampling conducted under Work Activity 4) would be segregated and transported off-site for smelting. We have assumed that the pre-demolition cleaning activities under Work Activity 3 will be successful in removing dust/dirt from the steel building components and associated metal material surfaces so that PCBs will not be detected in post-cleaning verification wipe samples at concentrations greater than or equal to 100 ug/100cm^2. However, if the concentration of PCBs remaining on the steel building components and associated metal material surfaces following cleaning is greater than or equal to 100 ug/100 cm^2, then the steel building components and associated metal materials will be transported for off-site disposal as a TSCA waste. Following removal of the debris generated by the building demolition, clean backfill obtained from an off-site source would be placed, graded, and compacted above the remaining building floor slab to the existing grade which surrounds the building. After compacting the backfill, an asphalt cap would be installed as described under Work Activity 7 above.

Effectiveness

Implementing this alternative would meet the removal action objectives for the site and provide for the protection of public health and the environment. This alternative does not involve treatment of impacted materials; however, the demolition of the manufacturing building and cleaning and/or off-site disposal of impacted material/equipment will reduce the volume of impacted materials at the site. In addition, the installation of the cap over impacted soil and/or materials would reduce the mobility of the chemicals of interest (via overland transport and leaching through the subsurface), as well as limit the potential for humans and wildlife to contact these materials.

Long-term cap maintenance will be required for this alternative to remain effective and reliable. The final cap system will be maintained by conducting routine inspections of the integrity of the entire cap and sealing and patching any cracks and holes that may be observed. This alternative will also include the implementation of institutional controls. Institutional controls are minimal actions taken to reduce the potential for exposure to the impacted soil/materials or to mitigate the potential for future activities to compromise the effectiveness of a selected remedy. Institutional controls may include, for example, installation of additional site fences and deed restrictions. The purpose of implementing institutional controls such as deed restrictions would be to ensure that future site activities (e.g., construction and/or excavation) would be conducted in accordance with appropriate health and safety requirements and do not compromise the effectiveness of the final cap system. The specific institutional controls to be implemented at the site will be determined once the potential future use of the site is better known.

Dust may be generated during building demolition, materials handling, or surface preparation activities associated with installation of the cap. A site-specific Health and Safety Plan (HASP) would be developed during the design phase which would identify acceptable dust levels necessary to protect workers and the community from exposure, via inhalation, ingestion, or dermal contact, to chemicals of interest which may be present in the materials. An air monitoring plan would be instituted during implementation of the removal alternative. Detection of dust levels in excess of acceptable levels would indicate the need for additional measures to protect workers and the community from exposure. These additional measures could include, but may not be limited to:

- The use of personal protective equipment (PPE);
- The use of dust suppressants (e.g., water sprays); and
- Modifying the rate of demolition/construction.

It is anticipated that this alternative can be implemented within six months. Following completion of this alternative, the removal action objectives presented in section 4.3 will be met.

Implementability

Implementation of this alternative involves building demolition, off-site transportation and disposal of waste, and the construction of an asphalt cap. These activities have been commonly used as remedial measures at sites with similar conditions and wastes, and can be implemented to meet identified ARARs (see Tables 13 and 14). Implementation of this alternative can be completed within six months. The materials, labor, and services necessary to implement this alternative are readily available. The effectiveness of this alternative can be monitored by conducting routine inspections and maintenance of the integrity of the cap. Therefore, this alternative is technically feasible and could be implemented at the site.

Cost

The total estimated cost of implementing Alternative 1 (Leaving the First Floor Concrete Slab In-Place) is $8,300,000. Assumptions made in developing this cost estimate as well as a detailed breakdown of the estimated costs are presented in Table 15. The total capital costs associated with implementation of Alternative 1 are $8,125,169. Annual PRSC costs associated with Alternative 1 are $17,390. Present worth of the annual PRSC costs for Alternative 1 is $219,790.

5.3.2 Alternative 2 - Remove a Portion of the First Floor Concrete Slab

Under this alternative, the wood and concrete floors that contain PCBs at concentrations greater than or equal to 50 ppm (including a portion of the first floor concrete slab from areas potentially containing PCB concentrations greater than 50 ppm) would be removed from the building and transported for off-site disposal at a TSCA landfill permitted to accept debris containing PCBs at concentrations greater than or equal to 50 ppm. The portion of the first floor conerete slab to be removed for off-site disposal under this alternative is shown on Figure 17. Based on a preliminary review of the building, BBL has assumed that the wood and coneretc floors could be removed (prior to demolition of the entire building) without jeopardizing the structural integrity of the building. However, before preparing a Contractor scope of work for the building demolition, a more comprehensive structural review of the building will be conducted by a Licensed Professional Engineer experienced in performing structural evaluations in order to confirm that the wood and concrete floors can be removed without impaeting the structural integrity of the building shell prior to general demolition activities. The Engineer will also provide recommendations for temporary structural support that may be needed during the floor removal activities.

Following removal of the wood and concrete floors that contain PCBs at concentrations greater than or equal to 50 ppm, the building would be demolished using traditional demolition techniques (i.e., a wrecking ball, excavators). Dust control measures will be implemented to minimize dust levels generated by the demolition work. The actual techniqucs/methods to be employed will be recommendcd by the demolition Contractor and reviewed and approved by the Engineer. The selected Contractor would be required to furnish details regarding demolition techniques/methods and the locations of debris staging/loading areas.

Debris generated by the building demolition which does not contain PCBs at concentrations greater than or equal to 50 ppm (excluding wood, drywall materials, or steel) would be placed as backfill within the below-grade portions of the first floor area. Additional backfill, consisting of a clean sand/gravel obtained from an off-site source, would be mixed in with the debris and placed, graded, and compacted to the existing grade which surrounds the building. Debris, consisting of wood and drywall, would be transported for off-site disposal at a non-TSCA landfill. Steel building components and associated metal materials generated during the demolition activities which do not contain PCBs on the surfaces at concentrations greater than or equal to 100 ug/100cm^2 (as determined by verification sampling conducted under Work Aetivity 4) would be segregated and transported off-site for smelting. We have assumed that the pre-demolition cleaning activities under Work Activity 3 will be successful in removing dust/dirt from the steel building components and associated metal material surfaces so that PCBs will not be detected in post-cleaning verification wipe samples at concentrations greater than or equal to 100 ug/100cm^2. However, if the concentration of PCBs remaining on the steel building components and associated metal material surfaces following cleaning is greater than or equal to 100 ug/100cm^2, then the steel building components and associated metal materials will be transported for off-site disposal as a TSCA waste. After placing, grading, and compacting the backfill within the below grade portions of the first floor area, an asphalt cap would be installed as described undcr Work Activity 7.

Effectiveness

Implementing this alternative would meet the removal action objectives for the site and provide for the protection of public health and the environment. Similar to Alternative 1, this alternative does not involve treatment of impacted materials. However, the demolition of the manufacturing building and cleaning and/or off-site disposal of impacted material/equipment will reduce the volume of impacted materials at the site. In addition, the installation of the cap over impacted soil and/or materials would reduce the mobility of the chemicals of interest (via overland transport and leaehing through the subsurface), as well as limit the potential for humans and wildlife to contact these materials.

The effectiveness and reliability of this alternative will be maintained through the implementation of cap maintenance activities and institutional controls, as described under Alternative I.

A site-specific HASP and air monitoring plan (as described under Alternative 1) would also be developed during the design phase of this alternative to address any dust that is generated during building demolition, materials handling, or surface preparation activities associated with installation of the cap.

It is anticipated that this alternative can be implemented within six months. Following completion of this alternative, the removal action objectives presented in Section 4.3 will be met.

Implementability

Similar to Alternative 1, implementation of this alternative involves building demolition, off-site transportation and disposal of waste, and the construction of an asphalt cap. As discussed under Alternative 1, these activities are technically feasible and could be implemented at the site in compliance with identified ARARs.

Cost

The total estimated cost of implementing Alternative 2 (Remove a Portion of the First Floor Concrete Slab) is $9,700,000. Assumptions made in developing this cost estimate as well as a detailed breakdown of the estimated costs are presented in Table 16. The total capital costs associated with implementation of Alternative 2 are $9,515,051. Annual PRSC costs associated with Alternative 2 are $17,227. Present worth of the annual PRSC costs for Alternative 2 is $217,729.

5.3.3 Alternative 3 - Remove the Entire First Floor Concrete Slab

Under this alternative, the wood and concrete floors that contain PCBs at concentrations greater than or equal to 50 ppm (including the entire portion of the first floor concrete slab) would be removed from the building and transported for off-site disposal at a TSCA landfill permitted to accept debris containing PCBs at concentrations greater than or equal to 50 ppm. Based on a preliminary review of the building, BBL has assumed that the wood and concrete floors could be removed (prior to demolition of the entire building) without jeopardizing the structural integrity of the building. However, before preparing a Contractor scope of work for the building demolition, a more comprehensive structural review of the building will be conducted by a Licensed Professional Engineer experienced in performing structural evaluations in order to confirm that the wood and concrete floors can be removed without impacting the structural integrity of the building shell prior to general demolition activities. The Engineer will also provide recommendations for temporary structural support that may be needed during the floor removal activities.

Following removal of the wood and concrete floors that contain PCBs at concentrations greater than or equal to 50 ppm, the building would be demolished using traditional demolition techniques (i.e., a wrecking ball, excavators). Dust control measures will be implemented to minimize dust levels generated by the demolition work. The actual techniques/methods to be employed will be recommended by the demolition Contractor and reviewed and approved by the Engineer. The selected Contractor would be required to furnish details regarding demolition techniques/methods and the locations of debris staging/loading areas.

Debris generated by the building demolition which does not contain PCBs at concentrations greater than or equal to 50 ppm (excluding wood, drywall materials, or steel) would be placed as backfill within the below-grade portions of the first floor area. Additional backfill, consisting of a clean sand/gravel obtained from an off-site source, would be mixed in with the debris and placed, graded, and compacted to the existing grade which surrounds the building. Debris, consisting of wood and drywall, would be transported for off-site disposal at a non-TSCA landfill. Steel building components and associated metal materials generated during the demolition activities which do not contain PCBs on the surfaces at concentrations greater than or equal to 100 $ug/100cm^2$ (as determined by verification sampling conducted under Work Activity 4) would be segregated and transported off-site for smelting. We have assumed that the pre-demolition cleaning activities under Work Activity 3 will be successful in removing dust/dirt from the steel building components and associated metal material surfaces so that PCBs will not be detccted in post-cleaning verification wipc samples at concentrations greater than or equal to 100 $ug/100cm^2$. However, if the concentration of PCBs remaining on the steel building components and associated metal material surfaces following cleaning is greater than or equal to 100 $ug/100cm^2$, then the steel building components and associated metal materials will be transported for off-site disposal as a TSCA waste. After placing, grading, and compacting the backfill within the below grade portions of the first floor area, an asphalt cap would be installed as described under Work Activity 7.

Effectiveness

Implementing this alternative would meet the removal action objectives for the site and provide for the protection of public health and the environment. Similar to Alternatives 1 and 2, this alternative does not involve treatment of impacted materials. However, the demolition of the manufacturing building and cleaning and/or off-site disposal of impacted material/equipment will reduce the volume of impacted materials at the site. In addition, the installation of the cap over impacted soil and/or materials would reduce the mobility of the chemicals of interest (via overland transport and leaching through the subsurface), as well as limit the potential for humans and wildlife to contact these materials.

The effectiveness and reliability of this alternative will be maintained through the implementation of cap maintenance activities and institutional controls, as described under Alternative 1.

A site-specific HASP and air monitoring plan (as described under Alternative 1) would also be developed during the design phase of this alternative to address any dust generated during building demolition, materials handling, or surface preparation activities associated with installation of the cap.

It is anticipated that this alternative can be implemented within six months. Following completion of this alternative, the removal action objectives presented in Section 4.3 will be met.

Implementability

Similar to Alternatives 1 and 2, implementation of this alternative involves building demolition, off-site transportation and disposal of waste, and the construction of an asphalt cap. As discussed in Section 5.3.1, these activities are technically feasible and could be implemented at the site in compliance with identified ARARs.

Cost

The total estimated cost of implementing Alternative 3 (Remove the Entire First Floor Concrete Slab) is $11,300,000. Assumptions made in developing this cost estimate as well as a detailed breakdown of the estimated costs are presented in Table 17. The total capital costs associated with implementation of Alternative 3 are $11,037,432. Annual PRSC costs associated with Alternative 3 are $17,486. Present worth of the annual PRSC costs for Alternative 3 is $221,003.

6. Comparative Analysis of Removal Action Alternatives

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

6. Comparative Analysis of Removal Action Alternatives

6.1 General

This section presents a detailed assessment of the removal action alternatives based on the evaluation criteria outlined in the USEPA's EE/CA guidance document. This section compares the relative performance of each alternative with respect to effectiveness, implementability, and cost. The purpose of this comparative analysis is to identify the advantages and disadvantages of the alternatives relative to each other and to aid in the selection of the appropriate removal action.

6.2 Effectiveness

Each of the alternatives evaluated meets the removal action objectives specified in Section 4.3. Each of the alternatives involves the demolition of the manufacturing building and the off-site disposal or cleaning of impacted materials/equipment. Each alternative also involves the installation of a cap over impacted soils/materials to reduce the mobility of chemicals of interest and mitigate direct exposure to these materials. Therefore, the three alternatives are equally effective at meeting the removal action objectives developed for the site.

6.3 Implementability

Building demolition and cap installation are well established technologies that have been used at a number of sites. Construction activities for each of the alternatives are not expected to be difficult to implement. The materials and services required for each alternative are readily available from local contractors. Therefore, the three alternatives are equally implementable at the site.

6.4 Cost

The following table summarizes the projected capital, PRSC, present worth, and total costs associated with each of the three alternatives.

Alteruative	Capital Costs	Annnal PRSC Costs	Present Worth of PRSC Costs	Total Cost (rounded)
Alternative 1 - Leave First Floor Concrete Slab In-Place	$8,125,169	$17,390	$219,790	$8,300,000
Alternative 2 - Remove a Portion of the First Floor Concrete Slab	$9,515,051	$17,227	$217,729	$9,700,000
Alternative 3 - Remove Entire First Floor Concrete Slab	$11,037,432	$17,486	$221,003	$11,300,000

Based on the above table, Alternative 1 is the least expensive removal action alternative to implement.

6.5 Recommended Removal Action Alternative

Based on the results of thc comparative analysis presented in the previous section, the recommended removal action alternative to satisfy the removal action objectives for the Aerovox site is Alternative 1 (Leave the First Floor Concrete Slab In-Place). The results of the analysis indicate that each of the three alternatives are equally effective and implementable. However, the estimated cost of implementing Alternative 1 is $1.4 million less than the estimated cost of implementing Alternative 2 and $3 million less than the estimated cost of implementing Alternative 3. Therefore, the recommended removal action alternative is Alternative 1.

Tables

Table 1

Acrovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Full Core and Dust & Dirt Scrape Samples

Sample Type	Surface Material	Sample I.D.	PCBs Concentration[1] [ppm]
First Floor - Eastern Section			
Full Core	Brick Wall (painted)	1-WC-1	7.4
Scrape	Composite	1-DD-1	**880.0**
Scrape	Composite	1-DD-2	**121.0**
Scrape	Composite	1-DD-3	**420.0**
First Floor - Across Sectious			
Scrape	Composite	1-DD-4	**2010.0**
Scrape	Composite	1-DD-5	**950.0**
Scrape	Composite	1-DD-6	**268.0**
Second Floor - Eastern Section			
Full Core	Wood floor (stained)	2-FC-1	**1,900.0**
Full Core	Wood floor (stained)	2-FC-2	**5,600.0**
Full Core	Wood floor (stained)	2-FC-3	**106.0**
Scrape	Composite	2-DD-3	**260.0**
Scrape	Composite	2-DD-4	**490.0**
Full Core	Brick wall (painted)	2-WC-3	8.0
Full Core	Briek wall (painted)	2-WC-4	2.5
Second Floor - Western Section			
Full Core	Wood floor (stained)	2-FC-4	**145.00**
Full Core	Wood floor (stained)	2-FC-5	**56,000.0**
Full Core	Wood floor (stained)	2-FC-6	28.0
Full Core	Concrete floor (stained)	2-FC-7	12.7

Table 1
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Full Core and Dust & Dirt Scrape Samples

Sample Type	Snrface Material	Sample I.D.	PCBs Concentration[(1)] [ppm]
Full Core	Concrete floor (stained)	2-FC-8	**156.0**
Full Core	Ceiling beam (painted)	2-CC-1	28.3
Scrape	Composite	2-DD-1	**1,020.0**
Full Core	Brick Wall (painted)	2-WC-1	3.6
Full Core	Brick wall (painted)	2-WC-2	26.4
Second Floor - Across Sections			
Scrape	Composite	2-DD-2	**300.0**
Third Floor - Eastern Section			
Full Core	Wood floor (stained)	3-FC-1	**86.0**
Full Core	Brick wall (stained)	3-WC-1	2.48
Full Core	Wood floor (stained)	3-FC-2	**204.0**
Scrape	Composite	3-DD-1	**1,170.0**
Scrape	Composite	3-DD-2	**470.0**

Notes:

1. [(1)] - Concentrations are given for total PCBs in parts per million (ppm).
2. < - Indicates the compound was analyzed for but not detected. The associated value is the laboratory detection limit.
3. Values in bold exceed 50 ppm.

Table 2

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Wipe Samples

Surface Material	Sample I.D.	PCBs Conceutration[1] [ug/100cm²]
First Floor - Easteru Section		
Concrete floor (painted)	1-FW-1	**18.0**
Top of electrical duct. Horizontal steel surface (painted).	1-AW-2	**20.8**
Concrete floor (painted)	1-FW-3	**350.0**
Brick wall (painted)	1-WW-4	**15.4**
Concrete floor (painted)	1-FW-5	**59.0**
Top of start/stop panel of air compressor. Horizontal metal surface (painted).	1-EW-1	**66.0**
Top of horizontal metal plate (painted).	1-EW-2	**330.0**
Side of drying oven # 4. Horizontal metal surface (painted).	1-EW-3	**13.7**
Side of rear base leg of federal press. Horizontal metal surface (painted).	1-EW-4	**199.0**
First Floor - Western Section		
Wood column (painted). Vertical surface.	1-AW-6	**10.5**
Elevated light fixture. Horizontal steel surface (painted).	1-AW-7	**84.0**
Inside left door of despatch oven. Vertical metal surface (unpainted).	1-EW-5	<2.5
"I" beam. Horizontal painted steel surface (pre-clean)	1-PSW-1	**520.0**
"I" beam. Horizontal painted steel surface (post-clean: vacuumed).	1-PSW-1A	**226.0**
Second Floor - Eastern Section		
Wood floor	2-FW-4	**17.8**
Tile floor	2-FW-5	**14.8**
Tile floor	2-FW-6	**14.6**

Table 2
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Wipe Samples

Snrface Material	Sample I.D.	PCBs Concentration[1] [ug/100cm²]
Tile floor	2-FW-7	3.3
Top of stainless steel horizontal surface.	2-EW-2	**217.0**
Top of machine housing. Horizontal metal surface (painted).	2-EW-3	2.5
Horizontal diamond steel plate (pre-clean).	2-PSW-1	**163.0**
Horizontal diamond steel plate (post-clean: washed)	2-PSW-1A	**34.0**
Second Floor - Western Section		
Top of electrical box. Horizontal steel surface (painted).	2-AW-2	**235.0**
Wood floor (painted)	2-FW-3	**90.0**
Top of electrical box. Horizontal steel surface (painted).	2-AW-1	**320.0**
Base of press. Horizontal metal surface (painted).	2-EW-1	**16.0**
Third Floor - Eastern Section		
Tile floor	3-FW-1	**22.6**
Tile floor	3-FW-2	**176.0**
Tile floor	3-FW-3	**98.0**
Tile floor	3-FW-4	**30.0**
Top of assembly machine. Horizontal metal surface (painted).	3-EW-1	**15.2**
Top of gear housing of lead welding machine. Horizontal metal surface (painted).	3-EW-2	**11.9**
Top shclf of domino ink jet. Horizontal metal surface (painted).	3-EW-3	**265.0**
Top of base unit of metal winder. Horizontal metal surface (painted).	3-EW-4	**68.0**
Top of test/sort machine. Horizontal metal surface (painted).	3-EW-5	<2.5

Table 2
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Wipe Samples

Notes:

1. (1) - Concentrations are given for total PCBs in micrograms per 100 cm^2.
2. < - Indicates the compound was analyzed for but not detected. The associated value is the laboratory detection limit.
3. Values in bold exceed 10 ug/100 cm^2.

Table 3

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Soil Sampling from Beneath Concrete Floor Slab

Sample ID	Total PCBs (ppm)
IB6(0-2")	**18,000**
IB6(2-6")	**3,200**
IB8(0-2")	**1,800**
IB10(0-2")	11.8
IB20(0-2")	0.94
IB35(0-2")	19.6
IC5(0-2")	**980**
IC52(0-2")	0.218
ID7(0-2")	**14,000**
ID7(2-6")	**4,900**
ID63(0-2")	**180**
IE38(0-2")	0.62
IE59(0-2")	10.5
IF7(0-2")	13.0
IF10(0-2")	12.4
IH6(0-2")	2.3

Notes:

1. All concentrations in parts per million (ppm).
2. Samples analyzed using USEPA SW-846 Method 8082.
3. Samples IB6(2-6") and ID7(2-6") exceeded laboratory holding times.
4. Bold values indicate concentrations greater than 50 ppm.

Table 4
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Soil Located Beneath the Floor of the Manufacturing Building (ppm)

Sample ID	Sample Collection Date	Sample Collection Depth	Total PCBs (ppm)
IB-6	5/13/98	1-2'	4,100
ID-7	5/13/98	3-4'	2,000

NOTES:
1. Shaded values represent concentrations which exceed the Massachusetts Department of Environmental Protection (MDEP) Soil Category S-3 & GW-3 Standard of 2 ppm for PCBs presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, effective October 31, 1997.
2. All concentrations are reported in parts per million (ppm).
3. Samples were analyzed using United States Environmental Protection Agency SW-846 Method 8082.

Table 5
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Soil Located Beneath the Floor of the Manufacturing Building (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID ID-7 (3-4')
Dichlorodifluoromethane	-	< 0.210
Chloromethane	-	< 0.210
Vinyl Chloride	2	< 0.210
Bromomethane	700	< 0.210
Chloroethane	-	< 0.210
Trichlorofluoromethane	-	< 0.210
1,1-Dichloroethylene	9	< 0.210
Methylene Chloride	700	< 0.210
1,1-Dichloroethane	500	< 0.210
cis-1,2-Dichloroethylene	500	< 0.210
trans-1,2-Dichloroethylene	2000	< 0.210
2,2-Dichloropropane	-	< 0.210
Bromochloromethane	-	< 0.210
Chloroform	300	< 0.210
1,1,1-Trichloroethane	500	< 0.210
Carbon Tetrachloride	40	< 0.210
1,1-Dichloropropene	-	< 0.210
Benzene	200	< 0.210
1,2-Dichloroethane	60	< 0.210
Trichloroethylene	500	30
1,2-Dichloropropane	40	< 0.210
Dibromomethane	-	< 0.210
Bromodichloromethane	90	< 0.210
Toluene	2500	< 0.210
1,1,2-Trichloroethane	10	< 0.210
Tetrachloroethylene	100	1.2
1,3-Dichloropropane	-	< 0.210
Dibromochloromethane	70	< 0.210
1,2-Dibromoethane	-	< 0.210
Chlorobenzene	40	< 0.210
Ethylbenzene	500	< 0.210
1,1,1,2-Tetrachloroethane	20	< 0.210
m,p-Xylene	2500	< 0.210
Styrene	100	< 0.210

Table 5

Aerovox, Inc. Facility

New Bedford, Massachusetts

Engineering Evaluation/Cost Analysis (EE/CA)

<u>TCL VOC Analytical Results</u>

Soil Located Beneath the Floor of the Manufacturing Building (ppm)

Constitnent	Soil S-3 & GW-3 Standard	Sample ID ID-7 (3-4')
o-Xylene	2500	< 0.210
Isopropylbenzene	-	< 0.210
n-Propylbenzene	-	< 0.210
tert-Butylbenzene	-	< 0.210
Bromoform	700	< 0.210
1,1,2,2-Tetrachloroethane	2	< 0.210
1,2,3-Trichloropropane	-	< 0.210
Bromobenzenc	-	< 0.210
1,2,4-Trimethylbenzene	-	< 0.210
1,3,5-Trimethylbenzene	-	< 0.210
2-Chlorotoluene	-	< 0.210
4-Chlorotoluene	-	< 0.210
sec-Butylbenzene	-	< 0.210
p-Isopropyltoluene	-	< 0.210
1,3-Dichlorobenzene	500	< 0.210
1,4-Dichlorobenzene	200	< 0.210
1,2-Dichlorobenzene	500	< 0.210
n-Butylbenzene	-	< 0.210
1,2-Dibromo-3-chloroprop	-	< 0.210
1,2,4-Trichlorobenzene	800	1.5
Hexachlorobutadiene	40	< 0.210
Naphthalene	1000	< 0.210
1,2,3-Trichlorobenzene	-	0.72

<u>NOTES:</u>

1. Soil Category S-3 & GW-3 Standards are presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, issued by the Massachusetts Department of Environmental Protection (MDEP) Bureau of Waste Site Cleanup, effective October 31, 1997.
2. All concentrations are reported in parts per million (ppm).
3. Samples were analyzed using United States Environmental Protection Agency SW-846 Method 5035/8260.
4. "D" indicates a duplicate sample.
5. "<" indicates that the constituent was not detected at a concentration which exceeded the laboratory detection limit.
6. "-" indicates that an S-3 & GW-3 Standard Value was not listed for that constituent in the MCP 310 CMR 40.0000 document.

Table 6
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Soil Located Beneath the Parking Area (ppm)

Sample ID	Sample Collection Date	Sample Collection Depth	Total PCBs (ppm)
SB-01-2	5/20/98	1-2'	0.64
SB-02-1	5/21/98	0-1'	0.05
SB-03-2	5/20/98	1-2'	0.05
SB-04-2	5/20/98	1-2'	16
SB-05-2	5/19/98	1-2'	178
SB-06-1	5/19/98	0-1'	65
SB-07-2	5/19/98	0-1'	120
SB-07-5	5/19/98	4-5'	2900
SB-08-1	5/21/98	0-1'	0.14
SB-10-1	5/21/98	0-1'	4.2
SB-11-1.5	5/21/98	0.5-1.5'	0.94
SB-12-1	5/20/98	0-1'	7.6
SB-13-1	5/20/98	0-1'	100
SB-14-5	5/20/98	4-5'	310
SB-14-5D	5/20/98	4-5'	170
SB-15-2	5/19/98	1-2'	0.12
SB-16-2	5/19/98	1-2'	12.2
SB-17-2	5/19/98	1-2'	0.14
SB-17-5	5/19/98	4-5'	0.6
SB-18-1	5/20/98	0-1'	84

NOTES:
1. Shaded values represent concentrations which exceed the Massachusetts Department of Environmental Protection (MDEP) Soil Category S-3 & GW-3 Standard of 2 ppm for PCBs presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, effective October 31, 1997.
2. All concentrations are reported in parts per million (ppm).
3. Samples were analyzcd using United States Environmental Protection Agency SW-846 Method 8082.
4. "D" in the Sample ID column indicates a duplicate sample.

Table 7
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Asphalt Located in the Parking Area (ppm)

Sample ID	Sample Collection Date	Composited from Discrete Samples from	Total PCBs (ppm)
COMP-1	5/19/98	SB-6, SB-7, SB-15, SB-16	136
COMP-2	5/20/98	SB-4, SB-5, SB-13, SB-14	140
COMP-3	5/21/98	SB-3, SB-10, SB-11, SB-12	33
COMP-4	5/21/98	SB-2, SB-8	1.13

NOTES:

1. All concentrations are reported in parts per million (ppm).
2. Samples were analyzed using United States Environmental Protection Agency SW-846 Method 8082.

Table 8
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

<u>TCL VOC Analytical Results</u>
Soil Located Beneath the Parking Area (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID								
		SB-01-8 (6-8')	SB-02-2 (0-2')	SB-03-2 (0-2')	SB-03-2D (0-2')	SB-04-2 (0-2')	SB-05-2 (0-2')	SB-06-2 (0-2')	SB-07-5 (4-5')	SB-08-2 (0-2')
Dichlorodifluoromethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Chloromethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Vinyl Chloride	2	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Bromomethane	700	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Chloroethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Trichlorofluoromethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1-Dichloroethylene	9	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Methylene Chloride	700	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1-Dichloroethane	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
cis-1,2-Dichloroethylene	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
trans-1,2-Dichloroethylene	2000	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
2,2-Dichloropropane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Bromochloromethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Chloroform	300	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1,1-Trichloroethane	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Carbon Tetrachloride	40	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1-Dichloropropene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Benzene	200	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,2-Dichloroethane	60	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Trichloroethylene	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	0.24	< 0.21	< 0.22	< 0.22
1,2-Dichloropropane	40	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Dibromomethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Bromodichloromethane	90	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Toluene	2500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1,2-Trichloroethane	10	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Tetrachloroethylene	100	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22

Table 8
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Soil Located Beneath the Parking Area (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID								
		SB-01-8 (6-8')	SB-02-2 (0-2')	SB-03-2 (0-2')	SB-03-2D (0-2')	SB-04-2 (0-2')	SB-05-2 (0-2')	SB-06-2 (0-2')	SB-07-5 (4-5')	SB-08-2 (0-2')
1,3-Dichloropropane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Dibromochloromethane	70	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,2-Dibromoethane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Chlorobenzene	40	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Ethylbenzene	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1,1,2-Tetrachloroethane	20	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
m,p-Xylene	2500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Styrene	100	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
o-Xylene	2500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Isopropylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
n-Propylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
tert-Butylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Bromoform	700	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,1,2,2-Tetrachloroethane	2	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,2,3-Trichloropropane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Bromobenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,2,4-Trimethylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,3,5-Trimethylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
2-Chlorotoluene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
4-Chlorotoluene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
sec-Butylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
p-Isopropyltoluene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,3-Dichlorobenzene	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,4-Dichlorobenzene	200	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,2-Dichlorobenzene	500	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
n-Butylbenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22

Table 8
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Soil Located Beneath the Parking Area (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID								
		SB-01-8 (6-8')	SB-02-2 (0-2')	SB-03-2 (0-2')	SB-03-2D (0-2')	SB-04-2 (0-2')	SB-05-2 (0-2')	SB-06-2 (0-2')	SB-07-5 (4-5')	SB-08-2 (0-2')
1,2-Dibromo-3-chloropropane	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
1,2,4-Trichlorobenzene	800	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	0.44	< 0.22
Hexachlorobutadiene	40	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	< 0.22	< 0.22
Naphthalene	1000	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	0.39	< 0.21	0.33	< 0.22
1,2,3-Trichlorobenzene	-	< 0.21	< 0.23	< 0.23	< 0.23	< 0.22	< 0.23	< 0.21	1.1	< 0.22

Table 8
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Soil Located Beneath the Parking Area (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID								
		SB-10-2 (0-2')	SB-11-2 (0.5-2')	SB-12-2 (0-2')	SB-13-2 (0-2')	SB-14-6 (4-6')	SB-15-2 (0-2')	SB-16-2 (0-2')	SB-17-2 (0-2')	SB-18-8 (6-8')
Dichlorodifluoromethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Chloromethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Vinyl Chloride	2	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Bromomethane	700	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Chloroethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Trichlorofluoromethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1-Dichloroethylene	9	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Methylene Chloride	700	< 0.21	0.22	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1-Dichloroethane	500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
cis-1,2-Dichloroethylene	500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
trans-1,2-Dichloroethylene	2000	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
2,2-Dichloropropane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Bromochloromethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Chloroform	300	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1,1-Trichloroethane	500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Carbon Tetrachloride	40	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1-Dichloropropene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Benzene	200	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2-Dichloroethane	60	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Trichloroethylene	500	< 0.21	< 0.20	0.28	0.25	< 0.23	< 0.22	0.30	< 0.23	< 0.22
1,2-Dichloropropane	40	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Dibromomethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Bromodichloromethane	90	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Toluene	2500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1,2-Trichloroethane	10	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Tetrachloroethylene	100	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22

Table 8
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Soil Located Beneath the Parking Area (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID								
		SB-10-2 (0-2')	SB-11-2 (0.5-2')	SB-12-2 (0-2')	SB-13-2 (0-2')	SB-14-6 (4-6')	SB-15-2 (0-2')	SB-16-2 (0-2')	SB-17-2 (0-2')	SB-18-8 (6-8')
1,3-Dichloropropane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Dibromochloromethane	70	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2-Dibromoethane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Chlorobenzene	40	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Ethylhenzene	500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1,1,2-Tetrachloroethane	20	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
m,p-Xylene	2500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Styrene	100	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
o-Xylene	2500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Isopropylbenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
n-Propylbenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
tert-Butylbenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Bromoform	700	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,1,2,2-Tetrachloroethane	2	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2,3-Trichloropropane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Bromobenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2,4-Trimethylbenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,3,5-Trimethylbenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
2-Chlorotoluene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
4-Chlorotoluene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
sec-Butylbenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
p-Isopropyltoluene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,3-Dichlorobenzene	500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,4-Dichlorobenzene	200	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2-Dichlorobenzene	500	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
n-Butylhenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22

Table 8
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Soil Located Beneath the Parking Area (ppm)

Constituent	Soil S-3 & GW-3 Standard	Sample ID SB-10-2 (0-2')	SB-11-2 (0.5-2')	SB-12-2 (0-2')	SB-13-2 (0-2')	SB-14-6 (4-6')	SB-15-2 (0-2')	SB-16-2 (0-2')	SB-17-2 (0-2')	SB-18-8 (6-8')
1,2-Dibromo-3-chloropropane	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2,4-Trichlorobenzene	800	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Hexachlorobutadiene	40	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
Naphthalene	1000	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22
1,2,3-Trichlorobenzene	-	< 0.21	< 0.20	< 0.21	< 0.21	< 0.23	< 0.22	< 0.24	< 0.23	< 0.22

NOTES:

1. Soil Category S-3 & GW-3 Standards are presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, issued by the Massachusetts Department of Environmental Protection (MDEP) Bureau of Waste Site Cleanup, effective October 31, 1997.
2. All concentrations are reported in parts per million (ppm).
3. Samples were analyzed using United States Environmental Protection Agency SW-846 Method 5035/8260.
4. "D" indicates a duplicate sample.
5. "<" indicates that the constituent was not detected at a concentration which exceeded the laboratory detection limit.
6. "-" indicates that an S-3 & GW-3 Standard Value was not listed for that constituent in the MCP, 310 CMR 40.0000.

Table 9
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

PCB Analytical Results
Ground Water Samples (ppb)

Sample ID	Sample Collection Date	Total PCBs (ppb)
MW-2	5/27/98	< 5
MW-2A	5/27/98	< 48
MW-3	5/26/98	< 0.48
MW-3A	5/26/98	< 5
MW-4	5/27/98	< 2.5
MW-4A	5/27/98	36
MW-4B	5/28/98	< 0.48
MW-5	5/27/98	< 0.5
MW-6	5/27/98	33
MW-6A	5/27/98	9.6
MW-7	5/26/98	< 0.48
MW-7A	5/26/98	< 0.48
MW-8S	5/27/98	3.0

NOTES:

1. Shaded values represent concentrations which exceed the Massachusetts Department of Environmental Protection (MDEP) Ground-Water Category GW-3 Standard of 0.3 ppb for PCBs presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, effective October 31, 1997.
2. All concentrations are reported in parts per billion (ppb).
3. Samples were analyzed using United States Environmental Protection Agency SW-846 Method 8082.

Table 10
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Ground Water Samples (ppb)

Constituent	Ground Water GW-3 Standard	Sample ID												
		MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-4A	MW-4B	MW-5	MW-6	MW-6A	MW-7	MW-7A	MW-8S
Dichlorodifluoromethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Chloromethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Vinyl Chloride	40,000	< 25	< 5	270	76	490	< 5	55	< 5	< 250	< 5	520	< 5	< 5
Bromomethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Chloroethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Trichlorofluoromethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,1-Dichloroethylene	50,000	< 25	< 5	< 25	< 50	< 50	< 5	37	< 5	< 250	< 5	< 250	< 5	< 5
Methylene Chloride	50,000	< 25	< 5	< 25	< 50	< 50	< 5	12 B	< 5	< 250	< 5	< 250	< 5	< 5
1,1-Dichloroethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	9	< 5	< 250	< 5	< 250	< 5	< 5
cis-1,2-Dichloroethylene	50,000	< 25	< 5	98	< 50	850	9	470	< 5	890	95	2,900	< 5	29
trans-1,2-Dichloroethylene	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
2,2-Dichloropropane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Bromochloromethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Chloroform	10,000	< 25	< 5	< 25	< 50	< 50	< 5	9	< 5	< 250	< 5	< 250	< 5	< 5
1,1,1-Trichloroethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	41	< 5	< 250	< 5	< 250	< 5	< 5
Carbon Tetrachloride	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,1-Dichloropropene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Benzene	7,000	< 25	< 5	< 25	60	< 50	< 5	< 5	< 5	< 250	< 5	< 250	35	< 5
1,2-Dichloroethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Trichloroethylene	20,000	< 25	< 5	< 25	< 50	< 50	10	3,600	< 5	5,000	< 5	8,900	< 5	< 5
1,2-Dichloropropane	30,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Dibromomethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5

Table 10
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results
Ground Water Samples (ppb)

Constituent	Ground Water GW-3 Standard	Sample ID												
		MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-4A	MW-4B	MW-5	MW-6	MW-6A	MW-7	MW-7A	MW-8S
Bromodichloromethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Toluene	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,1,2-Trichloroethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Tetrachloroethylene	5,000	< 25	< 5	< 25	< 50	< 50	< 5	33	< 5	< 250	17	< 250	< 5	< 5
1,3-Dichloropropane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Dibromochloromethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2-Dibromoethane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Chlorobenzene	500	570	19	47	1000	55	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Ethylbenzene	4,000	< 25	< 5	150	95	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,1,1,2-Tetrachloroethane	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
m,p-Xylene	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Styrene	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
o-Xylene	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Isopropylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
n-Propylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
tert-Butylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Bromoform	50,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,1,2,2-Tetrachloroethane	20,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2,3-Trichloropropane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Bromobenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2,4-Trimethylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,3,5-Trimethylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5

Table 10

Aerovox, Inc. Facility

New Bedford, Massachusetts

Engineering Evaluation/Cost Analysis (EE/CA)

TCL VOC Analytical Results

Ground Water Samples (ppb)

Constituent	Ground Water GW-3 Standard	Sample ID												
		MW-2	MW-2A	MW-3	MW-3A	MW-4	MW-4A	MW-4B	MW-5	MW-6	MW-6A	MW-7	MW-7A	MW-8S
2-Chlorotoluene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
4-Chlorotoluene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
sec-Butylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
p-Isopropyltoluene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,3-Dichlorobenzene	8,000	150	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,4-Dichlorobenzene	8,000	220	7	35	< 50	110	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2-Dicblorobenzene	8,000	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
n-Butylbenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2-Dibromo-3-chloropropane	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2,4-Trichlorobenzene	500	< 25	< 5	< 25	< 50	< 50	< 5	5	< 5	< 250	< 5	< 250	< 5	< 5
Hexachlorobutadiene	90	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
Naphthalene	6,000	< 25	18	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5
1,2,3-Trichlorobenzene	-	< 25	< 5	< 25	< 50	< 50	< 5	< 5	< 5	< 250	< 5	< 250	< 5	< 5

NOTES:

1. Ground-water Category GW-3 Standards are presented in the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, issued by the Massachusetts Department of Environmental Protection (MDEP) Bureau of Waste Site Cleanup, effective October 31, 1997.
2. All concentrations are reported in parts per billion (ppb).
3. Samples were analyzed using United States Environmental Protection Agency SW-846 Metbod 8260.
4. "<" indicates that the constituent was not detected at a concentration which exceeded the laboratory detection limit.
5. "-" indicates that a GW-3 Standard was not listed for that constituent in the MCP 310 CMR 40.0000 document.
6. "B" indicates that this constituent was also detected in the method blank.

Table 11

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis

Ground-Water Elevation Data - May 21, 1998

Monitoring Wells	Top of Casiug Elevation (AMSL)	Depth to Grouud-Water	Ground-Water Elevation (AMSL)
Shallow Monitoring Wells			
MW-2A	6.61	3.52	3.09
MW-3A	8.13	6.02	2.11
MW-4A	10.73	*	*
MW-6A	9.75	7.76	1.99
MW-7A	7.29	4.28	3.01
MW-8S	5.76	3.34	2.42
Deep Monitoring Wells			
MW-2	6.89	4.80	2.09
MW-3	6.91	4.85	2.06
MW-4	10.97	8.36	2.61
MW-5	15.48	11.92	3.56
MW-6	9.21	7.22	1.99
MW-7	7.54	4.80	2.74
MW-4B	8.99	6.40	2.59

Notes:

1. All measurements are given in feet.
2. AMSL = Above Mean Sea Level
3. All elevations were taken at the north side of the casings and are referenced to mean sea level datum per the site benchmark of known elevation of 4.76 feet at a point on sheet piling near monitoring well MW-2, as indicated in a July 15, 1998 letter from Kevin W. Forgue of G.A.F. Engineering, Inc. to Peter Szwaja of Aerovox, Inc. (copy of this letter is provided as Attachment 9).
4. The Depth to Ground-Water data were measured at the north side of the outer well casings. These data are presented in Attachment 5 (Field Notes - Monitoring Well Assessment) of this *Engineering Evaluation/Cost Analysis Report.*
5. The Depth to Ground-Water and Ground-Water Elevation measurements were obtained on May 21, 1998 by BBL, during high tide.
6. * = The depth to ground water measured in MW-4A appears to be incorrect and not representative of actual ground-water conditions. Specifically, the depth to ground water presented in Attachment 6 of the EE/CA provides an anomalously low ground-water elevation when compared to the past several years of ground-water monitoring program. Accordingly, this elevation is not presented in this table or used as part of any hydrogeologic evaluation.

Table 12

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Ground-Water Elevation Data - March 11, 1998

Monitoring Wells	Top of Casing Elevation (AMSL)	Depth to Ground-Water Reading	Ground-Water Elevation (AMSL)
High Tide Readings			
Deep Wells			
MW-2	6.89	4.50	2.39
MW-3	6.91	4.57	2.34
MW-4	10.97	8.43	2.54
MW-7	7.54	4.99	2.55
Shallow Wells			
MW-2A	6.61	3.34	3.27
MW-3A	8.13	5.66	2.47
MW-4A	10.73	7.46	3.27
MW-7A	7.29	4.29	3.00
Low Tide Readings			
Deep Wells			
MW-2	6.89	5.04	1.85
MW-3	6.91	5.43	1.48
MW-4	10.97	10.21	0.76
MW-7	7.54	6.88	0.66
Shallow Wells			
MW-2A	6.61	3.35	3.26
MW-3A	8.13	5.35	2.78
MW-4A	10.73	7.47	3.26
MW-7A	7.29	4.29	3.00

Table 12
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Ground-Water Elevation Data - March 11, 1998

Notes:

1. All measurements are given in feet Above Mean Sea Level (AMSL).

2. Monitoring wells denoted by "A" are shallow monitoring wells; monitoring wells not denoted by "A" are deep monitoring wells.

