

September 20, 2015

PN: 60422003

Dr. Brenda K. Weis, Director  
Board of Health  
City of New Bedford  
City Hall  
133 William Street  
New Bedford, MA 02740

**Re: Notification of Phase II Comprehensive Site Assessment  
Former Aerovox Facility  
740 Belleville Avenue, New Bedford, Massachusetts  
Release Tracking Number (RTN) 4-0601**

Dear Dr. Weis:

On behalf of AVX Corporation (AVX) and as required by the Massachusetts Contingency Plan (MCP) subpart 310 CMR 40.1403(3)(e), this letter is notification to the Chief Municipal Officer and Board of Health of the submittal of a Phase II Comprehensive Site Assessment Report (Phase II CSA) for the above-referenced Site. The Phase II Report is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the MCP, pursuant to 310 CMR 40.0480, and the provisions of an Administrative Consent Order between AVX and MassDEP.

The Phase II Report will be filed electronically, and may be accessed by searching for the referenced RTN number on the MassDEP web site: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>. The full report may also be reviewed by contacting the Southeast Regional Office of MassDEP located at 20 Riverside Drive in Lakeville, Massachusetts. For information about accessing files for review, contact the MassDEP file review coordinator at (508) 946-2718 or submit a file review request online at <http://www.mass.gov/eea/agencies/massdep/about/contacts/southeast-region-file-review-and-public-records-request.html>. In addition, the following text provides a summary of findings and statement of conclusions from the Phase II Report, as provided in 310 CMR 40.0483(h). A copy of the disposal site map is also attached.

Based on the results of investigations and evaluations undertaken as part of the Phase II CSA, and concurrently as part of the implementation of the IRA for DNAPL found in the a portion of the Site, the following findings and conclusions are presented:.

1. The primary source of the release of oil and hazardous materials to the environment that is the subject of RTN 4-601 is the historic discharge and spilling of chlorinated solvents and PCB oil used in the manufacture of liquid filled capacitors. These spills occurred at the surface and in the subsurface, in unknown quantities over the course of decades. The evidence suggests that the locations of these releases centered around the previously unpaved area along the shoreline, particularly between the

- former building and the river, the previously unpaved area along the north side of the building, the two drainage culverts on the north and south sides of the former building and a discrete area within the parking lot between the former boiler house and main building entrance.
2. These historic spills have resulted in the classification of the Site as a late-stage release (e.g., environmental impacts). The original released constituents have either migrated down to and into fractured bedrock, dissolved and migrated with groundwater, or collected as DNAPL in one limited area around monitoring well MW-15D. In the case of chlorinated VOCs, the analytical results show that the constituents have also attenuated and degraded into daughter products. Released PCBs remain adsorbed to surface soils along the riverfront and in deep soils and groundwater at the overburden and bedrock interface.
  3. The nature of the hazardous materials found at the Site include PCBs, specifically Aroclors 1232, 1242, 1248, 1254 and 1260. The most frequently detected were Aroclors 1254 and 1242. The highest concentrations found were of Aroclor 1254. Chlorinated benzenes, common components of the PCB carrier oil were also found with 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene and Chlorobenzene found most frequently. Finally, the nature of hazardous materials found at the Site included chlorinated ethenes, from tetrachloroethene (PCE) and trichloroethene (TCE) down through cis-1,2-dichloroethene and vinyl chloride. TCE and cis-1,2-dichloroethene were found most frequently and at the highest concentrations.
  4. The extent of soil impacted by PCBs is relatively ubiquitous across the Property and across the riverfront portion of the Titleist property. Shallow soil above the identified peat layer was found to be impacted with PCBs along the riverfront on the Precix and Titleist properties at levels that exceed UCLs. Deep soils in the vicinity of the identified DNAPL (MW-15D) and a limited area of soils centered around boring B04B also exceeded UCL levels. While the soil sample collected beneath the building slab former pump room location also had significant levels of PCBs, the soil beneath the remainder of the former building slab did not. Significant PCB impacts were not identified north or east of the Precix building, on the western portion of the Property or the north side of the western portion of the Titleist building. The chlorinated benzene detections generally coincided with the PCB impacted locations, but chlorinated benzenes were not found at significant concentration levels or levels approaching the UCLs.
  5. There are no concentrations of TCE, cis-1,2-dichloroethene and PCE detected in shallow surface soils (< 3 feet bgs) on the Property. Within the soil profile from 3 feet bgs down to 15 feet, chlorinated ethenes are present below the former Aerovox building foundation, in the south central area of the Property near B04B and B04C, at B08B (near MW-10D and MW-27B), at MIP-43, in the UV-17 area, and within the

- northeast corner of the Property. Inaccessible soils below 15 feet bgs are present more pervasively across the eastern two-thirds of the Property. The soil interval between 15 feet bgs down to the bedrock surface has a higher concentrations of TCE detections in the eastern half of the Property. TCE is the only chlorinated ethene exceeding its UCL, which occurs both in the northeast corner of the Property and in the vicinity of UV-17.
6. The extent of PCB impacts to shallow overburden groundwater is limited to a small area along the waterfront centered near where the southern culvert discharge was located. The remaining shallow groundwater results across the Property and the Titleist and Precix properties indicate low or non-detect levels of PCBs. The extent of PCB impacts in deep overburden groundwater extends from midway within the Property out to the shoreline with increasing levels of PCBs closer to the river. PCB impacts in deep overburden groundwater extend partially onto the northeast corner of the Titleist property, and low levels of PCBs in deep overburden groundwater were also found in two wells on the south side of the Precix property. PCB impacts to bedrock groundwater were found in wells across the eastern two thirds of the Property, with the highest concentrations centered around the central (B04B) primary release area and along the waterfront. Bedrock groundwater concentrations in the northeast corner, in the area of identified DNAPL, exceeded the groundwater UCL for PCBs. Bedrock concentrations of PCBs on the Titleist and Precix properties were found only in a single well each, close to the river, and only at low levels.
  7. The extent of chlorinated ethenes in shallow overburden groundwater extends across all but the western quarter of the Property, the southern and eastern half of the Precix property and in one location along the north side of the Titleist building. Because TCE is the dominant detected chlorinated ethene and has a heightened potential for impacting receptors via indoor air, the presence of TCE in the shallow groundwater gave rise to a vapor intrusion evaluation for the Precix and Titleist properties. The highest levels of TCE in shallow groundwater were found along Graham Street and at the discrete central (B04B) area on the Property. TCE was not found in shallow groundwater along the Aerovox waterfront. The extent of chlorinated ethenes in deep overburden groundwater covers all but the westernmost portion of the Property, the eastern half of the Precix property and the northeastern quarter of the Titleist property. Deep overburden concentrations on average are one to two orders of magnitude higher than shallow overburden concentrations. The highest levels of chlorinated ethenes in deep overburden groundwater are centered around the Aerovox waterfront and the location of the deeper bedrock trough just inland from the waterfront. Neither shallow nor deep overburden groundwater concentrations for TCE exceed UCL levels.
  8. The extent of chlorinated ethenes in bedrock groundwater could not be measured to the north of the Site because access to the Coyne property (north of the Precix

- property) was denied. The inferred extent, based on concentration and bedrock fracture trends would be expected to reach beyond the northern Precix property line. MassDEP assistance in obtaining access has been requested, and once access is provided additional investigation in this direction will be completed. Otherwise, the extent of chlorinated ethene impacts in bedrock extends across all but the westernmost portion of the Property and extends along the waterfront to the southern end of the Titleist property. The highest levels of TCE impacts to bedrock groundwater, above UCL concentrations, were found in the deepest fracture zone encountered at the Site in the center of the Property (MW-26B), in the deep fracture zone of MW-34B in the northeast corner of the Property, and in the shallow bedrock groundwater associated with the DNAPL area (MW-15B). (Note that carbon tetrachloride was also found above UCL levels in the northernmost bedrock well, MW-24B on the Precix property. This is not a constituent related to or originating from the Aerovox releases.)
9. A peat layer of varying thickness is present across much of the eastern portions of the Site. The sheet pile wall that defines the edge of the Property and is keyed into this peat impede the flow of contaminants with shallow groundwater and from shallow soils into the river, but constituents in deep groundwater and at the overburden bedrock interface can migrate with tidal flow both toward and away from the river.
  10. The identified DNAPL area is limited in extent at the northeast corner of the sheet pile wall. It is present only at depth and likely originated both from the northern culvert discharges and from near shore dumping of capacitors. The DNAPL contains both PCBs and chlorinated solvents. Based on soil concentrations and UVOST screening results, DNAPL may also be present in shallow soil above the peat layer near the south culvert, but it has not accumulated to measureable amounts in a well. If DNAPL is present in this location, it is presently contained by the HAC cap and sheet pile wall.
  11. Groundwater flow in deep overburden and in bedrock is strongly influenced by the tides, and flow direction reverses in response to tidal changes. There is strong interconnection between the shallow overburden, deep overburden and shallow bedrock aquifers and between groundwater and surface water. Vertical groundwater gradients exist at the Site between the three aquifer types, and vary between positive (upward) and negative (downward) across the Site. In portions of the Site where tidal influence on groundwater levels is greatest, reversals in vertical gradient from positive to negative are observed with changing tides. Further inland, vertical gradients are largely upward, with the magnitude of the gradient also changing with the tides. Based on data collected for the multi-level bedrock sampling devices (Water FLUTes), a positive vertical gradient is observed in shallow bedrock, while negative vertical gradients are observed in deeper bedrock sampling intervals.

12. A vapor intrusion assessment was completed for both the Titleist and Precix properties. The weight of evidence indicated that vapor intrusion was not a pathway of concern for Titleist. For Precix, the vapor intrusion pathway is complete but does not present a risk under current site uses. If foreseeable future uses were to include residential use, the vapor intrusion pathway would need to be mitigated.
13. A Method 3 Risk Assessment was completed based on the data collected during the Phase II CSA. The Method 3 identified receptors, exposure scenarios and calculated human health risks for current and foreseeable future uses. Risk to public safety and welfare and a Stage 1 environmental risk characterization were also completed. The Method 3 Risk assessment found that:
- For the Titleist property, concentrations in surface soil present unacceptable chronic non-cancer and cancer risks for various current (employee, trespasser) and future (potential residential) exposure scenarios. (Note that access control measure, including signage, fencing and gravel coverings were put in place at the outset of the Phase II to limit and control exposure under current site conditions, mitigating any subchronic or acute potential impacts until final response actions can be implemented)
  - For the Precix property, under current conditions non-cancer risks and incremental lifetime carcinogenic risks are within acceptable limits for employees. Under future conditions, non-cancer and cancer risks are above acceptable limits for hypothetical residents who could be exposed to VOCs in indoor air via inhalation.
  - For the Property, the results show that non-cancer and cancer risks are within acceptable limits for future construction work on the western side of the Property but above acceptable limits for future construction work within the eastern half of the Property and in the central area surrounding boring B 04BN.
  - A risk to public welfare exists for the Site because PCBs and TCE are above UCLs in soil in some areas on the Property. The results also indicate that the average concentrations of PCBs in groundwater in the vicinity of the DNAPL area (MW-15B) are above the UCL.
  - A Stage I Environmental Screening indicates that groundwater concentrations have the potential to impact surface water above the MassDEP benchmarks. However the foreseeable migration of groundwater contaminants to surface water is valid if and only to the extent that the Site could act as a continuing source to the river after both MCP Phase IV (at the Site) and EPA CERCLA (at NBH Superfund Site) response actions are complete. Only clearly identified contaminants, if any, coming from the Site can be compared to these benchmarks, and not contaminants from other sources historically or presently impacting the river or from historical conditions in the river that may remain after EPA CERCLA response actions are complete.

Based on the findings of the Phase II CSA described herein, the updated Conceptual Site Model and the results of the Risk Characterization, in the opinion of the Licensed Site Professional of record for the Site, Comprehensive Remedial Actions are necessary at the Site to achieve a Permanent or Temporary Solution as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select remedial action alternatives.

In accordance with the requirements of the MCP at 310 CMR 40.1003, additional response actions will be evaluated to provide source elimination and control, to control subsurface migration of PCBs and CVOCs remaining at the Site in soil and groundwater and to eliminate non-stable NAPL and remove or contain the identified NAPL if and to the extent feasible. Source control remedial action alternatives to be evaluated will include an assessment of a variety of containment or combination containment and treatment technologies.