3. All elevations were taken at the north side of the outer well casings and are referenced to mean sea level datum per the site benchmark of known elevation of 4.76 feet at a point on sheet piling near monitoring well MW-2, as indicated in a July 15, 1998 letter from Kevin W. Forgue of G.A.F. Engineering, Inc. to Peter Szwaja of Aerovox, Inc. (copy of this letter provided as Attachment 9).

4. The Depth to Ground-Water Readings were measured at the north side of the exterior casings and were obtained by SAIC Engineering, Inc. on March 11, 1998.

5. The Depth to Ground-Water Readings were obtained as part of the Aerovox Site Post-Closure Monitoring Program conducted by SAIC Engineering, Inc. following the remedial action completed at the Aerovox, Inc. Facility in 1984. That remedial action was completed in compliance with a 1982 Consent Order entered into by Aerovox, Inc. with the USEPA (September 21, 1984 letter from the USEPA).

Table 13

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Potential Chemical-Specific ARARs

Regulation	Citation	Criterion/Standard	Applicability/Appropriateness	Consideration in the Removal Process/Action for Attainment
Massachusetts Contingency Plan	310 CMR 40.0000, Subpart I	Soil and ground-water standards	MCP Method 1, Category GW-3 standards are appropriate for this site because ground water in the vicinity of the building is not used as a current source of drinking water and is not a potential future source. For soils, MCP Method 1, Category S-3/GW-3 standards are appropriate because the soil at the facility is essentially inaccessible (i.e., covered with pavement or concrete), children are not present at the facility, and the frequency and intensity of exposure to soil by adults is low.	Applicable to use for screening the analytical data associated with this site to identify chemicals of interest.
TSCA PCB Spill Cleanup Policy	40 CFR 761, Subpart G	For other restricted access areas: Soil cleanup level is 25 ppm Objective for low-contact interior surfaces: 10 ug/ 100 cm^2 Objective for low-contact outdoor surfaces: 100 ug/ 100 cm^2	Applicable only for spills after 5/4/87, but may be considered relevant and appropriate. Non-porous metal, with surface PCB concentrations less than 100 ug/100 cm^2, could be recycled/ disposed of at a steel smelting facility.	Non-porous metal (e.g., steel I-beams and HVAC duct work) with surface PCB concentrations less than 100 ug/100 cm^2, will be recycled/disposed of at a steel smelting facility.

Table 14

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Potential Action-Specific ARARs

A. Building Demolition

Regulation	Citation	Criterion/Standard	Applicability/Appropriateness	Consideration in the Removal Process/Action for Attainment
40 CFR Subpart M - National Emission Standard for Asbestos	40 CFR 61.145	Provides standards for demolition of asbestos-containing materials.	Based on the presence of vinyl floor tile, pipe insulation materials, and boiler insulation materials within the building that may potentially contain asbestos, an asbestos survey will be conducted to determine if abatement is required prior to building demolition. Depending upon the results of that survey, this regulation may be applicable.	This regulation will be followed, as appropriate, based on the results the asbestos survey to bc conducted prior to building demolition.
Massachusetts Air Pollution Control Regulations	310 CMR 7.09 and 7.15	Building demolition activities shall not cause or contribute to a condition of air pollution.	Applicable to building demolition activities.	Appropriate measures will be implemented during the building demolition activities to prevent excessivc emissions of particulate matter, as required by this regulation. Potential mitigative measures to be implemented, as well as the associated air and dust monitoring activities, will be detailed in special conditions and plans/procedures to be developed during the design phase. Additionally, an asbestos survey will be conducted to determinc if abatement measures are required prior to the building demolition.

B. Off-Site Shipment/Disposal of Materials

Table 14
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Potential Action-Specific ARARs

Regulation	Citation	Criterion/Standard	Applicability/Appropriateness	Consideration in the Removal Process/Action for Attainment
TSCA Regulations	40 CFR 761.60 (a)(4), 761.207-761.215	Regulated PCB wastes must be disposed of in a TSCA incinerator or TSCA landfill or equivalent; shipments must meet manifest requirements.	Applicable to off-site shipment/ disposal of materials with PCB concentrations $\geq$ 50 ppm.	Materials excavated/removed from the facility will be managed in accordance with applicable TSCA regulations.
CERCLA Requirements for Remediation Wastes	CERCLA Section 121 (d)(3); 40 CFR 300.440	Remediation wastes must not be sent to facility that has specified violations/releases.	Potentially applicable to off-site shipments of excavated materials.	Materials associated with the removal action that require off-site disposal will not be sent to facility that has specified violations/ releases, as appropriate.
Department of Transportation (DOT) Regulations for Hazardous Materials	49 CFR Parts 171-172	Various DOT requirements for labeling, placarding, and packaging.	Applicable to transport on the public roadways of materials that are federal hazardous wastes or contain PCBs $\geq$ 20 ppm or contain asbestos.	These requirements will be applicable to any company(s) contracted to transport these types of materials from the facility.
Federal RCRA Hazardous Waste Characterization	40 CFR Part 261	These regulations set-forth the procedures for determining whether a waste is hazardous (and therefore subject to RCRA regulations).	Applicable to materials to be disposed of off-site. Pre-disposal characterization sampling may be required for select building materials to determine whether these materials exhibit a characteristic(s) of a hazardous waste.	RCRA characterization sampling will be performed with excavated materials as necessary to determine whether or not they are characteristic hazardous wastes (i.e., exhibit the hazardous characteristics of toxicity, reactivity, ignitability, and/or corrosivity).
Federal RCRA Hazardous Waste Regulations	40 CFR Part 262, Subparts B, C, and D	Off-site hazardous waste shipments must be sent to authorized RCRA facility; manifest requirements; appropriate packaging, labeling, and placarding.	Relevant and appropriate to shipment of materials that are federal hazardous wastes (if any).	These requirements will be applicable to any company(s) contraeted to transport these types of materials from the facility.

Table 14
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Potential Action-Specific ARARs

Regulation	Citation	Criterion/Standard	Applicability/Appropriateness	Consideration in the Removal Process/Action for Attainment
Fedcral RCRA Land Disposal Regulations	40 CFR 268	Hazardous wastes must be treated prior to land disposal. Treatment for California List waste must be incineration or equivalent.	Applicable or relevant and appropriate to materials to be disposed of off-site that are federal hazardous wastes (e.g., D008). If materials are determined to be federal hazardous wastes and they contain halogenated organic compounds (e.g., PCBs) in excess of 1,000 ppm, then the California List restrictions apply.	Wastes to be disposed of off-site will be treated (as appropriate) to comply with these regulations, prior to disposal.
Massachusetts Hazardous Waste Regulations	310 CMR 30.305, 30.310, 30.320	Off-site hazardous waste shipments must be sent to facility with authority to receive such waste; manifcst requirements; appropriate packaging, labeling, and placarding.	Applicable to shipment of materials (if any) that are hazardous wastes under Massachusetts regulations -- e.g., MA2 wastes (PCBs $\geq$ 50 ppm).	These requirements will be applicable to any company(s) contracted to transport these types of materials from the facility.
Massachusetts Hazardous Waste Land Disposal Regulations (Applicable to California List Wastes)	310 CMR 30.773, 30.501(3)	Prior to land disposal in Massachusetts, California List Wastes must be burned in incinerator or industrial boiler or furnace (or subject to equivalent treatment method), unless handled in accordance with TSCA requirements.	Would be applicable to the disposal of materials that are hazardous wastes under Massachusetts regulations and contain halogenated organic compounds (e.g., PCBs) in excess of 1,000 ppm.	Wastes to be disposed of off-site will be treated (as appropriate) to comply with these regulations prior to disposal.

Table 14
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Potential Action-Specific ARARs

C. Worker Activities - Occupational Safety and Health Protection

Regulation	Citation	Criterion/Standard	Applicability/Appropriateness	Consideration in the Removal Process/Action for Attainment
Occupational Safety and Health Act (OSHA) - General Industry Standards	29 CFR 1910	Worker health & safety program. Specify the 8-hour time-weighted average concentration for worker exposure to various organic compounds. Training requirements for workers at hazardous waste operations are specified in 29 CFR 1910.120.	Applicable to cleanup actions under federal or state law, including CERCLA.	Each on-site contractor associated with the removal action will be required to prepare and implement a Health & Safety Plan that will meet the applicable requirements of 29 CFR 1910.
OSHA - Safety and Health Standards	29 CFR 1926	Specify the type of safety equipment and procedures to be followed during site remediation.	Applicable to cleanup actions under federal or state law, including CERCLA.	Each on-site contractor associated with the removal action will be required to prepare and implement a Health & Safety Plan that will meet the applicable requirements of 29 CFR 1926.
OSHA - Safety and Health Standards	29 CFR 1926.58	Worker protection measures for construction work involving asbestos, including demolition.	Applicable to construction work involving asbestos. Vinyl floor tile, pipe insulation materials, and boiler insulation materials present within the building may potentially contain asbestos; therefore, management/ removal of these materials may require compliance with 29 CFR 1926.58.	An asbestos survey will be conducted to determine if asbestos abatement is required prior to building demolition. Any asbestos abatement activities would be conducted in accordance with applicable requirements of 29 CFR 1926.58. That will be detailed in the contractor's Health & Safety Plan.

Table 15

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

<u>Cost Estimate</u>
Alternative I - Leave First Floor Concrete Floor Slab In-Place

Work Activities		Quantity	Units	Unit/Cost	Total
Capital Costs					
1. Additional Building Characterization Sampling					
A.	Sampling and analysis of brick walls in Pump Room and Tank Room for PCBs	1	LS	$2,500	$2,500
B.	RCRA characterization sampling	1	LS	$20,000	$20,000
Snbtotal Additional Building Characterization Sampling:					**$22,500**
2. Equipment/Appurtenances Inventory					
A.	Conduct equipment/appurtenances inventory. Includes site reconnaissance activities, reviewing documentation for equipment/appurtenances, and meeting with an Aerovox operations personnel.	1	LS	$4,500	$4,500
Subtotal Equipment/Appurtenances Inventory:					**$4,500**
3. Pre-Demolition Cleaning					
A.	Hand-wash interior surfaces to remove visible dust and dirt and to clean steel surfaces to $\leq$100 ug/100 cm^2. Includes disposal of cleaning water, dirt, and dust.	450,500	SF	$2/SF	$901,000
B.	Hand-wash equipment surfaces to $\leq$10 ug/100 cm^2. Includes disposal of cleaning water, dirt, and dust.	200	EA	$250/EA	$50,000
C.	Asbestos Removal and Disposal	1	LS	$100,000	$100,000
Subtotal Pre-Demolition Cleauing:					**$1,051,000**
4. Post-Cleaning Verification Sampling					
A.	Post-cleaning verification sampling for building materials.	1	LS	$50,000	$50,000
B.	Post-cleaning verification sampling for equipment	1	LS	$45,000	$45,000
Subtotal Post-Cleaning Verification Sampling:					**$95,000**

Table 15
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 1 - Leave First Floor Concrete Floor Slab In-Place

	Work Activities	Quantity	Units	Unit/Cost	Total
5. Utility Modifications and Removal					
A.	Utility modifications, removal, and disposal prior to building demolition.	1	LS	$100,000	$100,000
	Subtotal Utility Modifications and Removal:				**$100,000**
6. Building Demolition and Disposal (Excluding Concrete Floor at Grade)					
A.	Removal of wood floor (TSCA material)	235,800	SF	$5/SF	$1,179,000
B.	Removal of concrete floor above first floor level (TSCA material)	15,000	SF	$5.50/SF	$82,500
C.	Building demolition	6,703,000	CF	$0.23/CF	$1,541,690
D.	Transportation and disposal of demolition debris:				
	- to TSCA landfill (mainly wood and concrete floor materials)	2,000	Ton	$200/Ton	$400,000
	- to non-TSCA landfill (mainly brick, wood, and drywall)	6,250	Ton	$50/Ton	$312,500
	- to steel smelting facility (mainly "I"-beams)	1,225	Ton	$10/Ton	$12,250
	Subtotal Demolition and Disposal:				**$3,527,940**
7. Site Restoration/Asphalt Cap Construction					
A.	Placement and compaction of backfill over the concrete floor slab	22,400	CY	$13.50/CY	$302,400
B.	40 mil PVC liner	378,613	SF	$0.34/SF	$128,728
C.	Geosynthetic drainage composite	378,613	SF	$1.40/SF	$530,058
D.	2" Sand/gravel layer	2,337	CY	$13.00/CY	$30,381
E.	6" Run-of-crush stone layer	7,011	CY	$18.47/CY	$129,493
F.	2½" Bituminous concrete base course	42,068	SY	$4.50/SY	$189,306
G.	1½" Bituminous concrete wearing surface	42,068	SY	$3.30/SY	$138,824
	Subtotal Site Restoration/Asphalt Cap Construction				**$1,449,190**

Table 15
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 1 - Leave First Floor Concrete Floor Slab In-Place

Work Activities	Quantity	Units	Unit/Cost	Total
			Subtotal Work Activities # 1 through #7:	$6,250,130
			Engineering, Administrative, and Legal Fees (10%):	$625,013
			Contingency (20%):	$1,250,026
			Total Estimated Capital Cost:	**$8,125,169**
Annual Post Removal Site Control (PRSC) Costs				
Annual Cap Maintenance				$14,492
			Subtotal PRSC Costs:	**$14,492**
			Contingency (20%)	$2,898
			Total PRSC Costs	$17,390
			Present Worth Cost of PRSC (30 years @ 7%)	$219,790
			Total Estimated Cost of Alternative 1	**$8,344,959**
			Rounded To:	**$8,300,000**

Notes:

1. Costs are based on contractor estimates from previous projects and BBL's experience.
2. Transportation and disposal costs are based on verbal quotations received in December 1997 from Chemical Waste Management, Inc. and Laidlaw PCB Services.
3. Volume, area, and mass calculations were conducted using the tables and calculations presented in Attachment II.
4. Annual cap maintenance costs were estimated by assuming that 1% of the cap would be rcplaced every year. Therefore, 1% of the capital costs to construct the cap were used as the estimated annual cap maintenance cost.
5. Present worth was calculated using a 30-year duration and an annual interest rate of 7%.

Assnmptions:

For each work activity, the cost estimate presented does include costs associated with mobilizing/ demobilizing equipment and materials to and from the site, as well as preparation and implementation of required plans and procedures. These plans and procedures may include, depending upon the work activity, a Sampling and Analysis Plan, a Health and Safety Plan, an Air Monitoring Plan, Dust Control Procedures, and a Waste Handling Plan. The assumptions below are listed in order by each work activity.

1A. Sampling and analysis cost estimate includes costs to collect up to 6 discrete full core samplcs from brick walls in the Pump Room and Tank Room for laboratory analysis for PCBs on a 24-hour turnaround basis.

Table 15
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 1 - Leave First Floor Concrete Floor Slab In-Place

Assumptions (continued):

1B. RCRA characterization sampling cost estimate includes costs for up to 20 building material core samples for laboratory analysis for corrosivity, ignitability, reactivity, and Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), and TCLP metals on a 5-day turuaround basis.

2A. Conduct equipment/appurtenances inventory cost estimate includes costs for conducting site reconnaissance activities, reviewing equipment/appurtenances documentation, and meeting with Aerovox facilities personnel to dctermine equipment/appurtenances (both inside and outside the building) which would be retuned to commerce and equipment/appurtenances which would be scrapped.

3A. Hand-wash interior surfaces cost estimate includes costs for washing interior horizontal surfaces (including steel beams/columns and HVAC duct work) using detergent and rags to remove visible dust and dirt. Cost includes disposal of cleaning water, rags, dirt, and dust as TSCA waste. Pre-building demolition cleaning area is based on the area of each floor level.

3B. Hand-wash equipment cost estimate includes costs for washing equipment using detergent and rags to remove visible dust and dirt. Cost includes disposal of cleaning water, rags, dirt, and dust as TSCA waste.

3C. Asbestos removal and disposal cost estimate includes costs for notifications, posting, permitting, air monitoring, record keeping, protective equipment, and removal and off-site disposal of the asbestos-containing materials in an approved non-hazardous waste landfill.

4A. Post-cleaning verification sampling for building materials cost estimate includes costs to collect verification wipe samples for laboratory analysis to confirm that interior building material surfaces (including steel and duct work) do not contain PCBs at concentrations greater than 100ug/100cm^2.

4B. Post-cleaning verification sampling for equipment cost estimate includes costs to collect verification wipe samples for laboratory analysis to confirm that equipment surfaces do not contain PCBs at concentrations greater than 10ug/100cm^2.

5A. Utility modifications, removal, and disposal cost estimate includes disconnccting electrical serviccs; disconnecting the existing potable water supply; plugging sanitary sewer piping/floor drains; removing electrical equipment, boilers, and compressors; removing light fixtures; removing the fire protection and potable water supply piping; and removing HVAC system components.

6A. Removal of wood floor cost estimate includes costs for removing wood floors which contain PCBs at concentrations $\geq$50 ppm. Cost estimate assumes that the wood floors would be removed prior to demolition without affecting the structural integrity of the building.

__Cost Estimate__
Alternative 1 - Leave First Floor Concrcte Floor Slab In-Place

__Assumptions (continued):__

6B. Removal of concrete floor above first floor level cost estimate includcs costs for removing the concrete floor (within the second level of the western section of the building) which contains PCBs at concentrations ≥ 50 ppm. Cost estimate assumes that the concrete floor would bc removed prior to building demolition without affecting the structural integrity of the building. Cost estimate assumes that the concrete floor slab located on the first level will remain in-place.

6C. Building demolition cost estimate includes costs for the demolition of the remaining portion of the building above the floor slab at grade. Demolition would be conducted following wood and concrete floor removal using conventional demolition techniques (i.e., wrecking ball, excavators).

6D. Transportation and disposal cost estimate includes costs for transportation and disposal of TSCA and non-TSCA material generated during the demolition activities. Cost estimate assumcs that material generated during the wood and concrete floor removal activitics (containing PCBs at concentrations ≥50 ppm) would be disposed at a TSCA facility. Cost estimate assumes that wood and drywall materials generated under the building demolition cost estimate (excluding stcel materials) would be disposed at a non-TSCA landfill. Cost estimate assumes that steel materials will be disposed at a steel smelting facility and that the value of the steel will off-set the smelting costs. Cost estimate for steel to smelting facility only includes costs for transportation.

7A. Placement and compaction of backfill cost estimate includes costs for providing, placing, and compacting imported clean backfill material (sand/unwashed gravel) over the first floor concrete floor slab to within one foot of existing grade.

7B-G. Asphalt cap construction cost estimate includes costs for installing a capping system constructed of a 1½ inch thick bituminous concrete wearing surface, a 2½ inch thick bituminous concrete base course, an 8 inch subbase (consisting of 6 inches of run-of-crush stone and 2 inches of sand), a geosynthetic drainage composite, and a 40 mil impermeable PVC or HDPE membrane.

Table 16

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 2 - Remove a Portion of the First Floor Concrete Slab

Work Activities		Quantity	Units	Unit/Cost	Total
Capital Costs					
1. Additional Building Characterization Sampling					
A.	Sampling and analysis of brick walls in Pump Room and Tank Room for PCBs	1	LS	$2,500	$2,500
B.	RCRA Characterization Sampling	1	LS	$20,000	$20,000
Subtotal Additional Building Characterization Sampling:					**$22,500**
2. Equipment/Appurtenances Inventory					
A.	Conduct equipment/appurtenances inventory. Includes site reconnaissance activities, reviewing documentation for equipment/appurtenances, and meeting with an Aerovox operations personnel.	1	LS	$4,500	$4,500
Subtotal Equipment/Appurtenances Inventory:					**$4,500**
3. Pre-Demolition Cleaning					
A.	Hand-wash interior surfaces to remove visible dust and dirt and to clean steel surfaces to $\leq$100 ug/100 cm^2. Includes disposal of cleaning water, dirt, and dust.	450,500	SF	$2/SF	$901,000
B.	Hand-wash equipment surfaces to $\leq$10 ug/100 cm^2. Includes disposal of cleaning water, dirt, and dust.	200	EA	$250/EA	$50,000
C.	Asbestos Removal and Disposal	1	LS	$100,000	$100,000
Subtotal Pre-Demolition Cleaning:					**$1,051,000**
4. Post-Cleaning Verification Sampling					
A.	Post-cleaning verification sampling for building materials	1	LS	$50,000	$50,000
B.	Post-cleaning verification sampling for equipment	1	LS	$45,000	$45,000
Subtotal Post-Cleaning Verification Sampling:					**$95,000**

Table 16
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 2 - Remove a Portion of the First Floor Concrete Slab

Work Activities		Quantity	Units	Unit/Cost	Total
5. Utility Modifications and Removal					
A.	Utility modifications, removal, and disposal prior to building demolition.	1	LS	$100,000	$100,000
Subtotal Utility Modifications and Removal:					**$100,000**
6. Building Demolition and Disposal					
A.	Removal of wood floor (TSCA material)	235,800	SF	$5.00/SF	$1,179,000
B.	Removal of concrete floor above first floor level (TSCA material)	15,000	SF	$5.50/SF	$82,500
C.	Removal of concrete floor at first floor level (TSCA material)	96,920	SF	$4.50/SF	$436,140
D.	Building demolition	6,703,000	CF	$0.23/CF	$1,541,690
E.	Transportation and disposal of demolition debris:				
	- to TSCA landfill (mainly wood and concrete floor materials)	6,360	Ton	$200/Ton	$1,272,000
	- to non-TSCA landfill (mainly brick, wood, and drywall)	1,740	Ton	$50/Ton	$87,000
	- to steel smelting facility (mainly "I"-beams)	1,225	Ton	$10/Ton	$12,250
Subtotal Demolition and Disposal:					**$4,610,580**
7. Site Restoration/Asphalt Cap Construction					
A.	Placement and compaction of backfill over concrete floor slab	21,400	CY	$13.50/CY	$288,900
B.	40 mil PVC liner	378,613	SF	$0.34/SF	$128,728
C.	Geosynthetic drainage composite	378,613	SF	$1.40/SF	$530,058
D.	2" Sand/gravel layer	2,337	CY	$13.00/CY	$30,381
E.	6" Run-of-crush stone layer	7,011	CY	$18.47/CY	$129,493
F.	2½" Bituminous concrete base course	42,068	SY	$4.50/SY	$189,306
G.	1½" Bituminous concrete wearing surface	42,068	SY	$3.30/SY	$138,824

Table 16
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 2 - Remove a Portion of the First Floor Concrete Slab

Work Activities	Quantity	Units	Unit/Cost	Total
Subtotal Site Restoration/Asphalt Cap Construction:				**$1,435,690**
Subtotal Work Activities # 1 through #7:				$7,319,270
Engineering, Administrative, and Legal Fees (10%):				$731,927
Contingency (20%):				$1,463,854
Total Estimated Capital Cost:				**$9,515,051**
Annual Post Removal Site Control (PRSC) Costs				
Annual Cap Maintenance				$14,356
Subtotal PRSC Costs:				**$14,356**
Contingency (20%)				$2,871
Total PRSC Costs				$17,227
Present Worth Cost of PRSC (30 years @ 7%)				$217,729
Total Estimated Cost of Alternative 2				**$9,732,780**
Rounded To:				**$9,700,000**

Notes:

1. Costs are based on contractor estimates from previous projects and BBL's experience.
2. Transportation and disposal costs are based on verbal quotations received in December 1997 from Chemical Waste Management, Inc. and Laidlaw PCB Services.
3. Volume, area, and mass calculations were conducted using the tables and calculations presented in Attachment 11.
4. Annual cap maintenance costs were estimated by assuming that 1% of the cap would be replaced every year. Therefore, 1% of the capital costs to construct the cap were used as the estimated annual cap maintenance cost.
5. Present worth was calculated using a 30-year duration and an annual interest rate of 7%.

Assumptions:

For each work activity, the cost estimate presented does include costs associated with mobilizing/ demobilizing equipment and materials to and from the site, as well as preparation and implementation of required plans and procedures. These plans and procedures may include, depending upon the work activity, a Sampling and Analysis Plan, a Health and Safety Plan, an Air Monitoring Plan, Dust Control Procedures, and a Waste Handling Plan. The assumptions below are listed in order by each work activity.

Table 16
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 2 - Remove a Portion of the First Floor Concrete Slab

Assumptions (continued):

1A. Sampling and analysis cost estimate includes costs to collect up to 6 discrete full core samples from brick walls in the Pump Room and Tank Room for laboratory analysis for PCBs on a 24-hour turnaround basis.

1B. RCRA characterization sampling cost estimate includes costs for up to 20 building material core samples for laboratory analysis for corrosivity, ignitability, reactivity, and Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), and TCLP metals on a 5-day turnaround basis.

2A. Conduct equipment/appurtenances inventory cost estimate includes costs for conducting site reconnaissance activities, reviewing equipment/appurtenances documentation, and meeting with Aerovox facilities personnel to determine equipment/appurtenances (both inside and outside the building) which would be returned to commerce and equipment/appurtenances which would be scrapped.

3A. Hand-wash interior surfaces cost estimate includes costs for washing interior horizontal surfaces (including steel beams/columns and HVAC duct work) using detergent and rags to remove visible dust and dirt. Cost includes disposal of cleaning water, rags, dirt, and dust as TSCA waste. Pre-building demolition cleaning area is based on the area of each floor level.

3B. Hand-wash equipment cost estimate includes costs for washing equipment using detergent and rags to remove visible dust and dirt. Cost includes disposal of cleaning water, rags, dirt, and dust as TSCA waste.

3C. Asbestos removal and disposal cost estimate includes costs for notifications, posting, permitting, air monitoring, recordkeeping, protective equipment, and removal and off-site disposal of the asbestos-containing materials in an approved non-hazardous waste landfill.

4A. Post-cleaning verification sampling for building materials cost estimate includes costs to collect verification wipe samples for laboratory analysis to confirm that interior building material surfaces (including steel and duct work) do not contain PCBs at concentrations greater than 100ug/100cm^2.

4B. Post-cleaning verification sampling for equipment cost estimate includes costs to collect verification wipe samples for laboratory analysis to confirm that equipment surfaces do not contain PCBs at concentrations greater than 10ug/100cm^2.

5A. Utility modifications, removal, and disposal cost estimate includes disconnecting electrical services; disconnecting the existing potable water supply; plugging sanitary sewer piping/floor drains; removing electrical equipment, boilers, and compressors; removing light fixtures; removing the fire protection and potable water supply piping; and removing HVAC system components.

6A. Removal of wood floor cost estimate includes costs for removing wood floors which contain PCBs at concentrations $\geq$50 ppm. Cost estimate assumes that the wood floors would be removed prior to demolition without affecting the structural integrity of the building.

Table 16
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis (EE/CA)

Cost Estimate
Alternative 2 - Remove a Portion of the First Floor Concrete Slab

Assumptions (continned):

6B. Removal of concrete floor above first floor level cost estimate includes costs for removing the concrete floor (within thc second level of the western section of the building) which contains PCBs at concentrations ≥50 ppm. Cost estimate assumes that the concrete floor would be removed prior to building dcmolition without affecting the structural integrity of the building. Cost estimate assumes that the concrete floor slab is 6 inches thick.

6C. Removal of concrete floor at first floor level cost estimate includes costs for removing the concrete floor slab from the first floor level of the western section of the building. Cost estimatc assumes that the concrete floor slab is 6 inches thick.

6D. Building demolition cost estimate includes costs for the demolition of the remaining portion of the building above the floor slab at grade. Dcmolition would be conducted following wood and concretc floor removal using conventional demolition techniques (i.e., wrecking ball, excavators).

6E. Transportation and disposal cost estimate includes costs for transportation and disposal of TSCA and non-TSCA material generated during the demolition activities. Cost estimate assumes that material generated during the wood and concrcte floor removal activities (containing PCBs at concentrations ≥50 ppm) would be disposed at a TSCA facility. Cost estimate assumes that wood and drywall materials generated under the building demolition cost estimate (excluding steel materials) would be disposed at a non-TSCA landfill. Cost estimate assumcs that steel materials will be disposed at a steel smelting facility and that the valuc of the steel will off-set the smclting costs. Cost estimate for steel to smelting facility only includes costs for transportation.

7A. Placement and compaction of backfill cost estimate includes costs for providing, placing, and compacting imported clean backfill material (sand/unwashcd gravel) over the removed/remaining first floor concrete floor slab to within one foot of existing grade. Cost estimate assumes that demolition materials, including brick and concrete (excluding wood materials), with PCBs at concentrations <50 ppm would be mixed with the backfill material and placed over the removed/remaining concrete floor slab.

7B-G. Asphalt cap construction cost estimate includes costs for installing a capping system constructed of a 1½ inch thick bituminous concrete wearing surface, a 2½ inch thick bituminous concrete base course, an 8 inch subbase (consisting of 6 inches of run-of-crush stone and 2 inches of sand), a geosynthetic drainage compositc, and a 40 mil impermeable PVC or HDPE membrane.

Table 17

Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis

Cost Estimate
Alternative 3 - Remove the Entire First Floor Concrete Slab

Work Activities		Quantity	Units	Unit/Cost	Total
Capital Costs					
1. Additional Building Characterization Sampling					
A.	Sampling and analysis of brick walls in Pump Room and Tank Room for PCBs	1	LS	$2,500	$2,500
B.	RCRA characterization sampling	1	LS	$20,000	$20,000
Subtotal Additional Building Characterization Sampling:					**$22,500**
2. Equipment/Appurtenances Inventory					
A.	Conduct equipment/appurtenances inventory. Includes site reconnaissance activities, reviewing documentation for equipment/appurtenances, and meeting with an Aerovox operations personnel.	1	LS	$4,500	$4,500
Subtotal Equipment/Appurtenances Inventory:					**$4,500**
3. Pre-Demolition Cleaning					
A.	Hand-wash interior surfaces to remove visible dust and dirt and to clean steel surfaces to ≤100 ug/100 cm^2. Includes disposal of cleaning water, dirt, and dust.	450,500	SF	$2/SF	$901,000
B.	Hand-wash equipment surfaces to ≤10 ug/100 cm^2. Includes disposal of cleaning water, dirt, and dust.	200	EA	$250/EA	$50,000
C.	Asbestos Removal	1	LS	$100,000	$100,000
Subtotal Pre-Demolition Cleaning:					**$1,051,000**
4. Post-Cleaning Verification Sampling					
A.	Post-cleaning verification sampling for building materials	1	LS	$50,000	$50,000
B.	Post-cleaning verification sampling for equipment	1	LS	$45,000	$45,000
Subtotal Post-Cleaning Verification Sampling:					**$95,000**

Table 17
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis

<u>Cost Estimate</u>
Alternative 3 - Remove the Entire First Floor Concrete Slab

Work Activities		Quantity	Units	Unit/Cost	Total
5. Utility Modifications and Removal					
A.	Utility modifications, removal, and disposal prior to building demolition.	I	LS	$100,000	$100,000
	Subtotal Utiiity Modifications and Removai:				**$100,000**
6. Building Demolitiou and Disposal					
A.	Removal of wood floor (TSCA material)	235,800	SF	$5.00/SF	$1,179,000
B.	Removal of concrete floor above first floor level (TSCA material)	15,000	SF	$5.50/SF	$82,500
C.	Removal of concrete floor at first floor level (TSCA material)	182,134	SF	$4.50/SF	$819,603
D.	Building demolition	6,703,000	CF	$0.23/CF	$1,541,690
E.	Transportation and disposal of demolition debris:				
	- to TSCA landfill (mainly wood and concrete floor materials)	10,190	Ton	$200/Ton	$2,038,000
	- to non-TSCA landfill (mainly brick, wood, and drywall)	1,740	Ton	$50/Ton	$87,000
	- to steel smelting facility (mainly "I"-beams)	1,225	Ton	$10/Ton	$12,250
	Subtotal Demoiition and Disposal:				**$5,760,043**
7. Site Restoration/Asphalt Cap Construction					
A.	Placement and compaction of backfill material over removed concrete slab area	23,000	CY	$13.50/CY	$310,500
B.	40 mil PVC liner	378,613	SF	$0.34/SF	$128,728
C.	Geosynthetic drainage composite	378,613	SF	$1.40/SF	$530,058
D.	2" Sand/gravel layer	2,337	CY	$13.00/CY	$30,381
E.	6" Run-of-crush stone layer	7,011	CY	$18.47/CY	$129,493
F.	2½" Bituminous concrete base course	42,068	SY	$4.50/SY	$189,306

Table 17
(Cont'd)
Aerovox, Inc. Facility
New Bedford, Massachusetts
Engineering Evaluation/Cost Analysis

Cost Estimate
Alternative 3 - Remove the Entire First Floor Concrete Slab

Work Activities		Quantity	Units	Unit/Cost	Total
G.	1½" Bituminous concretc wearing surface	42,068	SY	$3.30/SY	$138,824
Subtotal Site Restoration/Asphalt Cap Construction:					**$1,457,290**
Subtotal Work Activities # 1 through #7:					$8,490,333
Engineering, Administrative, and Legal Fees (10%):					$849,033
Contingency (20%):					$1,698,066
Total Estimated Capital Cost:					**$11,037,432**
Annual Post Removal Site Control (PRSC) Costs					
Annual Cap Maintenance					$14,572
Subtotal PRSC Costs:					**$14,572**
Contingency (20%)					$2,914
Total PRSC Costs					$17,486
Present Worth Cost of PRSC (30 years @ 7%)					$221,003
Total Estimated Cost of Alternative 3					**$11,258,435**
Rounded To:					**$11,300,000**

Notes:

1. Costs are based on contractor estimates from previous projects and BBL's experience.
2. Transportation and disposal costs are based on verbal quotations received in December 1997 from Chemical Waste Management, Inc. and Laidlaw PCB Scrvices.
3. Volume, area, and mass calculations were conducted using the tables and calculations presented in Attachment 11.
4. Annual cap maintenance costs werc estimated by assuming that 1% of the cap would be replaced every year. Therefore, 1% of the capital costs to construct the cap were used as the estimated annual cap maintenance cost.
5. Present worth was calculated using a 30-year duration and an annual interest rate of 7%.

Assumptions:

For each work activity, the cost estimate presented does include costs assoeiated with mobilizing/ demobilizing equipment and materials to and from the site, as well as preparation and implementation of required plans and procedures. These plans and procedurcs may include, depending upon the work activity, a Sampling and Analysis Plan, a Health and Safety Plan, an Air Monitoring Plan, Dust Control Procedures, and a Waste Handling Plan. The assumptions below are listed in order by each work activity.

Cost Estimate
Alternative 3 - Remove the Entire First Floor Concrete Slab

Assumptions (continued):

1A. Sampling and analysis cost estimate includes costs to collect up to 6 discrete full core samples from brick walls in the Pump Room and Tank Room for laboratory analysis for PCBs on a 24-hour turnaround basis.

1B. RCRA characterization sampling cost estimate includes costs for up to 20 building material core samples for laboratory analysis for corrosivity, ignitability, reactivity, and Toxicity Characteristic Leaching Procedure (TCLP) volatile organic compounds (VOCs), TCLP semi-volatile organic compounds (SVOCs), and TCLP metals on a 5-day turnaround basis.

2A. Conduct equipment/appurtenances inventory cost estimate includes costs for conducting site reconnaissance activities, reviewing equipment/appurtenances documentation, and meeting with Aerovox facilities personnel to determine equipment/appurtenances (both inside and outside the building) which would be returned to commerce and equipment/appurtenances which would be scrapped.

3A. Hand-wash interior surfaces cost cstimate includes costs for washing interior horizontal surfaces (including steel beams/columns and HVAC duct work) using detergent and rags to remove visible dust and dirt. Cost includes disposal of cleaning water, rags, dirt, and dust as TSCA waste. Pre-building demolition cleaning area is based on the area of each floor level.

3B. Hand-wash equipment cost estimate includes costs for washing equipment using detergent and rags to remove visible dust and dirt. Cost includes disposal of cleaning water, rags, dirt, and dust as TSCA waste.

3C. Asbestos removal and disposal cost estimate includes costs for notifications, posting, permitting, air monitoring, record keeping, protective equipment, and removal and off-site disposal of the asbestos-containing materials in an approved non-hazardous waste landfill.

4A. Post-cleaning verification sampling for building materials cost estimate includes costs to collect verification wipe samples for laboratory analysis to confirm that interior building material surfaces (including steel and duct work) do not contain PCBs at concentrations greater than $100ug/100cm^2$.

4B. Post-cleaning verification sampling for equipment cost estimate includes costs to collect verification wipe samples for laboratory analysis to confirm that equipment surfaces do not contain PCBs at concentrations greater than $10ug/100cm^2$.

5A. Utility modifications, removal, and disposal cost estimate includes disconnecting electrical services; disconnecting the existing potable water supply; plugging sanitary sewer piping/floor drains; removing electrical equipment, boilers, and compressors; removing light fixtures; removing the fire protection and potable water supply piping; and removing HVAC system components.

Cost Estimate
Alternative 3 - Remove the Entire First Floor Concrete Slab

Assumptions (continued):

6A. Removal of wood floor cost estimate includes costs for removing wood floors which contain PCBs at concentrations $\geq$50 ppm. Cost estimate assumes that the wood floors would be removed prior to demolition without affecting the structural integrity of the building.

6B. Removal of concrete floor above first floor level cost estimate includes costs for removing the concrete floor (within the second level of the western section of the building) which contains PCBs at concentrations $\geq$50 ppm. Cost estimate assumes that the concrete floor would be removed prior to building demolition without affecting the structural integrity of the building. Cost estimate assumes that the concrete floor slab is 6 inches thick.

6C. Removal of concrete floor at first floor level cost estimate includes costs for removing the concrete floor slab from the entire first floor level of the building. Cost estimate assumes that the concrete floor slab is 6 inches thick.

6D. Building demolition cost estimate includes costs for the demolition of the remaining portion of the building above the floor slab at grade. Demolition would be conducted following wood and concrete floor removal using conventional demolition techniques (i.e., wrecking ball, excavators).

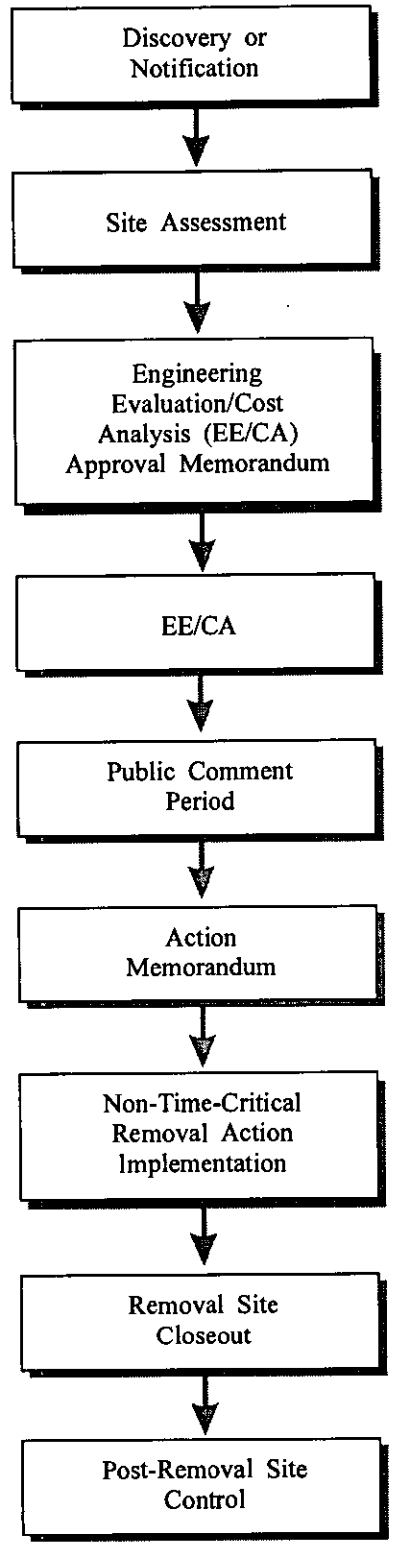
6E. Transportation and disposal cost estimate includes costs for transportation and disposal of TSCA and non-TSCA material generated during the demolition activities. Cost estimate assumes that material generated during the wood and concrete floor removal activities (containing PCBs at concentrations $\geq$50 ppm) would be disposed at a TSCA facility. Cost estimate assumes that wood and drywall materials generated under the building demolition cost estimate (excluding steel materials) would be disposed at a non-TSCA landfill. Cost estimate assumes that steel materials will be disposed at a steel smelting facility and that the value of the steel will off-set the smelting costs. Cost estimate for steel to smelting facility only includes costs for transportation.

7A. Placement and compaction of backfill cost estimate includes costs for providing, placing, and compacting imported clean backfill material (sand/unwashed gravel) over the removed first floor slab area to within one foot of existing grade. Cost estimate assumes that demolition materials, including brick and concrete (excluding wood materials), with PCBs at concentrations <50 ppm would be mixed with the backfill material and placed over the removed first floor slab area.

7B-G. Asphalt cap construction cost estimate includes costs for installing a capping system constructed of a 1½ inch thick bituminous concrete wearing surface, a 2½ inch thick bituminous concrete base course, an 8 inch subbase (consisting of 6 inches of run-of-crush stone and 2 inches of sand), a geosynthetic drainage composite, and a 40 mil impermeable PVC or HDPE membrane.

Figures

BLASLAND, BOUCK & LEE, INC.
engineers & scientists



Aerovox® INC.
740 BELLEVILLE AVE., NEW BEDFORD, MA 02745 USA
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

NON-TIME CRITICAL REMOVAL ACTION PROCESS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

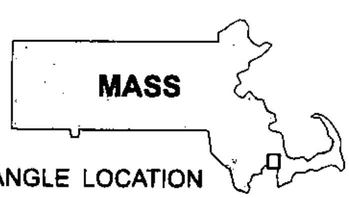
FIGURE 1

6/5/98
07481538.CDR

REFERENCE: NEW BEDFORD NORTH, MASS. USGS QUADS., 7.5 MIN. SERIES, 1979.