If you have questions concerning these actions, please contact the undersigned at (603) 606-4824

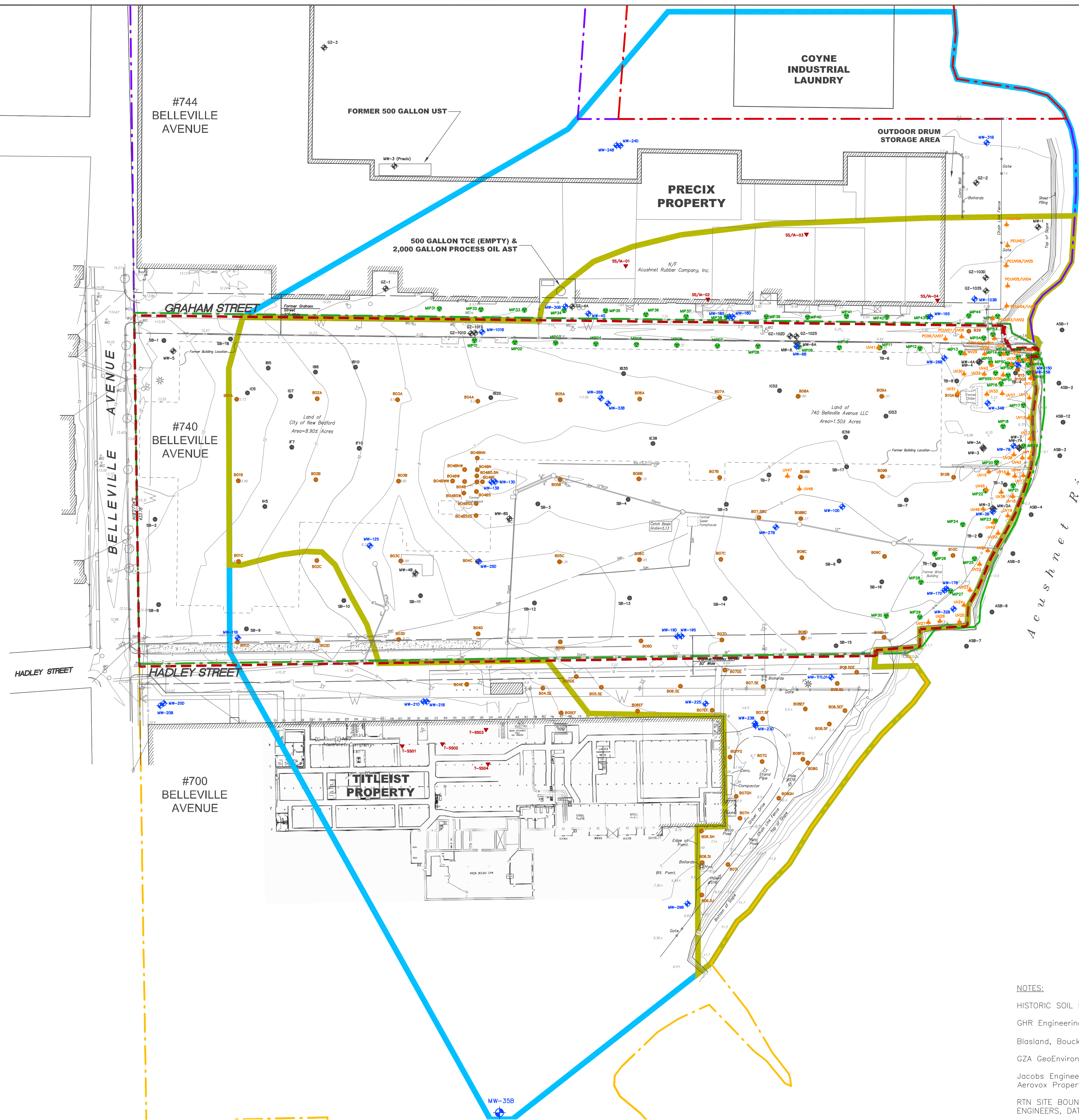
Sincerely,  
**AECOM**



Marilyn Wade, P.E. LSP  
Senior Project Manager

cc: Mr. Evan Slavitt, AVX Corporation  
Ms. Michele Paul, City of New Bedford

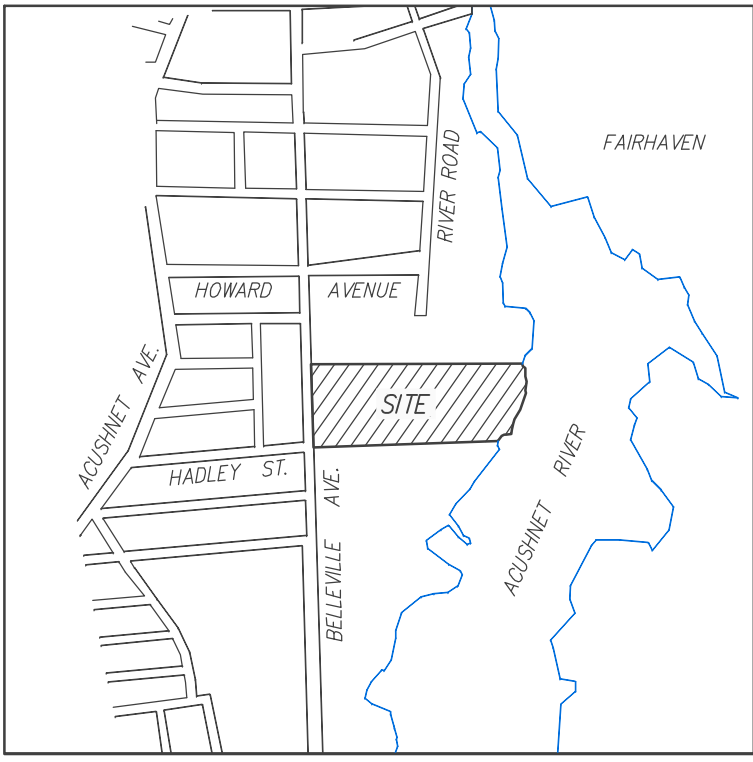
Attachment: Site Figure



### LEGEND

- MONITORING WELL (AECOM)
- SOIL BORING (AECOM)
- MIP BORING (AECOM)
- INDOOR AIR/SUB SLAB VAPOR POINT (AECOM)
- UVOST BORING (AECOM)
- HISTORIC SOIL BORING INSTALLED BY OTHERS\*
- HISTORIC MONITORING WELL INSTALLED BY OTHERS\*
- AEROVOX PROPERTY LINE
- RTN SITE BOUNDARY
- CURRENT RTN SITE BOUNDARY BASED ON SOIL RESULTS FROM PHASE II CSA
- INFERRED SITE BOUNDARY BASED ON GROUNDWATER PLUME CONCENTRATIONS
- PRECIX PROPERTY LINE
- TITLEIST PROPERTY LINE
- COYNE INDUSTRIAL LAUNDRY PROPERTY LINE

### LOCATION MAP (NOT TO SCALE)



**NOTES:**

HISTORIC SOIL BORING AND MONITORING WELL LOCATIONS OBTAINED FROM THE FOLLOWING REPORTS:

GHR Engineering Corporation, 1983. Draft Report, Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, MA. January 11.

Biasland, Bouck and Lee Inc. (BBL). 1998. Engineering Evaluation/Cost Analysis, Aerovox Inc. New Bedford, Massachusetts. August.

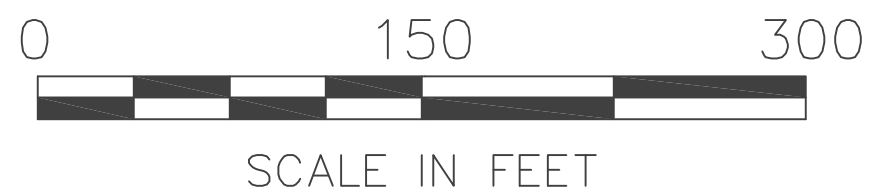
GZA GeoEnvironmental, Inc., 2009. Downgradient Property Status Opinion, 744 Belleville Avenue, New Bedford, Massachusetts, RTN 4-21348. June.

Jacobs Engineering Group, 2013. Final Technical Memorandum Summary of Findings, New Bedford Harbor Superfund Site, 2012 Near-Shore Boring Program Adjacent to the Former Aerovox Property, 740 Belleville Avenue, New Bedford, MA. April.

RTN SITE BOUNDARY AS DEPICTED ON EXHIBIT 3, COOPERATION & SETTLEMENT AGREEMENT, AEROVOX PROPERTY, DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS, DATED DECEMBER 2009.



AECOM  
1155 ELM ST, SUITE 401  
MANCHESTER, NH 03101-1508  
Tel: 603.606.4800  
Fax: 603.606.4801  
www.aecom.com



PROJECT NO:	60422003
DESIGN:	JL
APPROVED:	MW
DRAWN:	FS
SCALE:	AS SHOWN
DATE:	SEPT 2015
FILE NO:	Site Plan and Explorations

CLIENT:	AVX CORPORATION
PROJECT:	PHASE II CSA 740 BELLEVILLE AVENUE NEW BEDFORD, MA

TITLE:	SUBSURFACE INVESTIGATION PLAN
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FIGURE NO.:	2-2
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File: 20150914\AVX\Phase II CSA Report\Site Plan and Explorations.dwg, Figure 2-2, 8/19/2015 3:52:57 PM

September 20, 2015

PN: 60422003

Mr. Jon Mitchell, Mayor  
City of New Bedford  
City Hall  
133 William Street  
New Bedford, MA 02740

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Former Aerovox Facility  
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former building and the river, the previously unpaved area along the north side of the building, the two drainage culverts on the north and south sides of the former building and a discrete area within the parking lot between the former boiler house and main building entrance.

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Based on the findings of the Phase II CSA described herein, the updated Conceptual Site Model and the results of the Risk Characterization, in the opinion of the Licensed Site Professional of record for the Site, Comprehensive Remedial Actions are necessary at the Site to achieve a Permanent or Temporary Solution as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select remedial action alternatives.

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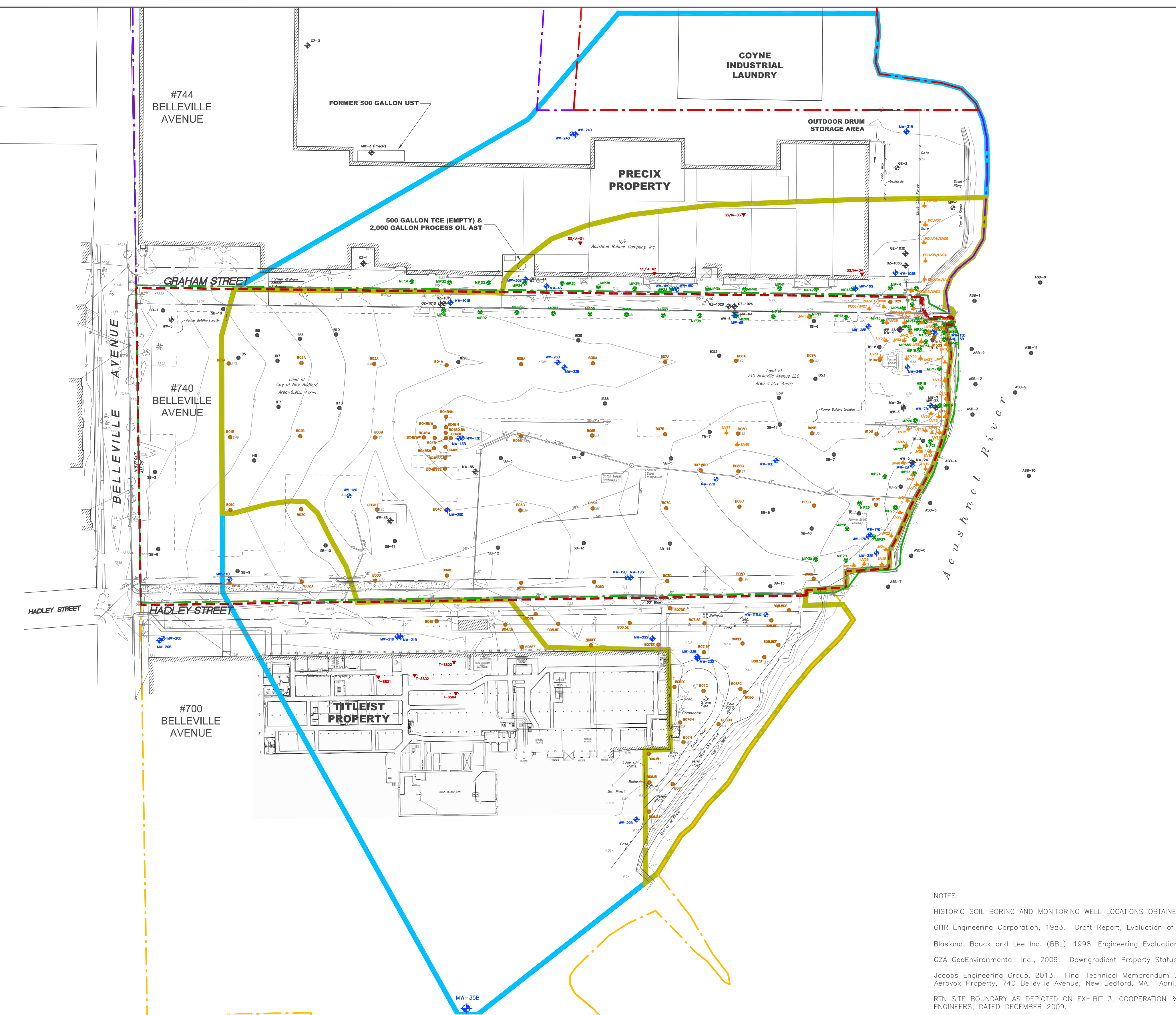
Sincerely,  
**AECOM**