2000' 0 2000'

APPROXIMATE SCALE: 1" = 2000'



QUADRANGLE LOCATION

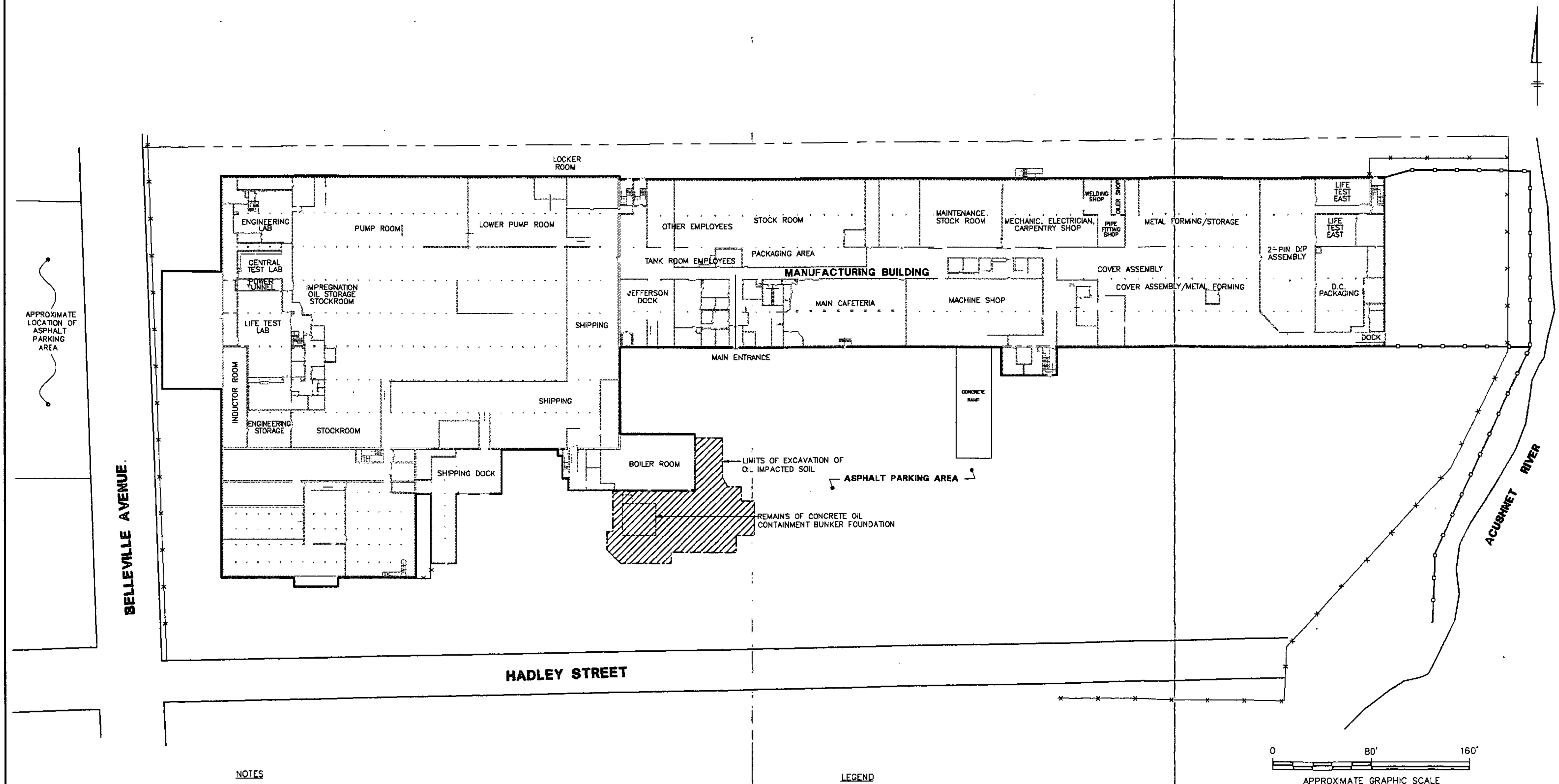
03/98 SYR-D54-DJH
03855003/03855n01.CDR

Aerovox® INC.
740 BELLEVILLE AVE., NEW BEDFORD, MA 02745 USA
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SITE LOCATION PLAN

BBL BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
2



NOTES

1. EXTERIOR AND INTERIOR BUILDING WALL LOCATIONS WERE OBTAINED FROM AN ELECTRONIC FILE (DRAWING NO. PAVXX-AG-0002, REVISION A, DRAWN BY O. JENKINS, DATED NOVEMBER 18, 1997) PROVIDED BY AEROVOX, INC.
2. SITE FEATURES OUTSIDE THE BUILDING (INCLUDING FENCE, PROPERTY LINE, PARKING LOT, AND ROADWAYS) WERE DIGITIZED FROM A SITE PLAN AT A SCALE OF 1"=50' PREPARED BY INDUSTRIAL RISK INSURERS, DATED MAY 8, 1992.
3. THE LIMIT OF THE FORMER SOIL EXCAVATION AT AND IN THE VICINITY OF THE CONCRETE OIL CONTAINMENT BUNKER FOUNDATION (WHICH FORMERLY SUPPORTED TWO 10,000 GALLON OIL STORAGE TANKS) WAS DIGITIZED FROM A DRAWING ENTITLED, "CONSTRUCTION SITE PLAN, SHORT TERM MEASURE, AEROVOX, INC.," PREPARED BY SAIC ENGINEERING, INC. AT A SCALE OF 1"=10', DATED JUNE 4, 1991.
4. LOCATION OF FENCE ALONG EAST PROPERTY LINE DETERMINED FROM FIELD OBSERVATIONS.

LEGEND

- EXISTING FENCE
- EXISTING PROPERTY LINE
- SHEET PILING (APPROXIMATE LOCATION)

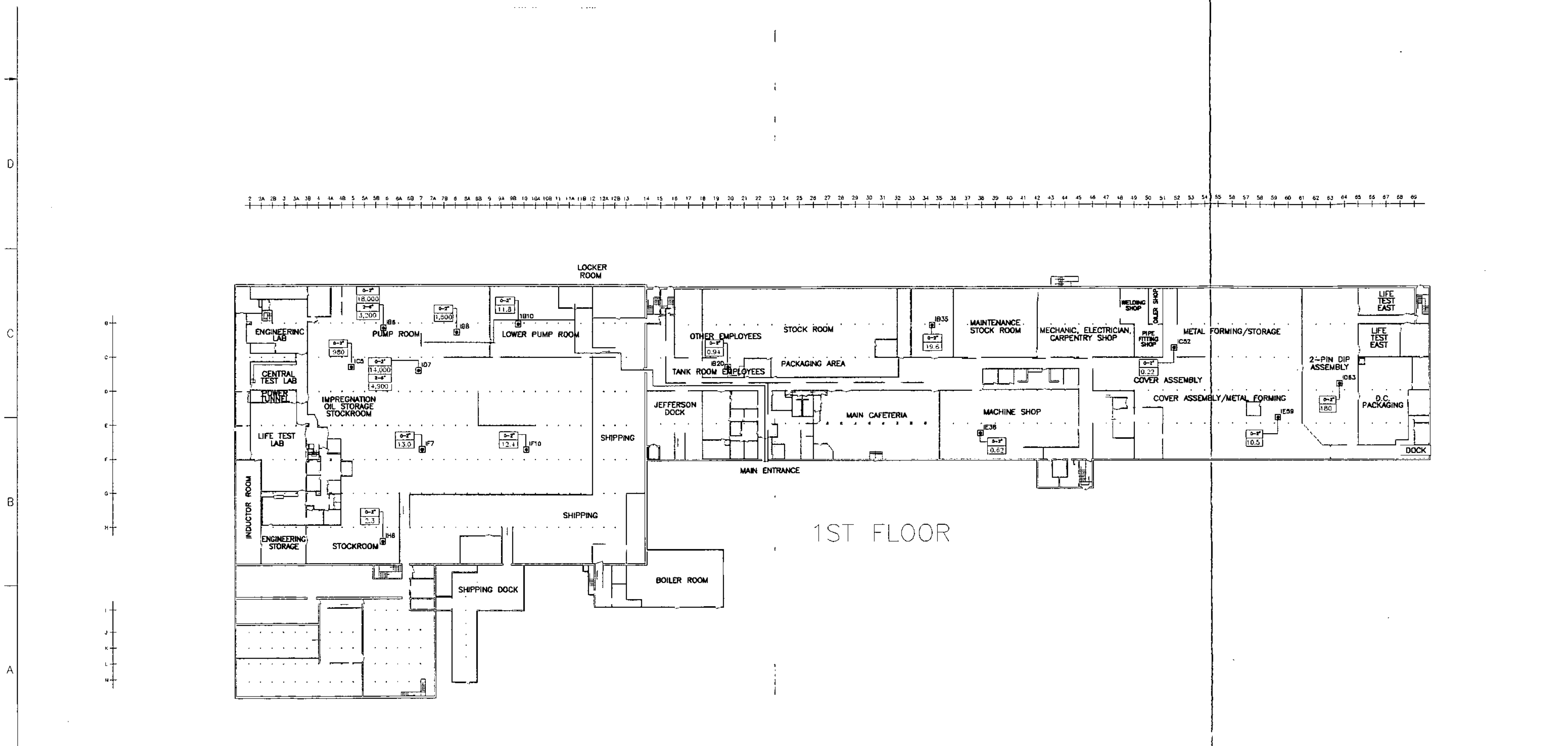
X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,FIG3,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,WIPES,WOODLOT
P: AERO.PCP
8/27/98 DIV54-RCB, PGL, RCB .JMS
03855005/03855SM4

Aerovox® INC.
740 BELLEVILLE AVE., NEW BEDFORD, MA 02745 USA
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

MANUFACTURING BUILDING

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 3



NOTES
1. DRAWING FROM ELECTRONIC FILE FROM AEROVOX, INC. DRAWING NO. PAVX-AG-0002 DATED NOVEMBER 18, 1997.
2. ALL LOCATONS ARE APPROXIMATE.

LEGEND

ID63 SOIL SAMPLING LOCATION

0-2" ← SAMPLE DEPTH
10.5 ← TOTAL PCBs < 50 ppm (mg/kg)
980 ← TOTAL PCBs > 50 ppm (mg/kg)

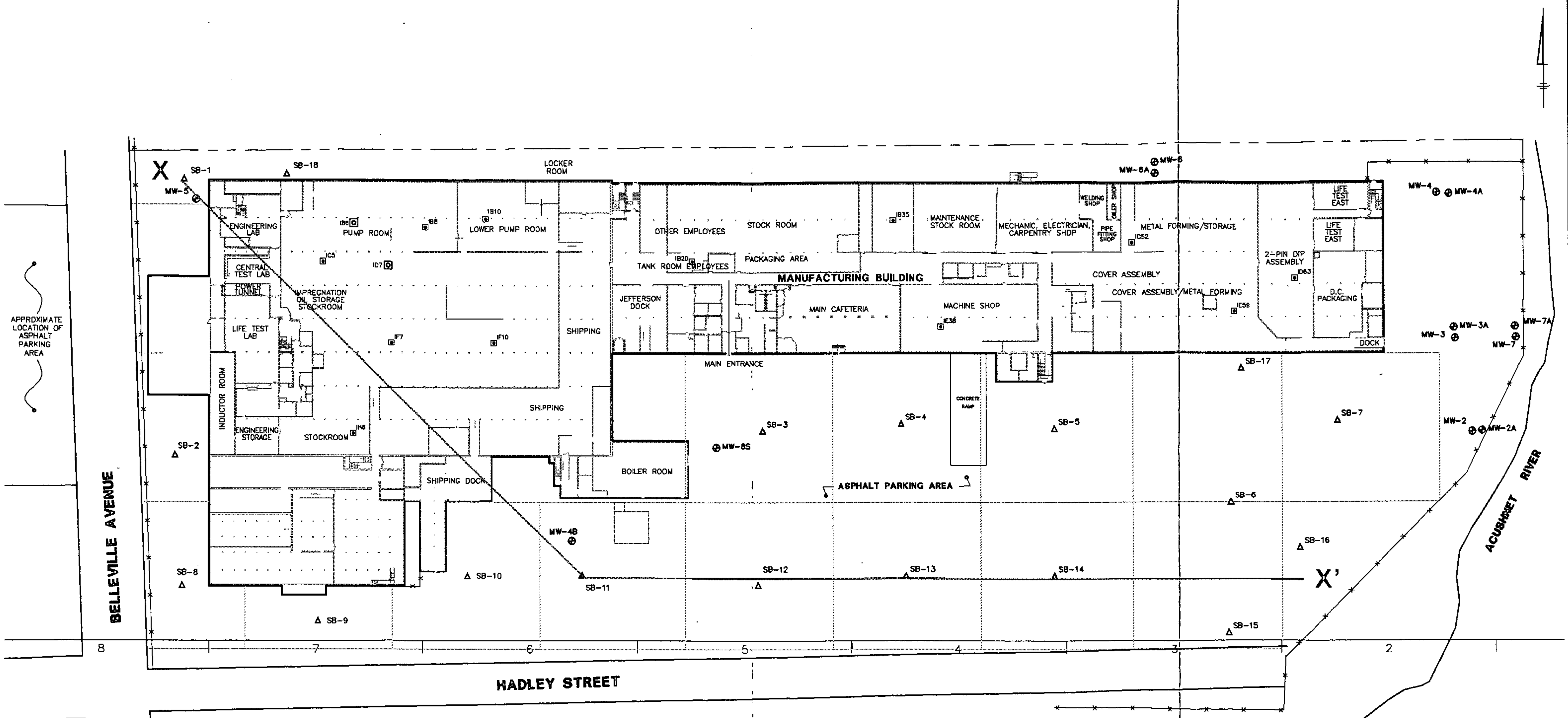
Aerovox INC.
740 BELLEVILLE AVE., NEW BEDFORD, MA 02745 USA
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

PCB SOIL SAMPLING RESULTS BENEATH CONCRETE SLAB

BBL BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE 4

X: (XREF)
LAYERS: OFF=0,CONCRETEFLOOR,FIG1,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,WIPES,WOODLOT
P: AERO.PCP
6/10/98 DIV54-RCB DMW RCB
03855003/03855SM3



NOTES

1. EXTERIOR AND INTERIOR BUILDING WALL LOCATIONS WERE OBTAINED FROM AN ELECTRONIC FILE (DRAWING NO. PAVXX-AG-0002, REVISION A, DRAWN BY D. JENKINS, DATED NOVEMBER 18, 1997) PROVIDED BY AEROVOX, INC.
2. SITE FEATURES OUTSIDE THE BUILDING (INCLUDING FENCE, PROPERTY LINE, PARKING LOT, AND ROADWAYS) WERE DIGITIZED FROM A SITE PLAN AT A SCALE OF 1"=50' PREPARED BY INDUSTRIAL RISK INSURERS, DATED MAY 8, 1992.
3. THE LIMIT OF THE FORMER SOIL EXCAVATION AT AND IN THE VICINITY OF THE CONCRETE OIL CONTAINMENT BUNKER FOUNDATION (WHICH FORMERLY SUPPORTED TWO 10,000 GALLON OIL STORAGE TANKS) WAS DIGITIZED FROM A DRAWING ENTITLED, "CONSTRUCTION SITE PLAN, SHORT TERM MEASURE, AEROVOX, INC.," PREPARED BY SAIC ENGINEERING, INC. AT A SCALE OF 1"=10', DATED JUNE 4, 1991.
4. MONITORING WELL LOCATIONS FROM "SITE PLAN SHOWING MONITORING WELL LOCATIONS", AEROVOX, INC., DRAWING SP-1, PREPARED BY GHR ENGINEERING CORPORATION, DATED 9/17/82.
5. SOIL BORING LOCATIONS ARE BASED ON FIELD MEASUREMENTS TO FIXED PROPERTY FEATURES.
6. LOCATION OF FENCE ALONG EAST PROPERTY LINE DETERMINED FROM FIELD OBSERVATIONS.
7. SOIL BORING SB-9 WAS A PROPOSED SOIL BORING LOCATION; HOWEVER IT WAS ELIMINATED BASED ON THE PRESENCE OF UNDERGROUND ELECTRICAL LINES.
8. MONITORING WELL LOGS FOR WELLS MW-1 AND MW-2S WERE ALSO USED FOR CROSS SECTION X-X'. THESE WELLS ARE NO LONGER EXISTING AND NOT SHOWN ON THIS FIGURE. THE WELL LOG FOR MW-1 WAS PRESENTED IN THE GHR REPORT OF SAMPLING AND ANALYSIS PROGRAM AT THE AEROVOX PROPERTY, NEW BEDFORD, MASSACHUSETTS, OCTOBER 7, 1982. THE WELL LOG FOR MW-2S WAS PRESENTED IN THE GHR SITE ASESSMENT OF SOILS AND GROUNDWATER IN THE VICINITY OF A CONCRETE OIL CONTAINMENT BUNKER, AEROVOX PROPERTY, NEW BEDFORD, MASSACHUSETTS, AUGUST 23, 1988.

LEGEND

⊕ MW-1	EXISTING GROUND-WATER MONITORING WELL LOCATION
⊡ ID63	PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
△ SB-6	SOIL BORING LOCATION OUTSIDE BUILDING
⊡	SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
—x—x—	EXISTING FENCE
— — —	EXISTING PROPERTY LINE
······	120' X 120' SAMPLE GRID
▬▬	GEOLOGIC CROSS-SECTION

0 80' 160'

APPROXIMATE GRAPHIC SCALE

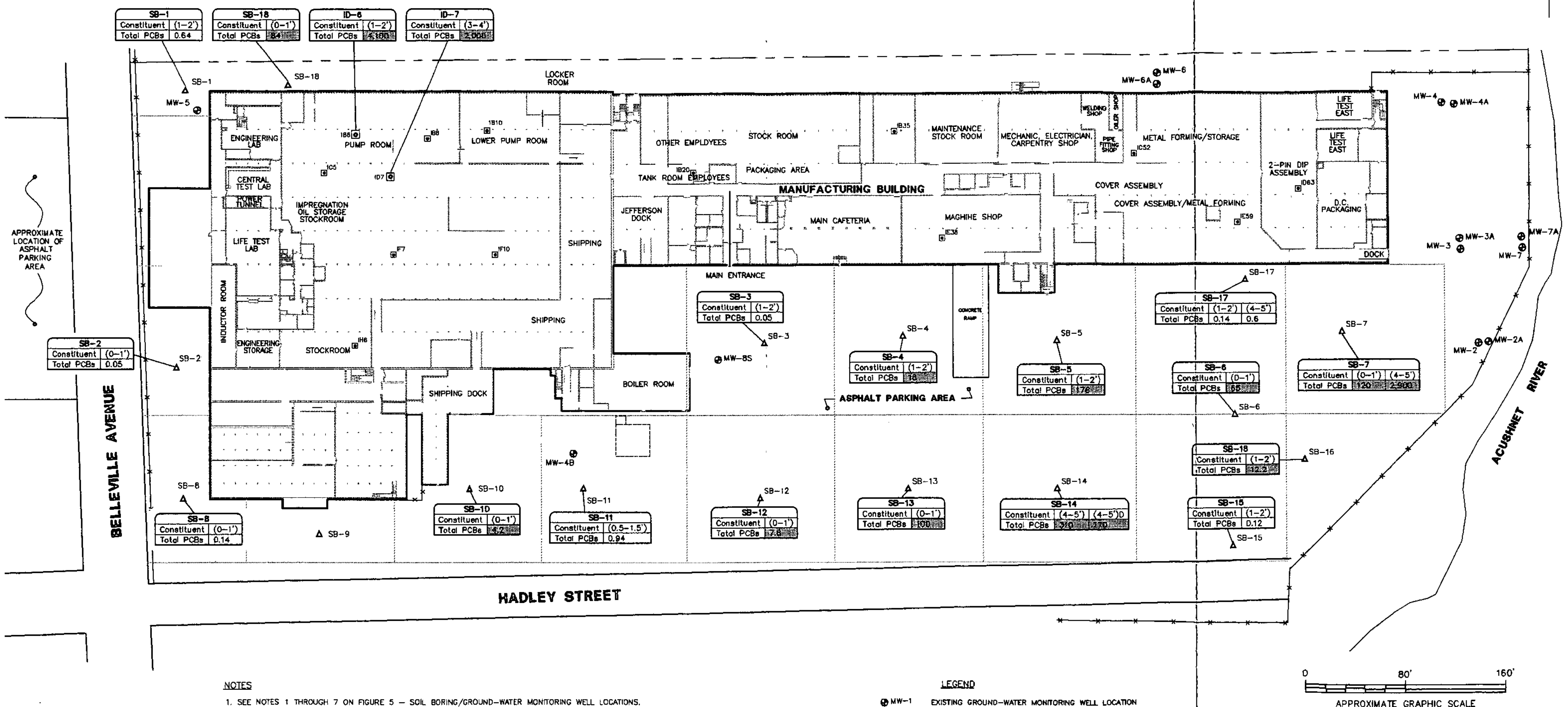
Aerovox® INC.
HEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 5

X (XREF)
L: OFF 0, CONCRETE FLOOR,GRID,GW*,FIG3,FILL-EX,REF,SAMPLELOCATION,SCRAPES,SEALED AREAS,SOILSAMPLERESULTS,WIPES,WOODFLOOR
P: AERO.PCP
8/26/98 DIV54-RCB, PGL, RCB, PGL JMS
03855005/03855SM5.DWG



NOTES

1. SEE NOTES 1 THROUGH 7 ON FIGURE 5 – SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS.
2. ALL CONCENTRATIONS ARE GIVEN IN PARTS PER MILLION (ppm).
3. SHADED VALUES INDICATE CONCENTRATIONS WHICH EXCEEDED THE MDEP S-3 AND GW-3 SOIL STANDARD FOR PCBs (2 ppm) PRESENTED IN THE MASSACHUSETTS CONTINGENCY PLAN 310 CMR 40.0000.
4. "D" INDICATES A DUPLICATE SAMPLE.

LEGEND

- MW-1 EXISTING GROUND-WATER MONITORING WELL LOCATION
- ID63 PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
- SB-6 SOIL BORING LOCATION OUTSIDE BUILDING
- SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
- EXISTING FENCE
- EXISTING PROPERTY LINE
- 120' X 120' SAMPLE GRID

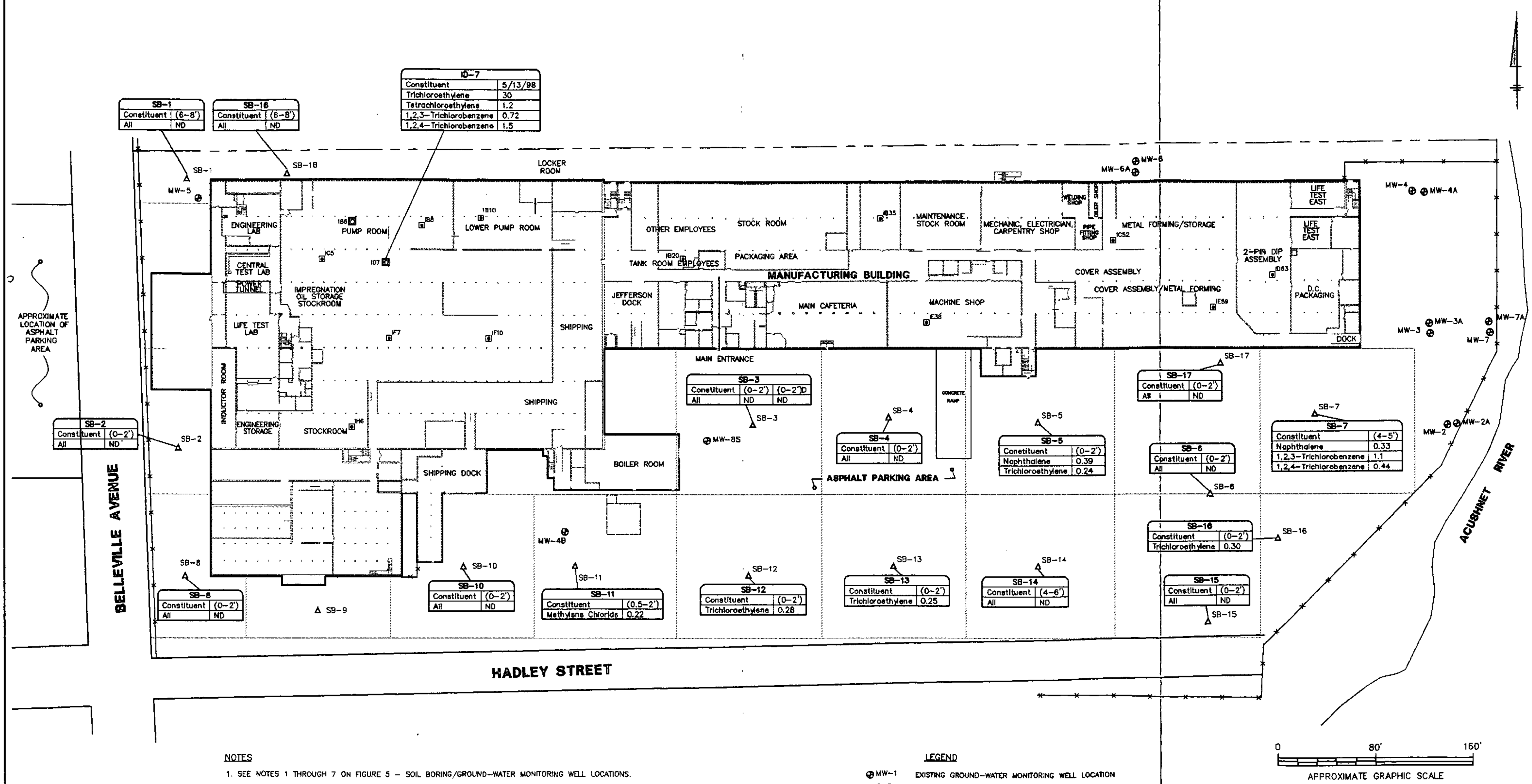
L: ON=*, OFF=(FROZEN), PCB*,VOC*; ON=PCB3*
P: AERO.PCP
6/10/98 DIV54-RCB, PGL
03835003/03835SM6.DWG

Aerovox INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SUBSURFACE SOIL SAMPLING RESULTS DETECTED PCBs (ppm)

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 6



NOTES

1. SEE NOTES 1 THROUGH 7 ON FIGURE 5 – SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS.
2. ALL CONCENTRATIONS ARE GIVEN IN PARTS PER MILLION (ppm).
3. ND – INDICATES THAT THE CONSTITUENT WAS NOT DETECTED AT A CONCENTRATION WHICH EXCEEDED THE LABORATORY DETECTION LIMIT.
4. "D" INDICATES A DUPLICATE SAMPLE.

LEGEND

- MW-1 EXISTING GROUND-WATER MONITORING WELL LOCATION
- ID63 PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
- SB-6 SOIL BORING LOCATION OUTSIDE BUILDING
- SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
- EXISTING FENCE
- EXISTING PROPERTY LINE
- 120' X 120' SAMPLE GRID

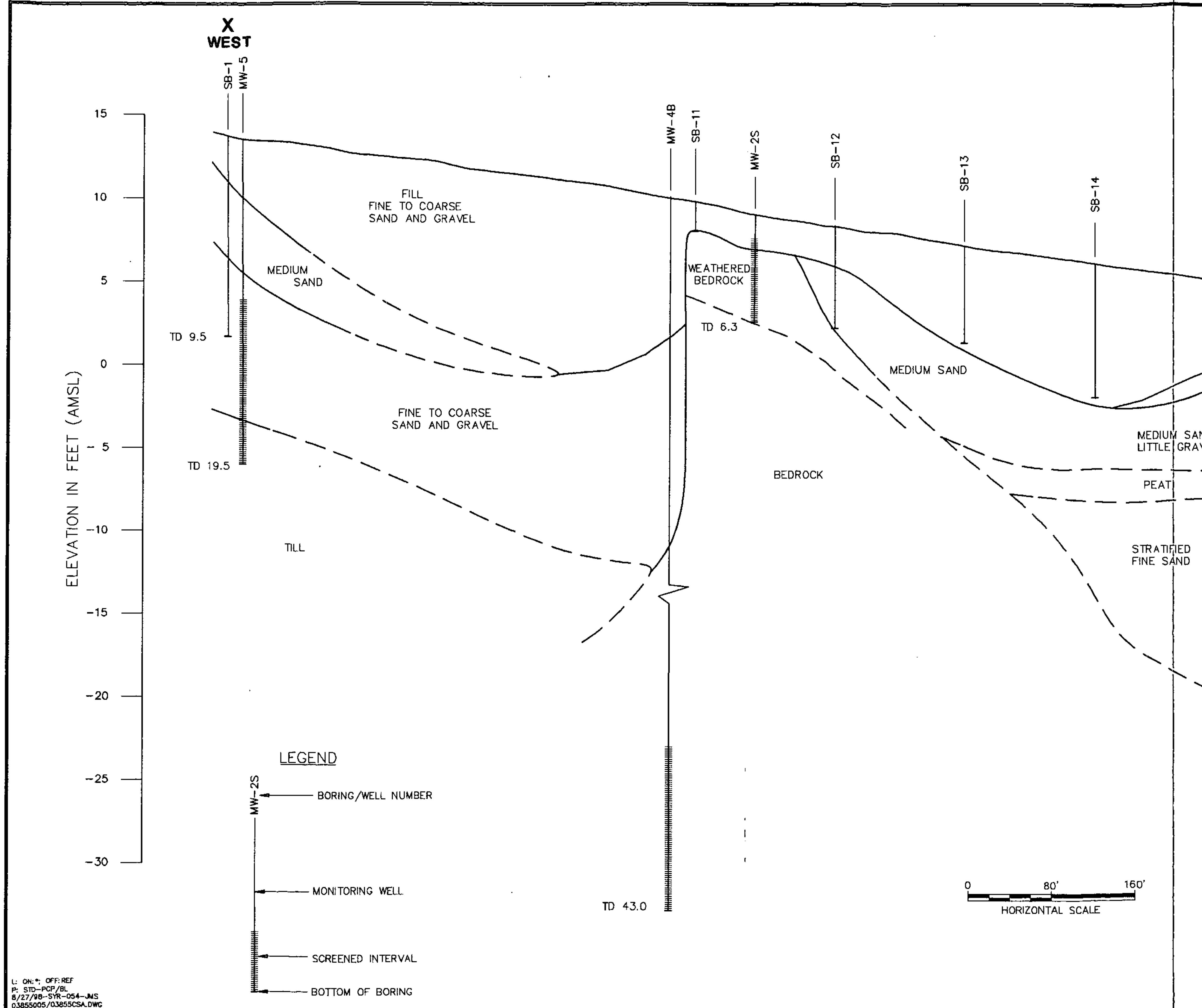
Aerovox® INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SUBSURFACE SOIL SAMPLING RESULTS DETECTED VOCs (ppm)

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 7

L: ON=*, OFF=(FROZEN), PCB*,VOC*; ON=VOC4*
P: AERO.PCP
6/10/98 DIV64-RCB, PGL
03655003/03655SM7.DWG

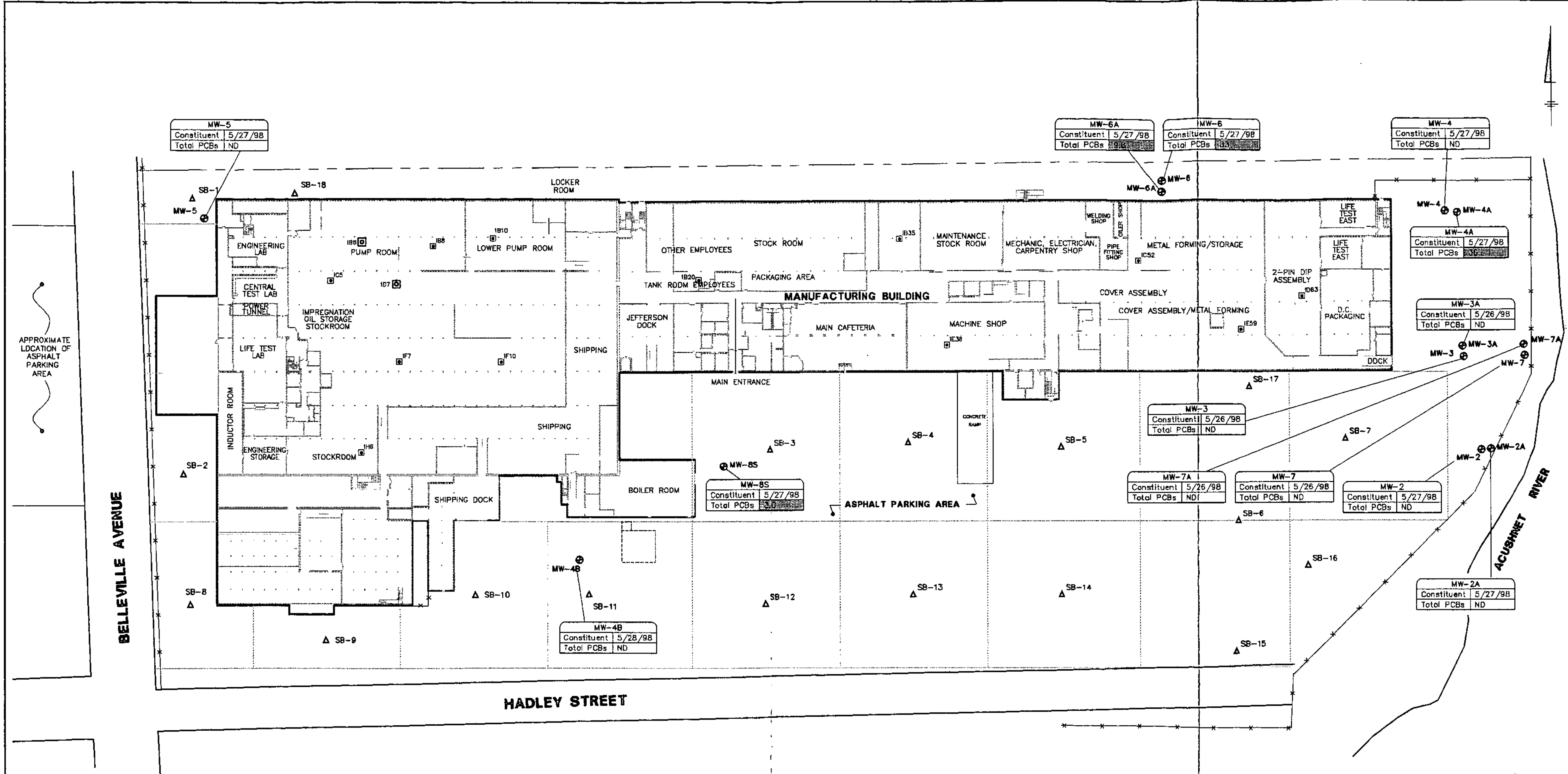


Aerovox INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

GEOLOGIC CROSS-SECTION X-X'

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 8



NOTES

1. SEE NOTES 1 THROUGH 7 ON FIGURE 5 – SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS.
2. ALL CONCENTRATIONS ARE GIVEN IN PARTS PER MILLION (ppm).
3. SHADED VALUES INDICATE CONCENTRATIONS WHICH EXCEEDED THE MDEP GW-3 GROUND-WATER STANDARD FOR PCBs (0.3 ppb) PRESENTED IN THE MASSACHUSETTS CONTINGENCY PLAN 310 CMR 40.0000.
4. ND – INDICATES THAT PCBs WERE NOT DETECTED AT CONCENTRATIONS WHICH EXCEEDED THE LABORATORY DETECTION LIMIT.

LEGEND

- MW-1 EXISTING GROUND-WATER MONITORING WELL LOCATION
- ID63 PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
- SB-6 SOIL BORING LOCATION OUTSIDE BUILDING
- SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
- EXISTING FENCE
- EXISTING PROPERTY LINE
- 120' X 120' SAMPLE GRID

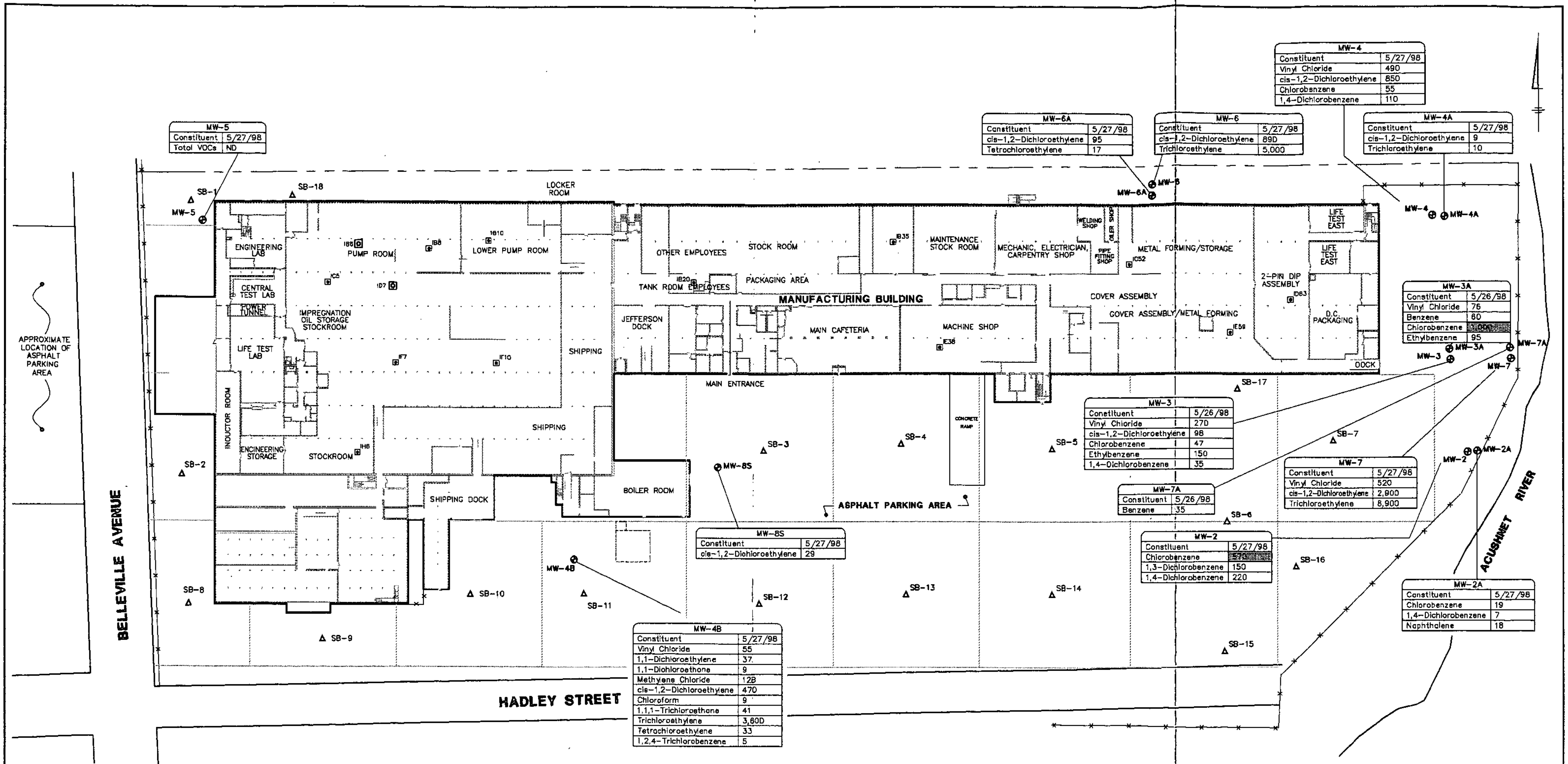
Aerovox INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

GROUND-WATER SAMPLING RESULTS DETECTED PCBs (ppb)

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 9

L: ON=*, OFF=(FROZEN), PCB*,VOC*; ON=PCBS
P: AERO.PCP
6/27/98 DIV54-RCB, PGL.JMS
03855003/03855SM8.DWG



MW-5	
Constituent	5/27/98
Total VOCs	ND

MW-6A	
Constituent	5/27/98
cis-1,2-Dichloroethylene	95
Tetrachloroethylene	17

MW-6	
Constituent	5/27/98
cis-1,2-Dichloroethylene	89D
Trichloroethylene	5,000

MW-4	
Constituent	5/27/98
Vinyl Chloride	490
cis-1,2-Dichloroethylene	850
Chlorobenzene	55
1,4-Dichlorobenzene	110

MW-4A	
Constituent	5/27/98
cis-1,2-Dichloroethylene	9
Trichloroethylene	10

MW-3A	
Constituent	5/26/98
Vinyl Chloride	76
Benzene	80
Chlorobenzene	[illegible]
Ethylbenzene	95

MW-3	
Constituent	5/26/98
Vinyl Chloride	270
cis-1,2-Dichloroethylene	98
Chlorobenzene	47
Ethylbenzene	150
1,4-Dichlorobenzene	35

MW-7	
Constituent	5/27/98
Vinyl Chloride	520
cis-1,2-Dichloroethylene	2,800
Trichloroethylene	8,900

MW-7A	
Constituent	5/26/98
Benzene	35

MW-2	
Constituent	5/27/98
Chlorobenzene	570
1,3-Dichlorobenzene	150
1,4-Dichlorobenzene	220

MW-2A	
Constituent	5/27/98
Chlorobenzene	19
1,4-Dichlorobenzene	7
Naphthalene	18

MW-8S	
Constituent	5/27/98
cis-1,2-Dichloroethylene	29

MW-4B	
Constituent	5/27/98
Vinyl Chloride	55
1,1-Dichloroethylene	37
1,1-Dichloroethane	9
Methylene Chloride	12B
cis-1,2-Dichloroethylene	470
Chloroform	9
1,1,1-Trichloroethane	41
Trichloroethylene	3,80D
Tetrachloroethylene	33
1,2,4-Trichlorobenzene	5

NOTES

1. SEE NOTES 1 THROUGH 7 ON FIGURE 5 - SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS.
2. ALL CONCENTRATIONS ARE GIVEN IN PARTS PER BILLION (ppb).
3. SHADED VALUES INDICATE CONCENTRATIONS WHICH EXCEEDED THEIR RESPECTIVE MDEP GW-3 GROUND-WATER STANDARD PRESENTED IN THE MASSACHUSETTS CONTINGENCY PLAN 310 CMR 40.0000.
4. ND - INDICATES THAT VOCs WERE NOT DETECTED AT CONCENTRATIONS WHICH EXCEEDED THE LABORATORY DETECTION LIMIT.
5. B - INDICATES THAT THE CONSTITUENT WAS FOUND IN BOTH THE SAMPLE AND ITS ASSOCIATED BLANK.

LEGEND

- MW-1 EXISTING GROUND-WATER MONITORING WELL LOCATION
- ID63 PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
- SB-6 SOIL BORING LOCATION OUTSIDE BUILDING
- SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
- EXISTING FENCE
- EXISTING PROPERTY LINE
- 120' X 120' SAMPLE GRID

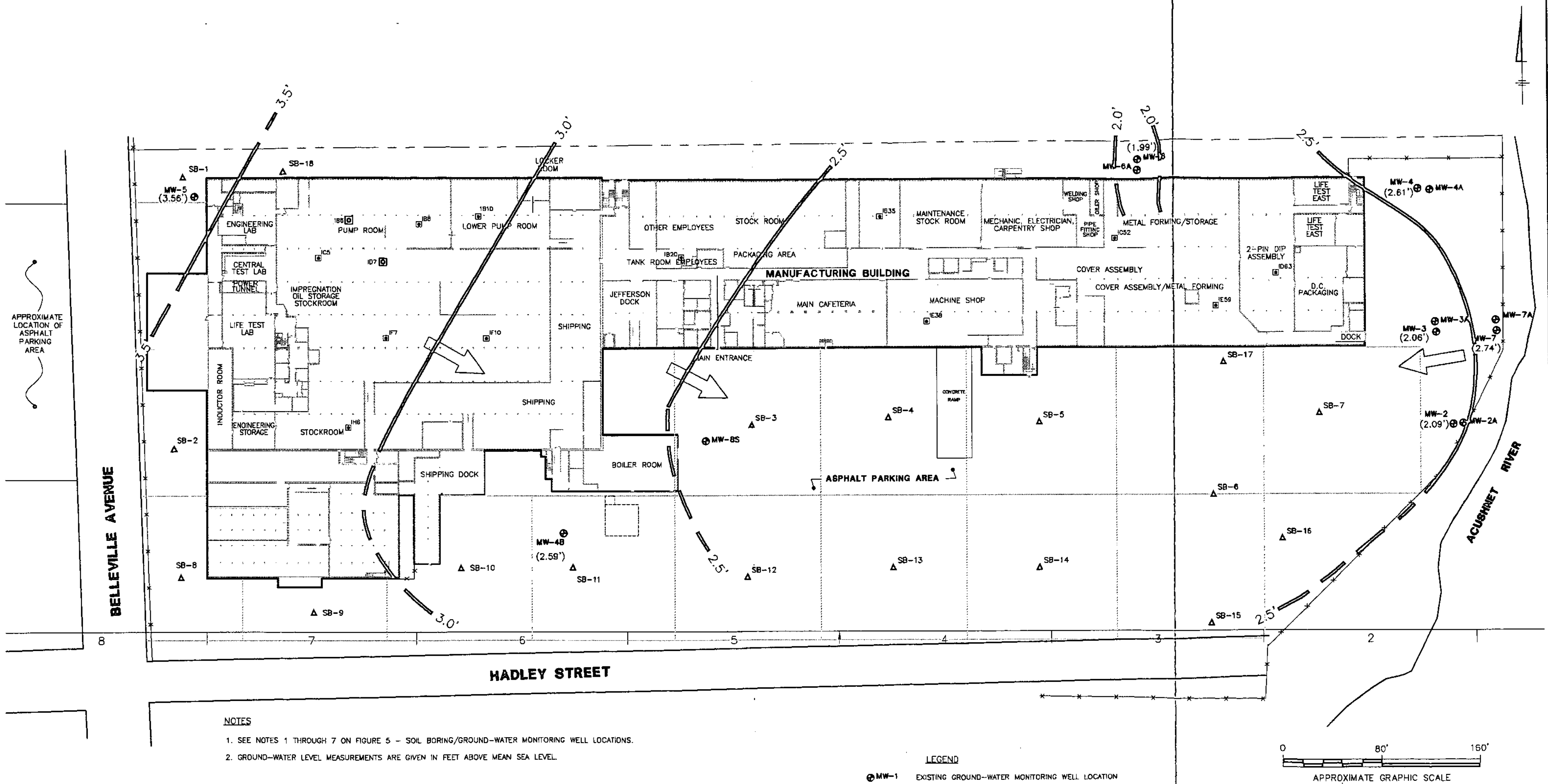
Aerovox® INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

GROUND-WATER SAMPLING RESULTS DETECTED VOCs (ppb)

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 10

L: ON=*, OFF=(FROZEN), PCB*,VOC*; ON=VOC8*
P: AERO.PCP
8/27/98 DIV54-RCB, PCL.JMS
03855005/03855SM7.DWG



NOTES

1. SEE NOTES 1 THROUGH 7 ON FIGURE 5 – SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS.
2. GROUND-WATER LEVEL MEASUREMENTS ARE GIVEN IN FEET ABOVE MEAN SEA LEVEL.