Marilyn Wade, P.E. LSP  
Senior Project Manager

cc: Mr. Evan Slavitt, AVX Corporation  
Ms. Michele Paul, City of New Bedford

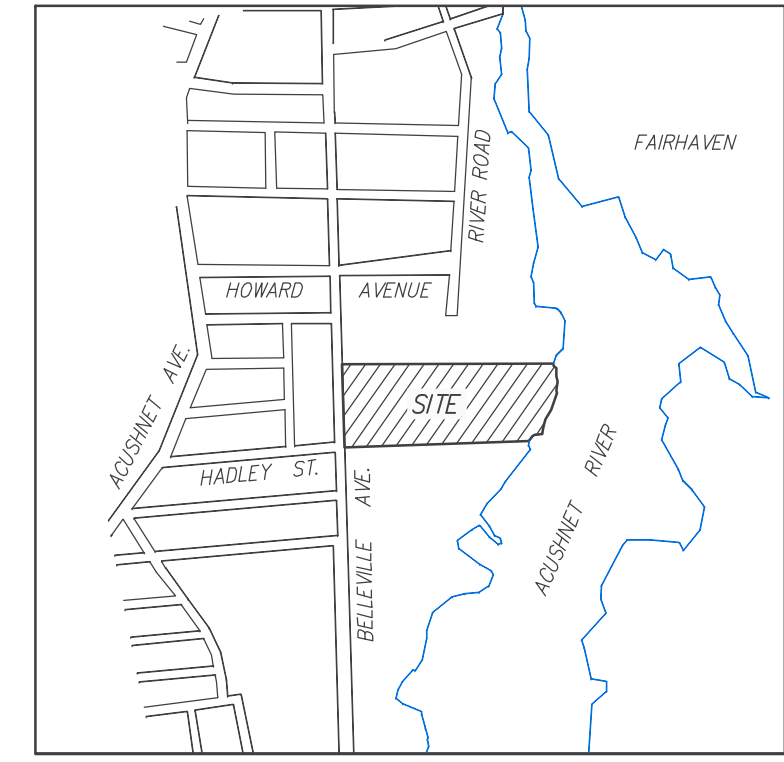
Attachment: Site Figure



### LEGEND

- MONITORING WELL (AECOM)
- SOIL BORING (AECOM)
- MIP BORING (AECOM)
- INDOOR AIR/SUB SLAB VAPOR POINT (AECOM)
- UVOST BORING (AECOM)
- HISTORIC SOIL BORING INSTALLED BY OTHERS\*
- HISTORIC MONITORING WELL INSTALLED BY OTHERS\*
- AERVOX PROPERTY LINE
- RTN SITE BOUNDARY
- CURRENT RTN SITE BOUNDARY BASED ON SOIL RESULTS FROM PHASE II CSA
- INFERRED SITE BOUNDARY BASED ON GROUNDWATER PLUME CONCENTRATIONS
- PRECIX PROPERTY LINE
- TITLEIST PROPERTY LINE
- COYNE INDUSTRIAL LAUNDRY PROPERTY LINE

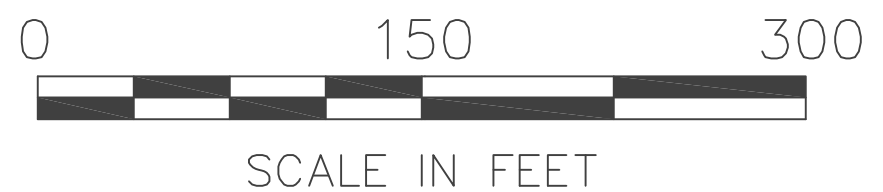
### LOCATION MAP (NOT TO SCALE)



**NOTES:**  
 HISTORIC SOIL BORING AND MONITORING WELL LOCATIONS OBTAINED FROM THE FOLLOWING REPORTS:  
 GHR Engineering Corporation, 1983. Draft Report, Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, MA. January 11.  
 Blasland, Bouck and Lee Inc. (BBL). 1998. Engineering Evaluation/Cost Analysis, Aerovox Inc. New Bedford, Massachusetts. August.  
 GZA GeoEnvironmental, Inc., 2009. Downgradient Property Status Opinion, 744 Belleville Avenue, New Bedford, Massachusetts, RTN 4-21348. June.  
 Jacobs Engineering Group, 2013. Final Technical Memorandum Summary of Findings, New Bedford Harbor Superfund Site, 2012 Near-Shore Boring Program Adjacent to the Former Aerovox Property, 740 Belleville Avenue, New Bedford, MA. April.  
 RTN SITE BOUNDARY AS DEPICTED ON EXHIBIT 3, COOPERATION & SETTLEMENT AGREEMENT, AERVOX PROPERTY, DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS, DATED DECEMBER 2009.



AECOM  
 1155 ELM ST, SUITE 401  
 MANCHESTER, NH 03101-1508  
 Tel: 603.606.4800  
 Fax: 603.606.4801  
 www.aecom.com



PROJECT NO:	60422003
DESIGN:	JL
APPROVED:	MW
DRAWN:	FS
SCALE:	AS SHOWN
DATE:	SEPT 2015
FILE NO:	Site Plan and Explorations

CLIENT:	AVX CORPORATION
PROJECT:	PHASE II CSA 740 BELLEVILLE AVENUE NEW BEDFORD, MA

TITLE:	SUBSURFACE INVESTIGATION PLAN
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FIGURE NO.:	2-2
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File: 20090414\Xing\Phase II CSA Report\Site Plan and Explorations.dwg, Figure 2-2, 8/19/2015 3:52:57 PM

September 20, 2015

PN: 60422003

Mr. Jon Mitchell, Mayor  
City of New Bedford  
City Hall  
133 William Street  
New Bedford, MA 02740

**RE: Notification of Property Inclusion in Disposal Site  
Former Aerovox Facility  
740 Belleville Avenue, New Bedford, Massachusetts  
Release Tracking Number (RTN) 4-0601**

Honorable Mayor Mitchell:

On behalf of AVX Corporation and as required by the Massachusetts Contingency Plan (MCP) subpart 310 CMR 40.1406(1), this letter is notification of inclusion of the City of New Bedford property located at 740 Belleville Avenue, New Bedford, Massachusetts within the Disposal Site Boundary as currently delineated for the above referenced Site. The Phase II Report is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the MCP, pursuant to 310 CMR 40.0480, and the provisions of an Administrative Consent Order between AVX and MassDEP.

The Phase II Report will be filed electronically, and may be accessed by searching for the referenced RTN number on the MassDEP web site: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>. The full report may also be reviewed by contacting the Southeast Regional Office of MassDEP located at 20 Riverside Drive in Lakeville, Massachusetts. For information about accessing files for review, contact the MassDEP file review coordinator at (508) 946-2718 or submit a file review request online at <http://www.mass.gov/eea/agencies/massdep/about/contacts/southeast-region-file-review-and-public-records-request.html>. In addition, the following text provides a summary of findings and statement of conclusions from the Phase II Report, as provided in 310 CMR 40.0483(h). A copy of the disposal site map is also attached.

*Phase II Report Conclusions*

Based on the results of investigations and evaluations undertaken as part of the Phase II CSA, and concurrently as part of the implementation of the IRA for DNAPL found in the a portion of the Site, the following findings and conclusions are presented:

1. The primary source of the release of oil and hazardous materials to the environment that is the subject of RTN 4-601 is the historic discharge and spilling of chlorinated solvents and PCB oil used in the manufacture of liquid filled capacitors. These spills occurred at the surface and in the subsurface, in unknown quantities over the course

- of decades. The evidence suggests that the locations of these releases centered around the previously unpaved area along the shoreline, particularly between the former building and the river, the previously unpaved area along the north side of the building, the two drainage culverts on the north and south sides of the former building and a discrete area within the parking lot between the former boiler house and main building entrance.
2. These historic spills have resulted in the classification of the Site as a late-stage release (e.g., environmental impacts). The original released constituents have either migrated down to and into fractured bedrock, dissolved and migrated with groundwater, or collected as DNAPL in one limited area around monitoring well MW-15D. In the case of chlorinated VOCs, the analytical results show that the constituents have also attenuated and degraded into daughter products. Released PCBs remain adsorbed to surface soils along the riverfront and in deep soils and groundwater at the overburden and bedrock interface.
  3. The nature of the hazardous materials found at the Site include PCBs, specifically Aroclors 1232, 1242, 1248, 1254 and 1260. The most frequently detected were Aroclors 1254 and 1242. The highest concentrations found were of Aroclor 1254. Chlorinated benzenes, common components of the PCB carrier oil were also found with 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene and Chlorobenzene found most frequently. Finally, the nature of hazardous materials found at the Site included chlorinated ethenes, from tetrachloroethene (PCE) and trichloroethene (TCE) down through cis-1,2-dichloroethene and vinyl chloride. TCE and cis-1,2-dichloroethene were found most frequently and at the highest concentrations.
  4. The extent of soil impacted by PCBs is relatively ubiquitous across the Property and across the riverfront portion of the Titleist property. Shallow soil above the identified peat layer was found to be impacted with PCBs along the riverfront on the Precix and Titleist properties at levels that exceed UCLs. Deep soils in the vicinity of the identified DNAPL (MW-15D) and a limited area of soils centered around boring B04B also exceeded UCL levels. While the soil sample collected beneath the building slab former pump room location also had significant levels of PCBs, the soil beneath the remainder of the former building slab did not. Significant PCB impacts were not identified north or east of the Precix building, on the western portion of the Property or the north side of the western portion of the Titleist building. The chlorinated benzene detections generally coincided with the PCB impacted locations, but chlorinated benzenes were not found at significant concentration levels or levels approaching the UCLs.
  5. There are no concentrations of TCE, cis-1,2-dichloroethene and PCE detected in shallow surface soils (< 3 feet bgs) on the Property. Within the soil profile from 3 feet bgs down to 15 feet, chlorinated ethenes are present below the former Aerovox



building foundation, in the south central area of the Property near B04B and B04C, at B08B (near MW-10D and MW-27B), at MIP-43, in the UV-17 area, and within the northeast corner of the Property. Inaccessible soils below 15 feet bgs are present more pervasively across the eastern two-thirds of the Property. The soil interval between 15 feet bgs down to the bedrock surface has a higher concentrations of TCE detections in the eastern half of the Property. TCE is the only chlorinated ethene exceeding its UCL, which occurs both in the northeast corner of the Property and in the vicinity of UV-17.

6. The extent of PCB impacts to shallow overburden groundwater is limited to a small area along the waterfront centered near where the southern culvert discharge was located. The remaining shallow groundwater results across the Property and the Titleist and Precix properties indicate low or non-detect levels of PCBs. The extent of PCB impacts in deep overburden groundwater extends from midway within the Property out to the shoreline with increasing levels of PCBs closer to the river. PCB impacts in deep overburden groundwater extend partially onto the northeast corner of the Titleist property, and low levels of PCBs in deep overburden groundwater were also found in two wells on the south side of the Precix property. PCB impacts to bedrock groundwater were found in wells across the eastern two thirds of the Property, with the highest concentrations centered around the central (B04B) primary release area and along the waterfront. Bedrock groundwater concentrations in the northeast corner, in the area of identified DNAPL, exceeded the groundwater UCL for PCBs. Bedrock concentrations of PCBs on the Titleist and Precix properties were found only in a single well each, close to the river, and only at low levels.
7. The extent of chlorinated ethenes in shallow overburden groundwater extends across all but the western quarter of the Property, the southern and eastern half of the Precix property and in one location along the north side of the Titleist building. Because TCE is the dominant detected chlorinated ethene and has a heightened potential for impacting receptors via indoor air, the presence of TCE in the shallow groundwater gave rise to a vapor intrusion evaluation for the Precix and Titleist properties. The highest levels of TCE in shallow groundwater were found along Graham Street and at the discrete central (B04B) area on the Property. TCE was not found in shallow groundwater along the Aerovox waterfront. The extent of chlorinated ethenes in deep overburden groundwater covers all but the westernmost portion of the Property, the eastern half of the Precix property and the northeastern quarter of the Titleist property. Deep overburden concentrations on average are one to two orders of magnitude higher than shallow overburden concentrations. The highest levels of chlorinated ethenes in deep overburden groundwater are centered around the Aerovox waterfront and the location of the deeper bedrock trough just inland from the waterfront. Neither shallow nor deep overburden groundwater concentrations for TCE exceed UCL levels.

8. The extent of chlorinated ethenes in bedrock groundwater could not be measured to the north of the Site because access to the Coyne property (north of the Precix property) was denied. The inferred extent, based on concentration and bedrock fracture trends would be expected to reach beyond the northern Precix property line. MassDEP assistance in obtaining access has been requested, and once access is provided additional investigation in this direction will be completed. Otherwise, the extent of chlorinated ethene impacts in bedrock extends across all but the westernmost portion of the Property and extends along the waterfront to the southern end of the Titleist property. The highest levels of TCE impacts to bedrock groundwater, above UCL concentrations, were found in the deepest fracture zone encountered at the Site in the center of the Property (MW-26B), in the deep fracture zone of MW-34B in the northeast corner of the Property, and in the shallow bedrock groundwater associated with the DNAPL area (MW-15B). (Note that carbon tetrachloride was also found above UCL levels in the northernmost bedrock well, MW-24B on the Precix property. This is not a constituent related to or originating from the Aerovox releases.)
9. A peat layer of varying thickness is present across much of the eastern portions of the Site. The sheet pile wall that defines the edge of the Property and is keyed into this peat impede the flow of contaminants with shallow groundwater and from shallow soils into the river, but constituents in deep groundwater and at the overburden bedrock interface can migrate with tidal flow both toward and away from the river.
10. The identified DNAPL area is limited in extent at the northeast corner of the sheet pile wall. It is present only at depth and likely originated both from the northern culvert discharges and from near shore dumping of capacitors. The DNAPL contains both PCBs and chlorinated solvents. Based on soil concentrations and UVOST screening results, DNAPL may also be present in shallow soil above the peat layer near the south culvert, but it has not accumulated to measureable amounts in a well. If DNAPL is present in this location, it is presently contained by the HAC cap and sheet pile wall.
11. Groundwater flow in deep overburden and in bedrock is strongly influenced by the tides, and flow direction reverses in response to tidal changes. There is strong interconnection between the shallow overburden, deep overburden and shallow bedrock aquifers and between groundwater and surface water. Vertical groundwater gradients exist at the Site between the three aquifer types, and vary between positive (upward) and negative (downward) across the Site. In portions of the Site where tidal influence on groundwater levels is greatest, reversals in vertical gradient from positive to negative are observed with changing tides. Further inland, vertical gradients are largely upward, with the magnitude of the gradient also changing with the tides. Based on data collected for the multi-level bedrock sampling devices

(Water FLUTes), a positive vertical gradient is observed in shallow bedrock, while negative vertical gradients are observed in deeper bedrock sampling intervals.

12. A vapor intrusion assessment was completed for both the Titleist and Precix properties. The weight of evidence indicated that vapor intrusion was not a pathway of concern for Titleist. For Precix, the vapor intrusion pathway is complete but does not present a risk under current site uses. If foreseeable future uses were to include residential use, the vapor intrusion pathway would need to be mitigated.
13. A Method 3 Risk Assessment was completed based on the data collected during the Phase II CSA. The Method 3 identified receptors, exposure scenarios and calculated human health risks for current and foreseeable future uses. Risk to public safety and welfare and a Stage 1 environmental risk characterization were also completed. The Method 3 Risk assessment found that:
  - o For the Titleist property, concentrations in surface soil present unacceptable chronic non-cancer and cancer risks for various current (employee, trespasser) and future (potential residential) exposure scenarios. (Note that access control measure, including signage, fencing and gravel coverings were put in place at the outset of the Phase II to limit and control exposure under current site conditions, mitigating any subchronic or acute potential impacts until final response actions can be implemented)
  - o For the Precix property, under current conditions non-cancer risks and incremental lifetime carcinogenic risks are within acceptable limits for employees. Under future conditions, non-cancer and cancer risks are above acceptable limits for hypothetical residents who could be exposed to VOCs in indoor air via inhalation.
  - o For the Property, the results show that non-cancer and cancer risks are within acceptable limits for future construction work on the western side of the Property but above acceptable limits for future construction work within the eastern half of the Property and in the central area surrounding boring B 04BN.
  - o A risk to public welfare exists for the Site because PCBs and TCE are above UCLs in soil in some areas on the Property. The results also indicate that the average concentrations of PCBs in groundwater in the vicinity of the DNAPL area (MW-15B) are above the UCL.
  - o A Stage I Environmental Screening indicates that groundwater concentrations have the potential to impact surface water above the MassDEP benchmarks. However the foreseeable migration of groundwater contaminants to surface water is valid if and only to the extent that the Site could act as a continuing source to the river after both MCP Phase IV (at the Site) and EPA CERCLA (at NBH Superfund Site) response actions are complete. Only clearly identified contaminants, if any, coming from the Site can be compared to these

benchmarks, and not contaminants from other sources historically or presently impacting the river or from historical conditions in the river that may remain after EPA CERCLA response actions are complete.

Based on the findings of the Phase II CSA described herein, the updated Conceptual Site Model and the results of the Risk Characterization, in the opinion of the Licensed Site Professional of record for the Site, Comprehensive Remedial Actions are necessary at the Site to achieve a Permanent or Temporary Solution as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select remedial action alternatives.

In accordance with the requirements of the MCP at 310 CMR 40.1003, additional response actions will be evaluated to provide source elimination and control, to control subsurface migration of PCBs and CVOCs remaining at the Site in soil and groundwater and to eliminate non-stable NAPL and remove or contain the identified NAPL if and to the extent feasible. Source control remedial action alternatives to be evaluated will include an assessment of a variety of containment or combination containment and treatment technologies.

Public Involvement Statement

Additional public involvement opportunities are available under the MCP pursuant to 310 CMR 40.1400.

Point of Contact

If you have questions concerning these actions, please contact the undersigned at (603) 606-4824, as the LSP of Record and contact person representing AVX Corporation, who is conducting the response actions at the Site.

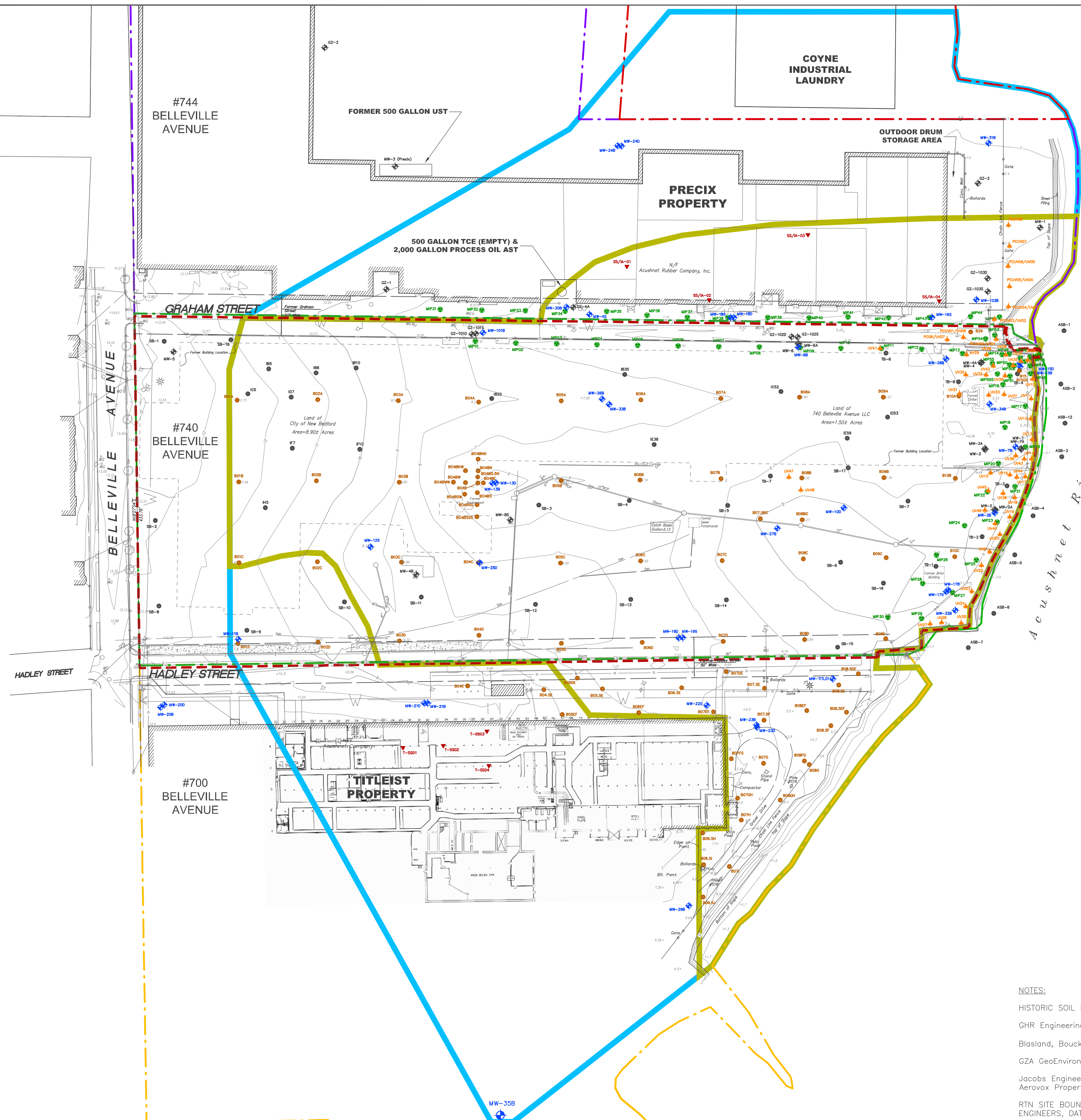
Sincerely,  
**AECOM**



Marilyn Wade, P.E. LSP  
Senior Project Manager

cc: Mr. Evan Slavitt, AVX Corporation  
Ms. Michele Paul, City of New Bedford

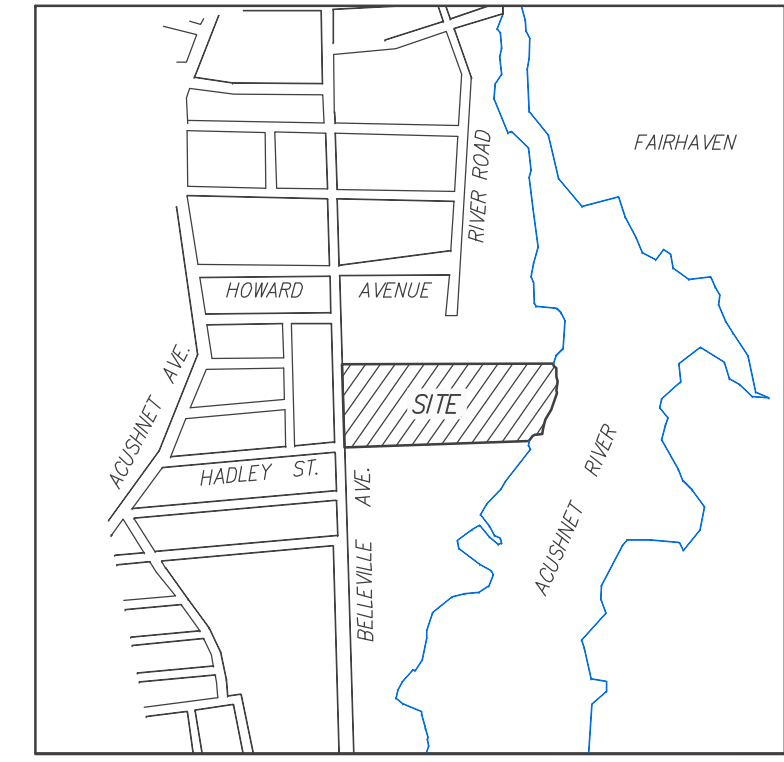
Attachment: Site Figure



### LEGEND

- MONITORING WELL (AECOM)
- SOIL BORING (AECOM)
- MIP BORING (AECOM)
- INDOOR AIR/SUB SLAB VAPOR POINT (AECOM)
- UVOST BORING (AECOM)
- HISTORIC SOIL BORING INSTALLED BY OTHERS\*
- HISTORIC MONITORING WELL INSTALLED BY OTHERS\*
- AEROVOX PROPERTY LINE
- RTN SITE BOUNDARY
- CURRENT RTN SITE BOUNDARY BASED ON SOIL RESULTS FROM PHASE II CSA
- INFERRED SITE BOUNDARY BASED ON GROUNDWATER PLUME CONCENTRATIONS
- PRECIX PROPERTY LINE
- TITLEIST PROPERTY LINE
- COYNE INDUSTRIAL LAUNDRY PROPERTY LINE