LEGEND

- ⊕MW-1 EXISTING GROUND-WATER MONITORING WELL LOCATION
- ▣ID63 PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
- △SB-6 SOIL BORING LOCATION OUTSIDE BUILDING
- ▣ SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
- —x—x— EXISTING FENCE
- — — — EXISTING PROPERTY LINE
- ······ 120' X 120' SAMPLE GRID
- (3.56') DEEP GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION IN FEET
- 3.5' ══ DEEP GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION CONTOUR LINE IN FEET (DASHED WHERE INFERRED)
- ⇦ GROUND-WATER FLOW DIRECTION

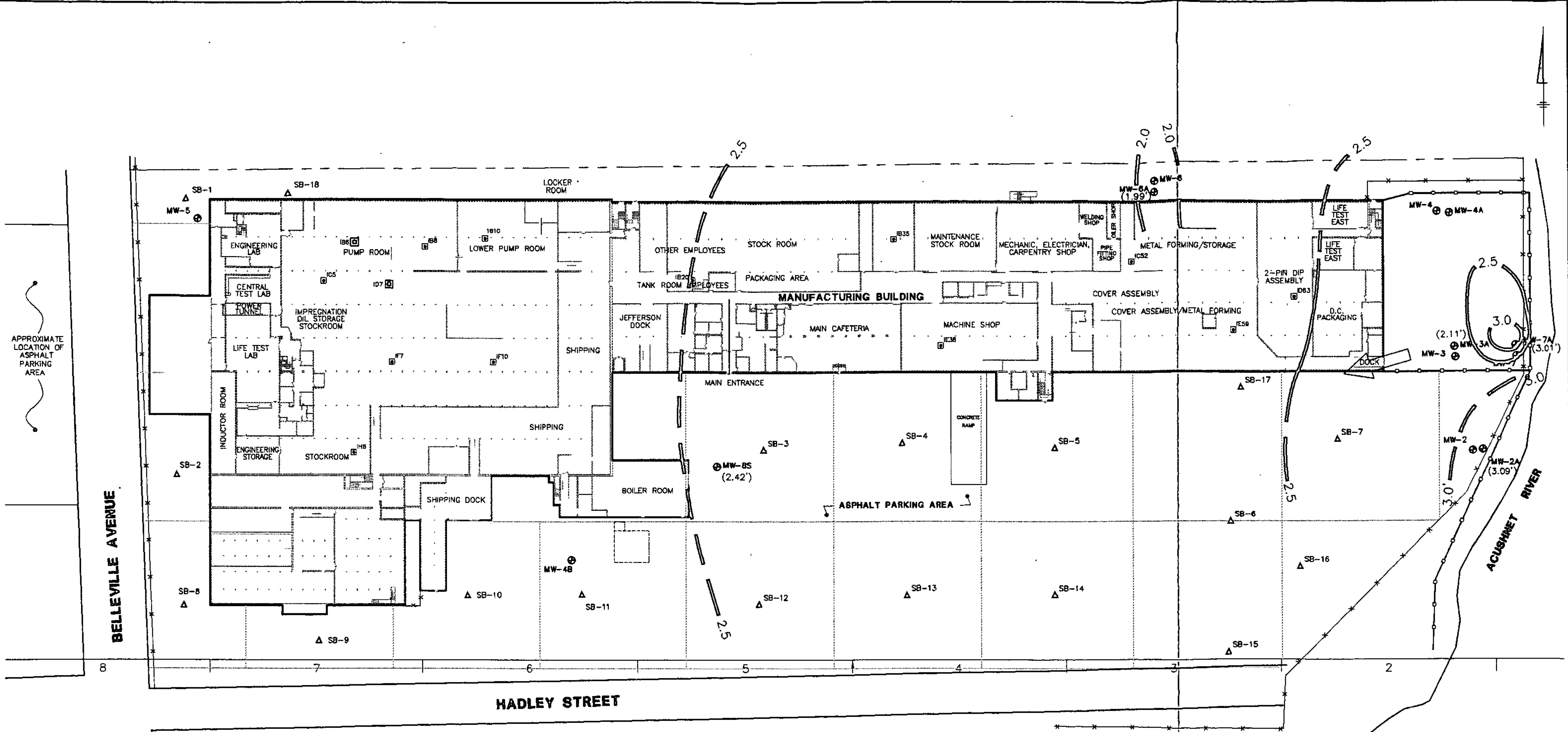
Aerovox® INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

DEEP GROUND-WATER POTENTIOMETRIC SURFACE MAP MAY 21, 1998 - HIGH TIDE

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 11

X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,GRID,GW SHALLOW,FIG3,FILL-EX,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,SM,SOILSAPLERESULTS,WIPES,WOODLOT
P: AERO.PCP
6/26/98 DIV54-RCB, PQL RCB, PQL JMS
03855005/03855GW5.DWG



NOTES

1. SEE NOTES 1 THROUGH 7 ON FIGURE 5 – SOIL BORING/GROUND-WATER MONITORING WELL LOCATIONS.
2. GROUND-WATER LEVEL MEASUREMENTS ARE GIVEN IN FEET ABOVE MEAN SEA LEVEL.

LEGEND

MW-1	EXISTING GROUND-WATER MONITORING WELL LOCATION
I063	PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
SB-6	SOIL BORING LOCATION OUTSIDE BUILDING
	SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
	EXISTING FENCE
	EXISTING PROPERTY LINE
	120' X 120' SAMPLE GRID
(2.78')	SHALLOW/ PERCHED GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION IN FEET
2.75'	SHALLOW/ PERCHED GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION CONTOUR LINE IN FEET (DASHED WHERE INFERRED)
	GROUND-WATER FLOW DIRECTION
	SHEET PILING (APPROXIMATE LOCATION)

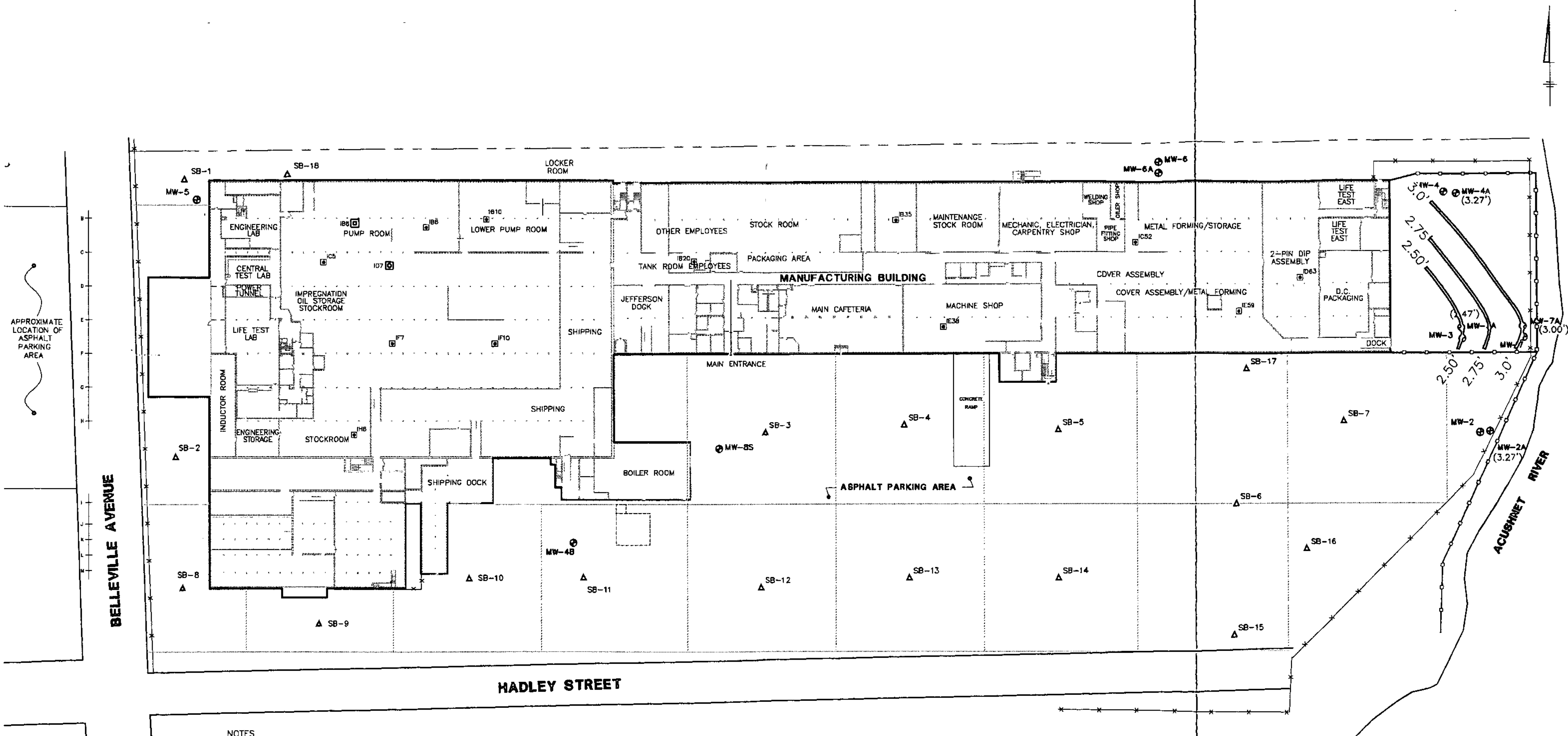
X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,GRID,GW-DEEP,FIG3,FILL-EX,NOTES-9,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,SM,SOILSAPLERESULTS,WIPES,WOODLOT
P: AERO.PCP
6/27/98 DIV54-RCB, PGL, RCB, PGL JMS
03855005/03855GW8.DWG

Aerovox INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SHALLOW/PERCHED GROUND-WATER POTENTIOMETRIC SURFACE MAP MAY 21, 1998 - HIGH TIDE

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 12



NOTES

1. EXTERIOR AND INTERIOR BUILDING WALL LOCATIONS WERE OBTAINED FROM AN ELECTRONIC FILE (DRAWING NO. PAVXX-AG-D002, REVISION A, DRAWN BY D. JENKINS, DATED NOVEMBER 18, 1997) PROVIDED BY AEROVOX, INC.
2. SITE FEATURES OUTSIDE THE BUILDING (INCLUDING FENCE, PROPERTY LINE, PARKING LOT, AND ROADWAYS) WERE DIGITIZED FROM A SITE PLAN AT A SCALE OF 1"=50' PREPARED BY INDUSTRIAL RISK INSURERS, DATED MAY 8, 1992.
3. THE LIMIT OF THE FORMER SOIL EXCAVATION AT AND IN THE VICINITY OF THE CONCRETE OIL CONTAINMENT BUNKER FOUNDATION (WHICH FORMERLY SUPPORTED TWO 10,000 GALLON OIL STORAGE TANKS) WAS DIGITIZED FROM A DRAWING ENTITLED, "CONSTRUCTION SITE PLAN, SHORT TERM MEASURE, AEROVOX, INC.," PREPARED BY SAIC ENGINEERING, INC. AT A SCALE OF 1"=10', DATED JUNE 4, 1991.
4. MONITORING WELL LOCATIONS FROM "SITE PLAN SHOWING MONITORING WELL LOCATIONS", AEROVOX, INC., DRAWING SP-1, PREPARED BY GHR ENGINEERING CORPORATION, DATED 9/17/82.
5. SOIL BORING LOCATIONS ARE BASED ON FIELD MEASUREMENTS TO FIXED PROPERTY FEATURES.
6. LOCATION OF FENCE ALONG EAST PROPERTY LINE DETERMINED FROM FIELD OBSERVATIONS.
7. SOIL BORING SB-9 WAS A PROPOSED SOIL BORING LOCATION; HOWEVER IT WAS ELIMINATED BASED ON THE PRESENCE OF UNDERGROUND ELECTRICAL LINES.
8. GROUND-WATER LEVEL MEASUREMENTS ARE GIVEN IN FEET ABOVE MEAN SEA LEVEL.
9. THE DEPTH TO GROUND-WATER READINGS WERE OBTAINED AS PART OF THE AEROVOX SITE POST-CLOSURE MONITORING PROGRAM CONDUCTED BY SAIC ENGINEERING, INC. FOLLOWING THE REMEDIAL ACTION COMPLETED AT THE AEROVOX, INC. FACILITY IN 1984.

LEGEND

- MW-1 — EXISTING GROUND-WATER MONITORING WELL LOCATION
- ID63 — PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
- SB-6 — SOIL BORING LOCATION OUTSIDE BUILDING
- SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
- EXISTING FENCE
- EXISTING PROPERTY LINE
- 120' X 120' SAMPLE GRID
- (3.27') — SHALLOW/ PERCHED GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION IN FEET
- 2.75' — SHALLOW/ PERCHED GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION CONTOUR LINE IN FEET (DASHED WHERE INFERRED)
- GROUND-WATER FLOW DIRECTION
- SHEET PILING (APPROXIMATE LOCATION)

0 80' 160'
APPROXIMATE GRAPHIC SCALE

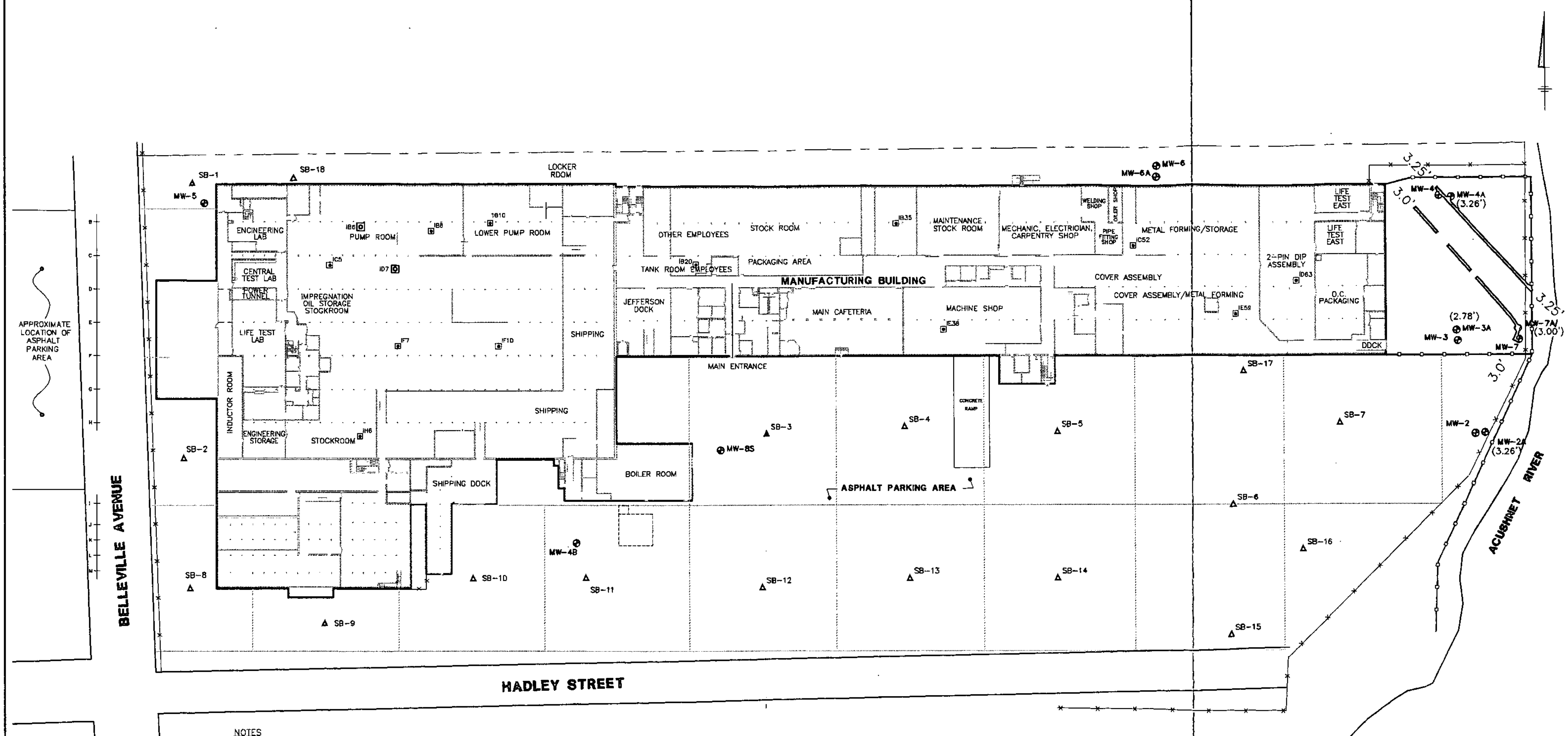
X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,GRID,GW-DEEP,FIG3,FILL-EX,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,SM,SOILSAPLERESULTS,WIPES,WODDLOT
P: AERO.PCP
6/27/98 DIV64-RCB-JMS
03655005/03655GW2.DWG

Aerovox® INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SHALLOW/PERCHED GROUND-WATER POTENTIOMETRIC SURFACE MAP MARCH 11, 1998 - HIGH TIDE

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 13



0 80' 160'

APPROXIMATE GRAPHIC SCALE

NOTES

1. EXTERIOR AND INTERIOR BUILDING WALL LOCATIONS WERE OBTAINED FROM AN ELECTRONIC FILE (DRAWING NO. PAVXX-AG-0002, REVISION A, DRAWN BY D. JENKINS, DATED NOVEMBER 18, 1997) PROVIDED BY AEROVOX, INC.
2. SITE FEATURES OUTSIDE THE BUILDING (INCLUDING FENCE, PROPERTY LINE, PARKING LOT, AND ROADWAYS) WERE DIGITIZED FROM A SITE PLAN AT A SCALE OF 1"=50' PREPARED BY INDUSTRIAL RISK INSURERS, DATED MAY 8, 1992.
3. THE LIMIT OF THE FORMER SOIL EXCAVATION AT AND IN THE VICINITY OF THE CONCRETE OIL CONTAINMENT BUNKER FOUNDATION (WHICH FORMERLY SUPPORTED TWO 10,000 GALLON OIL STORAGE TANKS) WAS DIGITIZED FROM A DRAWING ENTITLED, "CONSTRUCTION SITE PLAN, SHORT TERM MEASURE, AEROVOX, INC.," PREPARED BY SAIC ENGINEERING, INC. AT A SCALE OF 1"=10', DATED JUNE 4, 1991.
4. MONITORING WELL LOCATIONS FROM "SITE PLAN SHOWING MONITORING WELL LOCATIONS", AEROVOX, INC., DRAWING SP-1, PREPARED BY GHR ENGINEERING CORPORATION, DATED 9/17/82.
5. SOIL BORING LOCATIONS ARE BASED ON FIELD MEASUREMENTS TO FIXED PROPERTY FEATURES.
6. LOCATION OF FENCE ALONG EAST PROPERTY LINE DETERMINED FROM FIELD OBSERVATIONS.
7. SOIL BORING SB-9 WAS A PROPOSED SOIL BORING LOCATION; HOWEVER IT WAS ELIMINATED BASED ON THE PRESENCE OF UNDERGROUND ELECTRICAL LINES.
8. GROUND-WATER LEVEL MEASUREMENTS ARE GIVEN IN FEET ABOVE MEAN SEA LEVEL.
9. THE DEPTH TO GROUND-WATER READINGS WERE OBTAINED AS PART OF THE AEROVOX SITE POST-CLOSURE MONITORING PROGRAM CONDUCTED BY SAIC ENGINEERING, INC. FOLLOWING THE REMEDIAL ACTION COMPLETED AT THE AEROVOX, INC. FACILITY IN 1984.

LEGEND

MW-1	EXISTING GROUND-WATER MONITORING WELL LOCATION
ID63	PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
SB-6	SOIL BORING LOCATION OUTSIDE BUILDING
	SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
	EXISTING FENCE
	EXISTING PROPERTY LINE
	120' X 120' SAMPLE GRID
(2.78')	SHALLOW/ PERCHED GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION IN FEET
2.75'	SHALLOW/ PERCHED GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION CONTOUR LINE IN FEET (DASHED WHERE INFERRED)
	GROUND-WATER FLOW DIRECTION
	SHEET PILING (APPROXIMATE LOCATION)

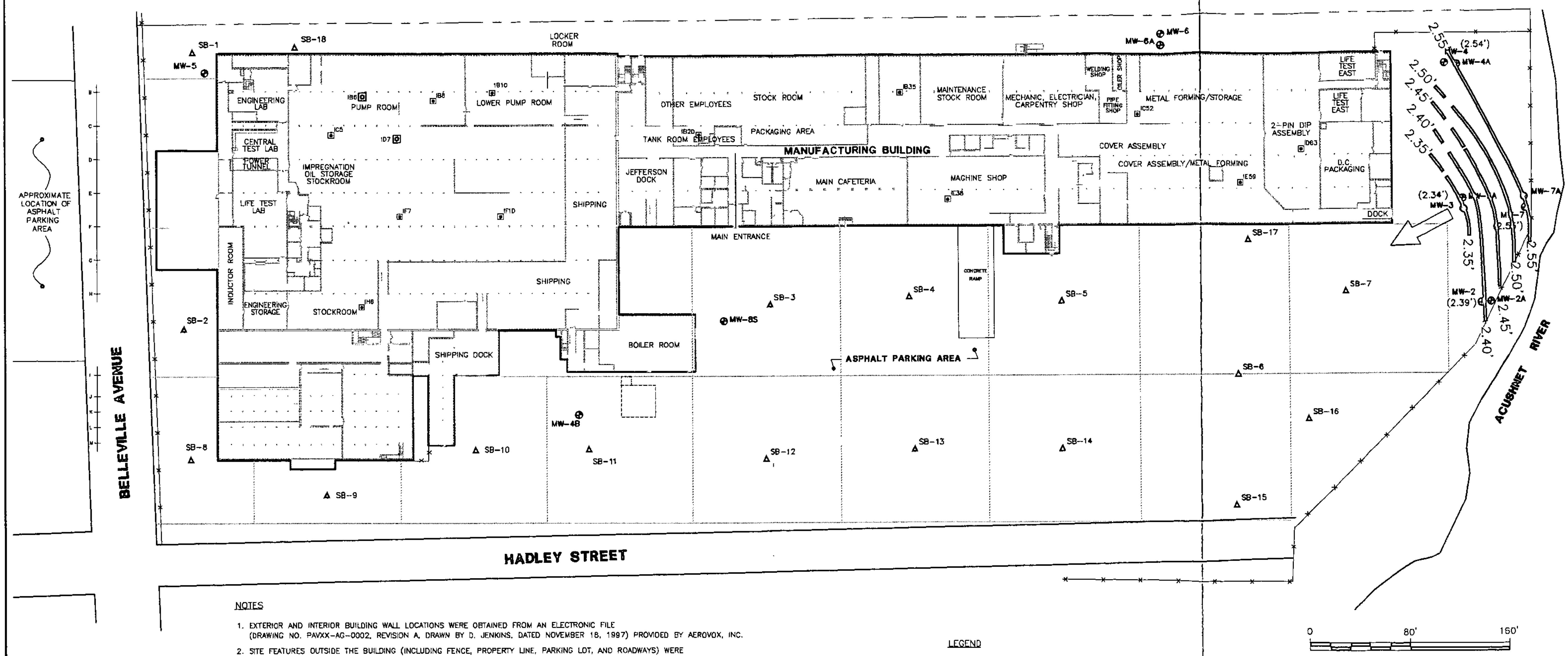
X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,GRID,GW-DEEP,FIG3,FILL-EX,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,SM,SOILSAPLERESULTS,WIPES,WOODLOT
P: AERO.PCP
8/27/98 DIV54-RCB-JMS
03855003/03855GW1.DWG

Aerovox® INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

SHALLOW/PERCHED GROUND-WATER POTENTIOMETRIC SURFACE MAP MARCH 11, 1998 - LOW TIDE

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE 14



NOTES

1. EXTERIOR AND INTERIOR BUILDING WALL LOCATIONS WERE OBTAINED FROM AN ELECTRONIC FILE (DRAWING NO. PAVXX-AG-0002, REVISION A, DRAWN BY D. JENKINS, DATED NOVEMBER 18, 1997) PROVIDED BY AEROVOX, INC.
2. SITE FEATURES OUTSIDE THE BUILDING (INCLUDING FENCE, PROPERTY LINE, PARKING LOT, AND ROADWAYS) WERE DIGITIZED FROM A SITE PLAN AT A SCALE OF 1"=50' PREPARED BY INDUSTRIAL RISK INSURERS, DATED MAY 8, 1992.
3. THE LIMIT OF THE FORMER SOIL EXCAVATION AT AND IN THE VICINITY OF THE CONCRETE OIL CONTAINMENT BUNKER FOUNDATION (WHICH FORMERLY SUPPORTED TWO 10,000 GALLON OIL STORAGE TANKS) WAS DIGITIZED FROM A DRAWING ENTITLED, "CONSTRUCTION SITE PLAN, SHORT TERM MEASURE, AEROVOX, INC.," PREPARED BY SAIC ENGINEERING, INC. AT A SCALE OF 1"=10', DATED JUNE 4, 1991.
4. MONITORING WELL LOCATIONS FROM "SITE PLAN SHOWING MONITORING WELL LOCATIONS", AEROVOX, INC., DRAWING SP-1, PREPARED BY GHR ENGINEERING CORPORATION, DATED 9/17/82.
5. SOIL BORING LOCATIONS ARE BASED ON FIELD MEASUREMENTS TO FIXED PROPERTY FEATURES.
6. LOCATION OF FENCE ALONG EAST PROPERTY LINE DETERMINED FROM FIELD OBSERVATIONS.
7. SOIL BORING SB-9 WAS A PROPOSED SOIL BORING LOCATION; HOWEVER IT WAS ELIMINATED BASED ON THE PRESENCE OF UNDERGROUND ELECTRICAL LINES.
8. GROUND-WATER LEVEL MEASUREMENTS ARE GIVEN IN FEET ABOVE MEAN SEA LEVEL.
9. THE DEPTH TO GROUND-WATER READINGS WERE OBTAINED AS PART OF THE AEROVOX SITE POST-CLOSURE MONITORING PROGRAM CONDUCTED BY SAIC ENGINEERING, INC. FOLLOWING THE REMEDIAL ACTION COMPLETED AT THE AEROVOX, INC. FACILITY IN 1984.

LEGEND

MW-1	EXISTING GROUND-WATER MONITORING WELL LOCATION
ID63	PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
SB-6	SOIL BORING LOCATION OUTSIDE BUILDING
	SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
	EXISTING FENCE
	EXISTING PROPERTY LINE
	120' X 120' SAMPLE GRID
(2.54')	DEEP GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION IN FEET
2.35'	DEEP GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION CONTOUR LINE IN FEET (DASHED WHERE INFERRED)
	GROUND-WATER FLOW DIRECTION

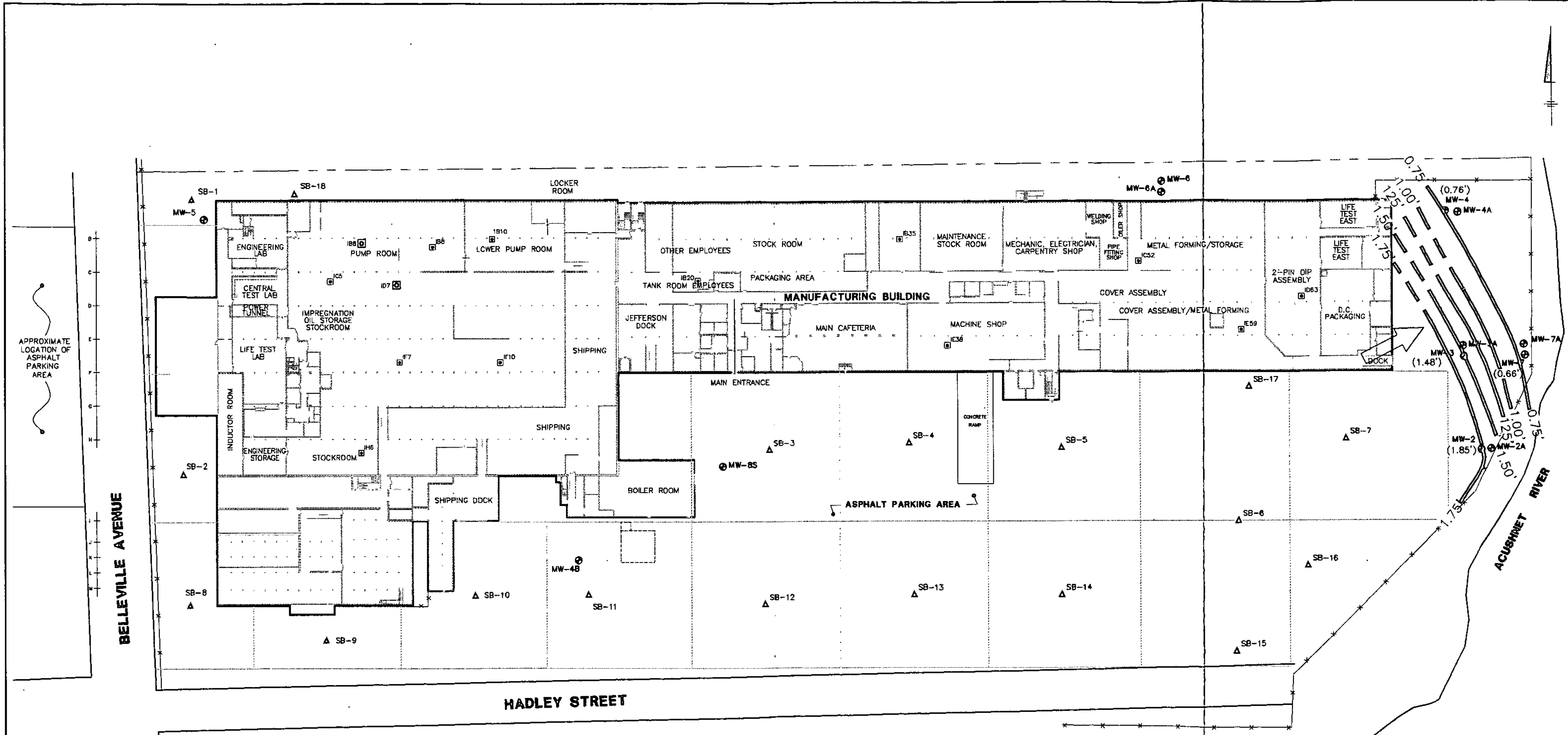
X (XREF)
LAYERS OFF=D,CONCRETEFLOOR,GRID,GW-DEEP,FIG3,FILL-EX,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,SM,SOILSAPLERESULTS,WIPES,WOODLOT
P: AERO.PCP
6/26/98 DIV54-RCB.JMS
03855005/03855GW4.DWG

Aerovox® INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

DEEP GROUND-WATER POTENTIOMETRIC SURFACE MAP MARCH 11, 1998 - HIGH TIDE

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 15



NOTES

1. EXTERIOR AND INTERIOR BUILDING WALL LOCATIONS WERE OBTAINED FROM AN ELECTRONIC FILE (DRAWING NO. PAVXX-AG-0002, REVISION A, DRAWN BY D. JENKINS, DATED NOVEMBER 18, 1997) PROVIDED BY AEROVOX, INC.
2. SITE FEATURES OUTSIDE THE BUILDING (INCLUDING FENCE, PROPERTY LINE, PARKING LOT, AND ROADWAYS) WERE DIGITIZED FROM A SITE PLAN AT A SCALE OF 1"=50' PREPARED BY INDUSTRIAL RISK INSURERS, DATED MAY 8, 1992.
3. THE LIMIT OF THE FORMER SOIL EXCAVATION AT AND IN THE VICINITY OF THE CONCRETE OIL CONTAINMENT BUNKER FOUNDATION (WHICH FORMERLY SUPPORTED TWO 10,000 GALLON OIL STORAGE TANKS) WAS DIGITIZED FROM A DRAWING ENTITLED, "CONSTRUCTION SITE PLAN, SHORT TERM MEASURE, AEROVOX, INC.," PREPARED BY SAIC ENGINEERING, INC. AT A SCALE OF 1"=10', DATED JUNE 4, 1991.
4. MONITORING WELL LOCATIONS FROM "SITE PLAN SHOWING MONITORING WELL LOCATIONS", AEROVOX, INC., DRAWING SP-1, PREPARED BY GHR ENGINEERING CORPORATION, DATED 9/17/82.
5. SOIL BORING LOCATIONS ARE BASED ON FIELD MEASUREMENTS TO FIXED PROPERTY FEATURES.
6. LOCATION OF FENCE ALONG EAST PROPERTY LINE DETERMINED FROM FIELD OBSERVATIONS.
7. SOIL BORING SB-9 WAS A PROPOSED SOIL BORING LOCATION; HOWEVER IT WAS ELIMINATED BASED ON THE PRESENCE OF UNDERGROUND ELECTRICAL LINES.
8. GROUND-WATER LEVEL MEASUREMENTS ARE GIVEN IN FEET ABOVE MEAN SEA LEVEL.
9. THE DEPTH TO GROUND-WATER READINGS WERE OBTAINED AS PART OF THE AEROVOX SITE POST-CLOSURE MONITORING PROGRAM CONDUCTED BY SAIC ENGINEERING, INC. FOLLOWING THE REMEDIAL ACTION COMPLETED AT THE AEROVOX, INC. FACILITY IN 1984.

LEGEND

MW-1	EXISTING GROUND-WATER MONITORING WELL LOCATION
ID63	PREVIOUS SOIL SAMPLING LOCATION BENEATH FLOOR SLAB (FEBRUARY, 1998)
SB-6	SOIL BORING LOCATION OUTSIDE BUILDING
	SOIL BORING LOCATION BENEATH FLOOR SLAB (MAY, 1998)
	EXISTING FENCE
	EXISTING PROPERTY LINE
	120' X 120' SAMPLE GRID
(1.85')	DEEP GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION IN FEET
1.50'	DEEP GROUND-WATER POTENTIOMETRIC SURFACE ELEVATION CONTOUR LINE IN FEET (DASHED WHERE INFERRED)
	GROUND-WATER FLOW DIRECTION

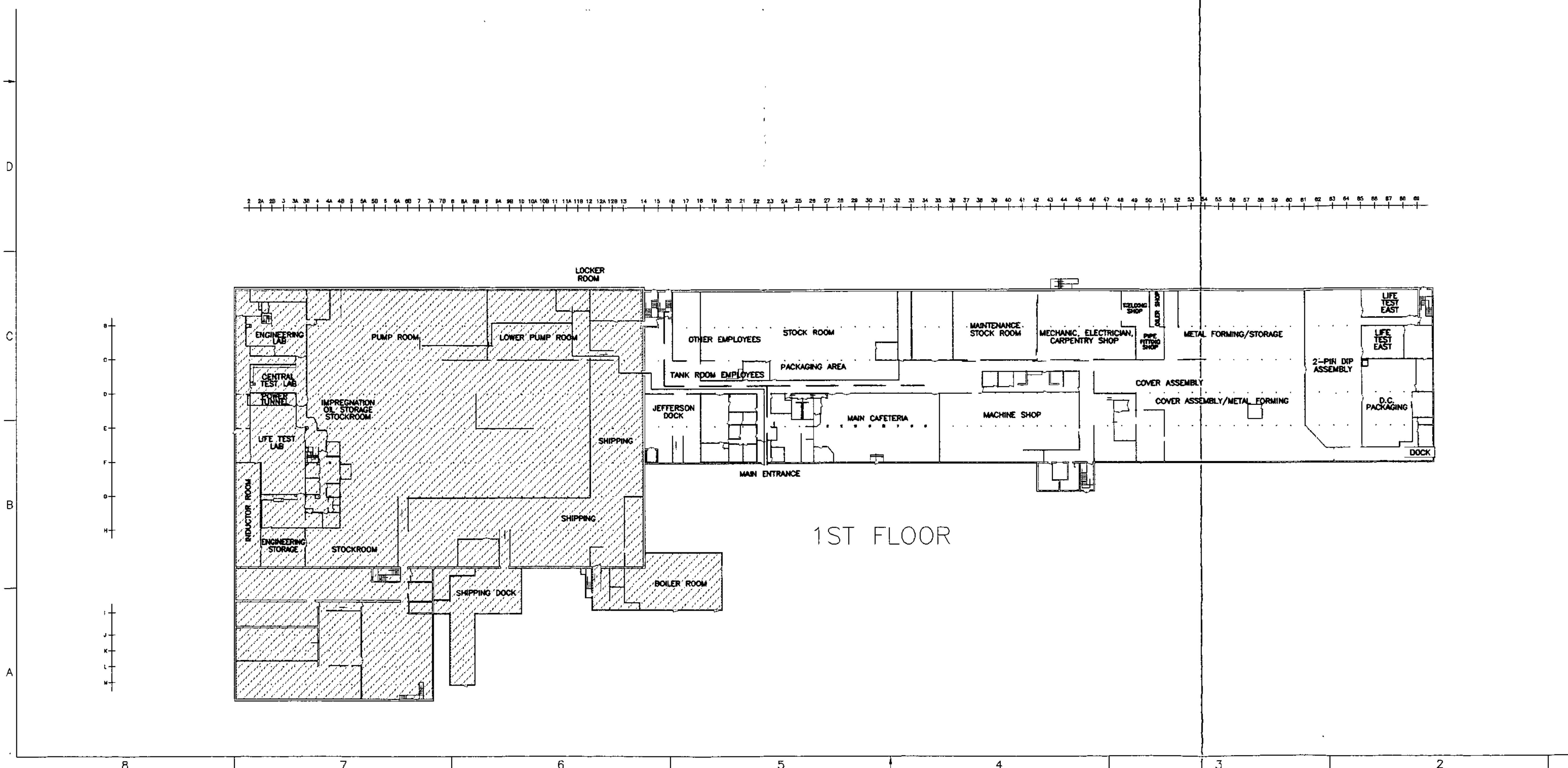
Aerovox INC.
NEW BEDFORD, MASSACHUSETTS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

DEEP GROUND-WATER POTENTIOMETRIC SURFACE MAP MARCH 11, 1998 - LOW TIDE

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 16

X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,GRID,GW-DEEP,FIG3,FILL-EX,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,SM,SOILSAMPLERESULTS,WIPES,WOODLOT
P: AERO.PCP
6/26/98 DIV54-RCB-JMS
03855005/03855GW3.DWG



NOTES:
1. DRAWING FROM ELECTRONIC FILE FROM AEROVOX, INC. DRAWING NO. PAVXX-AG-0002 DATED NOVEMBER 18, 1997.
2. ALL LOCATIONS ARE APPROXIMATE.

LEGEND

APPROXIMATE EXTENT OF CONCRETE FLOOR SLAB TO BE REMOVED UNDER DEMOLITION ALTERNATIVE #2

Aerovox® INC.
NEW BEDFORD, MASSACHUSETS
ENGINEERING EVALUATION/COST ANALYSIS (EE/CA)

APPROXIMATE EXTENT OF CONCRETE FLOOR SLAB TO BE REMOVED UNDER ALTERNATIVE #2

BBL BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 17

X (XREF)
LAYERS OFF=0,CONCRETEFLOOR,FIG3,REF,SAMPLELOCATION,SCRAPES,SEALEDAREAS,WIPES,WOODLOT
P: AERO.PCP
6/27/98 DIV54-RCB.JMS
03855003/03855C01.DWG

Attachments

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Attachment 1

USEPA's Approval Memorandum

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
J.F.K. Federal Building, Boston, MA 02209-2211

MEMORANDUM

DATE: JUL 7 1998

SUBJ: Aerovox Incorporated Site-Approval Memorandum to perform an Engineering Evaluation/Cost Analysis for a Non- Time Critical Removal Action

FROM: Marianne Milette, Senior Enforcement Coordinator
Kimberly Tisa, PCB Enforcement Coordinator

TO: Patricia Meaney, Director
Office of Site Remediation and Restoration

Ira Leighton, Acting Director
Office of Environmental Stewardship

This memorandum recommends that you authorize the preparation of an engineering evaluation/cost analysis (EE/CA) for a non-time critical removal action (NTCRA) at the Aerovox Site in New Bedford, Massachusetts. The EE/CA will evaluate cleanup alternatives for source control measures at this Site. The EE/CA will be prepared by Aerovox, Inc., under EPA oversight. No federal funds will be expended in the preparation of the EE/CA.

This memorandum is not a final Agency decision regarding the selection of a response action for the Site. The Superfund decision making process for this Site will proceed as follows:

NTCRA (Source Control)

-- Sign Approval Memorandum to initiate EE/CA
-- Finalize EE/CA and prepare Fact Sheet of proposed action
-- Conduct 30 day comment period
-- Select the NTCRA in an Action Memorandum and respond to comments
-- Implement NTCRA through AOC with Aerovox, Inc.,

I. Site Description and History

The Aerovox Site (the Site) is located on an approximately 10 acre parcel at 740 Belleville Avenue in New Bedford, Massachusetts (see Attachment 1). The Site contains an approximately 450,000 square foot manufacturing building which has been used to produce film, paper and aluminum electrolytic capacitors. A parking lot is located south of the manufacturing building. Aerovox, Inc. and various predecessor companies have occupied the site for over 80 years. During 1995, Aerovox, Inc. purchased a small parcel located west of the original property (on the opposite side of Belleville Avenue) which has been used for additional parking space. The Site is located within a highly developed urban/industrial area of New Bedford, Massachusetts. The Acushnet River borders the Site to the east. The ground surface at the Site slopes gently from the west to the east. The elevation along Belleville Avenue at the west edge of the original property is approximately 14 feet above mean sea level (MSL) while the elevation toward the eastern edge of the Site (prior to reaching a seawall constructed along the bank of the Acushnet River) is generally between 4 and 7 feet above MSL. A chronology of significant events related to the Site is detailed below:

1982 Consent Order entered into by Aerovox, Inc., with the USEPA under Section 106 of CERCLA. A similar Consent Order was entered into by Aerovox, Inc. with the Massachusetts Department of Environmental Quality Engineering ("DEQE" now known as the "MADEP") at the same time. A site investigation was conducted pursuant to the Consent Orders. The investigation focused on an unpaved area at the eastern end of the site bordering the Acushnet River and an unpaved strip of land to the north of the manufacturing building. The results of the investigation indicated that PCBs were present in soil at concentrations exceeding 50 ppm and PCBs were also present within the shallow, perched ground-water system at the site.