### LOCATION MAP (NOT TO SCALE)



**NOTES:**

HISTORIC SOIL BORING AND MONITORING WELL LOCATIONS OBTAINED FROM THE FOLLOWING REPORTS:

GHR Engineering Corporation, 1983. Draft Report, Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, MA. January 11.

Biasland, Bouck and Lee Inc. (BBL). 1998. Engineering Evaluation/Cost Analysis, Aerovox Inc. New Bedford, Massachusetts. August.

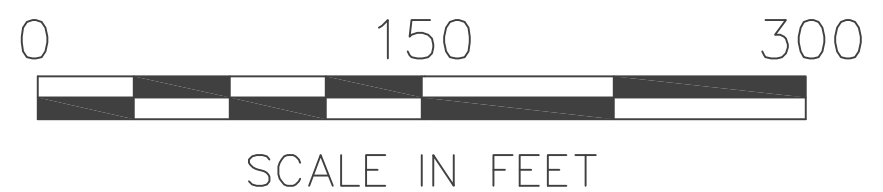
GZA GeoEnvironmental, Inc., 2009. Downgradient Property Status Opinion, 744 Belleville Avenue, New Bedford, Massachusetts, RTN 4-21348. June.

Jacobs Engineering Group, 2013. Final Technical Memorandum Summary of Findings, New Bedford Harbor Superfund Site, 2012 Near-Shore Boring Program Adjacent to the Former Aerovox Property, 740 Belleville Avenue, New Bedford, MA. April.

RTN SITE BOUNDARY AS DEPICTED ON EXHIBIT 3, COOPERATION & SETTLEMENT AGREEMENT, AEROVOX PROPERTY, DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS, DATED DECEMBER 2009.



AECOM  
1155 ELM ST, SUITE 401  
MANCHESTER, NH 03101-1508  
Tel: 603.606.4800  
Fax: 603.606.4801  
www.aecom.com



PROJECT NO:	60422003
DESIGN:	JL
APPROVED:	MW
DRAWN:	FS
SCALE:	AS SHOWN
DATE:	SEPT 2015
FILE NO:	Site Plan and Explorations

CLIENT:	AVX CORPORATION
PROJECT:	PHASE II CSA 740 BELLEVILLE AVENUE NEW BEDFORD, MA

TITLE:	SUBSURFACE INVESTIGATION PLAN
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FIGURE NO.:  
2-2

File: 20150914\AVX\Phase II CSA Report\Site Plan and Explorations.dwg, Figure 2-2, 8/19/2015 3:52:57 PM

September 20, 2015

PN: 60422003

Jeanine L. Grachuk  
As Special Environmental Counsel to  
Coyne International Enterprises Corp  
Beveredge and Diamond, PC  
15 Walnut Street Suite 400  
Wellesley, MA 02481

**RE: Notification of Property Inclusion in Disposal Site  
Former Aerovox Facility  
740 Belleville Avenue, New Bedford, Massachusetts  
Release Tracking Number (RTN) 4-0601**

Dear Ms. Grachuk:

On behalf of AVX Corporation and as required by the Massachusetts Contingency Plan (MCP) subpart 310 CMR 40.1406(1), this letter is notification of inclusion of the Acushnet Company property located at 20 Howard Avenue, New Bedford, Massachusetts within the Disposal Site Boundary as currently delineated for the above referenced Site. The Phase II Report is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the MCP, pursuant to 310 CMR 40.0480, and the provisions of an Administrative Consent Order between AVX and MassDEP.

The Phase II Report will be filed electronically, and may be accessed by searching for the referenced RTN number on the MassDEP web site: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>. The full report may also be reviewed by contacting the Southeast Regional Office of MassDEP located at 20 Riverside Drive in Lakeville, Massachusetts. For information about accessing files for review, contact the MassDEP file review coordinator at (508) 946-2718 or submit a file review request online at <http://www.mass.gov/eea/agencies/massdep/about/contacts/southeast-region-file-review-and-public-records-request.html>. In addition, the following text provides a summary of findings and statement of conclusions from the Phase II Report, as provided in 310 CMR 40.0483(h). A copy of the disposal site map is also attached.

*Phase II Report Conclusions*

Based on the results of investigations and evaluations undertaken as part of the Phase II CSA, and concurrently as part of the implementation of the IRA for DNAPL found in the a portion of the Site, the following findings and conclusions are presented:

1. The primary source of the release of oil and hazardous materials to the environment that is the subject of RTN 4-601 is the historic discharge and spilling of chlorinated solvents and PCB oil used in the manufacture of liquid filled capacitors. These spills occurred at the surface and in the subsurface, in unknown quantities over the course

of decades. The evidence suggests that the locations of these releases centered around the previously unpaved area along the shoreline, particularly between the former building and the river, the previously unpaved area along the north side of the building, the two drainage culverts on the north and south sides of the former building and a discrete area within the parking lot between the former boiler house and main building entrance.

2. These historic spills have resulted in the classification of the Site as a late-stage release (e.g., environmental impacts). The original released constituents have either migrated down to and into fractured bedrock, dissolved and migrated with groundwater, or collected as DNAPL in one limited area around monitoring well MW-15D. In the case of chlorinated VOCs, the analytical results show that the constituents have also attenuated and degraded into daughter products. Released PCBs remain adsorbed to surface soils along the riverfront and in deep soils and groundwater at the overburden and bedrock interface.
3. The nature of the hazardous materials found at the Site include PCBs, specifically Aroclors 1232, 1242, 1248, 1254 and 1260. The most frequently detected were Aroclors 1254 and 1242. The highest concentrations found were of Aroclor 1254. Chlorinated benzenes, common components of the PCB carrier oil were also found with 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene and Chlorobenzene found most frequently. Finally, the nature of hazardous materials found at the Site included chlorinated ethenes, from tetrachloroethene (PCE) and trichloroethene (TCE) down through cis-1,2-dichloroethene and vinyl chloride. TCE and cis-1,2-dichloroethene were found most frequently and at the highest concentrations.
4. The extent of soil impacted by PCBs is relatively ubiquitous across the Property and across the riverfront portion of the Titleist property. Shallow soil above the identified peat layer was found to be impacted with PCBs along the riverfront on the Precix and Titleist properties at levels that exceed UCLs. Deep soils in the vicinity of the identified DNAPL (MW-15D) and a limited area of soils centered around boring B04B also exceeded UCL levels. While the soil sample collected beneath the building slab former pump room location also had significant levels of PCBs, the soil beneath the remainder of the former building slab did not. Significant PCB impacts were not identified north or east of the Precix building, on the western portion of the Property or the north side of the western portion of the Titleist building. The chlorinated benzene detections generally coincided with the PCB impacted locations, but chlorinated benzenes were not found at significant concentration levels or levels approaching the UCLs.
5. There are no concentrations of TCE, cis-1,2-dichloroethene and PCE detected in shallow surface soils (< 3 feet bgs) on the Property. Within the soil profile from 3 feet bgs down to 15 feet, chlorinated ethenes are present below the former Aerovox

- building foundation, in the south central area of the Property near B04B and B04C, at B08B (near MW-10D and MW-27B), at MIP-43, in the UV-17 area, and within the northeast corner of the Property. Inaccessible soils below 15 feet bgs are present more pervasively across the eastern two-thirds of the Property. The soil interval between 15 feet bgs down to the bedrock surface has a higher concentrations of TCE detections in the eastern half of the Property. TCE is the only chlorinated ethene exceeding its UCL, which occurs both in the northeast corner of the Property and in the vicinity of UV-17.
6. The extent of PCB impacts to shallow overburden groundwater is limited to a small area along the waterfront centered near where the southern culvert discharge was located. The remaining shallow groundwater results across the Property and the Titleist and Precix properties indicate low or non-detect levels of PCBs. The extent of PCB impacts in deep overburden groundwater extends from midway within the Property out to the shoreline with increasing levels of PCBs closer to the river. PCB impacts in deep overburden groundwater extend partially onto the northeast corner of the Titleist property, and low levels of PCBs in deep overburden groundwater were also found in two wells on the south side of the Precix property. PCB impacts to bedrock groundwater were found in wells across the eastern two thirds of the Property, with the highest concentrations centered around the central (B04B) primary release area and along the waterfront. Bedrock groundwater concentrations in the northeast corner, in the area of identified DNAPL, exceeded the groundwater UCL for PCBs. Bedrock concentrations of PCBs on the Titleist and Precix properties were found only in a single well each, close to the river, and only at low levels.
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8. The extent of chlorinated ethenes in bedrock groundwater could not be measured to the north of the Site because access to the Coyne property (north of the Precix property) was denied. The inferred extent, based on concentration and bedrock fracture trends would be expected to reach beyond the northern Precix property line. MassDEP assistance in obtaining access has been requested, and once access is provided additional investigation in this direction will be completed. Otherwise, the extent of chlorinated ethene impacts in bedrock extends across all but the westernmost portion of the Property and extends along the waterfront to the southern end of the Titleist property. The highest levels of TCE impacts to bedrock groundwater, above UCL concentrations, were found in the deepest fracture zone encountered at the Site in the center of the Property (MW-26B), in the deep fracture zone of MW-34B in the northeast corner of the Property, and in the shallow bedrock groundwater associated with the DNAPL area (MW-15B). (Note that carbon tetrachloride was also found above UCL levels in the northernmost bedrock well, MW-24B on the Precix property. This is not a constituent related to or originating from the Aerovox releases.)
9. A peat layer of varying thickness is present across much of the eastern portions of the Site. The sheet pile wall that defines the edge of the Property and is keyed into this peat impede the flow of contaminants with shallow groundwater and from shallow soils into the river, but constituents in deep groundwater and at the overburden bedrock interface can migrate with tidal flow both toward and away from the river.
10. The identified DNAPL area is limited in extent at the northeast corner of the sheet pile wall. It is present only at depth and likely originated both from the northern culvert discharges and from near shore dumping of capacitors. The DNAPL contains both PCBs and chlorinated solvents. Based on soil concentrations and UVOST screening results, DNAPL may also be present in shallow soil above the peat layer near the south culvert, but it has not accumulated to measureable amounts in a well. If DNAPL is present in this location, it is presently contained by the HAC cap and sheet pile wall.
11. Groundwater flow in deep overburden and in bedrock is strongly influenced by the tides, and flow direction reverses in response to tidal changes. There is strong interconnection between the shallow overburden, deep overburden and shallow bedrock aquifers and between groundwater and surface water. Vertical groundwater gradients exist at the Site between the three aquifer types, and vary between positive (upward) and negative (downward) across the Site. In portions of the Site where tidal influence on groundwater levels is greatest, reversals in vertical gradient from positive to negative are observed with changing tides. Further inland, vertical gradients are largely upward, with the magnitude of the gradient also changing with the tides. Based on data collected for the multi-level bedrock sampling devices

(Water FLUTes), a positive vertical gradient is observed in shallow bedrock, while negative vertical gradients are observed in deeper bedrock sampling intervals.

12. A vapor intrusion assessment was completed for both the Titleist and Precix properties. The weight of evidence indicated that vapor intrusion was not a pathway of concern for Titleist. For Precix, the vapor intrusion pathway is complete but does not present a risk under current site uses. If foreseeable future uses were to include residential use, the vapor intrusion pathway would need to be mitigated.
13. A Method 3 Risk Assessment was completed based on the data collected during the Phase II CSA. The Method 3 identified receptors, exposure scenarios and calculated human health risks for current and foreseeable future uses. Risk to public safety and welfare and a Stage 1 environmental risk characterization were also completed. The Method 3 Risk assessment found that:
  - o For the Titleist property, concentrations in surface soil present unacceptable chronic non-cancer and cancer risks for various current (employee, trespasser) and future (potential residential) exposure scenarios. (Note that access control measure, including signage, fencing and gravel coverings were put in place at the outset of the Phase II to limit and control exposure under current site conditions, mitigating any subchronic or acute potential impacts until final response actions can be implemented)
  - o For the Precix property, under current conditions non-cancer risks and incremental lifetime carcinogenic risks are within acceptable limits for employees. Under future conditions, non-cancer and cancer risks are above acceptable limits for hypothetical residents who could be exposed to VOCs in indoor air via inhalation.
  - o For the Property, the results show that non-cancer and cancer risks are within acceptable limits for future construction work on the western side of the Property but above acceptable limits for future construction work within the eastern half of the Property and in the central area surrounding boring B 04BN.
  - o A risk to public welfare exists for the Site because PCBs and TCE are above UCLs in soil in some areas on the Property. The results also indicate that the average concentrations of PCBs in groundwater in the vicinity of the DNAPL area (MW-15B) are above the UCL.
  - o A Stage I Environmental Screening indicates that groundwater concentrations have the potential to impact surface water above the MassDEP benchmarks. However the foreseeable migration of groundwater contaminants to surface water is valid if and only to the extent that the Site could act as a continuing source to the river after both MCP Phase IV (at the Site) and EPA CERCLA (at NBH Superfund Site) response actions are complete. Only clearly identified contaminants, if any, coming from the Site can be compared to these

benchmarks, and not contaminants from other sources historically or presently impacting the river or from historical conditions in the river that may remain after EPA CERCLA response actions are complete.

Based on the findings of the Phase II CSA described herein, the updated Conceptual Site Model and the results of the Risk Characterization, in the opinion of the Licensed Site Professional of record for the Site, Comprehensive Remedial Actions are necessary at the Site to achieve a Permanent or Temporary Solution as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select remedial action alternatives.

In accordance with the requirements of the MCP at 310 CMR 40.1003, additional response actions will be evaluated to provide source elimination and control, to control subsurface migration of PCBs and CVOCs remaining at the Site in soil and groundwater and to eliminate non-stable NAPL and remove or contain the identified NAPL if and to the extent feasible. Source control remedial action alternatives to be evaluated will include an assessment of a variety of containment or combination containment and treatment technologies.

Public Involvement Statement

Additional public involvement opportunities are available under the MCP pursuant to 310 CMR 40.1400.

Point of Contact

If you have questions concerning these actions, please contact the undersigned at (603) 606-4824, as the LSP of Record and contact person representing AVX Corporation, who is conducting the response actions at the Site.

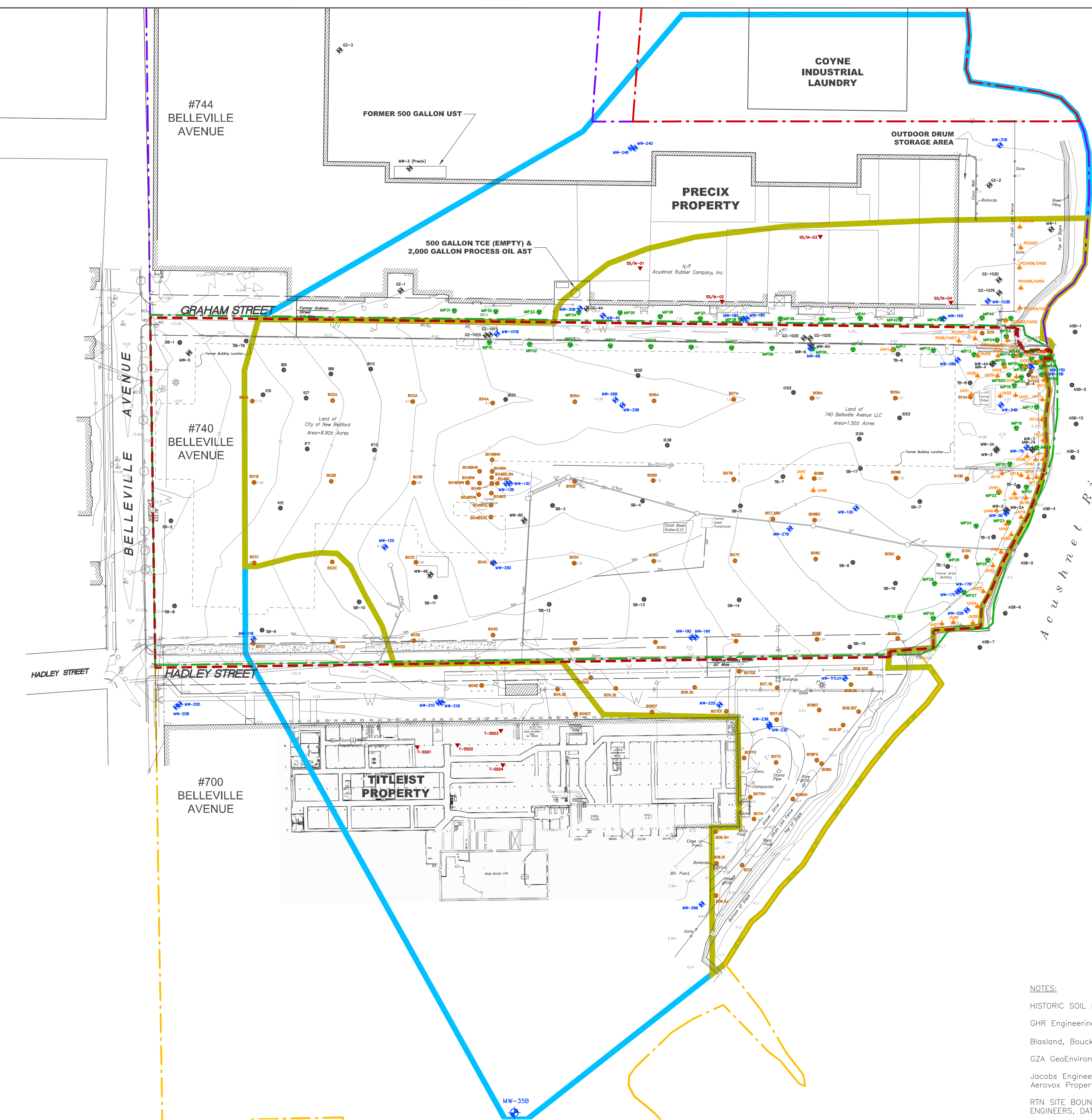
Sincerely,  
**AECOM**



Marilyn Wade, P.E. LSP  
Senior Project Manager

cc: Mr. Evan Slavitt, AVX Corporation  
Ms. Michele Paul, City of New Bedford

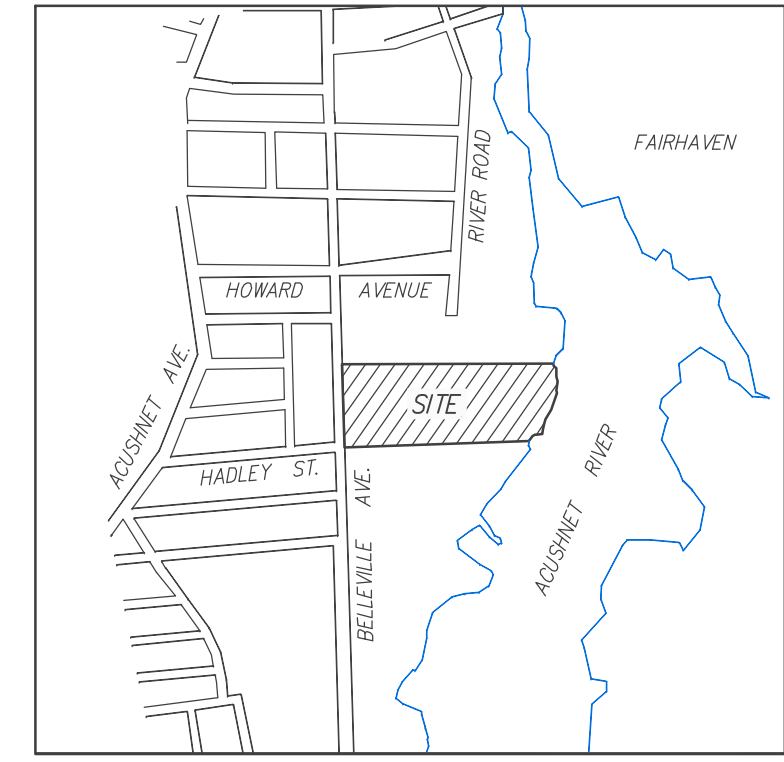
Attachment: Site Figure



### LEGEND

- MONITORING WELL (AECOM)
- SOIL BORING (AECOM)
- MIP BORING (AECOM)
- INDOOR AIR/SUB SLAB VAPOR POINT (AECOM)
- UVOST BORING (AECOM)
- HISTORIC SOIL BORING INSTALLED BY OTHERS\*
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- AEROVOX PROPERTY LINE
- RTN SITE BOUNDARY
- CURRENT RTN SITE BOUNDARY BASED ON SOIL RESULTS FROM PHASE II CSA
- INFERRED SITE BOUNDARY BASED ON GROUNDWATER PLUME CONCENTRATIONS
- PRECIX PROPERTY LINE
- TITLEIST PROPERTY LINE
- COYNE INDUSTRIAL LAUNDRY PROPERTY LINE

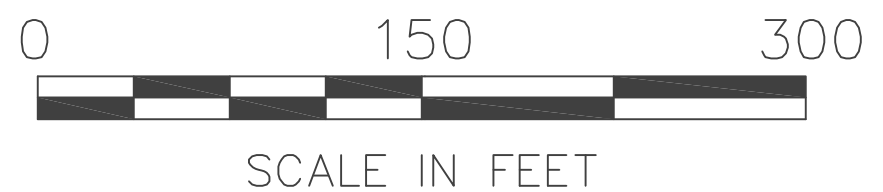
### LOCATION MAP (NOT TO SCALE)



**NOTES:**  
 HISTORIC SOIL BORING AND MONITORING WELL LOCATIONS OBTAINED FROM THE FOLLOWING REPORTS:  
 GHR Engineering Corporation, 1983. Draft Report, Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, MA. January 11.  
 Blasland, Bouck and Lee Inc. (BBL). 1998. Engineering Evaluation/Cost Analysis, Aerovox Inc. New Bedford, Massachusetts. August.  
 GZA GeoEnvironmental, Inc., 2009. Downgradient Property Status Opinion, 744 Belleville Avenue, New Bedford, Massachusetts, RTN 4-21348. June.  
 Jacobs Engineering Group, 2013. Final Technical Memorandum Summary of Findings, New Bedford Harbor Superfund Site, 2012 Near-Shore Boring Program Adjacent to the Former Aerovox Property, 740 Belleville Avenue, New Bedford, MA. April.  
 RTN SITE BOUNDARY AS DEPICTED ON EXHIBIT 3, COOPERATION & SETTLEMENT AGREEMENT, AEROVOX PROPERTY, DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS, DATED DECEMBER 2009.