1983 - 1984 As a result of the above investigation, construction of the final remedial action consisting of capping the impacted soil areas (by paving with hydraulic asphalt concrete) and installing a steel sheet pile cutoff wall to serve as a vertical barrier to ground water and tidal flow into and out of the impacted soils.

1988 Removal of two 10,000 gallon No.6 fuel oil storage tanks and one 250 gallon condensate collection tank from a former concrete oil containment bunker located south of the manufacturing building boiler room. Assessment of soil and ground water in the vicinity of the former concrete oil containment bunker. A Notice of Responsibility Letter was issued by the DEQE to RTE Aerovox, Inc., for additional assessment and evaluation of remedial measures.

1990 Removal of petroleum product and water from the concrete oil containment bunker, excavation of petroleum-impacted soils for on-site treatment and recycling into an asphalt base course for the parking lot, construction of an oil-water separator to control and recover floating petroleum product and post-construction monitoring of the oil-water separator system. The MADEP determined that no further remedial action was necessary for this matter by a letter dated July 26, 1993.

1997 Inspection of the manufacturing building conducted by the USEPA and involving the collection of wood shaving samples from floor areas inside the manufacturing building and collection of oil samples from various oil storage tanks/degreaser operations for PCB analysis. The data indicated the presence of PCBs in the wood floor samples at concentrations exceeding 50 ppm. PCBs were not detected above laboratory detection limits in the oil samples collected from tanks/equipment at the Aerovox, Inc., facility.

As a result of EPA's findings, Aerovox, Inc. contractors, East Coast Engineering, Inc. and Cistar Associates, conducted additional building material and air monitoring investigations. The data collected indicated the presence of PCBs throughout the facility.

II. Nature and Extent of Contamination

Based on the 1997 investigations, Blasland, Bouck & Lee, Inc (BBL), contractor for Aerovox, Inc., conducted additional sampling of building materials ie., full-core building material samples (wood, brick, and concrete), composite scrape samples of dust/dirt from elevated horizontal surfaces, wipe samples from non-porous building material surfaces (tile floor, painted walls, steel surfaces), and wipe samples from equipment. BBL also conducted soil sampling activities beneath the concrete floor slab of the manufacturing building and beneath the asphalt parking areas surrounding the building and greund water sampling. The results of all 1997 and 1998 investigations are summarized below:

Building materials (wood, brick, concrete, etc.):

The analytical results indicate that PCBs at concentrations of greater than 50 ppm were present in the wood floors, concrete floors, dust and dirt scrape samples. Analytical results indicate PCBs were detected in full core samples collected from the brick exterior walls and wood ceilings. Analytical results of wipe samples collected from non-porous building materials, appurtances and equipment contained PCBs at concentrations greater than 10 ug/100cm^2.

Soil samples:

Beneath the building:
The analytical results indicate that PCBs at concentrations up to 18,000 ppm were present. VOCs were detected between 0.7 ppm and 30 ppm.

Underneath the asphalt parking lot:
The analytical results indicate that PCBs at concentrations up to 2,900 ppm were present. VOCs were detected between 0.22 ppm and 1.1 ppm.

Ground water sampling:

The analytical results indicate PCBs up to 36 ppb were present. VOC's were detected up to 5,000 ppb.

Air Sampling:

Data indicated the presence of PCBs in the air samples at concentrations exceeding 0.001 mg/m^3 inside the building.

PCBs are the contaminant which may pose a potential threat to human health or ecological health based upon the above field investigations.

Tables 1 and 2 summarized the potential human health risk associated with the site.

TABLE 1
CALCULATION OF NONCANCER HAZARD
INGESTION AND DERMAL EXPOSURE

EXPOSURE POINT CONCENTRATION Reasonable maximum exposure (RME), µg/cm^2		HAZARD INDEX (RME)
Tank room operator	2.71	25.7
Carpenter	2.05	39.0
Pump room operator	5.986	113.7

TABLE 2
CALCULATION OF CANCER RISK
INGESTION AND DERMAL EXPOSURE

EXPOSURE POINT CONCENTRATION Reasonable maximum exposure (RME), μg/cm²		CANCER RISK (RME)
Tank room operator	2.71	5E-04
Carpenter	2.05	7E-04
Pump room operator	5.986	1E-03

III. Endangerment Determination

Actual or potential release of PCBs from this Site may present an imminent and substantial endangerment to public health or welfare or the environment. A removal action is therefore appropriate to abate, prevent, minimize, stabilize, mitigate, or eliminate such threats. In particular, a removal action is necessary to control or contain the release of hazardous substances from the Site through source control measures.

IV. Basis for EE/CA and Non-Time Critical Removal Action

Section 300.415(b)(2) of the National Contingency Plan (NCP) lists a number of factors for EPA to consider in determining whether a removal action is appropriate, including:

- (i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;

  *

  *

- (iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;

  *

- (vi) Threat of fire or explosion;

  *

- (viii) Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

The above conditions for a removal are met at this Site. The building occupants have actual or potential exposure. The potential non-cancer risk for workers exceeds the hazard index of 1 while the cancer risk ranges from 10^{-3} - 10^{-4}. The potential for tracking of the contamination to off-site areas also exists. Should the building become vacant with no security measures the threat of fire increases.

This removal is designated as non-time critical because more than six months planning time is available before on-site activities must be initiated. Prior to the actual performance of a non-time critical removal at this Site, Section 300.415(b)(4) of the NCP requires that an engineering evaluation/cost analysis (EE/CA) be performed in order to weigh different response options.

V. Scope of the EE/CA

The purpose of the EE/CA will be to evaluate alternatives for source control response measures at the Site. The EE/CA will consider alternatives which meet the following removal action objectives:

- Prevent, to the extent practicable, direct contact with and ingestion of soil/dust/debris/structures within the building and in the soils beneath the footprint of the building and under the paved parking areas.
- Prevent, to the extent practicable, the potential for water to infiltrate through the soils;
- Control, to the extent practicable, surface water run-off to minimize erosion;
- Prevent, to the extent practicable, the release of pollutants or contaminants at levels that would represent an unacceptable human health exposure to a Site worker or trespasser; and
- Remove soils/dust/debris/structures at levels that could result in an unacceptable ecological impact.

Pursuant to EPA guidance on EE/CAs, alternatives will be evaluated based upon effectiveness, implementability, cost, and compliance with ARARs. Further, alternatives which exceed $2 million dollars will be evaluated to determine their consistency with future remedial actions to be taken at the Site.

In developing the range of alternatives to be evaluated in the EE/CA, EPA will consider 300.415(e) of the NCP as well as relevant guidance. Section 300.415 (e) of the NCP identifies various removal actions which may be appropriate in given situations, including:

(1) Fences, warning signs, or other security or site control precautions - where humans or animals have access to the release;

(2) Drainage controls, for example, run-off or run-on diversion - where needed to reduce migration of hazardous substances...;

(4) Capping of contaminated soils or sludges - where needed to reduce migration of hazardous substances or pollutants or contaminants into soil, ground or surface water, or air;

(6) Excavation, consolidation, or removal of highly contaminated soils from drainage or other areas - where such actions will reduce the spread of the release; and

(8) Containment, treatment, disposal, or incineration of hazardous materials - where needed to reduce the likelihood of human, animal, or food chain exposures.

These alternatives and others may be evaluated in the EE/CA.

VI. Other Considerations

The current schedule is to have a final Administrative Order on Consent (AOC) for the Site signed by September 1998. If a non-time critical removal action were initiated, an Action Memorandum could be issued by November 1998, AOC negotiations would be conducted October - December 1998, and the removal action would commence by December 2000 and be completed by December 2003.

The State supports the proposed action at this Site.

VII. Recommendation

In light of the facts discussed above, the case team recommends that you approve the initiation of an EE/CA for this Site.

7/15/98
Date

Patricia Meaney, Director
Office of Site Remediation and Restoration

Attachments:

1. Site Location Map
2. Risk Evaluation

Attachment 2

Field Notes - Soil Investigation Beneath the Concrete Floor Slab

06/03/98 08:20 BLASLAND BOUCK & LEE → 315 449 4111 NO.006 002

AEROVOX - NEW BEDFORD MA
BENEATH CONCRETE FLOOR SLAB
SOIL SAMPLING

DATE 5/13/98

IN ATTENDANCE: BRUCE ELLIAN (BBL)
JIM NASSETT (BBL)
PETER SZNAJA (AEROVOX)
KIM TISA (USEPA)

GOALS:

1) TO OBTAIN SAMPLES (SOIL) TO THE MAXIMUM FEASIBLE DEPTH AT TWO (2) PREVIOUSLY SAMPLED LOCATIONS: IB-6 AND ID-7

2) LAY-OUT SAMPLE LOCATIONS TO BE COLLECTED AT A FUTURE DATE (WEEK OF 5/18/98) UNDER THE ASPHALT PARKING LOT SURROUNDING THE PLANT

LABORATORY: GALSON LABORATORIES, NY - SYRACUSE, NY

SAMPLE TECHNIQUE:

TO OBTAIN THE MAXIMUM FEASIBLE DEPTH SOIL SAMPLES BENEATH THE CONCRETE FLOOR AN AMS - DOUBLE CASING SOIL RETRIEVAL SYSTEM (1⅛" ID) AND A 60 lb BOSCH JACKHAMMER WILL BE USED. DEDICATED DISPOSABLE TEFLON LINERS WILL BE USED TO COLLECT SAMPLE. THE OUTER (STEEL) CASING WILL BE CLEANED (ALCONOX AND WATER) BETWEEN LOCATIONS.

(*) A JACKHAMMER AND CHISEL BITS WERE USED TO REMOVE APPROX 4-5" OF CONCRETE

(CONT)

JJH
BEE

ID-7 5/13/98

(1130 HRS)

(1-2') LIGHT BROWN AND TAN FINE AND VERY FINE SAND, SMALL TO MEDIUM ROCK - SLIGHT SOLVENT ODOR (ARCHIVED)

(1230 HRS) (3-4') (USEPA)

(2-4') LIGHT BROWN FINE SAND WITH SMALL TO MEDIUM ROCK - SLIGHT SOLVENT ODOR (SENT FOR PCBS)

(1215 HRS) (SENT FOR VOCS)

(1.4') - SAME AS (1-2') ABOVE

(*) (3) ATTEMPTS MADE - 4' REFUSAL

NOTES

BECAUSE OF THE COMPACTEDNESS OF THE SOIL AND THE DIAMETER OF THE SOIL RETRIEVAL SYSTEM THE MAXIMUM DEPTH REACHED WAS 4'. A SHOVEL WAS USED TO REMOVE 1.4' OF SOIL WHERE KIM TISA (USEPA) REPORTED SMELLING AN ODOR (SOLVENT). KIM OBTAINED A GRAB SAMPLE AT THIS DEPTH TO BE ANALYZED FOR VOCS. THE SAMPLE TUBE LINER WAS DESTROYED DURING THE 2-4' ATTEMPT. THE 3-4' SAMPLE WAS OBTAINED BY USING A 4' SAMPLE TUBE AND PUSHING THE TUBE FROM 3-4'.

(OVER)

(CONT) JJH BEE

GROUNDWATER (SATURATED SOIL) WAS OBSERVED AT APPROXIMATELY 3'.
PER KIM TISA (USEPA) ONLY THE (1-2') SAMPLE WAS JARRED TO BE ARCHIVED FOR POTENTIAL FUTURE ANALYSIS. THE SOIL CUTTINGS REMOVED FROM THIS LOCATION WERE BACK FILLED AND CONCRETE WAS MIXED AND POURED TO RESTORE THE FLOOR SURFACE.

5/13/98

(CONT) JJH BEE

TB-6 5/13/98
(1315 HRS)

(0.5-1') (ARCHIVED) LIGHT BROWN, TRACE GREY (CONCRETE) VERY FINE TO FINE SAND AND SMALL TO MEDIUM ROCK. TRACE SOLVENT ODOR

(1315 HRS) *APPROVED BLIND DUPLICATE 1-2'

(1-2') (SENT FOR PID) LIGHT BROWN FINE SAND WITH SMALL TO MEDIUM ROCK, TRACE SOLVENT ODOR
* MS/MSD DONE HERE

(*) (2) ATTEMPTS MADE - 2' REFUSAL

NOTES
BECAUSE OF THE COMPACTEDNESS OF THE SOIL AND THE DIAMETER OF THE RETRIEVAL SYSTEM THE MAXIMUM DEPTH REACHED WAS 2'.
NO GROUNDWATER WAS ENCOUNTERED.
THE (0.5-1') SAMPLE WAS JARRED TO BE ARCHIVED FOR POTENTIAL FUTURE ANALYSIS.
THE SOIL CUTTINGS REMOVED FROM THIS LOCATION WERE BACKFILLED AND CONCRETE WAS MIXED AND POURED TO RESTORE THE FLOOR SURFACE.

5/13/98

(CONT) JJH BEE

THE LAYOUT OF SAMPLE LOCATIONS IN THE ASPHALT PARKING LOT WERE COMPLETED BY SCALING THE DISTANCES OFF OF PERMANENT LANDMARKS (BUILDINGS) THEN USING AN 100' STEEL TAPE TO LOCATED POINTS. PETE SENJATA (AEROVOX) WAS THEN CONTACTED TO CONFIRM NO UTILITIES WERE IN CONFLICT WITH THE POINTS. A COUPLE LOCATIONS WERE MOVED PER PETE. KIM TISH (USEPA) THEN WALKED AND COMMENTED ON THE PROPOSED SAMPLE LOCATIONS (BORINGS). THE RESULTS ARE AS FOLLOWS:

SB-1	KEPT THE SAME	SB-10	MOVED SOUTH EAST - AWAY FROM DRAIN LINE
SB-2	"	SB-11	MOVED SOUTH - AWAY FROM DRAIN LINE
SB-3	MOVED TO CENTER OF AISLE	SB-12	MOVED TO CENTER OF AISLE
SB-4	MOVED TO CENTER OF AISLE AND SOUTH AWAY FROM DRAIN LINE	SB-13	"
SB-5	"	SB-14	"
SB-6	MOVED SOUTH - MIDWAY BETWEEN SB-15 + SB-17	SB-15	MOVED SOUTH - AWAY FROM DRAIN LINE
SB-7	KEPT SAME	SB-16	KEPT THE SAME
SB-8	MOVED NORTH - AWAY FROM ELECTRICAL LINES	SB-17	ADDED - LOCATION NEAR TROUGH
SB-9	ELIMINATED DUE TO ELECTRICAL LINES	SB-18	ADDED LOCATION NEAR HURRICANE WALL

[signature] 5/13/98

(CONT) JJH BEE

AEROVOX-EB 5/13/98 1900 hrs

EQUIPMENT RINSE BLANK COLLECTED BY POURING LAB SUPPLIED WATER THROUGH A DEDICATED DISPOSABLE TEFLON SAMPLE TUBE LINER INTO LAB SUPPLIED GLASSWARE FOR PCBs ANALYSIS

[signature] 5/13/98

Attachment 3

Soil Boring Logs

Date Start/Finish: 05-20-98 / 05-20-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 12 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No: SB-1** **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
		(1)		1 3 7 2	10	0.8	0.5			Loose, Dark brown to black fine to coarse SAND, trace Silt and Gravel, dry. (Black discoloration in 1'-2' interval).	
		(2)		2 3 5 2	8	1.2	0.0			Loose, orange-brown, fine to coarse SAND, trace Silt and Gravel, dry.	
5		(3)		2 3 3 3	6	1.0	0.1			Loose, tan fine to coarse SAND, trace Silt and fine Gravel, dry to damp.	
		(4)		4 18 22 19	40	1.0	1.1			Dense, tan fine to coarse SAND, some fine to medium Gravel, trace Silt, damp.	
		(5)		17 20 18 19	38	0.7	0.1			Dense, tan fine to coarse SAND, some fine to medium Gravel, trace Silt, damp to moist.	
10		(6)		14 18 19 17	35	1.8	NA			Dense, tan medium to coarse SAND, some fine to medium Gravel, little fine Sand and Silt, wet.	
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones		
Date / Time	Elevation	Depth

Project: 038.55.03 Script: nbblwell Date: 08/10/98

Date Start/Finish: 05-21-98 / 05-21-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 5 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No:** SB-2 **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		4 6 6 3	12	1.0	0.0			Medium, orange-brown fine to coarse SAND, little fine Gravel, trace Silt, dry.	
		(2)		5 8 11 23	19	0.5	0.0			Medium, orange-brown, fine to coarse SAND, some fine to coarse Gravel, dry to damp.	
5										Refusal. Advanced augers to 5 ft. cutting through gneissic schist.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Date Start/Finish: 05-20-98 / 05-20-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 4 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-3

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		17 15 8 3	23	1.0	0.1			Medium, dark brown to black fine to coarse SAND, trace Silt and Gravel, dry to moist.	
		(2)		3 2 2 1	4	0.7	NA			Loose, brown/black fine to medium SAND, trace Silt and Gravel, wet (2.0' to 2.4') Loose, brown/black PEAT, wet. (2.4' to 4.0')	
5											
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones

Date / Time	Elevation	Depth

Project: 038.55.03
Script: nbblwell
Date: 06/10/98

Date Start/Finish: 05-20-98 / 05-20-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 In.
Rig Type: Acker AD II
Spoon Size: 2 In.

Borehole Depth: 4 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-4

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		4 5 5 4	10	1.0	62.5			Loose, tan/brown/black fine to coarse SAND, little Gravel, trace Silt, wet/oily appearance in 1' - 2' interval, dry to damp.	
		(2)		4 7 8 5	13	0.7	3.5			Medium, black fine to coarse SAND, some Gravel, trace Silt, damp to wet.	
5											
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Date Start/Finish: 05-21-98 / 05-21-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 6 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-6

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		4 5 5 6	10	1.5	2.5			Loose, brown/black fine to coarse SAND, some Gravel, little brick and glass, trace Silt, dry.	
		(2)		4 3 3 4	6	1.2	0.0			Loose, brown/black fine to coarse SAND AND GRAVEL, trace Silt, damp to moist.	
5		(3)		5 4 6 5	10	0.7	NA			Loose, brown/black fine to coarse SAND AND GRAVEL, trace Silt, wet.	
10											
6											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones

Date / Time	Elevation	Depth

Project: 038.55.03   Script: nbblwell
Date: 06/10/98

Date Start/Finish: 05-19-98 / 05-19-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 4 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No: SB-6** **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		15 7 4 3	11	1.4	3.5			Medium, brown/black/tan fine to coarse SAND, some Gravel, trace Silt, dry to moist. (Black discoloration in 0' to 1' interval)	
		(2)		1 1 1 1	2	0.3	NA			Loose, black/tan fine to medium GRAVEL, some fine to coarse Sand, trace Clay and Silt, wet.	
5											
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil

Saturated Zones		
Date / Time	Elevation	Depth

Date Start/Finish: 05-19-98 / 05-19-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 6 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-7

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		5 8 5 7	11	1.1	0.2			Medium, brown/black coarse SAND, little Gravel, trace Silt, dry to damp. (Black discoloration 1' - 2' interval)	
		(2)		10 7 8 11	13	0.0				No recovery.	
5		(3)		15 7 1 1	8	0.7	0.5			Loose, brown/black PEAT (4.0' to 4.3'). Loose, brown/black coarse SAND, little gravel, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:

Saturated Zones

Date / Time	Elevation	Depth

Project: 038.55.03
Script: nbblwell
Date: 06/10/98

Date Start/Finish: 05-21-98 / 05-21-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 10 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-8

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		4 6 6 7	14	1.3	3.1			Medium, orange-brown to tan, fine to coarse SAND, little fine to Medium Gravel, trace Silt, dry.	
		(2)		11 13 15 12	28	0.8	0.0			Medium, orange-brown, fine to medium SAND, some fine to medium Gravel, dry.	
5		(3)		15 20 25 18	45	1.1	0.9			Dense, orange-brown, fine to medium SAND, some fine to medium Gravel, dry.	
		(4)		18 25 32 28	57	1.2	0.1			Very dense, orange-brown, fine to medium SAND, some fine to medium Gravel, dry to damp.	
		(5)		10 21 48 34	69	0.4	NA			Very dense, tan medium to coarse SAND and medium to coarse GRAVEL, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones

Date / Time	Elevation	Depth

Date Start/Finish: 05-21-98 / 05-21-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 6 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-10

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		25 35 40 18	75	0.9	0.0			Very dense, brown/black/tan fine to coarse SAND, some fine to medium Gravel, dry.	
		(2)		11 7 5 5	12	1.0	0.0			Medium, orange-brown/tan fine to medium SAND, little Gravel, dry to moist.	
5		(3)		8 7 8 7	15	0.2	NA			Medium, orange-brown/tan fine to medium SAND, little Gravel, wet	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones		
Date / Time	Elevation	Depth

Project: 038.55.03
Script: nbblwell
Date: 08/10/98

Date Start/Finish: 05-21-98 / 05-21-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 3 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No:** SB-11 **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt and Cobbles	
		(1)		5 8 10 50/ 0.1'	18	1.0	112			Medium, brown/black/tan, fine to coarse SAND, some fine to medium Gravel, Rock at tip of spoon, dry.	
										Refusal, possible top of rock. Augers advanced to 3 feet returning fragments of gneissic schist.	
5											
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Project: 038.55.03 Script: nbblwell Date: 08/10/98

Date Start/Finish: 05-20-98 / 05-20-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 8 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-12

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		4 9 13 15	22	1.5	1.1			Medium, dark brown/black to orange-brown fine to coarse SAND, little Gravel, trace Silt, dry. (Black discoloration in 0' to 1' interval)	
		(2)		12 18 18 20	36	1.4	0.0			Medium, orange-brown to tan fine to medium SAND, trace Silt, dry to damp.	
5		(3)		20 21 14 17	35	1.4	0.0			Medium, orange-brown to tan fine to medium SAND, trace Silt, Rock at tip of spoon, damp to moist.	
										Refusal, with gneissic schist rock fragments in spoon, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:

Saturated Zones		
Date / Time	Elevation	Depth

Date Start/Finish: 05-20-98 / 05-20-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 6 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No:** SB-13 **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		10 11 10 8	21	1.4	0.0			Medium, black to brown fine to coarse SAND, little fine to medium Gravel, trace Silt, dry. (Black discoloration in 0' to 1' interval)	
		(2)		4 3 3 4	6	1.1	0.0			Loose, orange-brown fine to coarse SAND, trace Silt and fine Gravel, dry to moist.	
5		(3)		7 5 3 5	8	0.7	NA			Loose, orange-brown fine to coarse SAND, trace Silt and fine Gravel, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones		
Date / Time	Elevation	Depth

Date Start/Finish: 05-20-98 / 05-20-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 8 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No: SB-14** **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		fi 10 9 7	19	0.4	--			Medium, black/tan, medium to coarse SAND, little Gravel, trace Silt, dry.	
		(2)		5 2 1 1	3	0.1	--			Loose, black, medium to coarse SAND, little Gravel, trace Silt, damp.	
5		(3)		5 1 5 9	6	0.9	--			Loose, dark brown/black fine to coarse SAND, little Gravel, trace Silt, damp to moist.	
		(4)		4 8 7 5	15	1.3	NA			Medium, dark brown/black fine to course SAND, little Gravel, trace Silt, wet.	
10											
5											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:

--: No headspace measurement was obtained based on the lack of sample recovery.
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones

Date / Time	Elevation	Depth

Date Start/Finish: 05-19-98 / 05-19-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 8 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-15

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		9 9 8 5	17	1.5	0.0			Medium, black, medium to coarse SAND, some Gravel, trace silt, dry.	
		(2)		8 5 6 9	11	0.6	0.0			Medium, brown to black, medium to coarse SAND, some Gravel, little peat (3.5' to 4.0'), dry to damp.	
5		(3)		9 8 7 2	13	0.1	0.0			Medium, black to brown, medium to coarse SAND AND GRAVEL, damp to moist.	
		(4)		4 9 19 19	28	1.2	NA			Medium, brown to black, fine to coarse SAND, little Gravel, weathered Rock at tip of spoon, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones		
Date / Time	Elevation	Depth

Project: 038.55.03
Script: nbblwell
Date: 08/10/88

Date Start/Finish: 05-19-98 / 05-19-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 6 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-18

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
		(1)		8 8 9 5	17	1.0	4.9			Medium, brown/red/black coarse SAND, little Gravel and Brick, trace Silt, dry. (Black discoloration in 1 to 2' interval)	
		(2)		5 5 4 1	9	0.7	0.0			Loose, brown/black coarse SAND and GRAVEL, little fine to medium Sand, trace Silt, damp to moist.	
5		(3)		5 12 15 23	27	0.8	NA			Medium, brown/black, fine to medium GRAVEL, little medium to coarse Sand, trace Silt, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones		
Date / Time	Elevation	Depth

Project: 038.55.03
Script: nbblwell
Date: 08/10/98

Date Start/Finish: 05-19-98 / 05-19-98 **Drilling Company:** Environmental Drilling Inc. **Driller's Name:** **Drilling Method:** Hollow Stem Auger **Auger Size:** ID 4.25 in. **Rig Type:** Acker AD II **Spoon Size:** 2 in.	**Borehole Depth:** 8 ft. **Geologist:** Doug Ruszczyk	**Soil Boring No:** SB-17 **Client:** Aerovox Incorporated **Location:** New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		17 8 5 7	13	1.3	13			Medium, tan/brown/black, fine to coarse SAND, some fine to medium Gravel, trace Silt, dry. (Black discoloration in 1' to 2' interval)	
		(2)		2 2 2 2	4	0.0				No recovery.	
5		(3)		2 1 1 1	2	2.0	0.0			Loose, brown/black PEAT, little fine to coarse Sand, trace Gravel, dry to moist. (Peat @ 4.3 ft.)	
		(4)		2 1 3 2	4	1.7	NA			Loose, brown/black PEAT, some fine to medium Sand, trace Silt and Gravel, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones		
Date / Time	Elevation	Depth

Date Start/Finish: 05-20-98 / 05-20-98
Drilling Company: Environmental Drilling Inc.
Driller's Name:
Drilling Method: Hollow Stem Auger

Auger Size: ID 4.25 in.
Rig Type: Acker AD II
Spoon Size: 2 in.

Borehole Depth: 10 ft.

Geologist: Doug Ruszczyk

Soil Boring No: SB-18

Client:
Aerovox Incorporated

Location:
New Bedford, MA.

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID Headspace	Geotechnical Test	Geologic Column	Stratigraphic Description	Soil Boring Construction
										GROUND SURFACE	
										Asphalt	
		(1)		2 2 8 10	10	0.7	1.9			Loose, black to orange-brown, medium to coarse SAND, trace Silt, little Gravel, dry. (Black discoloration in 0' to 1' interval)	
		(2)		5 8 6 6	14	0.8	0.1			Medium, orange-brown, Medium to Coarse SAND, trace Silt and Gravel, dry to damp.	
5		(3)		7 10 12 14	22	1.1	0.0			Medium, orange-brown, medium to coarse SAND, trace Silt and Gravel, damp.	
		(4)		15 22 25 25	47	1.6	2.3			Dense, tan, fine to medium SAND, little Silt, trace Gravel, damp to moist.	
		(5)		10 10 11 11	21	1.6	NA			Medium, tan SILT and fine SAND, trace fine Gravel, wet.	
10											
15											

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
NA: No headspace measurement was obtained based on the presence of saturated soil.

Saturated Zones

Date / Time	Elevation	Depth

Project: 038.55.03
Script: nbblwell
Date: 08/10/98

Attachment 4

Field Notes - Soil Investigation Beneath the Parking Lot

5/19/98 Aerovox Inc. 1/15

BMR, RTS, NJ 038.55 Sunny, 65

0830: On site with Mike Jones to meet with Peter Szlata, Rich Saunders on site.

- Picked up equipment and organized gear

0930: Drillers on site. Scott Lamarche (Driller) and Anthony Orlicky (Helper)

Drill Rig: Acker AD II

- Environmental Drilling, Inc

- Drillers had to buy lumber to construct decon pad

- Unloading sample containers

1045: Drillers on site to build decon pad

- Drillers decon auger flights, and cutting heads and rods.

SB-7

Depth	Time	Blow Counts	Recovery	PID
0-2'	1202	5-6-5-7	1.1'	0.2
2-4'	1205	10-7-6-11	0.0'	—
4-6'	1215	15-7-1-1	0.7	0.5

- Peat layer included in sample SB-7-5'

- Sample SB-7-2 ✓ to be submitted to lab for PCB analysis along with SB-7-5 ✓ for VOC analysis

PCB Analysis SB-7-5 (4-5')

DESCRIPTION

Medium, brown and black coarse SAND, little gravel, trace silt, dry to damp. Oily presence in 1-2' section

Loose, brown and black peat from 4" to 4.3'. Remaining coarse sand, little gravel, wet, water at ± 5 ft.

- PID readings at borehole 0.0 to 0.2

- Dust levels consistent at 0.01 to 0.04

5/19/90 Aerovox, Inc 038.55 4/15

1145: Held H&S meeting, signed off on

Thermo Environmental Systems Inc. Model 58B OVM
- Background HNu: 0.5 ppm

1330: Kim Tisa (USEPA) on site

1450: Composite asphalt sample Comp-1 collected.
- Composite of SB-7, SB-15, SB-16, and SB-6

1540: Mike Jones off site

1630 - 1700: Drillers decon/powerwash augers.

Total decon time for day - 1 hr.

1700: Drillers off site

5/19/90 Aerovox, Inc. 038.55 5/15

1800: Bill off site
- Taking samples to Fed Ex in Taunton, Mass.

1835: Samples @ Fed Ex.

5/19/90 AEROVOX, INC 038.55 6/15

SB-16

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1252	8-8-9-9	1.0	4.9
2-4'	1255	5-5-4-1	0.7	0.0
4-6'	1305	5-12-15-23	0.8	NA

PID READINGS @ BOREHOLE 0.0 TO 0.2

DUST LEVELS @ BOREHOLE 0.01 TO 0.05

NO SAMPLES COLLECTED FROM 4-6' DEPTH.

5/19/90 AEROVOX, INC 038.55 7/15

SB-16

DESCRIPTION

MEDIUM BROWN, RED, BLACK COARSE SAND, LITTLE GRAVEL, LITTLE BRICK, TRACE SILT. DARKER STAINS IN 1-2 INTERVAL, DRY

LOOSE BROWN-BLACK COARSE SAND, AND GRAVEL, LITTLE F-M SAND TRACE SILT, DAMP TO MOIST

MEDIUM BROWN TO BLACK F-M GRAVEL, LITTLE M-C SAND, TRACE SILT, WET

GROUNDWATER @ ±4' BGS.

PCB SAMPLE SB-16-2 - LAB ANALYSIS (1-2')
VOC SAMPLE SB-16-2 - LAB ANALYSIS (0-2')

SB-15

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1340	9-9-8-5	1.5'	0.0
2-4'	1343	8-5-6-9	0.6	0.0
4-6'	1360	9-6-7-2	0.1	0.0
6-8'	1355	4-9-19-19	1.2	NA

- BREATHING ZONE 0.0 TO 0.1
  DUST READINGS 0.01 TO 0.05

SB-15

DESCRIPTION

MEDIUM BLACK M-C SAND, SOME GRAVEL, TRACE SILT, DRY

MEDIUM, BROWN TO BLACK M-C SAND, SOME GRAVEL, PEAT FROM 3.8 TO 4.0'. DRY TO DAMP

MEDIUM, BLACK TO BROWN M-C SAND AND GRAVEL DAMP TO MOIST
- NO SAMPLE FOR ANALYSIS (POOR RECOVERY)

BROWN TO BLACK F-C SAND, LITTLE GRAVEL, WEATHERED BEDROCK @ 7.5', WET

PCB ANALYSIS SB-15-2 ✓ (~~0-1'~~ 1-2')
VOC ANALYSIS SB-15-2 ✓ (0-2')

SB-6

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1422	15-7-4-3	1.4'	3.5
2-4'	1425	1-1-1-1	0.3	NA

BREATHING ZONE: 0.0 TO 0.1
DUST LEVELS: 0.01 TO 0.05

SB-6

DESCRIPTION

MEDIUM, BROWN/BLACK/TAN F-C SAND, SOME GRAVEL, TRACE SILT, DRY TO ~~DAMP~~ MOIST. 0-1' - POSSIBLE OILY/BLACK INTERVAL

LOOSE, BLACK/TAN GRAVEL, SOME F-C SAND, TRACE SILT AND CLAY, WET

PCB ANALYSIS: SB-6-1 (0-1')
VOC ANALYSIS: SB-6-2 (0-2')

5/19/98 Aerovox, Inc. 038.55

SB-17

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1509	17-8-5-7	1.3'	1.3
2-4'	1510	2-2-2-2	0.0	—
4-6'	1518	2-1-1-1	2.0	0.0
6-8	1530	2-1-3-2	1.7	NA

5/19/98 Aerovox, Inc. 038.55

SB-17

DESCRIPTION

MEDIUM TAN/BROWN/BLACK F-C SAND, SOME F-M GRAVEL, TRACE SILT, DRY
- DARK STAINED IN 1-2' INTERVAL

NO RECOVERY

LOOSE, BROWN/BLACK PEAT, LITTLE F-C SAND, TRACE GRAVEL
LOOSE, DRY TO MOIST (PEAT @ 4.3')
BROWN/BLACK, PEAT, SOME F-M SAND, TRACE GRAVEL, TRACE SILT, WET

PCB ANALYSIS : SB-17-5 (4-5') ±
VOC ANALYSIS : SB-17-2 (0-2') SB-17-2

SB-5

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	~~1600~~ 1602	4-5-5-6	1.5	2.5
2-4'	1605 ~~1610~~	4-3-3-4	1.2	0.0
4-6'	1610	5-4-6-5	0.7	NA

BREATHING ZONE 0.0 - 0.2
DUST LEVELS 0.01 - 0.06

SB-5

DESCRIPTION

LOOSE, BROWN/BLACK, F-C SAND, SOME GRAVEL, LITTLE BRICK AND GLASS, TRACE SILT, DRY

LOOSE, BROWN/BLACK, F-C SAND AND GRAVEL, TRACE SILT, DAMP TO MOIST.

~~LOOSE~~ SAME EXCEPT WET. WATER @ ± 4.3 FT.

PCB SAMPLE SB-5-2 (1-2') ✓
VOC SAMPLE SB-5-2 (0-2) ✓

5/20/98 AEROVOX, INC. 1/16

DMC, FLS 038.56.003 P. SUNNY, 62°F

0700 : BBL ON SITE

: DRILLERS ON SITE

0710 : EPA REPRESENTATIVE ON SITE - KIM TISA

ENVIRONMENTAL DRILLING INC.

DRILLER: SHANE PULAK

0820 : EPA OFF SITE

1210 - 1300 : LUNCH BREAK

1315 - 1345 : DRILLERS DECON AUGER FLIGHTS AND PLACE COLD PATCH ON YESTERDAY'S BOREHOLES

1440 : ASPHALT COMPOSITE SAMPLE

COMPOSITE - 2 SOIL BORINGS

SB-4, 5, 13 & 14

5/20/98 AEROVOX, INC 038.55 2/16

ATTEMPTED SB-11. HIT CEMENT UNDER PAVEMENT WITH SPLITSPOON. ATTEMPTED TO GRIND THROUGH WITH AUGERS BUT COULD NOT. POSSIBLE BOULDER. WILL ATTEMPT AT NEW SB-11 LOCATION TOMORROW - 1625 -

1645 : DRILLERS OFF SITE

1730 : BBL OFF SITE

1845 : SAMPLES DELIVERED TO FED EX

SB - 18

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	0817	2-2-8-10	0.7'	1.9
2-4'	0820	5-8-6-6	0.0'	0.1
4-6'	0825	7-10-12-14	1.1'	0.0
6-8'	0845	19-22-25-29	1.8'	2.3
8-10'	0904	10-10-11-11	1.8'	NA

PCB SAMPLE SB-18-1 (0-1')
VOC SAMPLE SB-18-8 (6-8')

SB - 18

DESCRIPTION

LOOSE, BLACK TO ORANGE-BROWN M-C SAND, LITTLE GRAVEL, TRACE SILT, DRY
- DARK COLORED IN 0-1'
- DID NOT COLLECT 1-2' PCB SAMPLE (POOR RECOVERY)

MEDIUM, ORANGE-BROWN M-C SAND, TRACE GRAVEL AND SILT, DRY TO DAMP

MEDIUM, ORANGE-BROWN M-C SAND, TRACE GRAVEL AND SILT, DAMP

DENSE TAN F-M SAND, LITTLE TO AND SILT, TRACE GRAVEL, DAMP TO MOIST

MEDIUM, TAN SILT AND F SAND, TRACE F GRAVEL WET - ALLUVIAL

WATER @ ± 18 FT

AIR/BREATHING READINGS 0.0 TO 0.3
DUST LEVEL 0.03 TO 0.10

SB-1

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	0938	1-3-7-2	0.8	0.5
2-4'	0940	2-3-5-2	1.2	0.0
4-6'	0949	2-3-3-3	1.0	0.1
6-8'	1000	4-16-22-19	1.0	1.1
8-10'	1014	17-20-18-19	0.7	0.1
10-12'	1017	14-16-19-17	1.6	N.A.

PCB SAMPLE SB-1-2 (0-2')
VOC SAMPLE SB-1-8 (6-8')

SB-1

DESCRIPTION

LOOSE, DARK BROWN TO BLACK F-C SAND, TRACE SILT AND GRAVEL. BLACK DISCOLORATION IN 1-2' INTERVAL. DRY

LOOSE, ORANGE-BROWN F-C SAND, TRACE SILT AND GRAVEL, DRY

LOOSE, TAN, F-C SAND, TRACE SILT AND FINE GRAVEL, DRY TO DAMP

DENSE, TAN F-C SAND, SOME F-M GRAVEL, TRACE SILT, DAMP

SAME EXCEPT DAMP TO MOIST

DENSE, TAN M-C SAND, SOME F-M GRAVEL, LITTLE F SAND AND SILT AT TIP OF SPOON, WET

- GROUNDWATER AT ± 10'
- BOREHOLE/BREATHING ZONE: 0.0 TO 0.2
- DUST LEVELS: 0.01 TO 0.07

SB-14

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1106	11-10-9-7	0.4	–
2-4'	1109	5-2-1-1	0.1	–
4-6'	1116	5-1-5-9	0.9	–
6-8'	1120	4-8-7-5	1.5	NA

PCB SAMPLES SB-14-5 & SB-14-5D
@ 5' DEPTH
VOC SAMPLE SB-14-6 (4-6')

SB-14

DESCRIPTION

MEDIUM, BLACK/TAN, M-C SAND, LITTLE GRAVEL
TRACE SILT, DRY
0-1' SAMPLE ONLY FOR PCBs

LOOSE, SAME EXCEPT BLACK, DAMP
~~NO SAMPLES~~ 2-3' SAMPLE ONLY FOR PCBs

LOOSE DK BROWN/BLACK F-C SAND, LITTLE GRAVEL,
TRACE SILT. DAMP TO MOIST.

SAME EXCEPT WET.
- GROUND WATER @ ± 6 FT.

BOREHOLE/BREATHING ZONE 0.0 TO 0.2
DUST LEVELS 0.01 TO 0.05

5/20/98 AEROVOX, INC. 038.55

SB-4

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2	1148	4-5-5-4	1.0	62.5
2-4'	1152	4-7-6-5	0.7	3.5

No 3-4' PCB SAMPLE COLLECTED DUE TO THE POOR RECOVERY

PCB ANALYSIS SB-4-2 (1-2')
VOC ANALYSIS SB-4-2 (0-2')

5/20/98 AEROVOX, INC. 038.55

SB-4

DESCRIPTION

LOOSE TAN/BROWN/BLACK F-C SAND, LITTLE GRAVEL, TRACE SILT, WET/OILY APPEARANCE IN 1-2' INTERVAL. DRY TO DAMP.

MEDIUM BLACK F-C SAND, LITTLE TO SOME GRAVEL, TRACE SILT, DAMP TO WET.

GROUNDWATER @ ± 4 FT

5/20/98 AEROVOX, INC 038.55 11/16

SB-13

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2	1355	10-11-10-8	1.4	0.0
2-4'	1358	4-3-3-4	1.1	0.0
4-6'	1409	7-5-3-5	0.7	NA

PCB SAMPLE SB-13-1 (0-1')
VOC SAMPLE SB-13-2 (0-2')

5/20/98 AEROVOX, INC 038.55 12/16

SB-13

DESCRIPTION

MEDIUM BLACK TO BROWN, F-C SAND, LITTLE F-M GRAVEL, TRACE SILT, DRY
- 0-1' INTERVAL BLACK COLOR

LOOSE ORANGE-BROWN F-C SAND, TRACE SILT AND F GRAVEL DRY TO DAMP MOIST

SAME EXCEPT WET

GROUNDWATER @ ± 4 FT

BOREHOLE/BREATHING ZONE 0.0 TO 0.1
DUST LEVELS 0.01 TO 0.04

SB-12

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2	1450	7,9,12,15	1.5'	1.1
2-4'	1453	12-18-18-20	1.4'	0.0
4-6'	1504	20,21,14,12	1.4'	0.0
6-8	1510	28-50/1	0.1	NA

PCB SAMPLES SB-12-1 (0-1')
VOC SAMPLE SB-12-2 (0-2')

SB-12

DESCRIPTION

Medium dark brown-black to orange brown, F-C SAND, little gravel, trace silt, dry
- dark colored 0-1' interval

Medium orange-brown to tan F-M SAND, trace silt, dry to damp.

Same except rock at tip of spoon and damp to moist

Granite/Gneiss - hit refusal, wet

Water @ ± 6 ft

Borehole/Breathing zone 0.0 to 0.01
Dust levels 0.01 to 0.07

SB-3

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1550	17-15-8-3	1.0	0.1
2-4'	1553	3-2-2-1	0.7	NA

PCB SAMPLE SB-3-2 (0-2')
VOC SAMPLES SB-3-2 AND SB-3-2D (0-2')

SB-3

DESCRIPTION

MEDIUM DENSE BROWN TO BLACK F-C SAND, ~~LITTLE~~ TRACE GRAVEL AND SILT DRY TO MOIST

~~PEAT~~ LOOSE, BROWN-BLACK ~~PEAT~~ A F-M SAND, TRACE GRAVEL, AND SILT WET (2.0 TO 2.4')
2.4'± LOOSE BROWN-BLACK PEAT, WET

SOIL BORING / BREATHING ZONE 0.0 TO 0.01
DUST LEVELS 0.01 TO 0.04

5/21/92 AERONOX, INC. 1/14
DHR, RTS 038.55 H. SUNNY 62°F

0700: BBL ON SITE
- BEGAN TAPING IN SOIL BORING LOCATIONS

0740: DRILLERS ON SITE
PATCHING BORINGS WITH ASPHALT COLD PATCH.