AECOM  
 1155 ELM ST, SUITE 401  
 MANCHESTER, NH 03101-1508  
 Tel: 603.606.4800  
 Fax: 603.606.4801  
 www.aecom.com



PROJECT NO:	60422003
DESIGN:	JL
APPROVED:	MW
DRAWN:	FS
SCALE:	AS SHOWN
DATE:	SEPT 2015
FILE NO:	Site Plan and Explorations

CLIENT:	AVX CORPORATION
PROJECT:	PHASE II CSA 740 BELLEVILLE AVENUE NEW BEDFORD, MA

TITLE:	SUBSURFACE INVESTIGATION PLAN
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FIGURE NO.:	2-2
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File: 2009/AVX/Phase II CSA Report/Map Plan and Explorations.dwg, Figure 2-2, 8/19/2015 3:52:57 PM



AECOM  
1155 Elm Street, Suite 401  
Manchester, NH 03101-1508  
www.aecom.com

603 606 4800 tel  
603 606 4801 fax

September 20, 2015

PN: 60422003

Mr. Keith Goettlich  
Precix, Inc.  
744 Belleville Avenue  
New Bedford, MA 02745

**RE: Notification of Property Inclusion in Disposal Site  
Former Aerovox Facility  
740 Belleville Avenue, New Bedford, Massachusetts  
Release Tracking Number (RTN) 4-0601**

Dear Mr. Goettlich:

On behalf of AVX Corporation and as required by the Massachusetts Contingency Plan (MCP) subpart 310 CMR 40.1406(1), this letter is notification of inclusion of the Acushnet Company property located at 744 Belleville Avenue, New Bedford, Massachusetts within the Disposal Site Boundary as currently delineated for the above referenced Site. The Phase II Report is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the MCP, pursuant to 310 CMR 40.0480, and the provisions of an Administrative Consent Order between AVX and MassDEP.

The Phase II Report will be filed electronically, and may be accessed by searching for the referenced RTN number on the MassDEP web site: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>. The full report may also be reviewed by contacting the Southeast Regional Office of MassDEP located at 20 Riverside Drive in Lakeville, Massachusetts. For information about accessing files for review, contact the MassDEP file review coordinator at (508) 946-2718 or submit a file review request online at <http://www.mass.gov/eea/agencies/massdep/about/contacts/southeast-region-file-review-and-public-records-request.html>. In addition, the following text provides a summary of findings and statement of conclusions from the Phase II Report, as provided in 310 CMR 40.0483(h). A copy of the disposal site map is also attached.

*Phase II Report Conclusions*

Based on the results of investigations and evaluations undertaken as part of the Phase II CSA, and concurrently as part of the implementation of the IRA for DNAPL found in the a portion of the Site, the following findings and conclusions are presented:

1. The primary source of the release of oil and hazardous materials to the environment that is the subject of RTN 4-601 is the historic discharge and spilling of chlorinated solvents and PCB oil used in the manufacture of liquid filled capacitors. These spills occurred at the surface and in the subsurface, in unknown quantities over the course of decades. The evidence suggests that the locations of these releases centered

around the previously unpaved area along the shoreline, particularly between the former building and the river, the previously unpaved area along the north side of the building, the two drainage culverts on the north and south sides of the former building and a discrete area within the parking lot between the former boiler house and main building entrance.

2. These historic spills have resulted in the classification of the Site as a late-stage release (e.g., environmental impacts). The original released constituents have either migrated down to and into fractured bedrock, dissolved and migrated with groundwater, or collected as DNAPL in one limited area around monitoring well MW-15D. In the case of chlorinated VOCs, the analytical results show that the constituents have also attenuated and degraded into daughter products. Released PCBs remain adsorbed to surface soils along the riverfront and in deep soils and groundwater at the overburden and bedrock interface.
3. The nature of the hazardous materials found at the Site include PCBs, specifically Aroclors 1232, 1242, 1248, 1254 and 1260. The most frequently detected were Aroclors 1254 and 1242. The highest concentrations found were of Aroclor 1254. Chlorinated benzenes, common components of the PCB carrier oil were also found with 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene and Chlorobenzene found most frequently. Finally, the nature of hazardous materials found at the Site included chlorinated ethenes, from tetrachloroethene (PCE) and trichloroethene (TCE) down through cis-1,2-dichloroethene and vinyl chloride. TCE and cis-1,2-dichloroethene were found most frequently and at the highest concentrations.
4. The extent of soil impacted by PCBs is relatively ubiquitous across the Property and across the riverfront portion of the Titleist property. Shallow soil above the identified peat layer was found to be impacted with PCBs along the riverfront on the Precix and Titleist properties at levels that exceed UCLs. Deep soils in the vicinity of the identified DNAPL (MW-15D) and a limited area of soils centered around boring B04B also exceeded UCL levels. While the soil sample collected beneath the building slab former pump room location also had significant levels of PCBs, the soil beneath the remainder of the former building slab did not. Significant PCB impacts were not identified north or east of the Precix building, on the western portion of the Property or the north side of the western portion of the Titleist building. The chlorinated benzene detections generally coincided with the PCB impacted locations, but chlorinated benzenes were not found at significant concentration levels or levels approaching the UCLs.
5. There are no concentrations of TCE, cis-1,2-dichloroethene and PCE detected in shallow surface soils (< 3 feet bgs) on the Property. Within the soil profile from 3 feet bgs down to 15 feet, chlorinated ethenes are present below the former Aerovox building foundation, in the south central area of the Property near B04B and B04C, at

- B08B (near MW-10D and MW-27B), at MIP-43, in the UV-17 area, and within the northeast corner of the Property. Inaccessible soils below 15 feet bgs are present more pervasively across the eastern two-thirds of the Property. The soil interval between 15 feet bgs down to the bedrock surface has a higher concentrations of TCE detections in the eastern half of the Property. TCE is the only chlorinated ethene exceeding its UCL, which occurs both in the northeast corner of the Property and in the vicinity of UV-17.
6. The extent of PCB impacts to shallow overburden groundwater is limited to a small area along the waterfront centered near where the southern culvert discharge was located. The remaining shallow groundwater results across the Property and the Titleist and Precix properties indicate low or non-detect levels of PCBs. The extent of PCB impacts in deep overburden groundwater extends from midway within the Property out to the shoreline with increasing levels of PCBs closer to the river. PCB impacts in deep overburden groundwater extend partially onto the northeast corner of the Titleist property, and low levels of PCBs in deep overburden groundwater were also found in two wells on the south side of the Precix property. PCB impacts to bedrock groundwater were found in wells across the eastern two thirds of the Property, with the highest concentrations centered around the central (B04B) primary release area and along the waterfront. Bedrock groundwater concentrations in the northeast corner, in the area of identified DNAPL, exceeded the groundwater UCL for PCBs. Bedrock concentrations of PCBs on the Titleist and Precix properties were found only in a single well each, close to the river, and only at low levels.
  7. The extent of chlorinated ethenes in shallow overburden groundwater extends across all but the western quarter of the Property, the southern and eastern half of the Precix property and in one location along the north side of the Titleist building. Because TCE is the dominant detected chlorinated ethene and has a heightened potential for impacting receptors via indoor air, the presence of TCE in the shallow groundwater gave rise to a vapor intrusion evaluation for the Precix and Titleist properties. The highest levels of TCE in shallow groundwater were found along Graham Street and at the discrete central (B04B) area on the Property. TCE was not found in shallow groundwater along the Aerovox waterfront. The extent of chlorinated ethenes in deep overburden groundwater covers all but the westernmost portion of the Property, the eastern half of the Precix property and the northeastern quarter of the Titleist property. Deep overburden concentrations on average are one to two orders of magnitude higher than shallow overburden concentrations. The highest levels of chlorinated ethenes in deep overburden groundwater are centered around the Aerovox waterfront and the location of the deeper bedrock trough just inland from the waterfront. Neither shallow nor deep overburden groundwater concentrations for TCE exceed UCL levels.

8. The extent of chlorinated ethenes in bedrock groundwater could not be measured to the north of the Site because access to the Coyne property (north of the Precix property) was denied. The inferred extent, based on concentration and bedrock fracture trends would be expected to reach beyond the northern Precix property line. MassDEP assistance in obtaining access has been requested, and once access is provided additional investigation in this direction will be completed. Otherwise, the extent of chlorinated ethene impacts in bedrock extends across all but the westernmost portion of the Property and extends along the waterfront to the southern end of the Titleist property. The highest levels of TCE impacts to bedrock groundwater, above UCL concentrations, were found in the deepest fracture zone encountered at the Site in the center of the Property (MW-26B), in the deep fracture zone of MW-34B in the northeast corner of the Property, and in the shallow bedrock groundwater associated with the DNAPL area (MW-15B). (Note that carbon tetrachloride was also found above UCL levels in the northernmost bedrock well, MW-24B on the Precix property. This is not a constituent related to or originating from the Aerovox releases.)
9. A peat layer of varying thickness is present across much of the eastern portions of the Site. The sheet pile wall that defines the edge of the Property and is keyed into this peat impede the flow of contaminants with shallow groundwater and from shallow soils into the river, but constituents in deep groundwater and at the overburden bedrock interface can migrate with tidal flow both toward and away from the river.
10. The identified DNAPL area is limited in extent at the northeast corner of the sheet pile wall. It is present only at depth and likely originated both from the northern culvert discharges and from near shore dumping of capacitors. The DNAPL contains both PCBs and chlorinated solvents. Based on soil concentrations and UVOST screening results, DNAPL may also be present in shallow soil above the peat layer near the south culvert, but it has not accumulated to measureable amounts in a well. If DNAPL is present in this location, it is presently contained by the HAC cap and sheet pile wall.
11. Groundwater flow in deep overburden and in bedrock is strongly influenced by the tides, and flow direction reverses in response to tidal changes. There is strong interconnection between the shallow overburden, deep overburden and shallow bedrock aquifers and between groundwater and surface water. Vertical groundwater gradients exist at the Site between the three aquifer types, and vary between positive (upward) and negative (downward) across the Site. In portions of the Site where tidal influence on groundwater levels is greatest, reversals in vertical gradient from positive to negative are observed with changing tides. Further inland, vertical gradients are largely upward, with the magnitude of the gradient also changing with the tides. Based on data collected for the multi-level bedrock sampling devices



(Water FLUTes), a positive vertical gradient is observed in shallow bedrock, while negative vertical gradients are observed in deeper bedrock sampling intervals.

12. A vapor intrusion assessment was completed for both the Titleist and Precix properties. The weight of evidence indicated that vapor intrusion was not a pathway of concern for Titleist. For Precix, the vapor intrusion pathway is complete but does not present a risk under current site uses. If foreseeable future uses were to include residential use, the vapor intrusion pathway would need to be mitigated.
13. A Method 3 Risk Assessment was completed based on the data collected during the Phase II CSA. The Method 3 identified receptors, exposure scenarios and calculated human health risks for current and foreseeable future uses. Risk to public safety and welfare and a Stage 1 environmental risk characterization were also completed. The Method 3 Risk assessment found that:
  - For the Titleist property, concentrations in surface soil present unacceptable chronic non-cancer and cancer risks for various current (employee, trespasser) and future (potential residential) exposure scenarios. (Note that access control measure, including signage, fencing and gravel coverings were put in place at the outset of the Phase II to limit and control exposure under current site conditions, mitigating any subchronic or acute potential impacts until final response actions can be implemented)
  - For the Precix property, under current conditions non-cancer risks and incremental lifetime carcinogenic risks are within acceptable limits for employees. Under future conditions, non-cancer and cancer risks are above acceptable limits for hypothetical residents who could be exposed to VOCs in indoor air via inhalation.
  - For the Property, the results show that non-cancer and cancer risks are within acceptable limits for future construction work on the western side of the Property but above acceptable limits for future construction work within the eastern half of the Property and in the central area surrounding boring B 04BN.
  - A risk to public welfare exists for the Site because PCBs and TCE are above UCLs in soil in some areas on the Property. The results also indicate that the average concentrations of PCBs in groundwater in the vicinity of the DNAPL area (MW-15B) are above the UCL.
  - A Stage I Environmental Screening indicates that groundwater concentrations have the potential to impact surface water above the MassDEP benchmarks. However the foreseeable migration of groundwater contaminants to surface water is valid if and only to the extent that the Site could act as a continuing source to the river after both MCP Phase IV (at the Site) and EPA CERCLA (at NBH Superfund Site) response actions are complete. Only clearly identified contaminants, if any, coming from the Site can be compared to these

benchmarks, and not contaminants from other sources historically or presently impacting the river or from historical conditions in the river that may remain after EPA CERCLA response actions are complete.