0810: COLLECTED RINSE BLANK SAMPLE OF DECONTAMINATED SPLIT-SPOON SAMPLER FOR PCBs (METHOD 8082) AND VOCs (METHOD 8260)

- SET UP DRILL RIG AT SB-11
~~RT~~ DUST MONITOR AND HNU SET UP AND CALIBRATED

- INFORMED BY PETER SELATA THAT COBBLESTONES ARE PRESENT @ SB-1 AND POSSIBLY SB-10

5/21/92 AERONOX, INC. 038.55 2/14

1118: COLLECTED ASPHALT COMPOSITE SAMPLE (COMP-3) FROM SB-3, 10, 11, 1-12

1131: COLLECTED ASPHALT COMPOSITE SAMPLE (COMP-4) FROM SB-8 & SB-2

1215: SOIL BORING INSTALLATIONS COMPLETED

- DRILLERS USED 3 BAGS OF 60# ASPHALT COLD PATCH

1800: BBL OFF SITE
DELIVER SAMPLES AND RENTAL EQUIPMENT TO FED EX

1900: SAMPLES AND EQUIPMENT @ FED EX

SB-11

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0.5-2.5'	0842	5-8-10-50/.1	1.0	112

PCB SAMPLE SB-11-1.5 (0.5'-1.5')
VOC SAMPLE SB-11-2.0 (0.5-2.0)

SB-11

DESCRIPTION

MEDIUM BROWN/BLACK/TAN. F-C SAND, SOME F-M GRAVEL, ROCK @ TIP OF SPOON (GNEISS) DRY

TOP OF ROCK @ ± 2 FT

- AUGERS ADVANCED TO 3 FT. CUTTINGS/ROCK FRAGMENTS COMPARE W/ PREVIOUS GEOLOGIC DESCRIPTIONS - GNEISSIC SCHIST

BREATHING ZONE/BOREHOLE 0.0 TO 0.01
DUST LEVELS 0.01 TO 0.04

SB-10

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2	0935	25-35-40-18	0.9	0.0
2-4'	0938	11-7-5-5	1.0	0.0
4-6'	0948	6-7-8-7	0.2	NA

PCB SAMPLE SB-10-1 (0-2')
VOC SAMPLE SB-10-2 (0-2')

SB-10

DESCRIPTION

V. DENSE, BROWN/BLACK TAN F-C SAND, SOME ~~[illegible]~~ F-M GRAVEL, DRY

MEDIUM, ORANGE-BROWN/TAN F-M SAND, LITTLE GRAVEL DRY TO MOIST

SAME, EXCEPT WET

GROUNDWATER @ ≅ 4.0 FT

BOREHOLE / BREATHING ZONE: 0.0 TO 0.01
DUST LEVELS: 0.01 TO 0.06

SB-8

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2	1012	4-6-8-7	1.3	3.1
HS(ASI)				
2-4'	1015	11-13-15-12	0.8	0.0
4-6'	1024	15-20-25-18	1.1	0.9
6-8	1040	18-25-32-28	1.2	0.1
		~~10-21-59/54~~		
8-10'	1055	10-21-48-34	0.4	NA

PCB SAMPLE SB-8-1 (0-1')
VOC SAMPLE SB-8-2 (0-2')

SB-8

DESCRIPTION

MEDIUM, ORANGE-BROWN TO TAN F-C SAND, LITTLE F-M GRAVEL, TRACE SILT, DRY.

MEDIUM, ORANGE-BROWN F-M SAND, SOME F-M GRAVEL, DRY

~~SAME~~ SAME, EXCEPT DENSE

SAME, EXCEPT V.DENSE, DRY TO DAMP.

V.DENSE TAN M-C SAND AND M-C GRAVEL WET.

BREATHING ZONE/BOREHOLE 0.0 TO 0.01
DUST LEVELS 0.01 TO 0.08

SB-2

DEPTH	TIME	BLOW COUNTS	RECOVERY	PID
0-2'	1135	4-6-6-3	1.0	0.0
2-4'	1138	5-8-11-23	0.5	0.0
~~4-6'~~		~~50/1~~		
4-6'	1145	50/.1		

PCB SAMPLE SB-2-1 (0-1')
VOC SAMPLE SB-2-2 (0-2')

SB-2

DESCRIPTION

MEDIUM, ORANGE-BROWN F-C SAND, LITTLE FINE GRAVEL, TRACE SILT, DRY

MEDIUM, ORANGE-BROWN, F-C SAND, SOME F-C GRAVEL, DRY TO DAMP.
- NO 3-4' PCB SAMPLE

NO RECOVERY - ADVANCED AUGERS TO 5 FT
CUTTING THROUGH ROCK GNEISSIC SCHIST
POSSIBLE TOP OF ROCK

BREATHING ZONE 0.01 TO 0.02
DUST LEVELS : 0.01 TO 0.06

Attachment 5

GHR Cross Sections (A-A' through E-E')

REPORT OF

EVALUATION OF REMEDIAL ALTERNATIVES FOR THE AEROVOX PROPERTY, NEW BEDFORD, MASSACHUSETTS

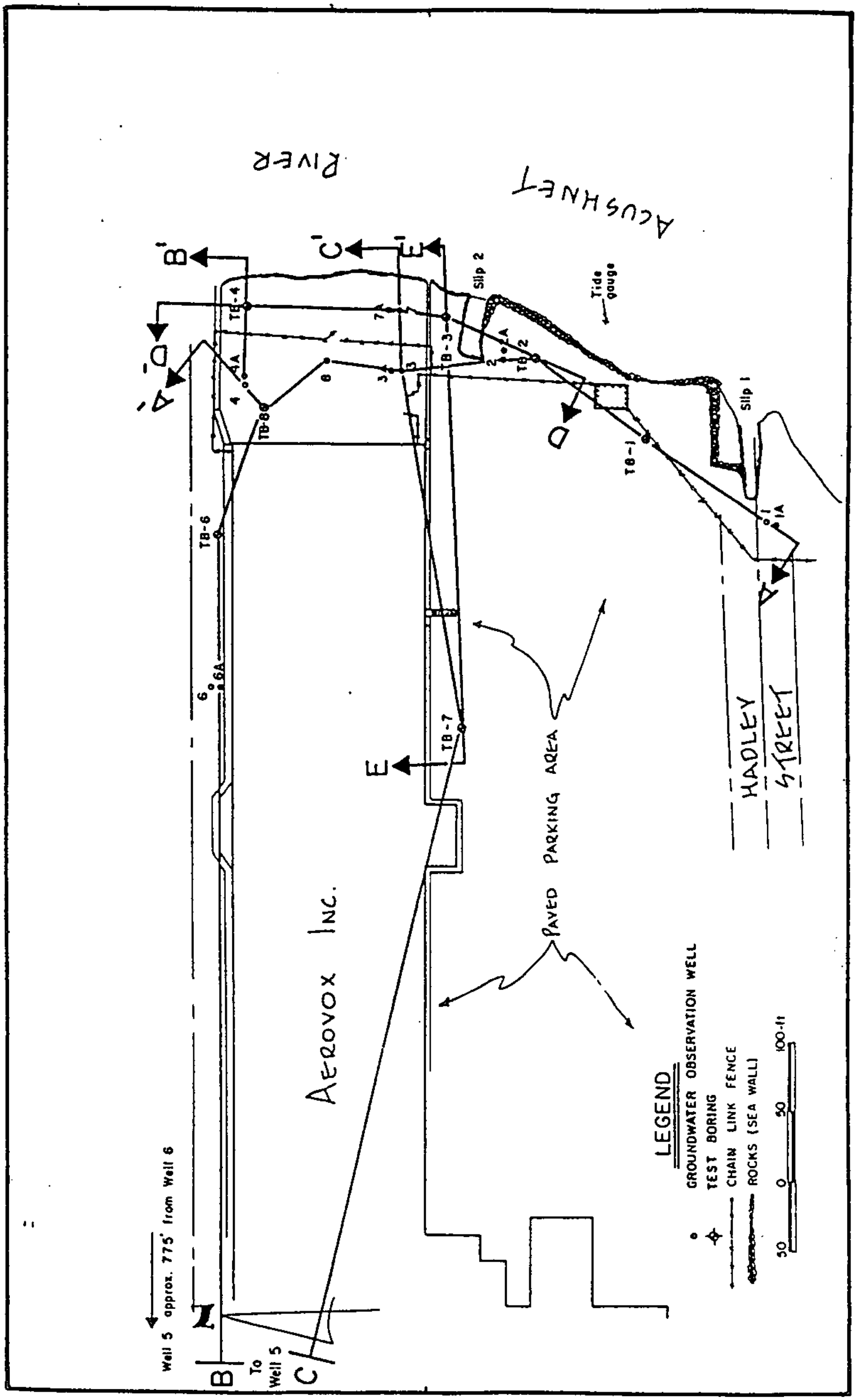
SUBMITTED TO:

AEROVOX INCORPORATED
740 BELLEVILLE AVENUE
NEW BEDFORD, MA

PREPARED BY:

GHR ENGINEERING CORPORATION
75 TARKILN HILL ROAD
NEW BEDFORD, MA

FEBRUARY 11, 1983



ACUSHNET RIVER
AEROVOX INC.
PAVED PARKING AREA
HADLEY STREET
Slip 1
Slip 2
Tide gauge
TB-1
TB-2
B-3
TE-4
TB-6
TB-7
TB-8
Well 5 approx. 775' from Well 6
To Well 5
LEGEND
GROUNDWATER OBSERVATION WELL
TEST BORING
CHAIN LINK FENCE
ROCKS (SEA WALL)
50
0
50
100-ft

Figure 4-1

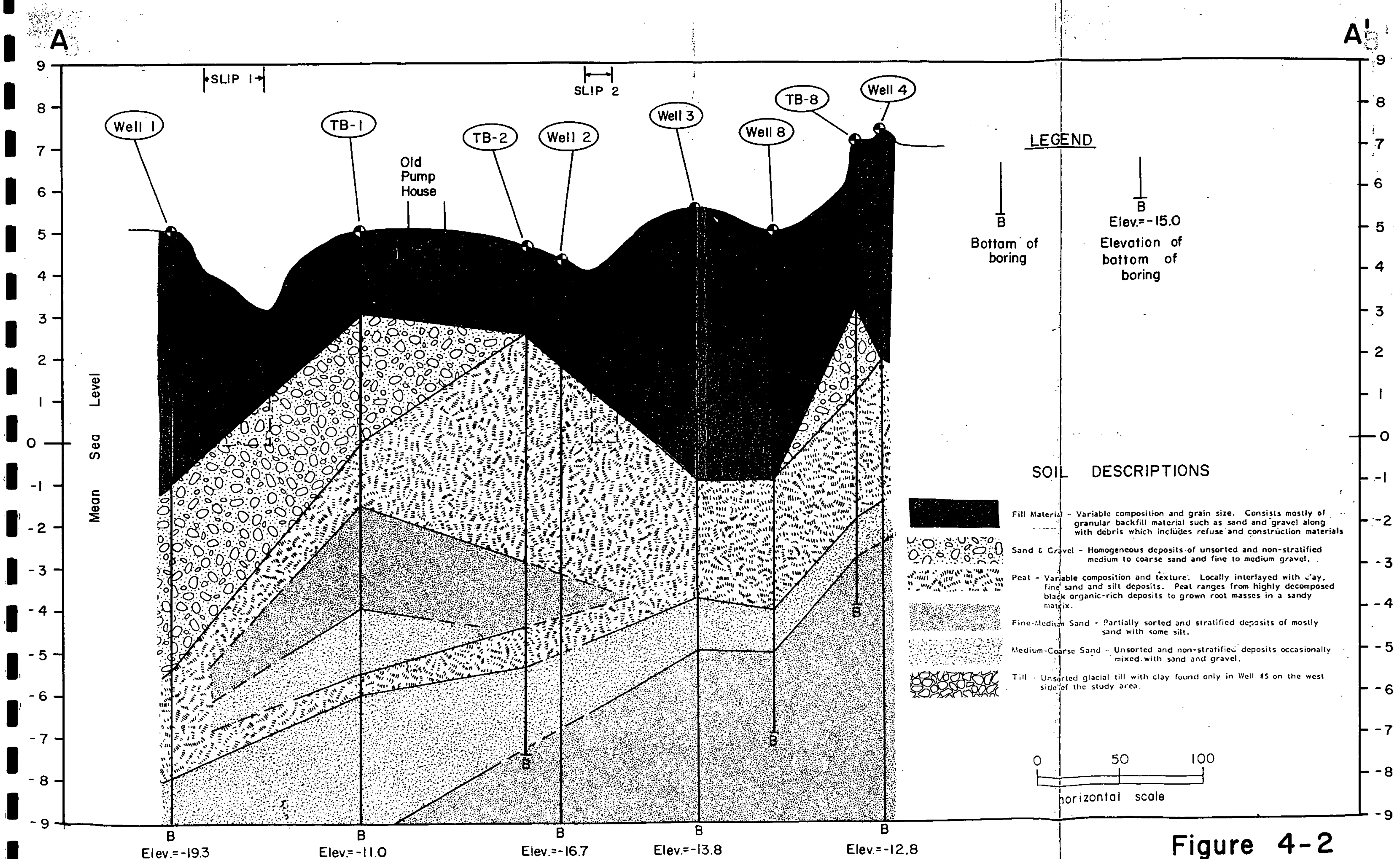
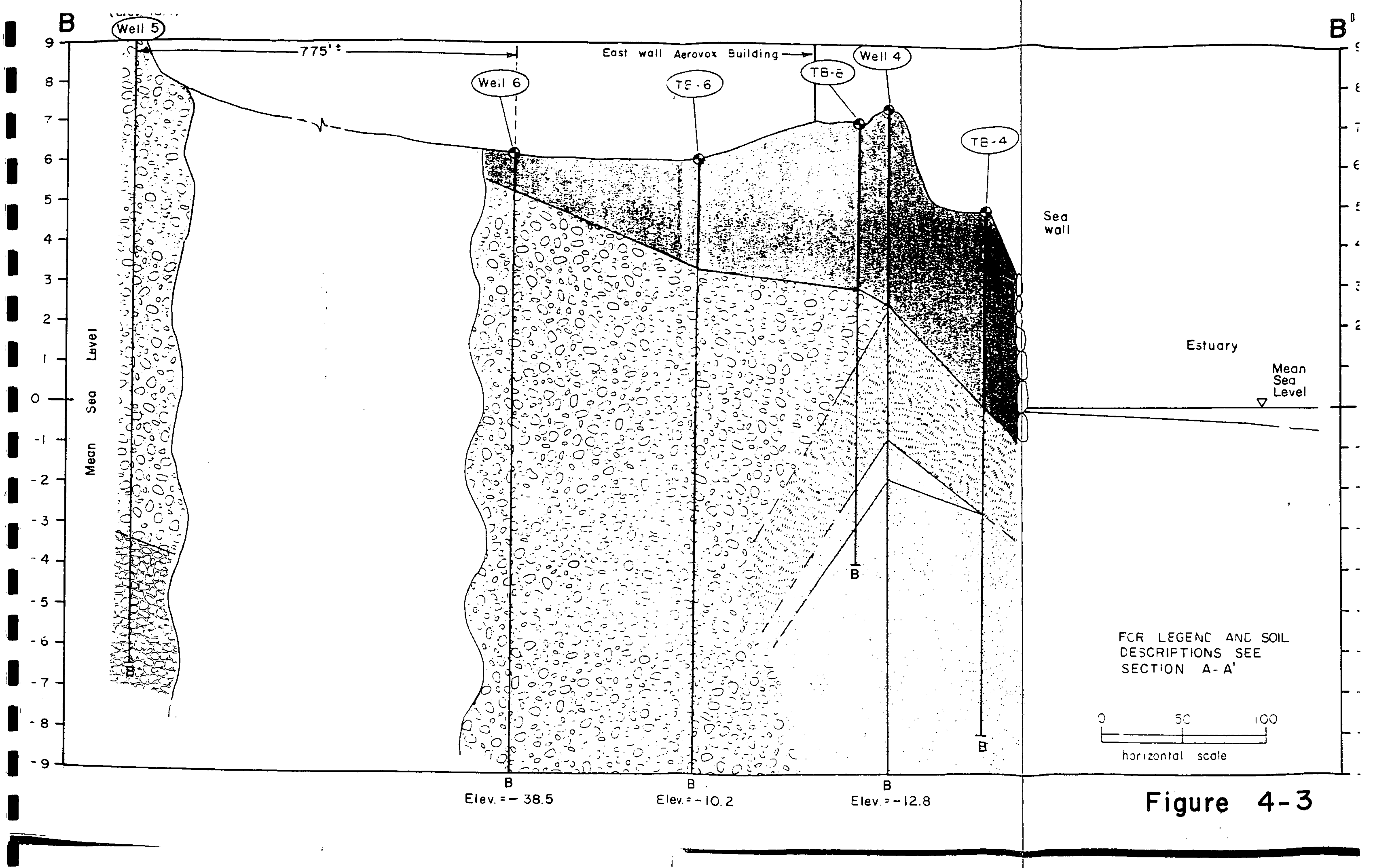

A
A'
SLIP 1
SLIP 2
Well 1
TB-1
Old Pump House
TB-2
Well 2
Well 3
Well 8
TB-8
Well 4
Mean Sea Level
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
B Elev.=-19.3
B Elev.=-11.0
B Elev.=-16.7
B Elev.=-13.8
B Elev.=-12.8
LEGEND
B Bottom of boring
B Elev.=-15.0 Elevation of battom of boring
SOIL DESCRIPTIONS
Fill Material - Variable composition and grain size. Consists mostly of granular backfill material such as sand and gravel along with debris which includes refuse and construction materials
Sand & Gravel - Homogeneous deposits of unsorted and non-stratified medium to coarse sand and fine to medium gravel.
Peat - Variable composition and texture. Locally interlayed with clay, fine sand and silt deposits. Peat ranges from highly decomposed black organic-rich deposits to grown root masses in a sandy matrix.
Fine-Medium Sand - Partially sorted and stratified deposits of mostly sand with some silt.
Medium-Coarse Sand - Unsorted and non-stratified deposits occasionally mixed with sand and gravel.
Till - Unsorted glacial till with clay found only in Well #5 on the west side of the study area.
0 50 100
horizontal scale

Figure 4-2



B
B'
Well 5
775'±
East wall Aerovox Building
Well 6
TB-6
TB-8
Well 4
TB-4
Sea wall
Estuary
Mean Sea Level
Mean Sea Level
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
B
Elev.=-38.5
Elev.=-10.2
Elev.=-12.8
FOR LEGEND AND SOIL DESCRIPTIONS SEE SECTION A-A'
0
50
100
horizontal scale

Figure 4-3

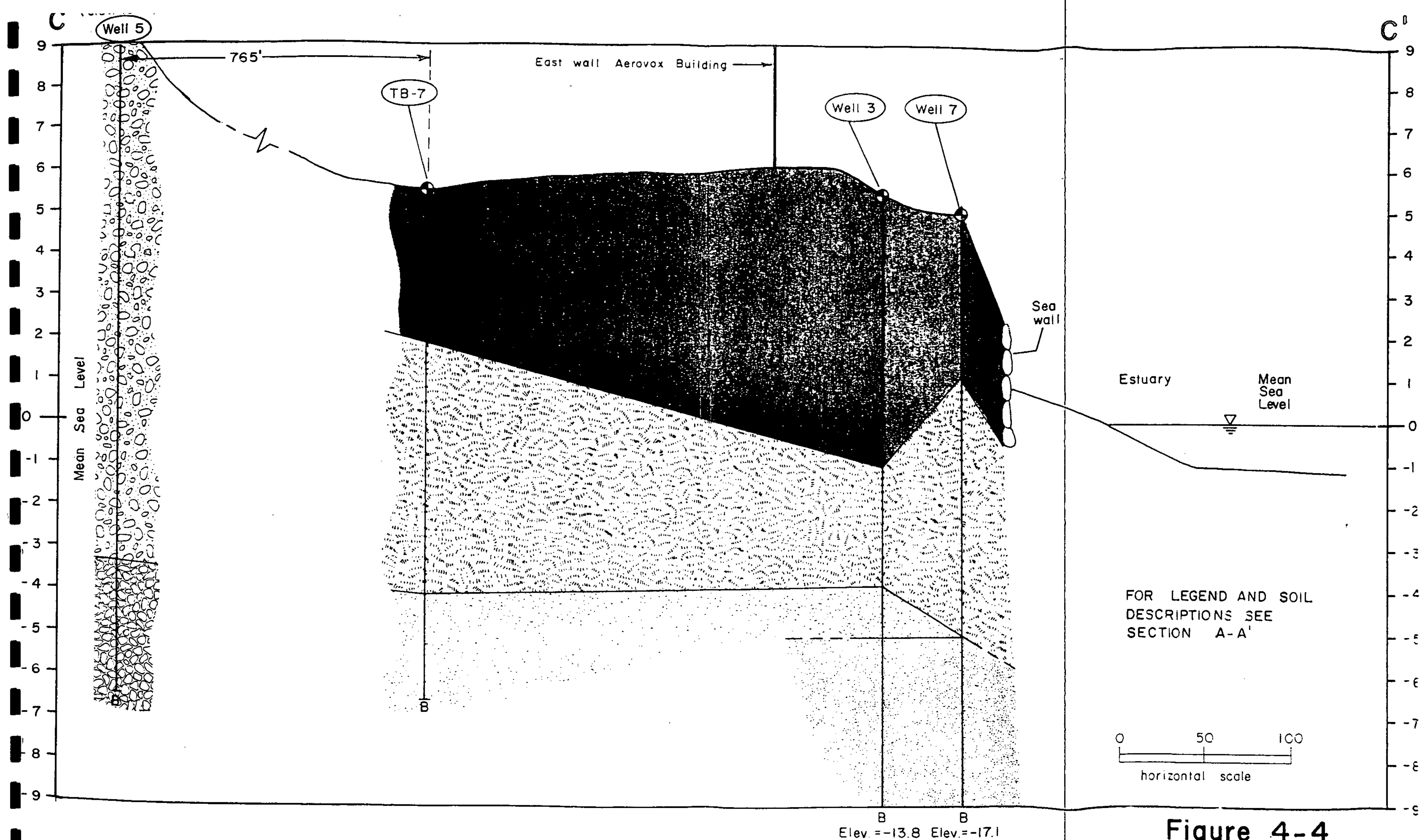

C
C'
Well 5
765'
TB-7
East wall Aerovox Building
Well 3
Well 7
Sea wall
Estuary
Mean Sea Level
Mean Sea Level
B
B
B
B
Elev.=-13.8
Elev.=-17.1
FOR LEGEND AND SOIL DESCRIPTIONS SEE SECTION A-A'
0
50
100
horizontal scale

Figure 4-4

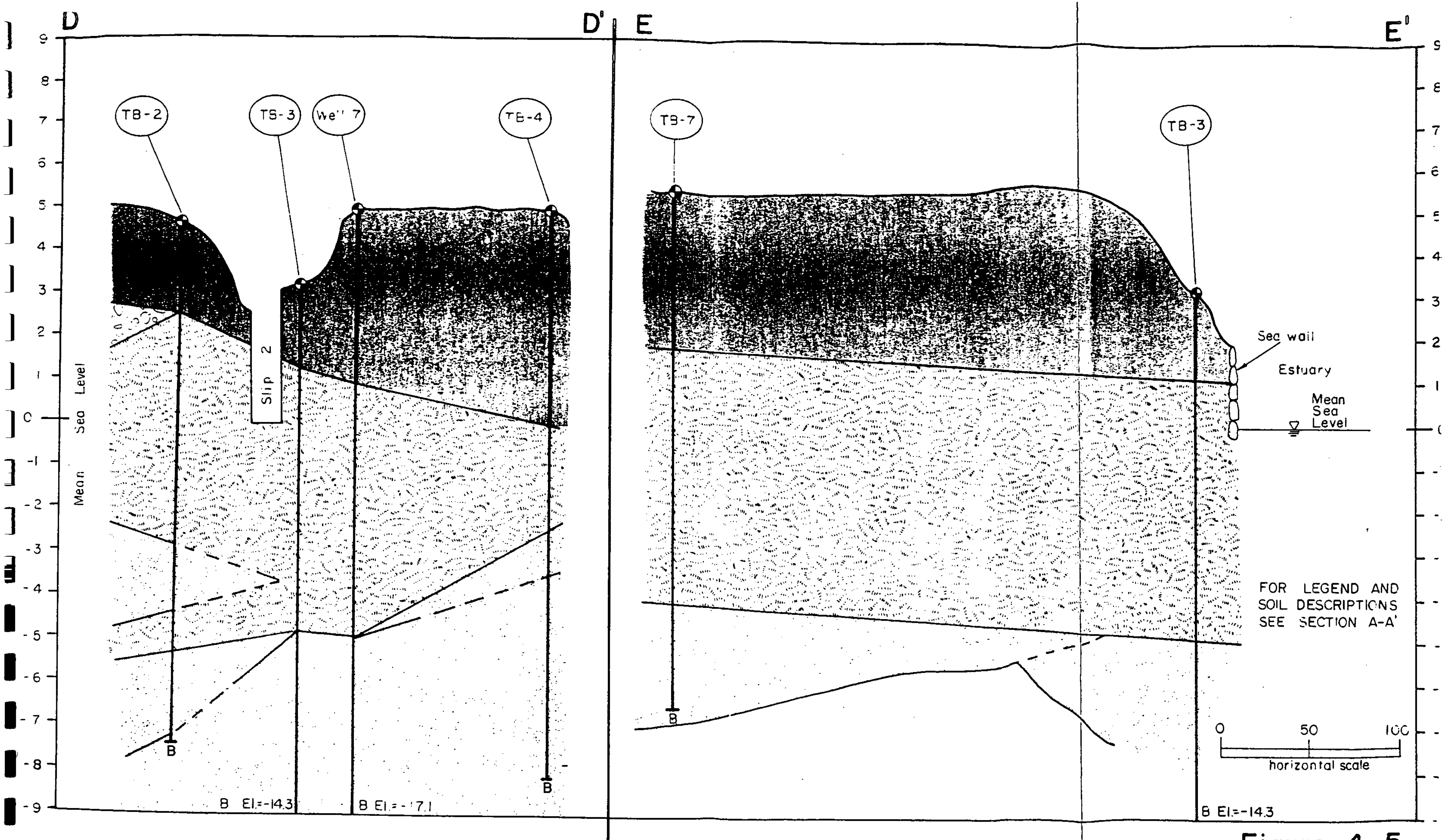

D
D'
E
E'
TB-2
TB-3
We'' 7
TB-4
TB-7
TB-3
Slip 2
Mean Sea Level
B
B El:=-14.3
B El:=-'7.1
B
B
B El:=-14.3
Sea wall
Estuary
Mean
Sea
Level
FOR LEGEND AND
SOIL DESCRIPTIONS
SEE SECTION A-A'
0
50
100
horizontal scale

Figure 4-5

Attachment 6

Field Notes - Monitoring Well Assessment

MONITORING WELL ASSESSMENT

MW-6 HEADSPACE 0.0
DEPTH TO WATER: 7.22 FT
TOTAL DEPTH: 41.1 FT TOP OF CASING

- BOTTOM OF WELL SCREEN HAS SMALL AMOUNT OF SEDIMENT DEPOSITED.

MW-6A HEADSPACE: 0.0
DEPTH TO WATER: 7.76' FT
TOTAL DEPTH: 12.49 FT (TOP OF CASING)

- CLEAN BOTTOM; (3 FT CASING HT)

MW-2A HEADSPACE 0.0
DEPTH TO WATER: 3.52 FT
TOTAL DEPTH 4.98 FT (TOP OF CASING)

- CLEAN BOTTOM

MW-2 HEADSPACE 0.0
DEPTH TO WATER: 4.80 FT
TOTAL DEPTH: 22.50 FT (TOP OF CASING)

- SOME SEDIMENT @ BOTTOM OF SCREEN.

MW-3 HEADSPACE: 0.0
DEPTH TO WATER 4.95
TOTAL DEPTH 18.0 FT. (TOP OF CASING)

- SEDIMENT @ BOTTOM OF WELL SCREEN

MW-3A BENT PROTECTIVE CASING
HEADSPACE 0.0
DEPTH TO WATER 6.02'
TOTAL DEPTH: 9.44 FT

- CLEAN BOTTOM

MW-5 HEADSPACE. 0.0
DEPTH TO WATER 11.92 FT
TOTAL DEPTH: 21.01 FT

- LITTLE SEDIMENT @ BOTTOM OF SCREEN

5/21/98 AEROVOX, INC. 038.54

MW-4B HEADSPACE: 0.0
DEPTH TO WATER: 6.40 FT
TOTAL WELL DEPTH: 41.56 FT

- SOME SEDIMENT @ BOTTOM OF WELL SCREEN.
"WATER" FLUSH MOUNT CAP @ LIQUID NITROGEN TANK & ~~[illegible]~~ COOLING FINS.

MW-8S HEADSPACE: 0.0
DEPTH TO WATER: 3.34'
TOTAL WELL DEPTH: 8.48 FT

- SEDIMENT @ BOTTOM OF WELL

MW-7 HEADSPACE: 1.0
DEPTH TO WATER: 4.80 FT
TOTAL WELL DEPTH: 23.94 FT

- SEDIMENT @ BOTTOM OF WELL

5/21/98 AEROVOX, INC 038.54

MW-7A HEADSPACE: 0.0
DEPTH TO WATER: 4.28 FT.
TOTAL WELL DEPTH: 11.24 FT.

- CLEAN BOTTOM.

MW-4A HEADSPACE: 0.0
DEPTH TO WATER: 8.94 FT.
TOTAL WELL DEPTH: 9.52 FT

- CLEAN BOTTOM.

MW-4 HEADSPACE: 0.0
DEPTH TO WATER: 8.36 FT
TOTAL WELL DEPTH: 23.94 FT

SEDIMENT @ BOTTOM OF WELL

Attachment 7

Ground-Water Sampling Logs

WELL SAMPLING LOG

Project AGROLUX Site ______ Well No. MW-3 Date 5-26-98

Well Depth 18.0 Screen Length/Size 10.0' (0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE Water Level 4.40

Measuring Point (N) SIDE OF OUTER CASING Sampling Personnel MRA/PMS

Weather @ 80°F SUNNY @ SOUTH BREEZE 5 - 15 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1320	6.70	19.75	1.467	+13.0	+2.92	52.8		5.20	ORANGE (LIGHT)
1325	6.22	17.96	1.374	-34.7	+0.91	4.4		5.01	
1330	6.30	17.75	1.332	-28.9	+0.72	6.9	1.5	4.96	CHANGE PUMP RATE
1335	6.29	16.95	1.303	-37.4	+0.61	3.8		5.01	
1340	6.26	17.00	1.295	-39.6	+0.57	1.6	@ 3.0	5.01	
1345	6.26	16.95	1.218	-36.1	+0.71	1.1		5.02	
1350	6.27	17.01	1.217	-36.9	+0.69	2.3		5.01	
1355	6.26	17.00	1.215	-34.7	+0.72	1.9	@ 4.5	5.00	
1400	6.27	16.99	1.216	-39.6	+0.69	1.8		5.01	
1420	6.26	17.01	1.215	-37.9	+0.71	2.7		5.02	
1410	SAMPLE TIME								

Type of Samples Collected:

VOCs & PCB's

Additional Notes:

INITIAL PURGE WATER - ORANGE COLOR (IRON BACTERIA)
CLEARED UP AFTER PURGING

WELL SAMPLING LOG

Project AEROVOX Site ______ Well No. MW-3A Date 5-26-98

Well Depth 9.44' Screen Length/Size 5.0' (0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 4.72'

Measuring Point (N) SIDE OF OUTER CASING Sampling Personnel NRA/PAS

Weather @ 79°F SUNNY @ SOUTH BREEZE 5-15 mph

Additional Information OUTER PROTECTIVE CASING BENT @ 30°
NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1320	6.31	17.45	2.422	-69.8	+0.69	219.3	0.5	4.82	PETROLEUM
1323	6.23	17.65	2.432	-69.3	+0.93	525.5	~1.0	–	(HYDROCARBON) ODOR
1330	6.18	18.46	2.357	-43.6	+2.63	103.7	~1.5	4.82	
1335	6.13	17.95	2.291	-51.2	+2.01	83.9	~2.0	4.82	
1340	6.12	18.44	2.322	-54.3	+1.49	62.1	~2.50	4.82	
1345	6.12	18.55	2.311	-55.0	+1.11	40.6	~3.00	4.82	
1350	6.12	19.02	2.305	-55.3	+0.97	17.3	~3.50	4.82	
1400	6.12	19.32	2.304	-55.7	+0.83	11.6	~4.0	4.82	
1410	6.12	18.83	2.292	-53.9	+0.49	10.2	~4.5	–	
1420	6.09	18.46	2.254	-53.3	+0.23	18.4	~5.0	4.84	
1425	SAMPLE		TIME						

Type of Samples Collected:
VOC's & PCB's

Additional Notes:
INITIAL PURGE WATER HAD A DISTINCT HYDROCARBON ODOR
PARTICLES OF DEBRIS IN PURGE WATER.
FINAL – FAINT ODOR – WATER WAS CLEAR

WELL SAMPLING LOG

Project AEROVOX Site ______ Well No. MW-7A Date 5-26-98

Well Depth 11.24 Screen Length/Size 7.0' (0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 3.33'

Measuring Point (N) SIDE OF OUTER CASING Sampling Personnel WRA/PAS

Weather @ 70°F PARTLY CLOUDY @ SOUTH BREEZE 1-10 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1500	6.43	18.67	3.280	-97.8	0.32	42.4	0.5	3.38	
1502	6.42	19.36	3.292	-87.5	0.53	46.3	1.0	3.39	
1510	6.43	18.29	3.666	-89.7	3.05	22.9	~1.5	3.39	
1515	6.40	18.79	3.469	-89.7	0.88	48.0	~2.0	3.38	
1520	6.42	17.71	3.672	-82.5	0.33	13.6	~2.5	3.39	
1525	6.40	18.78	3.533	-83.1	0.19	26.3	~3.0	3.37	
1530	6.40	18.94	3.515	-84.3	3.38	26.8	~3.5	3.38	
1535	6.39	18.31	3.491	-83.0	3.14	11.0	~4.0	3.40	
1540	6.39	18.53	3.500	-82.3	1.96	—	~4.5	3.38	
1545	6.40	18.45	3.503	-82.3	0.34	23.6	~5.0	3.42	
1550	6.39	18.39	3.472	-81.6	0.24	19.3	~5.5	3.43	
1555		SAMPLE	TIME						

Type of Samples Collected:

VOCs & PCBs

Additional Notes:

INITIAL PURGE WATER BLACK "PEAT" — ORGANIC ODOR
CLEARED UP AFTER A FEW MINUTES
FINAL PURGE WATER WAS CLEAR.

WELL SAMPLING LOG

Project AGRONOX Site ______ Well No. MW-7 Date 5-26-98

Well Depth 23.94 Screen Length/Size 10.0 (0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 7.16

Measuring Point (N) OUTER CASING Sampling Personnel WMA | PAS

Weather @70°F SUNNY

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1500	6.52	16.09	1.391	-42.7	+1.52	62.1		7.22	ORANGE
1505	6.33	16.21	1.375	-49.1	+1.40	21.9		7.20	CLEAR
1510	6.27	16.30	1.315	-47.7	+1.26	17.8		7.19	
1515	6.25	16.38	1.278	-46.1	+1.18	11.3		7.18	
1520	6.22	16.83	1.230	-46.9	+1.11	2.8	@3.0	7.16	
1525	6.20	17.16	1.228	-47.1	+1.02	3.2		7.15	
1530	6.16	17.46	1.192	-48.9	+0.96	0.3		7.17	
1535	6.18	19.24	1.190	-44.8	+1.00	0.1		7.20	
1540	6.17	18.37	1.181	-51.3	+0.86	0.0		7.19	
1545	6.16	16.95	1.187	-52.9	+0.81	0.1	@5.0	7.19	
1550	6.16	17.18	1.181	-53.8	+0.72	0.0		7.18	
1610	6.17	17.23	1.184	-56.7	+0.75	0.2		7.16	
1600	SAMPLE TIME								

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

INITIAL PURGE WATER - SLIGHT ORANGE

WELL SAMPLING LOG

Project AEROVOX Site ______ Well No. MW-4 Date 5-27-98

Well Depth ______ Screen Length/Size ______ Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE Water Level 8.44'

Measuring Point (N) SIDE OF OUTER CASING Sampling Personnel MRA / PAS

Weather C 75°F SUNNY @ SOUTH BREEZE 1-5 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
25	6.51	16.20	0.868	-11.7	+2.76	31.6		8.45	CLEAR
0930	6.3	17.53	0.886	-12.8	+1.67	11.9	1.0	8.51	
0935		16.45	0.894	-20.7	+1.53	0.9		8.44	
0	6.33	16.76	0.900	-19.8	+1.49	0.5	@ 2.5	8.45	
0945 528	6.32	16.95	0.901	-18.3	+1.66	0.3		8.44	
0950	6.2	7.01	0.902	-16.8	+1.74	0.9		.44	
0955	6.33	16.98	0.903	-15.7	+1.73	0.8	@ 4.0	.45	
1000 5	6.32	17.12	0.903	-14.8	+1.77	0.9		8.44	
								9	
1005 4	6.33	4.16	0.901	-15.0 9	+1.75	1.1		8.4	
020	.32	17.49	0.903	-14.7	+1.79	0.8		8.45	
5									
1010	6.7	16 77	1						
	MP		M						

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

WELL SAMPLING LOG

Project AEROVOX Site ____ Well No. MW-6 Date 5-27-98

Well Depth 47.1' Screen Length/Size 10.0'(0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 7.20'

Measuring Point N SIDE OUTER CASING Sampling Personnel WRA/RAS

Weather C 75°F SUNNY @ SOUTH BREEZE 1-5 MPH

Additional Information

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1050	5.96	17.49	1.271	+117.8	+4.05	47.1		7.26	TAN
1055	5.83	16.63	1.258	+126.4	+4.13	12.2	1.0	7.24	
1100	5.70	16.78	1.237	+129.2	+1.50	6.8		7.22	
1105	5.78	16.89	1.226	+130.5	+2.19	5.0	@2.0	7.21	
1110	5.76	17.16	1.221	+132.4	+2.16	3.7		7.21	
1115	5.74	16.56	1.219	+134.3	+2.00	1.6		7.20	
1120	5.73	16.80	1.217	+136.6	+2.07	1.9		7.21	
1125	5.71	16.91	1.218	+140.7	+2.18	2.5		7.20	
1130	5.72	16.90	1.219	+141.8	+2.18	1.8		7.21	
1135	5.72	16.87	1.218	+142.3	+2.10	1.6		7.20	
1140	5.73	16.95	1.219	+143.1	+2.13	1.9		7.20	
1140	SAMPLE TIME								

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

WELL SAMPLING LOG

Project ASRCVOX Site ______ Well No. MW-6A Date 5-27-98

Well Depth 12.49 Screen Length/Size 5.0' (0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 7.78'

Measuring Point NORTH OUTER CASING Sampling Personnel ______

Weather @ 75°F SUNNY @ SOUTHWEST BREEZE 1-5 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1050	5.53	15.57	0.174	163.5	3.03	402.2	~.25	7.84	
1055	5.61	15.98	0.173	170.4	3.20	264.1	~.50	7.84	
1100	5.56	17.05	0.176	179.6	2.95	62.5	~.75	7.82	
1105	5.57	17.30	0.176	184.0	2.75	45.3	~1.00	7.82	
1110	5.13	15.52	0.176	265.0	3.01	42.1	~1.25	7.84	
1115	5.32	16.30	0.178	259.1	2.62	–	~1.50	7.84	CLEANED YSI
1125	6.22	16.01	0.187	234.4	2.16	12.1	~2.00	7.82	
1130	6.04	16.45	0.189	253.3	2.63	8.2	~2.50	7.82	
1135	5.98	16.35	0.186	260.3	2.66	19.1	~2.75	7.84	
1140	5.88	17.39	0.190	273.3	2.34	2.6	~3.00	7.84	
1145	SAMPLE TIME								

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

INITIAL PURGE WATER – ORANGE/BROWN COLOR, NO ODOR.

WELL SAMPLING LOG

Project AEROVOX Site ______ Well No. MW-5 Date 5-27-98

Well Depth 21.01 Screen Length/Size 10.0' (0.010) Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 12.19

Measuring Point ARROW ON OUTER CASING Sampling Personnel WRA / PJS

Weather @ 80°F SUNNY @ SOUTH BREEZE 1-5 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1315	6.48	13.74	0.323	266.4	8.33	74.0	~0.25	12.20	
1320	6.29	14.45	0.323	273.6	8.00	53.5	0.50	12.20	INCREASE PUMPING RATE
1325	6.26	14.71	0.323	278.1	7.89	29.8	~1.00	–	
1330	6.21	15.69	0.323	289.9	7.75	18.0	~1.50	12.21	
1335	6.17	15.67	0.324	295.9	7.74	8.2	2.00	12.21	
1340	6.16	15.61	0.324	303.8	7.68	5.4	~2.50	12.21	
1345	6.13	15.48	0.324	307.7	7.65	2.9	~3.00	12.21	
1350	6.09	16.25	0.324	312.5	7.57	4.0	~3.50	12.21	
1355	6.09	16.41	0.324	316.0	7.51	4.9	~4.00	12.21	
1400	SAMPLED		TIME						

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

WELL PID = 1.1 ppm

INITIAL PURGE WATER – ORANGE / BROWN VERY TURBID, NO ODOR

WELL SAMPLING LOG

Project AEROVOX Site ____ Well No. MW-2 Date 5-27-98

Well Depth 22.50' Screen Length/Size 10.0' (0.010) Well Diameter ____ Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 5.82

Measuring Point (N) SIDE OF OUTER CASING Sampling Personnel WRA/PAS

Weather @ 75°F SUNNY @ SOUTH BREEZE 1-10 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1440	6.33	15.67	3.294	+58.2	1.21	111.4	~0.10	6.48	
1445	6.42	16.38	3.296	+2.4	0.68	7.3	~0.25	6.14	
1450	6.45	16.98	3.305	-15.0	0.53	5.5	~0.75	6.14	
1455	6.55	17.38	3.307	-25.2	0.51	5.3	~1.00	–	
1500	6.48	17.71	3.300	-26.2	0.48	6.2	~1.50		CHANGE BATTERY
1505									
1515	6.50	–	3.294	-3.2	0.65	7.0	~2.0	6.19	
1520	6.50	19.38	3.304	-7.6	0.73	6.3	~2.25	6.19	
1520	SAMPLE TIME								

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

INITIAL PURGE WATER – ORANGE/BROWN

SOME DEBRIS IN WATER

* SEA WATER ODOR *

WELL SAMPLING LOG

Project: AEROVOX Site: ______ Well No.: MW-2A Date: 5-27-98

Well Depth: 4.98 Screen Length/Size: ______ Well Diameter: 2" Casing Material: PVC

Sampling Device: PERISTALTIC Tubing Type: POLYETHYLENE Water Level: 3.52

Measuring Point: (N) OUTER CASING Sampling Personnel: MRA | PAS

Weather: @ 75°F SUNNY @ SOUTH BREEZE 1-5 MPH

Additional Information: NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1435	6.72	21.48	0.983	-111.2	+3.69	20.9		3.64	ORANGE
1440	6.92	21.36	1.027	-114.7	+ 2.53	11.2		3.64	
1445	7.01	21.69	1.055	-118.1	+2.74	0.5		3.64	
1450	7.03	21.80	1.101	-119.1	+2.62	0.7	@2.0	3.64	
1455	7.04	21.89	1.111	-121.3	+2.94	0.9		3.62	
1500	7.03	22.04	1.142	-122.4	+3.07	0.8		3.62	
1505	7.03	22.06	1.131	-123.2	+3.06	1.1		3.62	
1510	7.03	21.92	1.127	-123.9	+3.10	0.9		3.62	
1515	7.02	21.84	1.126	-124.1	+3.11	0.6	@4.0	3.63	
1520	7.02	21.80	1.126	-125.2	+3.12	0.5		3.62	
1525	7.02	21.41	1.125	-126.7	+3.11	0.9		3.62	
1530	7.02	21.45	1.126	-127.1	+3.13	0.7		3.62	
1530	SAMPLE TIME								

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

INITIAL PURGE WATER – ORANGE COLOR (SLIGHT)

TOTAL VOLUME PURGE @ 4.50'

WELL SAMPLING LOG

Project: AEROVOX Site: ______ Well No. MW-8S Date 5-27-98

Well Depth 8.48 Screen Length/Size ______ Well Diameter 2" Casing Material PVC

Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 3.40'

Measuring Point (N) SIDE OF OUTER CASING Sampling Personnel WRA/PAS

Weather @ 70°F SUNNY @ SOUTH BREEZE 1-10 MPH

Additional Information NO INNER WELL CAP

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
1550	8.21	20.91	0.730	-166.0	2.23	110.4	~1.0	3.98	
1555	8.64	20.82	0.797	-182.5	1.58	101.6	~1.5	3.72	
1600	8.81	20.84	0.841	-179.3	+1.38	68.1		3.61	
1605	8.93	20.87	0.863	-177.0	+1.31	31.2	~2.0	3.60	
1610	8.96	20.88	0.869	-177.2	+1.23	29.1		3.60	
1615	8.99	20.80	0.872	-177.1	+1.17	13.1		3.60	
1620	9.02	20.89	0.881	-174.5	+1.11	10.1	~3.0	3.58	
1625	9.02	20.90	0.888	-171.1	+1.03	9.4		3.58	
1630	9.03	20.91	0.889	-170.9	+1.04	11.2	~3.5	3.58	
1640	SAMPLE TIME								

Type of Samples Collected:

VOC's & PCB's

Additional Notes:

INITIAL PURGE WATER – BLACK VERY SILTY WITH DEBRIS

WELL SAMPLING LOG

Project AEROVOX Site ______ Well No. MW-4A Date 5-27-98
Well Depth 9.52' Screen Length/Size 5.0' (0.010) Well Diameter 2" Casing Material PVC
Sampling Device PERISTALTIC Tubing Type POLYETHYLENE TUBING Water Level 5.04"
Measuring Point ARROW ON OUTER CASING Sampling Personnel WM / PAS
Weather @ 75°F SUNNY @ SOUTH BREEZE 1-5 MPH
Additional Information NO INNER WELL CAP.

Time (Hr \ min.)	pH	Temperature (°C \ °F)	Specific Conductivity (mS \ cm)	Oxidation/ Reduction (mV)	Dissolved Oxygen (mg \ L)	Turbidity (NTU)	Volume Removed (gallons)	Water Level (ft. BGS)	Comments
0915	6.12	18.35	0.200	102.3	2.53	10.7	~0.25	5.14	
0920	6.15	18.39	0.202	112.1	5.53	4.9	~0.50	6.34	
0925	6.02	18.41	0.203	121.0	5.97	2.9	~0.75	7.59	
0930	5.91	18.42	0.208	125.0	6.13	2.6	~1.00	8.62	
0935	5.86	19.03	0.216	54.5	4.37	5.9	~1.25	DRY	DRY @ 0937
SAMPLE		TIME	5/28/98		0630				

Type of Samples Collected:
VOC's, PCB's

Additional Notes:
INITIAL PURGE VERY TURBID, ORANGE-RED COLOR "IRON BACTERIA"
* WELL WENT DRY AT @ 0937 ON 5/27/98
WILL SAMPLE WHEN WELL RECOVERS
SAMPLE: 5/28/98 AT 0630 — JUST ENOUGH WATER

Attachment 8

Field Notes - Ground-Water Investigation

TUESDAY MAY 26th 1998
WEATHER: AM 60°F PARTLY CLOUDY
p.m. @ 80°F SUNNY BREEZE

GEOL BLASLAND, BOUCK & LEE
MICHAEL R ARBUZINIS (MRA)
PETER A SPONCE (PAS)

0600
MRA & PAS ARRIVE AT ROCHESTER INTERNATIONAL AIRPORT

0635 LEAVE FOR NEW BEDFORD MASSACHUSETTS - VIA PROVIDENCE RHODE ISLAND,

1130
MRA / PAS ARRIVE ON-SITE AT AEROVOX - NEW BEDFORD MASSACHUSETTS

1140
MRA / PAS MET PETER SZWAJA OF AEROVOX - PETER IS IN CHARGE OF ANY ENVIRONMENT ISSUES ON-SITE

SZWAJA GAVE MRA / PAS A QUICK TOUR OF THE FACILITY AND OUTSIDE GROUNDS

MRA/PAS GATHERED ALL EQUIPMENT ~~FROM~~ FROM SZWAJA'S OFFICE

ALSO EQUIPMENT THAT WAS SENT/DROPPED OFF

MRA / PAS OFF-SITE TO GET SUPPLIES - WATER BOTTLES / ICE, PLASTIC / BUCKETS / BAGGIES

1245
MRA / PAS WILL BEGIN WITH WELL CLUSTER MW-3A / 3

1320
STARTING WELLS MW-3 & MW-3A

1445
COMPLETED WELL CLUSTER

1450
MOVE TO MW-7 & MW-7A
CLUSTER

1600
FINISHED MW-7 WELL CLUSTER
BATTERIES ON BOTH PUMPS
WENT DEAD
* BOTH EXTRA BATTERIES HAD
NO POWER *

1700
MRA / PAS OFF-SITE UNTIL
TOMORROW –
PACKED COOLER

* ORDERED A NEW YSI PURGE
& DECON EQUIPMENT.

WEDNESDAY MAY 27th 1998
WEATHER AM @65 SUNNY
P.M. @75°F SUNNY

0730
MRA / PAS ON-SITE
CALIBRATED EQUIPMENT
GATHERED DRUMS FOR DECON/PURGE
WATER & PPE

0900 FOSS GX ARRIVES

CONTINUED WITH WELL CLUSTER
MW-4

* MW-4A WENT DRY
- WILL TRY THROUGHOUT DAY
TO SAMPLE THIS WELL

1210 – 1300 MRA/PAS
OFF SITE FOR LUNCH

PACKED COOLER WITH ICE

1645 FINISHED SAMPLING
CLUSTER MW-8S

* NO WATER IN MW-4A
WILL TRY IN MORNING

1700
BEGAN TO PACK COOLER
TO BE SHIPPED TO LAB

1810
MRA/PAS OFF-SITE
ENROUTE TO FED-EX IN TAUNTON
MASS.

1900 ARRIVE AT FED-EX
1915 LEAVE FED-EX

2005 ARRIVE AT HOTEL

SAMPLING INFORMATION

DATE	WELL ID	TIME
5/26/98	MW-3	1410
5/26/98	MW-3A	1425
5/26/98	MW-7A	1555
5/26/98	MW-7	1600
5/27/98	MW-4	1010
5/27/98	MW-6	1140
5/27/98	MW-6A	1145
5/27/98	MW-5	1400
5/27/98	MW-2	1520
5/27/98	MW-2A	1530
5/27/98	MW-8S	1640
5/28/98	MW-4A	0630
5/28/98	MW-4B	0740

RB 52898 0700
RINSE BLANK

* SAMPLED FOR VOCs & PCBs

WATER LEVELS

5/26/98

WELL ID	WATER LEVEL
MW-2	5.82
MW-2A	3.52
MW-3	4.40'
MW-3A	4.72'
MW-4	8.44
MW-4A	5.04
MW-5	12.19
MW-6	7.20
MW-6A	7.78
MW-7	7.16
MW-7A	3.33
MW-4B	6.68
MW-8S	3.40

* TOP OF OUTER CASING *

THURSDAY MAY 28th 1998
WEATHER: @ 80°F SUNNY

0600
MRA/PAS ARRIVE ON-SITE

*WILL TRY TO SAMPLE MW-4A

0630
SAMPLED MW-4A
NO FIELD PARAMETERS TAKEN
LACK OF WATER *

RINSE BLANK - ~~RB28~~ RB52898
0700

MW-4B - 0740

MRA/PAS WILL BEGIN TO
RACK UP EQUIPMENT & PACK
COOL FOR LAB -

5/28/98 AGROUND 21

1000
MRA/RAS OFF-SITE ENROUTE
to FGS-BX

1045
MRA/RAS ARRIVE AT FGS-BX

1100 LEAVE FGS-BX — ENROUTE
to AIRPORT

1210
ARRIVE AT AIRPORT —

GALSON LABORATORIES
6601 Kirkville Road East
E. Syracuse, NY 13057
315-432-0506
800-950-0506

Company Name: BLASLAND, BOUCK & LEE SYRACUSE, NEW YORK

Project Name / Number: AEROVOX, INC NEW BEDFORD, MASS # 08355

Turn-Around Time
☒ Standard Service
☐ * Rush Service
Date requested by:
Ph # (716) - 292 - 4760
~~Fax~~# (315) ~~446~~ - 9120

Send Report to: MICHAEL JONES
6723 TOWPATH ROAD
BOX 66
SYRACUSE, NEW YORK 13214

Send Invoice to: ← SAME

P.O. #

Chain of Custody Record

SAMPLE ID	Date	Time	Comp.	Grab	Aqueous	Soil	Other	Laboratory ID Number	VOCs SW846/8260	PCBs SW846/8082
MW-2	5/27/98	1520		X	X				2	1
MW-2A	5/27/98	1530		X	X				2	1
MW-5	5/27/98	1900		X	X				2	1
MW-6A	5/27/98	1145		X	X				2	1
MW-7	5/26/98	1600		X	X				2	1
MW-8S	5/27/98	1640		X	X				2	1
TRIP BLANK									2	

PARAMETERS FOR ANALYSIS

REMARKS:

Total Containers - 20

SAMPLER'S NAME: MICHAEL R ARLAUCKAS SIGNATURE: [signature]

SAMPLES RELINQUISHED BY:		SAMPLES RECEIVED BY:	
NAME: MICHAEL R ARLAUCKAS SIGNATURE: [signature]	DATE: 5/27/98 TIME: 1830	NAME: SIGNATURE:	DATE: TIME:
NAME: SIGNATURE:	DATE: TIME:	Received For Laboratory By: *(Signature)*	DATE: TIME:
NAME: SIGNATURE:	DATE: TIME:	Received For Laboratory By: *(Signature)*	DATE: TIME:

VOC Pres U P AU NA

Custody Seal Intact? ☐ Yes ☐ No ☐ N.A.
Shipment Complete? ☐ Yes ☐ No

Temp ______ °C TS TB TM

Airbill # 8523231415

GALSON LABORATORIES
6601 Kirkville Road East
E. Syracuse, NY 13057
315-432-0506
800-950-0506

Company Name: BLASLAND, BOUCK & LEE SYRACUSE, NEW YORK

Project Name / Number: AEROVOX INC NEW BEDFORD, MASS #08355

Turn-Around Time
☒ - Standard Service
☐ - * Rush Service
Date requested by:
Ph # (716)-292-6740
Fax # (315)-446 9120

Send Report to: MICHAEL JONES 6723 TOWPATH ROAD BOX 66 SYRACUSE, NEW YORK 13214

Send Invoice to: ← SAME

F.O. #

Chain of Custody Record

SAMPLE ID	Date	Time	TYPE Comp.	Grab	Aqueous	Soil	Other	Laboratory ID Number	VOCs SW846/8260	PCBs SW846/8080							
MW-6	5/27/96	1190		X					2	1							
MW-4	5/27/96	1010		X					2	1							
MW-3	5/26/96	1410		X					2	1							
~~MW-7A~~																	
MW-3A	5/26/96	1425		X					2	1							
MW-7A	5/26/96	1555		X					2	1							
TRIP BLANK									2								

REMARKS:

Total Containers - 17

SAMPLER'S NAME: MICHAEL R ARLAUKKAS SIGNATURE: [signature]

SAMPLES RELINQUISHED BY:		SAMPLES RECEIVED BY:	
NAME: MICHAEL R ARLAUKKAS SIGNATURE: [signature]	DATE: 5/27/96 TIME: 1830	NAME: SIGNATURE:	DATE: TIME:
NAME: SIGNATURE:	DATE: TIME:	Received For Laboratory By: (Signature)	DATE: TIME:
NAME: SIGNATURE:	DATE: TIME:	Received For Laboratory By: (Signature)	DATE: TIME:

VOC Pres U P AU NA
Custody Seal Intact? ☐ Yes ☐ No ☐ N.A.
Shipment Complete? ☐ Yes ☐ No
Temp ______ °C TS TB TM
Airbill #

GALSON LABORATORIES
6601 Kirkville Road East
E. Syracuse, NY 13057
315-432-0506
800-950-0506

Company Name: BLASLAND, BOUCK & LEE, SYRACUSE, NEW YORK

Project Name / Number: AEROVOX, INC NEW BEDFORD, MASS # 08355

Turn-Around Time
[X] - Standard Service
[ ] - * Rush Service
Date requested by: ______
Ph # (716) -292 - 6740
Fax # (315) -496 9120

Page 1 of 1

Send Report to: MICHAEL JONES, 6723 TOWPATH RD, BOX 66, SYRACUSE, NEW YORK 13214

Send Invoice to: ← SAME

P.O. # ______

Chain of Custody Record

SAMPLE ID	Date	Time	TYPE Comp.	TYPE Grab	Aqueous	Soil	Other	Laboratory ID Number	VOCs SW846/8260	PCBs SW846/8082								
MW-4A	5/26/98	0630		X					2	1								
MW-4B	5/26/98	0740		X					2	1								
RB52898	5/28/98	0700		X					1	1								
TRIP BLANK									2									

REMARKS:
RB52898 = RINSE BLANK * ONLY 1 40mL VIAL - ONE 40mL VIAL WAS BROKEN DURING SHIPPING

Total Containers - 10

SAMPLER'S NAME: MICHAEL R ARLAUCKAS   SIGNATURE: Michael R Arlauckas

SAMPLES RELINQUISHED BY:
NAME: MICHAEL R ARLAUCKAS DATE: 5/28/98
SIGNATURE: Michael R Arlauckas TIME: 0900
NAME: DATE:
SIGNATURE: TIME:
NAME: DATE:
SIGNATURE: TIME:

SAMPLES RECEIVED BY:
NAME: DATE:
SIGNATURE: TIME:
Received For Laboratory By: (Signature) DATE: TIME:
Received For Laboratory By: (Signature) DATE: TIME:

VOC Pres U P AU NA
Custody Seal Intact? [ ] Yes [ ] No [ ] N.A.
Shipment Complete? [ ] Yes [ ] No
Temp ______ °C TS TB TM
Airbill # 8523231430

Attachment 9

July 15, 1998 letter from GAF Engineering, Inc. Presenting Elevations for Monitoring Well Casings

G.A.F. ENGINEERING, INC.

PROFESSIONAL ENGINEERS PROFESSIONAL LAND SURVEYORS

July 15, 1998

Aerovox
740 Belleville Avenue
New Bedford, MA 02745

Attention: Mr. Peter Szwaja

Re: Monitoring Well Elevations
G.A.F. Job No. 98-4392

Dear Mr. Szwaja:

G.A.F. Engineering, Inc. completed a level run to determine the elevations of well casings to monitoring wells placed around the Aerovox Plant at 740 Belleville Avenue. The well locations are shown on a plan entitled "Soil Boring/Groundwater Monitoring Well Locations by BBL Blasland, Bouck & Lee, Figure 5." Please note that MW 6A is marked as MW 6 in the field and MW 6 is marked as MW 6A.

All elevations were taken at the north side of the casings and all elevations are in feet and are referenced to mean sea level datum per the site benchmark of known elevation of 4.76 feet, at a point on sheet piling near Well #2.

Readings were taken at the north side of the well casings and were taken at both the exterior steel casing and the interior PVC casting at each monitoring well site. The results are as follows:

Monitoring Well #	Exterior Steel Casing	Interior PVC Casing
MW 2	6.89	6.30
MW 2A	6.61	5.78
MW 3	6.91	6.23
MW 3A	8.13±	6.8±

Note: Well 3A is set at 30°± angle to ground.

Tel. (508) 748-0252 454 Wareham Street • P.O. Box 953 • Marion, MA 02738 Fax (508) 748-0542

Monitoring Well #	Exterior Steel Casing	Interior PVC Casing
MW 4	10.97	8.29
MW 4A	10.73	8.48
MW 4B	8.99	8.86
MW 5	15.48	14.32
MW 6*	9.21	8.16
MW 6A*	9.75	8.80

* As marked in field.

MW 7	7.54	5.73
MW 7A	7.29	6.42
MW 8S	5.76	5.32

Please contact me if you have any questions and/or require additional information.

Sincerely,

G.A.F. Engineering, Inc.

Kevin W. Forgue

KWF:fd

Precision and Accuracy of Elevation Measurements

Based on BBL's August 25, 1998 telephone conversation with Mr. Kevin Forgue of G.A.F. Engineering, Inc., the accuracy and precision of the monitoring well elevation measurements (presented in the preceding letter) is 0.01 feet.

Attachment 10

Aerovox Site Post-Closure Monitoring Program Data

Aerovox®
An ISO 9000 Company
740 Belleville Avenue
New Bedford, MA 02745
TEL (508) 994-9661
FAX (508) 999-1000

Fax Message

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL US AS SOON AS POSSIBLE

To	Kathy Geraci	**From**	Peter Szwaja
Company	BBL	**Subject**	Well data
Fax No.	171-98	**Date**	July 24, 1998

Dear Kathy:

Monitoring Well data

March 1998
March 1997
September 1996
March 1996
September 1995
March 1995

Please call me at 508-910-3591 if you require additional data.

Regards,

An Employee-Owned Company

March 31, 1998

01-0827-05-0051-001

U.S. Environmental Protection Agency
Region 1
John F. Kennedy Building
Boston, Massachusetts 02203

Attention: Mr. Frank Ciavattieri

Reference: Aerovox Site Post-Closure Monitoring,
March 11, 12 and 13, 1998

Dear Mr. Ciavattieri:

Enclosed are the results of the water level monitoring and cap inspection conducted at the Aerovox site by SAIC Engineering, Inc. during the March 1998 full moon period.

The next inspection and round of water level readings are scheduled for the September 1998 full moon period. Please call if you have any questions.

Sincerely,

SAIC ENGINEERING, INC.

Allen F. Davis, P.E.
Project Manager

Enclosures

cc: G. Monte, DEP/SERO
P. Galvani, Ropes & Gray
P. Szwaja, Aerovox

TABLE 1A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0629
Date: March 11, 1998
Time of Readings: 0617 - 0705

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 164 MONTHS (4)
Tide Gauge	4.76		2.53	2.23		
Well No. 2	6.92		4.50	2.42		
Well No. 2A	6.67	2.62	3.34	3.33	0.71	1.51 - 4.00
Well No. 3	6.95		4.57	2.38		
Well No. 3A	8.26	1.86	5.66	2.60	0.74	0.78 - 3.31
Well No. 4	10.99		8.43	2.56		
Well No.4A	10.78	2.28	7.46	3.32	1.04	1.60 - 3.88
Well No. 7	7.59		4.99	2.60		
Well No. 7A	7.33	2.60	4.29	3.04	0.44	2.38 - 3.40

NOTES:

Weather: 25 degrees F, Sunny
Readings by: David Minese
Affiliation: SAIC Engineering, Inc., 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March 1998.
(5) Well 2A was cleaned to remove semi-aqueous encrustation (as reported in the Fall 1997 report) on March10, 1998 by SAIC Engineering, prior to water level readings
(6) Soundings of all wells were conducted by SAIC Engineering on March 13, 1998.
The soundings indicate that Well 2A is almost silted in and should be purged; Well 3 is partially silted and also should be purged.

TABLE 1B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1300
Date: March 11, 1998
Time of Readings: 1235 - 1323

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 164 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		5.04	1.88		
Well No. 2A	6.67	2.62	3.35	3.32	0.70	1.51 - 4.00
Well No. 3	6.95		5.43	1.52		
Well No. 3A	8.26	1.86	5.35	2.91	1.05	0.78 - 3.31
Well No. 4	10.99		10.21	0.78		
Well No.4A	10.78	2.28	7.47	3.31	1.03	1.60 - 3.88
Well No. 7	7.59		6.88	0.71		
Well No. 7A	7.33	2.60	4.29	3.04	0.44	2.38 - 3.40

NOTES:

Weather: 25 degrees F, Sunny
Readings by: David Minese
Affiliation: SAIC Engineering, Inc. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March 1998.

TABLE 2A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0710
Date: March 12, 1998
Time of Readings: 0635 - 0732

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 164 MONTHS (4)
Tide Gauge	4.76		2.62	2.14		
Well No. 2	6.92		4.56	2.36		
Well No. 2A	6.67	2.62	3.46	3.21	0.59	1.51 - 4.00
Well No. 3	6.95		4.65	2.30		
Well No. 3A	8.26	1.86	5.73	2.53	0.67	0.78 - 3.31
Well No. 4	10.99		8.51	2.48		
Well No.4A	10.78	2.28	7.54	3.24	0.96	1.60 - 3.88
Well No. 7	7.59		5.06	2.53		
Well No. 7A	7.33	2.60	4.32	3.01	0.41	2.38 - 3.40

NOTES:

Weather: 20 degrees F, Sunny
Readings by: David Minese
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March 1998.

TABLE 2B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1314
Date: March 12, 1998
Time of Readings: 1245 - 1335

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 164 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		5.10	1.82		
Well No. 2A	6.67	2.62	3.43	3.24	0.62	1.51 - 4.00
Well No. 3	6.95		5.37	1.58		
Well No. 3A	8.26	1.86	5.83	2.43	0.57	0.78 - 3.31
Well No. 4	10.99		10.17	0.82		
Well No.4A	10.78	2.28	7.54	3.24	0.96	1.60 - 3.88
Well No. 7	7.59		6.88	0.71		
Well No. 7A	7.33	2.60	4.31	3.02	0.42	2.38 - 3.40

NOTES:

Weather: 20 - 25 degrees F, Cloudy/Flurries
Readings by: David Minese
Affiliation: SAIC Engineering , Inc., 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March 1998.

TABLE 3A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0749
Date: March 13, 1998
Time of Readings: 0729 - 0825

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 164 MONTHS (4)
Tide Gauge	4.76		3.10	1.66		
Well No. 2	6.92		4.88	2.04		
Well No. 2A	6.67	2.62	3.65	3.02	0.40	1.51 - 4.00
Well No. 3	6.95		4.92	2.03		
Well No. 3A	8.26	1.86	5.84	2.42	0.56	0.78 - 3.31
Well No. 4	10.99		8.80	2.19		
Well No.4A	10.78	2.28	7.61	3.17	0.89	1.60 - 3.88
Well No. 7	7.59		5.36	2.23		
Well No. 7A	7.33	2.60	4.36	2.97	0.37	2.38 - 3.40

NOTES:

Weather: 10 - 15 degrees F, Sunny/Cold
Readings by: David Minese
Affiliation: SAIC Engineering, Inc. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March 1998.

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1329
Date: March 13, 1998
Time of Readings: 1300 - 1359

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 164 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		4.93	1.99		
Well No. 2A	6.67	2.62	3.55	3.12	0.50	1.51 - 4.00
Well No. 3	6.95		5.65	1.30		
Well No. 3A	8.26	1.86	5.96	2.30	0.44	0.78 - 3.31
Well No. 4	10.99		10.44	0.55		
Well No.4A	10.78	2.28	7.62	3.16	0.38	1.60 - 3.88
Well No. 7	7.59		7.18	0.41		
Well No. 7A	7.33	2.60	4.35	2.98	0.38	2.38 - 3.40

NOTES:

Weather: 20 - 25 degrees F, Sunny
Readings by: David Minese
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March 1998.

SAIC Engineering, Inc.
A Subsidiary of Science Applications International Corporation
An Employee-Owned Company

April 16, 1997 01-0827-05-0051-003

U.S. Environmental Protection Agency
Region 1
John F. Kennedy Building
Boston, Massachusetts 02203

Attention: Mr. Frank Ciavattieri

Reference: Aerovox Site Post-Closure Monitoring, March 22, 23 and 24, 1997

Dear Mr. Ciavattieri:

Enclosed are the results of the water level monitoring and cap inspection conducted at the Aerovox site by SAIC Engineering, Inc. during the March 1997 full moon period.

The next inspection and round of water level readings are scheduled for the September 1997 full moon period. Please call if you have any questions.

Sincerely,

SAIC ENGINEERING, INC.

Allen F. Davis, P.E.
Project Manager

Enclosures

cc: G. Monte, DEP/SERO
P. Galvani, Ropes & Gray
P. Szwaja, Aerovox

101 East Grove Street, Middleboro, Massachusetts 02346 • (508) 946-3500 • FAX: (508) 946-3509

TABLE IA

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0642
Date: March 22, 1997
Time of Readings: 0630 - 0727

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 152 MONTHS (4)
Tide Gauge	4.76		1.73	3.03		
Well No. 2	6.92		4.60	2.32		
Well No. 2A	6.67	2.62	3.35	3.32	0.70	1.51 - 4.00
Well No. 3	6.95		4.64	2.31		
Well No. 3A	8.26	1.86	6.03	2.23	0.37	0.78 - 3.31
Well No. 4	10.99		8.70	2.29		
Well No.4A	10.78	2.28	7.69	3.09	0.81	1.60 - 3.88
Well No. 7	7.59		5.03	2.56		
Well No. 7A	7.33	2.60	4.37	2.96	0.36	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Rain
Readings by: Mark Panni
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1997.

TABLE 1B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1239
Date: March 22, 1997
Time of Readings: 1235 - 1301

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 152 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		5.15	1.77		
Well No. 2A	6.67	2.62	3.35	3.32	0.70	1.51 - 4.00
Well No. 3	6.95		5.38	1.57		
Well No. 3A	8.26	1.86	5.59	2.67	0.81	0.78 - 3.31
Well No. 4	10.99		10.05	0.94		
Well No.4A	10.78	2.28	7.61	3.17	0.89	1.60 - 3.88
Well No. 7	7.59		6.75	0.84		
Well No. 7A	7.33	2.60	4.40	2.93	0.33	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Partly Sunny
Readings by: Mark Panni
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.

TABLE 2A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0721
Date: March 23, 1997
Time of Readings: 0703 - 0747

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 152 MONTHS (4)
Tide Gauge	4.76		2.09	2.67		
Well No. 2	6.92		4.79	2.13		
Well No. 2A	6.67	2.62	3.57	3.10	0.48	1.51 - 4.00
Well No. 3	6.95		4.87	2.08		
Well No. 3A	8.26	1.86	6.13	2.13	0.27	0.78 - 3.31
Well No. 4	10.99		8.74	2.25		
Well No.4A	10.78	2.28	7.60	3.18	0.90	1.60 - 3.88
Well No. 7	7.59		5.19	2.40		
Well No. 7A	7.33	2.60	4.45	2.88	0.28	2.38 - 3.40

NOTES:

Weather: 30 degrees F, Clear, Windy
Readings by: Mark Panni
Affiliation: SAIC Engineering, Inc., 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1997.

TABLE 3A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0800
Date: March 24, 1997
Time of Readings: 0748 - 0821

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 152 MONTHS (4)
Tide Gauge	4.76		2.60	2.16		
Well No. 2	6.92		4.98	1.94		
Well No. 2A	6.67	2.62	3.71	2.96	0.34	1.51 - 4.00
Well No. 3	6.95		5.07	1.88		
Well No. 3A	8.26	1.86	6.31	1.95	0.09	0.78 - 3.31
Well No. 4	10.99		8.90	2.09		
Well No.4A	10.78	2.28	7.69	3.09	0.81	1.60 - 3.88
Well No. 7	7.59		5.39	2.20		
Well No. 7A	7.33	2.60	4.47	2.86	0.26	2.38 - 3.40

NOTES:

Weather: 35 degrees F, Clear
Readings by: Mark Panni
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1336
Date: March 24, 1997
Time of Readings: 1314 - 1346

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 152 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.20	1.72		
Well No. 2A	6.67	2.62	3.70	2.97	0.35	1.51 - 4.00
Well No. 3	6.95		6.05	0.90		
Well No. 3A	8.26	1.86	5.55	2.71	0.85	0.78 - 3.31
Well No. 4	10.99		9.56	1.43		
Well No.4A	10.78	2.28	7.67	3.11	0.83	1.60 - 3.88
Well No. 7	7.59		7.54	0.05		
Well No. 7A	7.33	2.60	4.45	2.88	0.28	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Clear, Light Wind
Readings by: Mark Panni
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1997.

SAIC Engineering, Inc.
A Subsidiary of Science Applications International Corporation
An Employee-Owned Company

October 24, 1996

2827.961023.011
01-0827-05-0051-003

U.S. Environmental Protection Agency
Region 1
John F. Kennedy Building
Boston, Massachusetts 02203

Attention: Mr. Frank Ciavattieri

Reference: **Aerovox Site Post-Closure Monitoring, September 25, 26, and 27, 1996**

Dear Mr. Ciavattieri:

Enclosed are the results of the water level monitoring and cap inspection conducted at the Aerovox site by SAIC Engineering, Inc. during the September 1996 full moon period. We note that at the time of water level monitoring in September 1996 NOAA tide charts for New Bedford show record or near record high and low tide elevations.

The next inspection and round of water level readings are scheduled for the March 1997 full moon period. Please call if you have any questions.

Sincerely,

SAIC ENGINEERING, INC.

Allen F. Davis, P.E.
Project Manager

Enclosures

cc: G. Monte, DEP/SERO
P. Galvani, Ropes & Gray
P. Szwaja, Aerovox

101 East Grove Street, Middleboro, Massachusetts 02346 • (508) 946-3500 • FAX: (508) 946-3509

TABLE 1A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0645
Date: Sept. 25, 1996
Time of Readings: 0630 - 0712

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 146 MONTHS (4)
Tide Gauge	4.76		0.93			
Well No. 2	6.92		3.91	3.01		
Well No. 2A	6.67	2.62	3.19	3.48	0.86	1.51 - 4.00
Well No. 3	6.95		4.08	2.87		
Well No. 3A	8.26	1.86	5.47	2.79	0.93	0.78 - 3.31
Well No. 4	10.99		7.85	3.14		
Well No.4A	10.78	2.28	7.53	3.25	0.97	1.60 - 3.88
Well No. 7	7.59		4.29	3.30		
Well No. 7A	7.33	2.60	4.22	3.11	0.51	2.38 - 3.40

NOTES:

Weather: 60 degrees F, Windy, Cloudy
Readings by: Mark Panni
Affiliation: SAIC Engineering , Inc. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1996.

TABLE 1B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1248
Date: Sept. 25, 1996
Time of Readings: 1228 - 1311

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 146 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.15	1.77		
Well No. 2A	6.67	2.62	3.30	3.37	0.75	1.51 - 4.00
Well No. 3	6.95		5.40	1.55		
Well No. 3A	8.26	1.86	5.48	2.78	0.92	0.78 - 3.31
Well No. 4	10.99		10.28	0.71		
Well No.4A	10.78	2.28	7.53	3.25	0.97	1.60 - 3.88
Well No. 7	7.59		6.93	0.66		
Well No. 7A	7.33	2.60	4.20	3.13	0.53	2.38 - 3.40

NOTES:

Weather: 65 degrees F, Windy, Partly Sunny
Readings by: Mark Parml
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1996.

TABLE 2A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0735
Date: September 26, 1996
Time of Readings: 0714 - 0758

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 146 MONTHS (4)
Tide Gauge	4.76		0.85	3.91		
Well No. 2	6.92		4.08	2.84		
Well No. 2A	6.67	2.62	3.44	3.23	0.61	1.51 - 4.00
Well No. 3	6.95		4.19	2.76		
Well No. 3A	8.26	1.86	5.56	2.70	0.84	0.78 - 3.31
Well No. 4	10.99		7.89	3.10		
Well No.4A	10.78	2.28	7.56	3.22	0.94	1.60 - 3.88
Well No. 7	7.59		4.25	3.34		
Well No. 7A	7.33	2.60	4.23	3.10	0.50	2.38 - 3.40

NOTES:

Weather: 50 degrees F, Cloudy, Light Wind
Readings by: Mark Pannl
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1996.

TABLE 2B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1339
Date: September 26, 1996
Time of Readings: 1233 - 1311

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 146 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		5.03	1.89		
Well No. 2A	6.67	2.62	3.40	3.27	0.65	1.51 - 4.00
Well No. 3	6.95		5.05	1.90		
Well No. 3A	8.26	1.86	5.78	2.48	0.62	0.78 - 3.31
Well No. 4	10.99		10.26	0.73		
Well No.4A	10.78	2.28	7.58	3.20	0.92	1.60 - 3.88
Well No. 7	7.59		7.11	0.48		
Well No. 7A	7.33	2.60	4.22	3.11	0.51	2.88 - 3.40

NOTES:

Weather: 60 degrees F, Cloudy, Windy
Readings by: Mark Panni
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1996.

TABLE 3A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0823
Date: September 27, 1996
Time of Readings: 0813 - 0846

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 146 MONTHS (4)
Tide Gauge	4.76		0.95	3.81		
Well No. 2	6.92		4.11	2.81		
Well No. 2A	6.67	2.62	3.45	3.22	0.60	1.51 - 4.00
Well No. 3	6.95		4.28	2.67		
Well No. 3A	8.26	1.86	5.80	2.46	0.60	0.78 - 3.31
Well No. 4	10.99		8.00	2.99		
Well No.4A	10.78	2.28	7.64	3.14	0.86	1.60 - 3.88
Well No. 7	7.59		4.33	3.26		
Well No. 7A	7.33	2.60	4.25	3.08	0.48	2.38 - 3.40

NOTES:

Weather: 55 degrees F, Cloudy,Windy
Readings by: Mark Panni
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1996.

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide:1426
Date: September 27, 1996
Time of Readings: 1413 - 1445

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 146 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.07	1.85		
Well No. 2A	6.67	2.62	3.41	3.26	0.64	1.51 - 4.00
Well No. 3	6.95		5.60	1.35		
Well No. 3A	8.26	1.86	5.47	2.79	0.93	0.78 - 3.31
Well No. 4	10.99		10.30	0.69		
Well No.4A	10.78	2.28	7.62	3.16	0.88	1.60 - 3.88
Well No. 7	7.59		7.22	0.37		
Well No. 7A	7.33	2.60	4.25	3.08	0.48	2.38 - 3.40

NOTES:

Weather: 70 degrees F, Paritly Sunny, Windy
Readings by: Mark Pamd
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1996.

April 16, 1996

2827.960311.013
01-0827-05-0051-003

U.S. Environmental Protection Agency
Region 1
John F. Kennedy Building
Boston, Massachusetts 02203

ATTENTION: Mr. Frank Ciavattieri

REFERENCE: Aerovox Site Post-Closure Monitoring, March 4,5,6, 1996

Dear Mr. Ciavattieri:

Enclosed are the results of the water level monitoring and cap inspection conducted at the Aerovox site by SAIC Engineering, Inc. during the March 1996 full moon period. We are also enclosing corrected copies of the water level readings taken on March 17, 1995, Tables 3A and 3B. The low and high tide readings were switched in some of the entries in these tables.

The next inspection and round of water level readings are scheduled for the September 1996 full moon period. Please call if you have any questions.

Sincerely,

SAIC ENGINEERING, INC.

Allen F. Davis, P.E.
Project Manager

Enclosures

cc: G. Monte, DEP/SERO
P. Galvani, Ropes & Gray
P. Szwaja, Aerovox

TABLE 1A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0705
Date: March 4, 1996
Time of Readings: 0643 - 0742

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 140 MONTHS (4)
Tide Gauge	4.76		Dry (5)			
Well No. 2	6.92		5.40	1.52		
Well No. 2A	6.67	2.62	3.40	3.27	0.65	1.51 - 4.00
Well No. 3	6.95		5.40	1.55		
Well No. 3A	8.26	1.86	6.29	1.97	0.11	0.78 - 3.31
Well No. 4	10.99		9.47	1.52		
Well No.4A	10.78	2.28	7.84	2.94	0.66	1.60 - 3.88
Well No. 7	7.59		6.02	1.57		
Well No. 7A	7.33	2.60	4.56	2.77	0.17	2.38 - 3.40

NOTES:

Weather: 20 degrees F, Windy, Overcast.
Readings by: David J. Minese
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1996.
(5) Tide guage reading reported as "dry" is considered anomalous.

TABLE 1B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1240
Date: March 4, 1996
Time of Readings: 1220 - 1311

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 140 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.45	1.47		
Well No. 2A	6.67	2.62	3.39	3.28	0.66	1.51 - 4.00
Well No. 3	6.95		5.45	1.50		
Well No. 3A	8.26	1.86	6.30	1.96	0.10	0.78 - 3.31
Well No. 4	10.99		10.88	0.11		
Well No.4A	10.78	2.28	7.84	2.94	0.66	1.60 - 3.88
Well No. 7	7.59		7.57	0.02		
Well No. 7A	7.33	2.60	4.55	2.78	0.18	2.38 - 3.40

NOTES:

Weather: 20 degrees F, Windy, Overcast.
Readings by: David J. Minese
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1996.

TABLE 2A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0745
Date: March 5, 1996
Time of Readings: 0725 - 0812

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 140 MONTHS (4)
Tide Gauge	4.76		3.34	1.42		
Well No. 2	6.92		5.22	1.70		
Well No. 2A	6.67	2.62	3.47	3.20	0.58	1.51 - 4.00
Well No. 3	6.95		5.25	1.70		
Well No. 3A	6.26	1.86	6.28	1.98	0.12	0.78 - 3.31
Well No. 4	10.99		9.18	1.81		
Well No.4A	10.78	2.28	7.87	2.91	0.63	1.60 - 3.88
Well No. 7	7.59		5.70	1.89		
Well No. 7A	7.33	2.60	4.56	2.77	0.17	2.38 - 3.40

NOTES:

Weather: 25 to 30 degrees F, Snow, Overcast
Readings by: David J. Minese
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1996.

TABLE 2B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1310
Date: March 5, 1996
Time of Readings: 1250 - 1335

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 140 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.45	1.47		
Well No. 2A	6.67	2.62	3.39	3.28	0.66	1.51 - 4.00
Well No. 3	6.95		5.50	1.45		
Well No. 3A	8.26	1.86	6.24	2.02	0.16	0.78 - 3.31
Well No. 4	10.99		10.45	0.54		
Well No.4A	10.78	2.28	7.85	2.93	0.65	1.60 - 3.88
Well No. 7	7.59		7.03	0.56		
Well No. 7A	7.33	2.60	4.54	2.79	0.19	2.38 - 3.40

NOTES:

Weather: 25 to 30 degrees F, Snow, Overcast
Readings by: David J. Minese
Affiliation: SAIC Engineering, Inc. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1996.

TABLE 3A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0825
Date: March 6, 1996
Time of Readings: 0805 - 0840

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 140 MONTHS (4)
Tide Gauge	4.76		2.65	2.11		
Well No. 2	6.92		4.84	2.08		
Well No. 2A	6.67	2.62	2.96	3.71	1.09	1.51 - 4.00
Well No. 3	6.95		4.93	2.02		
Well No. 3A	8.26	1.86	6.17	2.09	0.23	0.78 - 3.31
Well No. 4	10.99		8.75	2.24		
Well No.4A	10.78	2.28	6.97	3.81	1.53	1.60 - 3.88
Well No. 7	7.59		5.26	2.33		
Well No. 7A	7.33	2.60	4.48	2.85	0.25	2.38 - 3.40

NOTES:

Weather: 35 to 40 degrees F, Heavy Rain.
Readings by: David J. Minese
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1996.

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide:1343
Date: March 6, 1996
Time of Readings: 1323 - 1400

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 140 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		5.45	1.47		
Well No. 2A	6.67	2.62	2.92	3.75	1.13	1.51 - 4.00
Well No. 3	6.95		5.59	1.36		
Well No. 3A	8.26	1.86	6.15	2.11	0.25	0.78 - 3.31
Well No. 4	10.99		10.52	0.47		
Well No.4A	10.78	2.28	6.91	3.87	1.59	1.60 - 3.88
Well No. 7	7.59		7.25	0.34		
Well No. 7A	7.33	2.60	4.46	2.87	0.27	2.38 - 3.40

NOTES:

Weather: 35 to 40 degrees F, Heavy Rain.
Readings by: David J. Minese
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Middleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1996.

SAIC Engineering, Inc.
A Subsidiary of Science Applications International Corporation
An Employee-Owned Company

September 18, 1995

2827.950913.009
01-0827-05-0051-003

RECEIVED
SEP 20 1995

U.S. Environmental Protection Agency
Region 1
John F. Kennedy Building
Boston, Massachusetts 02203

ATTENTION:- Mr. Frank Ciavattieri

REFERENCE: Aerovox Site Post-Closure Monitoring, September 7,8,9, 1995

Dear Mr. Ciavattieri:

Enclosed are the results of the water level monitoring and cap inspection conducted at the Aerovox site by SAIC Engineering, Inc. during the September 1995 full moon period. The next inspection and round of water level readings are scheduled for March 1996 full moon period. Please call if you have any questions.

Sincerely,

SAIC ENGINEERING, INC.

Allen F. Davis, P.E.
Project Manager

Enclosures

cc: G. Monte, DEP/SERO
P. Galvani, Ropes & Gray
P. Szwaja, Aerovox

101 East Grove Street, Middleboro, Massachusetts 02346 • (508) 946-3500 • FAX: (508) 946-3509

TABLE 1A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0647
Date: September 7, 1995
Time of Readings: 0530 - 0702

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 134 MONTHS (4)
Tide Gauge	4.76		1.37	3.39		
Well No. 2	6.92		4.30	2.62		
Well No. 2A	6.67	2.62	4.40	2.27	-0.35	1.51 - 4.00
Well No. 3	6.95		5.05	1.90		
Well No. 3A	8.26	1.86	6.06	2.20	0.34	0.78 - 3.31
Well No. 4	10.99		8.74	2.25		
Well No.4A	10.78	2.28	8.59	2.19	-0.09	1.60 - 3.88
Well No. 7	7.59		5.10	2.49		
Well No. 7A	7.33	2.60	4.69	2.64	0.04	2.38 - 3.40

NOTES:

Weather: 70 degrees F, Partly Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1995.

TABLE 1B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1258
Date: September 7, 1995
Time of Readings: 1240 - 1328

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 134 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.65	1.27		
Well No. 2A	6.67	2.62	4.37	2.30	-0.32	1.51 - 4.00
Well No. 3	6.95		6.05	0.90		
Well No. 3A	8.26	1.86	6.40	1.86	-0.00	0.78 - 3.31
Well No. 4	10.99		10.85	0.14		
Well No.4A	10.78	2.28	8.59	2.19	-0.09	1.60 - 3.88
Well No. 7	7.59		7.50	0.09		
Well No. 7A	7.33	2.60	4.65	2.68	0.08	2.38 - 3.40

NOTES:

Weather: 70 degrees F, Partly Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1995.

TABLE 2A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0736
Date: September 8, 1995
Time of Readings: 0715 - 0759

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 134 MONTHS (4)
Tide Gauge	4.76		1.44	--		
Well No. 2	6.92		3.83	3.09		
Well No. 2A	6.67	2.62	4.12	2.55	-0.07	1.51 - 4.00
Well No. 3	6.95		5.10	1.85		
Well No. 3A	8.26	1.86	5.77	2.49	0.63	0.78 - 3.31
Well No. 4	10.99		8.69	2.30		
Well No.4A	10.78	2.28	8.61	2.17	-0.11	1.60 - 3.88
Well No. 7	7.59		5.02	2.57		
Well No. 7A	7.33	2.60	4.67	2.66	0.06	2.38 - 3.40

NOTES:

Weather: 70 degrees F, Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering, Inc., 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1995.

TABLE 2B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1346
Date: September 8, 1995
Time of Readings: 1325 - 1359

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 134 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.95	0.97		
Well No. 2A	6.67	2.62	4.23	2.44	-0.18	1.51 - 4.00
Well No. 3	6.95		6.36	0.59		
Well No. 3A	8.26	1.86	6.40	1.86	-0.00	0.78 - 3.31
Well No. 4	10.99		11.14	-0.15		
Well No.4A	10.78	2.28	8.61	2.17	-0.11	1.60 - 3.88
Well No. 7	7.59		7.76	-0.17		
Well No. 7A	7.33	2.60	4.73	2.60	-0.00	2.38 - 3.40

NOTES:

Weather: 70 degrees F, Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1995.

TABLE 3A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0823
Date: September 9, 1995
Time of Readings: 0805 - 0844

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 134 MONTHS (4)
Tide Gauge	4.76		1.23	3.53		
Well No. 2	6.92		4.75	2.17		
Well No. 2A	6.67	2.62	4.23	2.44	-0.18	1.51 - 4.00
Well No. 3	6.95		5.10	1.85		
Well No. 3A	8.26	1.86	6.10	2.16	0.30	0.78 - 3.31
Well No. 4	10.99		8.62	2.37		
Well No.4A	10.78	2.28	8.61	2.17	-0.11	1.60 - 3.88
Well No. 7	7.59		4.95	2.64		
Well No. 7A	7.33	2.60	4.67	2.66	0.06	2.38 - 3.40

NOTES:

Weather: 65 degrees F, Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering, Inc. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1995.

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1428
Date: September 9, 1995
Time of Readings: 1410 - 1432

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 134 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.15	1.77		
Well No. 2A	6.67	2.62	4.21	2.46	-0.16	1.51 - 4.00
Well No. 3	6.95		6.10	0.85		
Well No. 3A	8.26	1.86	6.31	1.95	0.09	0.78 - 3.31
Well No. 4	10.99		10.87	0.12		
Well No.4A	10.78	2.28	8.62	2.16	-0.12	1.60 - 3.88
Well No. 7	7.59		7.57	0.02		
Well No. 7A	7.33	2.60	4.79	2.54	-0.06	2.38 - 3.40

NOTES:

Weather: 70 degrees F, Sun/Cldy
Readings by: Cortland Ridings
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through September, 1995.

SAIC Engineering, Inc.

A Subsidiary of Science Applications International Corporation

An Employee-Owned Company

March 24, 1995

2827.950323.001
01-0827-05-0051-003

U.S. Environmental Protection Agency
Region 1
John F. Kennedy Building
Boston, Massachusetts 02203

ATTENTION: Mr. Frank Ciavattieri

REFERENCE: Aerovox Site Post-Closure Monitoring,
March 15, 16, 17, 1995

Dear Mr. Ciavattieri:

Enclosed are the results of the water level monitoring and cap inspection conducted at the Aerovox site by SAIC Engineering, Inc. during the March 1995 full moon period. The next inspection and round of water level readings are scheduled for the September 1995 full moon period. Please call if you have any questions.

Sincerely,

SAIC ENGINEERING, INC.

Allen F. Davis, P.E.
Project Manager

Enclosures
cc: G. Monte, DEP/SERO
P. Galvani, Ropes & Gray
P. Szwaja, Aerovox

101 East Grove Street, Middleboro, Massachusetts 02346 • (508) 946-3500 • FAX: (508) 946-3509

TABLE 1A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0625
Date: Mar. 15, 1995
Time of Readings: 0605 - 0635

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		2.70	2.06		
Well No. 2	6.92		5.10	1.82		
Well No. 2A	6.67	2.62	3.72	2.95	0.33	1.51 - 4.00
Well No. 3	6.95		5.18	1.77		
Well No. 3A	8.26	1.86	5.55	2.71	0.85	0.78 - 3.31
Well No. 4	10.99		9.10	1.89		
Well No.4A	10.78	2.28	7.90	2.88	0.60	1.60 - 3.88
Well No. 7	7.59		5.56	2.03		
Well No. 7A	7.33	2.60	4.66	2.67	0.07	2.38 - 3.40

NOTES:

Weather: 50 degrees F, Cldy.
Readings by: Cordand Ridings
Affiliation: SAIC Engineering, Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft, at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.

TABLE 1B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1157
Date: Mar. 15, 1995
Time of Readings: 1140 - 1206

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		5.22	1.70		
Well No. 2A	6.67	2.62	3.74	2.93	0.31	1.51 - 4.00
Well No. 3	6.95		5.84	1.11		
Well No. 3A	8.26	1.86	6.41	1.85	-0.01	0.78 - 3.31
Well No. 4	10.99		10.60	0.39		
Well No.4A	10.78	2.28	7.91	2.87	0.59	1.60 - 3.88
Well No. 7	7.59		7.34	0.25		
Well No. 7A	7.33	2.60	4.66	2.67	0.07	2.38 - 3.40

NOTES:

Weather: 50 degrees F, Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.

TABLE 2A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0709
Date: Mar. 16, 1995
Time of Readings: 0650 - 0717

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		2.00	2.76		
Well No. 2	6.92		4.92	2.00		
Well No. 2A	6.67	2.62	3.74	2.93	0.31	1.51 - 4.00
Well No. 3	6.95		5.00	1.95		
Well No. 3A	8.26	1.86	6.33	1.93	0.07	0.78 - 3.31
Well No. 4	10.99		8.86	2.13		
Well No.4A	10.78	2.28	7.90	2.88	0.60	1.60 - 3.88
Well No. 7	7.59		5.27	2.32		
Well No. 7A	7.33	2.60	4.66	2.67	0.07	2.38 - 3.40

NOTES:

Weather: 50 degrees F, Cldy.
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.

TABLE 2B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1238
Date: Mar. 16, 1995
Time of Readings: 1220 - 1248

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.41	1.51		
Well No. 2A	6.67	2.62	3.76	2.91	0.29	1.51 - 4.00
Well No. 3	6.95		5.85	1.10		
Well No. 3A	8.26	1.86	6.40	1.86	-0.00	0.78 - 3.31
Well No. 4	10.99		10.67	0.32		
Well No.4A	10.78	2.28	7.94	2.84	0.56	1.60 - 3.88
Well No. 7	7.59		7.39	0.20		
Well No. 7A	7.33	2.60	4.66	2.67	0.07	2.38 - 3.40

NOTES:

Weather: 50 degrees F, Cldy
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.

Table 3A

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

* Corrected 3/26/95 (5)

Tide Stage: High
Time of Tide: 0753
Date: Mar. 17, 1995
Time of Readings: 0740 - 0807

LOCATION	TOP OF CASING ELEVATION (1)(2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		2.10	2.66		
Well No. 2	6.92		4.77	2.15		
Well No. 2A	6.67	2.62	3.47	3.20	0.58	1.51 - 4.00
Well No. 3	6.95		4.97	1.98		
Well No. 3A	8.28	1.86	6.35	1.91	0.05	0.78 - 3.31
Well No. 4	10.99		8.92	2.07		
Well No.4A	10.78	2.28	7.90	2.88	0.60	1.60 - 3.88
Well No. 7	7.59		5.35	2.24		
Well No. 7A	7.33	2.60	4.66	2.67	0.07	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Rain
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.
(5) Current readings and associated current elevation data and change in elevation vs. baseline data reported earlier incorrectly, corrected 3/25/96

TABLE 3A

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: High
Time of Tide: 0753
Date: Mar. 17, 1995
Time of Readings: 0740 - 0807

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		Dry	4.76		
Well No. 2	6.92		5.35	1.57		
Well No. 2A	6.67	2.62	3.48	3.19	0.57	1.51 - 4.00
Well No. 3	6.95		5.45	1.50		
Well No. 3A	8.26	1.86	6.36	1.90	0.04	0.78 - 3.31
Well No. 4	10.99		10.64	0.35		
Well No.4A	10.78	2.28	7.91	2.87	0.59	1.60 - 3.88
Well No. 7	7.59		7.37	0.22		
Well No. 7A	7.33	2.60	4.65	2.68	0.08	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Rain
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1320
Date: Mar. 17, 1995
Time of Readings: 1310 - 1337

* Corrected 3/26/95 (5)

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		Dry	-		
Well No. 2	6.92		5.35	1.57		
Well No. 2A	6.67	2.62	3.48	3.19	0.57	1.51 - 4.00
Well No. 3	6.95		5.45	1.50		
Well No. 3A	8.26	1.86	6.36	1.90	0.04	0.78 - 3.31
Well No. 4	10.99		10.64	0.35		
Well No.4A	10.78	2.28	7.91	2.87	0.59	1.60 - 3.88
Well No. 7	7.59		7.37	0.22		
Well No. 7A	7.33	2.60	4.65	2.68	0.08	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Cldy with Rain
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc.. 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.
(5) Current readings and associated current elevation data and change in elevation vs. baseline data reported earlier incorrectly, corrected 3/25/96

TABLE 3B

WATER LEVEL READINGS

AEROVOX PLANT SITE
NEW BEDFORD, MASSACHUSETTS

Tide Stage: Low
Time of Tide: 1320
Date: Mar. 17, 1995
Time of Readings: 1304 - 1327

LOCATION	TOP OF CASING ELEVATION (1) (2)	BASELINE ELEVATION (3)	CURRENT READING	CURRENT ELEVATION	CHANGE IN ELEVATION vs. BASELINE	RANGE OF ELEVATION OVER PREVIOUS 128 MONTHS (4)
Tide Gauge	4.76		Dry	--		
Well No. 2	6.92		4.85	2.07		
Well No. 2A	6.67	2.62	3.51	3.16	0.54	1.51 - 4.00
Well No. 3	6.95		5.63	1.32		
Well No. 3A	8.26	1.86	6.27	1.99	0.13	0.78 - 3.31
Well No. 4	10.99		10.18	0.81		
Well No.4A	10.78	2.28	8.37	2.41	0.13	1.60 - 3.88
Well No. 7	7.59		6.89	0.70		
Well No. 7A	7.33	2.60	4.57	2.76	0.16	2.38 - 3.40

NOTES:

Weather: 40 degrees F, Cldy
Readings by: Cortland Ridings
Affiliation: SAIC Engineering , Inc., 101 East Grove Street, Midddleboro, Massachusetts, 02346

FOOTNOTES:

(1) All readings and elevations are in feet and are referenced to mean sea level datum.
(2) Tide elevation is measured in reference to a known elevaton of 4.76 ft , at a point on sheet piling near Well No. 2.
(3) Baseline elevations shown for shallow wells Nos. 2A, 3A, 4A, and 7A are average monthly readings recorded for July 1984 through June 1985.
(4) Numbers in this column are the range of recorded elevations from July 1984 through March, 1995.

Attachment 11

Building Material Volume and Mass Calculations

<u>Attachment 11</u>

Aerovox, Inc. Facility
New Bedford, Massachusetts

Building Material Volume and Mass Calculations

The calculations presented in Tables 11-1 through 11-8 were performed in order to estimate the mass and volume of materials which would be generated during the demolition activities of the Aerovox, Inc. (Aerovox) facility, located in New Bedford, Massachusetts. These calculations are approximate and are intended for the purpose of estimating the cost of remedial measures which can be applied to address the presence of polychlorinated biphenyls (PCBs) at the Aerovox facility. It should be noted that calculations are based on the average densities of select solids[(1)], and no voids (empty spaces) were assumed in the materials. Therefore, the actual volume of the materials to be generated during the demolition activities will increase from those presented in Tables 11-1 through 11-8. As such, a volume bulking factor of 1.5 has been applied to volumes presented in Tables 11-1 and 11-2 for wood material in order to better estimate transportation and disposal costs. A description and explanation of the terms used in Tables 11-1 through 11-8 is presented below.

<u>Basic Units:</u>

For ease of calculation and manipulation of volume/mass estimates, "basic units" were created. A "basic unit" is specified in the column labeled "Unit", and may be a linear foot (lin ft) of the structure, such as wall, steel beam, etc., a square foot (sq ft) of a structure, such as wall, floor, etc., or individual "unit" (each), such as window, wooden column, etc. Based on the average densities and known dimensions of the "basic unit", the volume (Volume per Unit) and mass (Mass per Unit) of the "basic unit" were calculated. In cases, where "basic unit" consisted of material with the same average density, but the size of the "basic unit" varies (for example 4" thick and 5" thick brick wall), the appropriate dimensions were listcd in column labeled "Size".

<u>Volume/Mass Calculations:</u>

The facility was divided into Eastern Section and Western Section, and then each section was divided by floors (levels). This layout provides a mechanism to determine the volume/mass of the separate sections of the building, as needed.

In order to determine the volume/mass of the structure(s) (such as brick wall), the number of the "basic units" (sq ft) of which the structure(s) consist was determined, and then multiplied by the "Volume per Unit" and "Mass per Unit", respectively. The results of the mass and volume calculations created the basis for demolition/cleanup cost presented in Table 15, 16, and 17 of this document.

<u>Assumptions:</u>

1. [(1)] - Average densities of the select materials based on data presented in "Handbook of Chemistry and Physics", 76th Edition, 1996.
2. Each level's volume and mass do not include the ceiling (except for the roof of the building). The volume/mass of each ceiling is calculated as the floor of the next higher level.

Table 11-1

Aerovox, Inc. Facility

Building Material Volume and Mass Calculations

Basic Units:

					Western Section: 1st Floor			Western Section: 2nd Floor		
Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]
Base Concrete Wall:	1' thick	3	640	lin. ft.	1432	4296	773280		0	0
Concrete Floor:	6" thick	0.5	90	s q ft.	96920	46460	8722800	15000	7500	1350000
Brick Walls:	12" thick	1	112	sq. ft.	5064	5064	567168	3006	3006	336672
	18" thick	1.333	150	sq. ft.	13239	17647.59	1985850	4704	6270.432	705600
						0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.	5986	1993.338	53874		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	81650	33966.4	918562.5
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.	1100	1001	40150		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.	180	181.8	7290	2500	2525	101250
	12' high	1.22	48.7	lin. ft.	550	671	26785		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each	176	552.64	24288		0	0
8" diameter	10' high	3.5	154	each	25	87.5	3850		0	0
	12" high	4.18	184	each	108	451.44	19872		0	0
	16' high	5.6	246	each		0	0	84	470.4	20664
									0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.	9320	1183.64	577840	4583	582.041	284146
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0	3925	157	76459
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0		0	0
6' X 11'	1/04" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0	26	153.92	6908.2
Total square feet/pounds:						81589.95	1.3E+07		54631.19	3800262
Total cubic yards:						3022.092	cu. yds.		2023.539	cu. yds.
Total Tons:						6401.524	Tons		1900.131	Tons

Roof - Western Section: 1875 cubic yards
858 Tons

Table 11-1 (cont.)

Aerovox, Inc. Facility

Building Material Volumo and Mass Calculations

Basic Units:

Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Eastern Section – 1st Floor: No. of Units	1st Floor: Volume [cf]	1st Floor: Mass [lb]	2nd Floor: No. of Units	2nd Floor: Volume [cf]	2nd Floor: Mass [lb]	3rd Floor: No. of Units	3rd Floor: Volume [cf]	3rd Floor: Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.	1425	4275	769500	0	0	0	0	0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.	85214	42807	7669200	0	0	0	0	0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.	2246	2248	251552	2325	2325	260400	3525	3525	394800
	16" thick	1.333	150	8 sqft.	4194	5590.602	629100	7650	10197.45	1147500	8116	10818.63	1217400
						0	0		0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.	3564	1186.812	32076	0	0	0		0	0
	5" thick	0.418	11.25	sqs . ft.	0	0	0	86182	35851.71	969547.5	86182	35851.71	969547.5
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.	0	0	0	0	0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.	0	0	0	0	0	0		0	0
	12' high	1.22	48.7	lin. ft.	0	0	0	0	0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.				2385	2388.65	86086	2320	2343.2	84448
0.5" thick board	12' high	1.22	43.68	lin. ft.	3100	3782	135408	0	0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0	0	0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each	0	0	0	0	0	0		0	0
8" diameter	10' high	3.5	154	each	0	0	0	0	0	0		0	0
	12' high	4.18	184	each	220	919.6	40480	0	0	0		0	0
	16' high	5.6	246	each		0	0	220	1232	54120		0	0
	17' high	5.95	261.8	each							220	1309	57596
												0	0
Steel Beams:	W21 x 62	0.127	82	lin. ft.	7535	956.945	467170	7535	956.045	467170	7535	956.945	467170
Steel Plate:	0.5" thick	0.04	19.48	sq. ft.		0	0	4728	189.12	92101.44		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each		0	0		0	0		0	0
8' X 13'	1/64" met	0.14	68	each		0	0		0	0		0	0
		9.05	406	each	56	506.8	22738	119	1076.95	48314	119	1076.95	48314
Total square feet/pounds:						62070.76	1E+07		54217.83	3125239		55881.44	3239276
Total cubic yards:						2299.101	cu. yde.		2008.228	cu. yds.		2069.848	cu. yds.
Total Tons:						5008.641	Tons		1562.619	Tons		1619.638	Tons

Roof - Eastern Saction:	1474	cubic yards
	517	Tons

TOTAL BUILDING MATERIAL VOLUME:	14771.81	cubic yards
TOTAL BUILDING MATERIAL MASS:	17667.55	Tons

Table 11-2

Aerovox, Inc. Facility

Materials to TSCA Landfill Under Option #1 (Excluding Concrete Floor at Grade)

Basic Units:

					Western Section: 1st Floor			Western Section: 2nd Floor		
Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]
Base Concrete Wall:	1' thick	3	540	lin. ft.		0	0		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.		0	0	15000	7500	1350000
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0
						0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.	3186	1060.938	28674		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	56650	23566.4	637312.5
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.		0	0		0	0
	12' high	1.22	46.7	lin. ft.		0	0		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0
	12" high	4.18	184	each		0	0		0	0
	16' high	5.6	246	each		0	0		0	0
									0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0		0	0
8' X 11'	1/64" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						1060.938	28674		31066.4	1987313
Total cubic yards:						39.29714	cu. yds.		1150.699	cu. yds.
Total Tons:						14.337	Tons		993.6563	Tons

Table 11-2 (cont.)

Aerovox, Inc. Facility

Materials to TSCA Landfill Under Option #1 (Excluding Concrete Floor at Grade)

Basic Units:

Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Eastern Section – 1st Floor: No. of Units	1st Floor: Volume [cf]	1st Floor: Mass [lb]	2nd Floor: No. of Units	2nd Floor: Volume [cf]	2nd Floor: Mass [lb]	3rd Floor: No. of Units	3rd Floor: Volume [cf]	3rd Floor: Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.	3564	1186.812	32076		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	86182	35851.71	969547.5	86182	35851.71	969547.5
						0	0		0	0		0	0
Drywall:	9' high	0.91	38.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' hi h	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.					0	0		0	0
0.5" thick board	12' high	1.22	43.68	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2'	16' high	1.82	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each		0	0		0	0		0	0
	16' high	5.6	246	each		0	0		0	0		0	0
	17' high	5.95	261.8	each								0	0
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0		0	0
Steel Plate:	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each		0	0		0	0		0	0
8' X 13'	1/64" met	0.14	68	each		0	0		0	0		0	0
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						1186.812	32076		35851.71	969547.5		35851.71	969547.5
Total cubic yards:						43.95952	cu. yds.		1327.947	cu. yds.		1327.947	cu. yds.
Total Tons:						16.038	Tons		484.7738	Tons		484.7738	Tons

TOTAL TSCA MATERIAL VOLUME: 3889.851 cubic yards

TOTAL TSCA MATERIAL MASS: 1993.579 Tons

Table 11-3

Aerovox, Inc. Facility

Materials to TSCA Landfill Under Option #2 (Including a Portion of the Concrete Floor at Grade)

Basic Units:

Structura	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Western Section: 1st Floor No. of Units	Western Section: 1st Floor Volume [cf]	Western Section: 1st Floor Mass [lb]	Western Section: 2nd Floor No. of Units	Western Section: 2nd Floor Volume [cf]	Western Section: 2nd Floor Mass [lb]
Base Concrete Wall:	1' thick	3	540	lin. ft.		0	0		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.	96920	48460	8722800	15000	7500	1350000
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0
						0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.	3186	1060.938	28674		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	56650	23566.4	637312.5
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0
	12" high	4.18	184	each		0	0		0	0
	16' high	5.6	248	each		0	0		0	0
									0	0
Steel Beams:	W21 x 62	0.127	82	lin. ft.		0	0		0	0
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0		0	0
6' X 11'	1/64" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						49520.94	8751474		31066.4	1987313
Total cubic yards:						**1834.256**	**cu. yds.**		**1150.699**	**cu. yds.**
Total Tons:						**4375.737**	**Tons**		**993.8563**	**Tons**

Table 11-3 (cont.)

Aerovox, Inc. Facility

Materials to TSCA Landfill Under Option #2 (Including a Portion of the Concrete Floor at Grade)

Basic Units:

Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Eastern Section – 1st Floor No. of Units	1st Floor Volume [cf]	1st Floor Mass [lb]	2nd Floor No. of Units	2nd Floor Volume [cf]	2nd Floor Mass [lb]	3rd Floor No. of Units	3rd Floor Volume [cf]	3rd Floor Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.	3564	1186.812	32076		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	86182	35851.71	969547.5	86182	35851.71	969547.5
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' hi h	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.					0	0		0	0
0.5" thick board	12' high	1.22	43.68	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each		0	0		0	0		0	0
	16' high	5.8	246	each		0	0		0	0		0	0
	17' high	5.95	261.8	each								0	0
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0		0	0
Steel Plate:	0.5" thick	0.04	19.48	s . ft.		0	0		0	0		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each		0	0		0	0		0	0
8' X 13'	1/64" met	0.14	68	each		0	0		0	0		0	0
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						1186.812	32076		35851.71	969547.5		35851.71	969547.5
Total cubic yards:						43.95952	cu. yds.		1327.947	cu. yds.		1327.947	cu. yds.
Total Tons:						16.038	Tons		484.7738	Tons		484.7738	Tons

TOTAL TSCA MATERIAL VOLUME: 5684.609 cubic yards
TOTAL TSCA MATERIAL MASS: 8354.979 Tons

Table 11-4

Aerovox, Inc. Facility

Materials to TSCA Landfill Under Option #3 (Including Entire Concrete Floor at Grade)

Basic Units:

Structura	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Western Section: 1st Floor No. of Units	1st Floor Volume [cf]	1st Floor Mass [lb]	Western Section: 2nd Floor No. of Units	2nd Floor Volume [cf]	2nd Floor Mass [lb]
Base Concrete Wall:	1' thick	3	540	lin. ft.		0	0		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.	96920	46460	8722800	15000	7500	1350000
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0
						0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.	3186	1060.938	28674		0	0
	5" thick	0.416	11.25	sq ft.		0	0	56650	23566.4	637312.5
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.		0	0		0	0
	12' hi h	1.22	48.7	liq. ft.		0	0		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0
	12" high	4.18	184	each		0	0		0	0
	16' high	5.6	246	each		0	0		0	0
									0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0		0	0
6' X 11'	1/64" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						49520.94	8751474		31066.4	1987313
Total cubic yards:						**1834.256**	**cu. yds.**		**1150.699**	**cu. yds.**
Total Tons:						**4375.737**	**Tons**		**993.6563**	**Tons**

Table 11-4 (cont.)

Aerovox, Inc. Facility

Matsrials to TSCA Lsndfill Under Option #3 (Including Entire Concrete Floor at Grade)

Basic Units:

Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Eastern Section – 1st Floor – No. of Units	1st Floor – Volume [cf]	1st Floor – Mass [lb]	2nd Floor – No. ef Units	2nd Floor – Velums [cf]	2nd Floor – Mass [lb]	3rd Floor – No. of Units	3rd Floor – Volume [cf]	3rd Floor – Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.		0	0		0	0		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.	85214	42607	7669260		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0		0	0
	16" thick	1.333	150	q ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.	3564	1186.812	32076		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	86182	35851.71	969547.5	86182	35851.71	969547.5
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.					0	0		0	0
0.5" thick board	12' high	1.22	43.68	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Woodsn Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each		0	0		0	0		0	0
	16' high	5.6	246	each		0	0		0	0		0	0
	17' high	5.95	261.8	each								0	0
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0		0	0
Steel Plate:	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each		0	0		0	0		0	0
8' X 13'	1/64" met	0.14	66	each		0	0		0	0		0	0
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						43793.81	7701336		35851.71	969547.5		35851.71	969547.5
Tetal cubic yards:						**1622.123**	**cu. yds.**		**1327.947**	**cu. yds.**		**1327.947**	**cu. yds.**
Tetal Tons:						**3850.668**	**Tons**		**484.7738**	**Tons**		**484.7738**	**Tons**

TOTAL TSCA MATERIAL VOLUME: 7282.973 cubic yards
TOTAL TSCA MATERIAL MASS: 10189.61 Tons

Table 11-5

Aerovox, Inc. Facility

Materials to Non-TSCA Landfill Under Option #1

Basic Units:

Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Western Section: 1st Floor No. of Units	1st Floor Volume [cf]	1st Floor Mass [lb]	Western Section: 2nd Floor No. of Units	2nd Floor Volume [cf]	2nd Floor Mass [lb]
Base Concrete Wall:	1' thick	3	540	lin. ft.	1432	4296	773280		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.	5064	5064	567168	3006	3006	336672
	16" thick	1.333	150	sq. ft.	13239	17647.59	1985850	4704	6270.432	705600
						0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.	2800	932.4	25200		0	0
	5" thick	0.416	11.25	s . ft.		0	0	25000	10400	281250
						0	0		0	0
Drywall:	9' high	0.01	36.5	lin. ft.	1100	1001	40150		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.	180	181.8	7290	2500	2525	101250
	12' high	1.22	48.7	lin. ft.	550	671	26785		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each	176	552.64	24288		0	0
8" diameter	10' high	3.5	154	each	25	87.5	3850		0	0
	12" high	4.18	184	each	108	451.44	19872		0	0
	16' high	5.6	246	each		0	0	84	470.4	20664
									0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0	26	151.58	5746
6' X 11'	1/64" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						30885.37	3473733		22823.41	1451182
Total cubic yards:						1143.994	cu. yds.		845.3792	cu. yds.
Total Tons:						1736.867	Tons		725.591	Tons

Roof - Western Section: 1875 cubic yards
658 Tons

Table 11-5 (cont.)

Aerovox, Inc. Facility

Materials to Non-TSCA Landfill Under Option #1

Basic Units:

					Eastern Section								
					1st Floor			2nd Floor			3rd Floor		
Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.	1425	4275	769500		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.	2246	2246	251552	2325	2325	260400	3525	3525	394800
	16" thick	1.333	150	sq. ft.	4194	5590.602	629100	7650	10197.45	1147500	8116	10818.63	1217400
						0	0		0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.		0	0		0	0		0	0
	5" thick	0.418	11.25	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.				2365	2388.65	86086	2320	2343.2	84448
0.5" thick board	12' high	1.22	43.68	lin. ft.	3100	3782	135408		0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each	220	919.6	40480		0	0		0	0
	16' high	5.6	246	each		0	0	220	1232	54120		0	0
	17' high	5.95	261.8	each							220	1309	57596
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0		0	0
Steel Plate:	0.5" thigk	0.04	19.48	s . ft.		0	0		0	0		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each	56	498.96	18928	119	1060.29	40222	119	1060.29	40222
8' X 13'	1/64" mst	0.14	68	esch		0	0		0	0		0	0
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						17312.16	1844968		17203.39	1588328		19056.12	1794466
Total cubic yards:						641.2425	cu. yds.		637.2136	cu. yds.		705.6386	cu. yds.
Total Tons:						922.484	Tons		794.164	Tons		897.233	Tons

Roof - Eastern Section:	1474	cubic yards
	517	Tons

TOTAL NON-TSCA MATERIAL VOLUME:	7322.668	cubic yards
TOTAL NON-TSCA MATERIAL MASS:	6251.339	Tons

Table 11-6

Aerovox, Inc. Facility

Materials to Non-TSCA Landfill Under Options #2 and #3

Basic Units:

Structura	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Western Section: 1st Floor No. of Units	1st Floor Volume [cf]	1st Floor Mass [lb]	Western Section: 2nd Floor No. of Units	2nd Floor Volume [cf]	2nd Floor Mass [lb]
Base Concrete Wall:	1' thick	3	540	lin. ft.		0	0		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0
						0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.	2800	932.4	25200		0	0
	5" thick	0.416	11.25	sq. ft.		0	0	25000	10400	281250
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.	1100	1001	40150		0	0
2"X4" stud svery 2'	10' high	1.01	40.5	lin. ft.	180	181.8	7290	2500	2525	101250
	12' high	1.22	48.7	lin. ft.	550	671	26785		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each	176	552.64	24288		0	0
8" diameter	10' high	3.5	154	each	25	87.5	3850		0	0
	12" high	4.18	184	each	108	451.44	19872		0	0
	16' hi h	5.6	246	each		0	0	84	470.4	20664
									0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0	26	151.58	5746
6' X 11'	1/64" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						3877.78	147435		13546.98	408910
Total cubic yards:						143.633	cu. yds.		501.7801	cu. yds.
Total Tons:						73.7175	Tons		204.455	Tons

Roof - Western Section: 1675 cubic yards
656 Tons

Table 11-6 (cont.)

Aerovox, Inc. Facility

Materials to Non-TSCA Landfill Under Options #2 and #3

Basic Units:

Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Eastern Section 1st Floor No. of Units	1st Floor Volume [cf]	1st Floor Mass [lb]	2nd Floor No. of Units	2nd Floor Volume [cf]	2nd Floor Mass [lb]	3rd Floor No. of Units	3rd Floor Volume [cf]	3rd Floor Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0		0	0
	18" thick	1.333	150	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.		0	0		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.				2365	2388.65	86086	2320	2343.2	84448
0.5" thick board	12' high	1.22	43.68	lin. ft.	3100	3782	135408		0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each	220	919.6	40480		0	0		0	0
	16' high	5.6	246	each		0	0	220	1232	54120		0	0
	17' high	5.95	261.8	each							220	1309	57596
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0		0	0
Steel Plate:	0.5" thick	0.04	19.48	ft.		0	0		0	0		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each	56	498.96	18928	119	1060.29	40222	119	1060.29	40222
8' X 13'	1/64" met	0.14	68	each		0	0		0	0		0	0
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						5200.56	194816		4680.94	180428		4712.49	182266
Total cubic yards:						192.6287	cu. yds.		173.382	cu. yds.		174.5506	cu. yds.
Total Tons:						97.408	Tons		90.214	Tons		91.133	Tons

Roof - Eastern Section: 1474 cubic yards
517 Tons

TOTAL NON-TSCA MATERIAL VOLUME: 4534.975 cubic yards
TOTAL NON-TSCA MATERIAL MASS: 1731.928 Tons

Table 11-7

Aerovox, Inc. Facility

Non-TSCA Materials to be used as Backfill Under Options #2 and #3

Basic Units:

					Western Section: 1st Floor			Western Section: 2nd Floor		
Structure	**Size**	**Volume Per Unit [cf]**	**Mass Per Unit [lb]**	**Unit**	**No. of Units**	**Volume [cf]**	**Mass [lb]**	**No. of Units**	**Volume [cf]**	**Mass [lb]**
Base Concrete Wall:	1' thick	3	540	lin. ft.	1432	4296	773280		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.	5064	5064	567168	3006	3006	336672
	16" thick	1.333	150	sq. ft.	13239	17647.59	1985850	4704	6270.432	705600
						0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0		0	0
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0
	12" high	4.18	184	each		0	0		0	0
	16' high	5.6	246	each		0	0		0	0
									0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0		0	0
6' X 11'	1/64" met	0.09	44.7	each		0	0		0	0
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						27007.59	3326298		9276.432	1042272
Total cubic yards:						1000.361	cu. yds.		343.599	cu. yds.
Total Tons:						1663.149	Tons		521.136	Tons

Roof - Western Section: 0 cubic yarde
0 Tons

Table 11-7 (cont.)

Aerovox, Inc. Facility

Non-TSCA Materials to be used as Backfill Under Options #2 and #3

Basic Units:

					Eastern Section								
					1st Floor			2nd Floor			3rd Floor		
Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.	1425	4275	769500		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.	2246	2246	251552	2325	2325	260400	3525	3525	394800
	16" thick	1.333	150	sq. ft.	4194	5590.602	629100	7650	10197.45	1147500	8116	10818.63	1217400
						0	0		0	0		0	0
Wooden Walls/Floor	4" thick	0.333	9	sq. ft.		0	0		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.					0	0		0	0
0.5" thick board	12' high	1.22	43.68	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each		0	0		0	0		0	0
	18' high	5.6	246	each		0	0		0	0		0	0
	17' high	5.95	261.8	each								0	0
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.		0	0		0	0		0	0
Steel Plate:	0.5" thick	0.04	19.48	sq. ft.		0	0		0	0		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each		0	0		0	0		0	0
8' X 13'	1/64" met	0.14	68	each		0	0		0	0		0	0
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						12111.6	1650152		12522.45	1407900		14343.63	1612200
Total cubic yards:						448.6137	cu. yds.		463.8315	cu. yds.		531.288	cu. yds.
Total Tons:						825.076	Tons		703.95	Tons		806.1	Tons

Roof - Eastern Section:	0	cubic yards
	0	Tons

TOTAL NON-TSCA BACKFILL MATERIAL VOLU 2767.693 cubic yards
TOTAL NON-TSCA BACKFILL MATERIAL MASS: 4519.411 Tons

Table 11-8

Aerovox, Inc. Facility

Materials to Steel Smelting Facility

Basic Units:

Structura	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	Western Section: 1st Floor No. of Units	1st Floor Volume [cf]	1st Floor Mass [lb]	Western Section: 2nd Floor No. of Units	2nd Floor Volume [cf]	2nd Floor Mass [lb]
Base Concrete Wall:	1' thick	3	540	lin. ft.		0	0		0	0
Concrete Floor:	6" thick	0.5	90	sq. ft.		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0
	16" thick	1.333	150	sq. ft.		0	0		0	0
						0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0		0	0
						0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0
2"X4" stud every 2'	10' high	1.01	40.5	lin. ft.		0	0		0	0
	12' hi h	1.22	48.7	lin. ft.		0	0		0	0
						0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0
8" diameter	10' high	3.5	154	each		0	0		0	0
	12" high	4.18	184	each		0	0		0	0
	16' hi h	5.6	246	each		0	0		0	0
									0	0
Stesl Beams:	W21 x 62	0.127	62	lin. ft.	9320	1183.64	577840	4583	582.041	284146
						0	0		0	0
Steel Plate	0.5" thick	0.04	19.48	sq. ft.		0	0	3925	157	76459
						0	0		0	0
Windows:	1" plyw'd	5.83	221	each		0	0		0	0
6' X 11'	1/64" met	0.09	44.7	each		0	0	26	2.34	1162.2
		5.92	265.7	each		0	0		0	0
Total square feet/pounds:						1183.64	577840		741.381	361767.2
Total cubic yards:						43.64203	cu. yds.		27.46075	cu. yds.
Total Tons:						288.92	Tons		180.8836	Tons

Table 11-8 (cont.)

Aerovox, Inc. Fecility

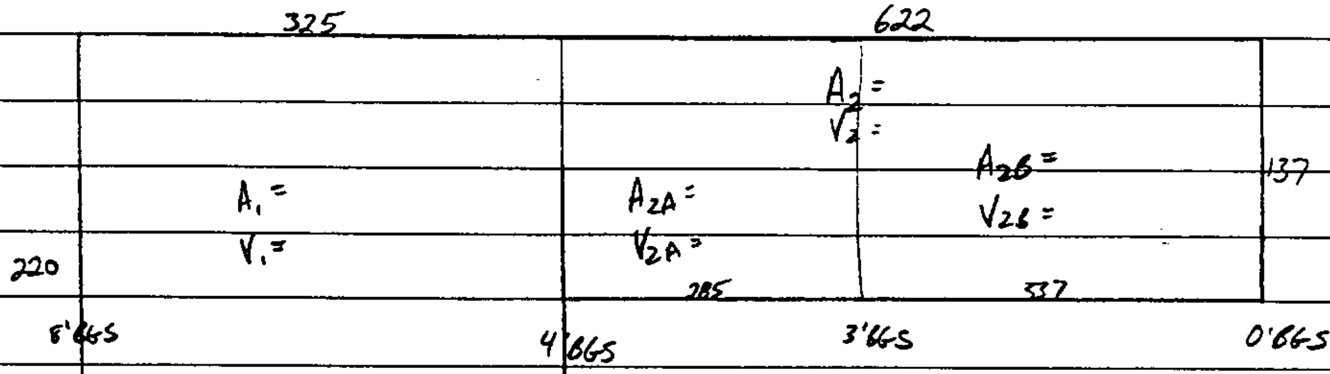
Materials to Steel Smelting Facility

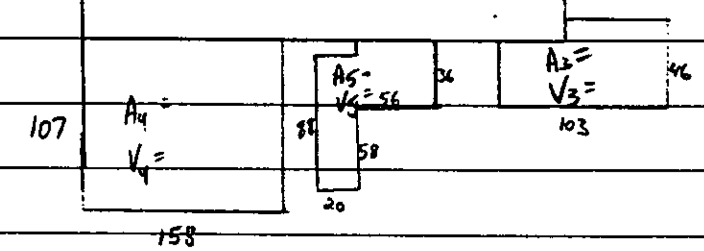
Basic Units:

					Eastern Section – 1st Floor			Eastern Section – 2nd Floor			Eastern Section – 3rd Floor		
Structure	Size	Volume Per Unit [cf]	Mass Per Unit [lb]	Unit	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]	No. of Units	Volume [cf]	Mass [lb]
Base Wall:	1' thick	3	540	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Brick Walls:	12" thick	1	112	sq. ft.		0	0		0	0		0	0
	16" thick	1.333	150	sq ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Wooden Walls/Floor:	4" thick	0.333	9	sq. ft.		0	0		0	0		0	0
	5" thick	0.416	11.25	sq. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Drywall:	9' high	0.91	36.5	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2 ft	10' high	1.01	40.5	lin. ft.		0	0		0	0		0	0
	12' high	1.22	48.7	lin. ft.		0	0		0	0		0	0
						0	0		0	0		0	0
Particle Board Wall:	10' high	1.01	36.4	lin. ft.					0	0		0	0
0.5" thick board	12' high	1.22	43.68	lin. ft.		0	0		0	0		0	0
2"X4" stud every 2'	16' high	1.62	58.24	lin. ft.		0	0		0	0		0	0
									0	0		0	0
Wooden Columns	9' high	3.14	138	each		0	0		0	0		0	0
8" dismeter	10' high	3.5	154	each		0	0		0	0		0	0
	12' high	4.18	184	each		0	0		0	0		0	0
	16' high	5.6	246	each		0	0		0	0		0	0
	17' hi h	5.95	261.8	seach								0	0
												0	0
Steel Beams:	W21 x 62	0.127	62	lin. ft.	7535	956.945	467170	7535	956.945	467170	7535	956.945	467170
Steel Plate:	0.5" thick	0.04	19.48	sq. ft.		0	0	4728	189.12	92101.44		0	0
									0	0		0	0
Windows:	1" plyw'd	8.91	338	each		0	0		0	0		0	0
8' X 13'	1/64" met	0.14	66	each	56	7.84	3608	119	16.66	8092	119	16.66	8092
		9.05	406	each		0	0		0	0		0	0
Total square feet/pounds:						964.785	470978		1162.725	567363.4		973.605	475262
Total cubic yards:						35.73564	cu. yds.		43.06733	cu. yds.		36.06233	cu. yds.
Tetal Tons:						235.489	Tons		283.6817	Tons		237.631	Tcns

TOTAL STEEL VOLUME: 186.1681 cubic yards
TOTAL STEEL MASS: 1226.605 Tons

Area and Volume Calculations for Concrete Floor Slab:





Area Calculations:

$A_1 = (220')(325') = 71{,}500\ sf$

$A_2 = (622')(137') = 85{,}214\ sf$

$A_{2A} = (285')(137') = 39{,}045\ sf$

$A_{2B} = (337')(137') = 46{,}169\ sf$

$A_3 = (103')(46') = 4{,}738\ sf$

$A_4 = (107')(158') = 16{,}906\ sf$

$A_5 = (20)(88) + (36)(56) = 3{,}776\ sf$

Volume of Concrete Floor Below Grade:

Assumptions: Areas A_1, A_3, A_4, A_5 Below Grade 6'

Area A_{2A} Below Grade 3.5'

Area A_{2B} Below Grade 1.5'

$V_1 = (71{,}500\ sf)(6') = 429{,}000\ cf = 15{,}888.9\ CY$

$V_{2A} = (39{,}045\ sf)(3.5') = 136{,}657.5\ cf = 5{,}061.4\ CY$

$V_{2B} = (46{,}169\ sf)(1.5') = 69{,}253.5\ cf = 2{,}564.9\ CY$

$V_2 = V_{2A} + V_{2B} = 136{,}657.5\ cf + 69{,}253.5\ cf = 205{,}911\ cf = 7{,}626.3\ CY$

$V_3 = (4{,}738\ sf)(6') = 28{,}428\ cf = 1052.9\ CY$

$V_4 = (16{,}906\ sf)(6') = 101{,}436\ cf = 3756.9\ CY$

$V_5 = (3{,}776\ sf)(6') = 22{,}656\ cf = 839.1\ CY$

$A_{TOTAL} = 182{,}134\ sf$ (excluding A_{2A} and A_{2B}) $= 20{,}237\ SY$ ✓

$V_{TOTAL} = 787{,}431\ cf = 29{,}164.1\ CY$ ✓

SUBJECT	PROJ. NO.	BY	DATE	SHEET
Aerovox, Inc. Facility - Building Demolition Alternative	03955.004	CEG	3/25/98	2/4

CALCS. BY ____________; DATE ____________ CHECKED BY JCB ; DATE 3/26/98

Amount of Backfill Required:

Thickness of Cap to be Installed: 6" sand + 6" gravel + 4" asphalt = 1'4"

Assumption:

- Building Area will be backfilled up to 1 foot below Grade with the remaining volume to be filled with cap material.
- Concrete Floor Slab Thickness is 6 inches
- Volume of Demolition Materials to be Used as Backfill Under Options #2 and #3 is 2787.7 CY

Option #1:

Volume of Backfill Required

$V_{OPT\#1} = (71500)(5') + (39{,}045)(2.5') + (46{,}169)(0.5') + (4738)(5') + (16{,}906)(5') + (3776)(5') = 605{,}297\ cf = 22{,}418.4\ CY$ ✓

Option #2:

Area of Concrete to be Removed

$A_{CONCRETE\#2} = A_1 + A_3 + A_4 + A_5 = (71{,}500) + (4{,}738) + (16{,}906) + (3{,}776) = 96{,}920\ sf$ ✓

Volume of Fill Required

$V_{OPT\#2} = (71{,}500)(5+0.5) + (4{,}738)(5+0.5) + (16{,}906)(5+0.5) + (3776)(5+0.5) + (39045)(2.5) + (46169)(0.5) = 653{,}757\ CF = 24{,}213.2\ CY$

$- 2{,}787.7\ CY$

$V_{OPT\#2} = 21{,}425.5\ CY$

Option #3:

Area of Concrete to be Removed

$A_{CONCRETE\#3} = A_1 + A_{2A} + A_{2B} + A_3 + A_4 + A_5 = A_{TOTAL} = 182{,}134\ sf$

Volume of Fill Required

$V_{OPT\#3} = (71500)(5+0.5) + (39{,}045)(2.5+0.5) + (46{,}169)(0.5+0.5) + (4738)(5+0.5) + (16{,}906)(5+0.5) + (3776)(5+0.5) = 696{,}364\ CF = 25{,}791.3\ CY$

$- 2{,}787.7\ CY$

$V_{OPT\#3} = 23{,}003.6\ CY$ ✓