Based on the findings of the Phase II CSA described herein, the updated Conceptual Site Model and the results of the Risk Characterization, in the opinion of the Licensed Site Professional of record for the Site, Comprehensive Remedial Actions are necessary at the Site to achieve a Permanent or Temporary Solution as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select remedial action alternatives.

In accordance with the requirements of the MCP at 310 CMR 40.1003, additional response actions will be evaluated to provide source elimination and control, to control subsurface migration of PCBs and CVOCs remaining at the Site in soil and groundwater and to eliminate non-stable NAPL and remove or contain the identified NAPL if and to the extent feasible. Source control remedial action alternatives to be evaluated will include an assessment of a variety of containment or combination containment and treatment technologies.

Public Involvement Statement

Additional public involvement opportunities are available under the MCP pursuant to 310 CMR 40.1400.

Point of Contact

If you have questions concerning these actions, please contact the undersigned at (603) 606-4824, as the LSP of Record and contact person representing AVX Corporation, who is conducting the response actions at the Site.

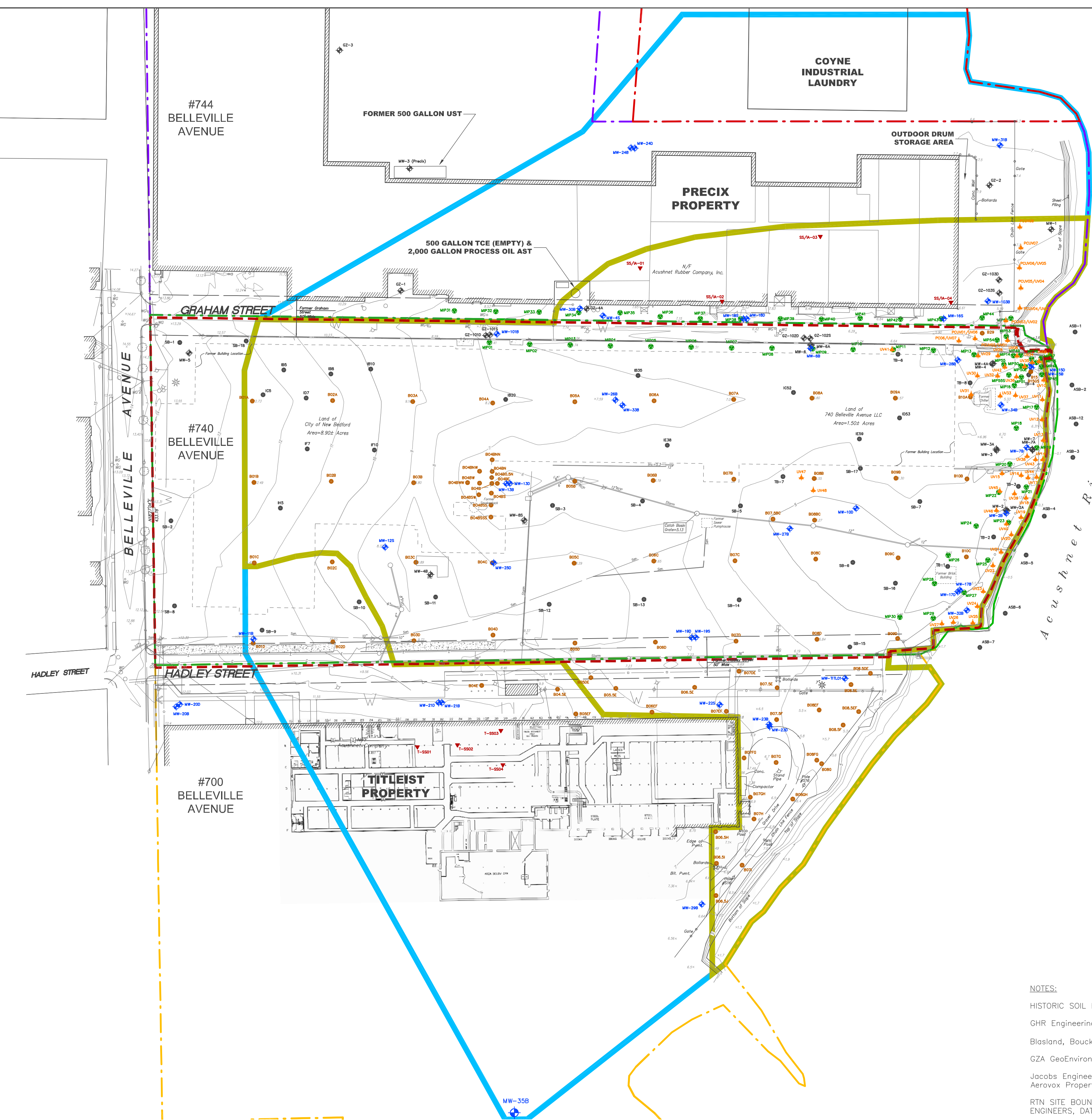
Sincerely,  
**AECOM**



Marilyn Wade, P.E. LSP  
Senior Project Manager

cc: Mr. Evan Slavitt, AVX Corporation  
Ms. Michele Paul, City of New Bedford

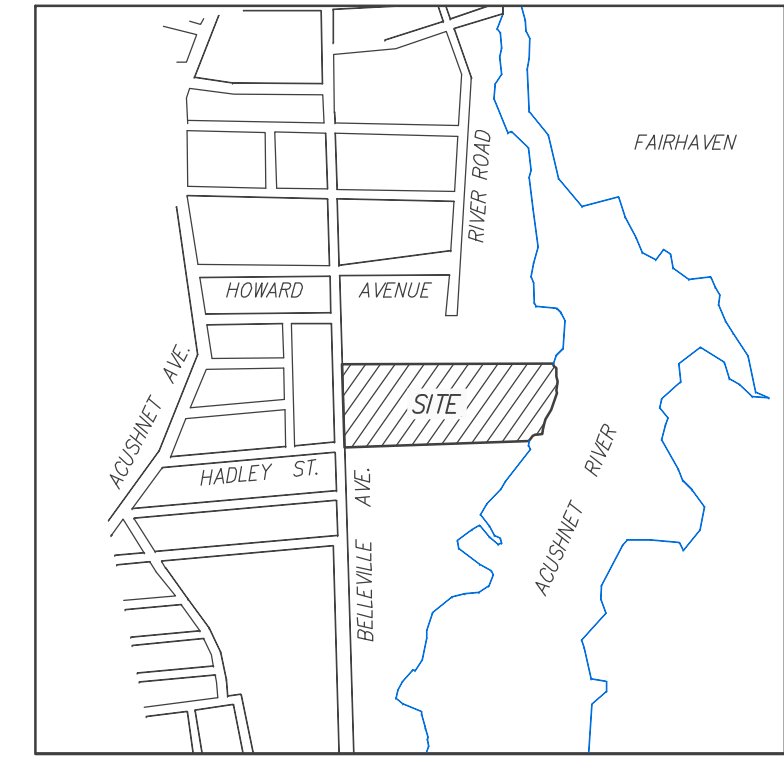
Attachment: Site Figure



### LEGEND

- MONITORING WELL (AECOM)
- SOIL BORING (AECOM)
- MIP BORING (AECOM)
- INDOOR AIR/SUB SLAB VAPOR POINT (AECOM)
- UVOST BORING (AECOM)
- HISTORIC SOIL BORING INSTALLED BY OTHERS\*
- HISTORIC MONITORING WELL INSTALLED BY OTHERS\*
- AEROVOX PROPERTY LINE
- RTN SITE BOUNDARY
- CURRENT RTN SITE BOUNDARY BASED ON SOIL RESULTS FROM PHASE II CSA
- INFERRED SITE BOUNDARY BASED ON GROUNDWATER PLUME CONCENTRATIONS
- PRECIX PROPERTY LINE
- TITLEIST PROPERTY LINE
- COYNE INDUSTRIAL LAUNDRY PROPERTY LINE

### LOCATION MAP (NOT TO SCALE)



**NOTES:**

HISTORIC SOIL BORING AND MONITORING WELL LOCATIONS OBTAINED FROM THE FOLLOWING REPORTS:

GHR Engineering Corporation, 1983. Draft Report, Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, MA. January 11.

Biasland, Bouck and Lee Inc. (BBL). 1998. Engineering Evaluation/Cost Analysis, Aerovox Inc. New Bedford, Massachusetts. August.

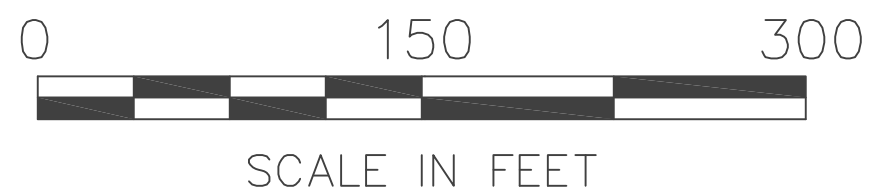
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RTN SITE BOUNDARY AS DEPICTED ON EXHIBIT 3, COOPERATION & SETTLEMENT AGREEMENT, AEROVOX PROPERTY, DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS, DATED DECEMBER 2009.



AECOM  
1155 ELM ST, SUITE 401  
MANCHESTER, NH 03101-1508  
Tel: 603.606.4800  
Fax: 603.606.4801  
www.aecom.com



PROJECT NO:	60422003
DESIGN:	JL
APPROVED:	MW
DRAWN:	FS
SCALE:	AS SHOWN
DATE:	SEPT 2015
FILE NO:	Site Plan and Explorations

CLIENT:	AVX CORPORATION
PROJECT:	PHASE II CSA 740 BELLEVILLE AVENUE NEW BEDFORD, MA

TITLE:	SUBSURFACE INVESTIGATION PLAN
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FIGURE NO.:  
2-2

File: 20150914\AVX\Phase II CSA Report\Site Plan and Explorations.dwg, Figure 2-2, 8/19/2015 3:52:57 PM

September 20, 2015

PN: 60422003

Mr. Kevin Kelly  
Manager of Regulatory Affairs  
Acushnet Company  
700 Belleville Avenue  
New Bedford, MA 02745

**RE: Notification of Property Inclusion in Disposal Site  
Former Aerovox Facility  
740 Belleville Avenue, New Bedford, Massachusetts  
Release Tracking Number (RTN) 4-0601**

Dear Mr. Kelly:

On behalf of AVX Corporation and as required by the Massachusetts Contingency Plan (MCP) subpart 310 CMR 40.1406(1), this letter is notification of inclusion of the Acushnet Company property located at 700 Belleville Avenue, New Bedford, Massachusetts within the Disposal Site Boundary as currently delineated for the above referenced Site. The Phase II Report is being submitted to the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the MCP, pursuant to 310 CMR 40.0480, and the provisions of an Administrative Consent Order between AVX and MassDEP.

The Phase II Report will be filed electronically, and may be accessed by searching for the referenced RTN number on the MassDEP web site: <http://public.dep.state.ma.us/SearchableSites2/Search.aspx>. The full report may also be reviewed by contacting the Southeast Regional Office of MassDEP located at 20 Riverside Drive in Lakeville, Massachusetts. For information about accessing files for review, contact the MassDEP file review coordinator at (508) 946-2718 or submit a file review request online at <http://www.mass.gov/eea/agencies/massdep/about/contacts/southeast-region-file-review-and-public-records-request.html>. In addition, the following text provides a summary of findings and statement of conclusions from the Phase II Report, as provided in 310 CMR 40.0483(h). A copy of the disposal site map is also attached.

*Phase II Report Conclusions*

Based on the results of investigations and evaluations undertaken as part of the Phase II CSA, and concurrently as part of the implementation of the IRA for DNAPL found in the a portion of the Site, the following findings and conclusions are presented:

1. The primary source of the release of oil and hazardous materials to the environment that is the subject of RTN 4-601 is the historic discharge and spilling of chlorinated solvents and PCB oil used in the manufacture of liquid filled capacitors. These spills occurred at the surface and in the subsurface, in unknown quantities over the course

of decades. The evidence suggests that the locations of these releases centered around the previously unpaved area along the shoreline, particularly between the former building and the river, the previously unpaved area along the north side of the building, the two drainage culverts on the north and south sides of the former building and a discrete area within the parking lot between the former boiler house and main building entrance.

2. These historic spills have resulted in the classification of the Site as a late-stage release (e.g., environmental impacts). The original released constituents have either migrated down to and into fractured bedrock, dissolved and migrated with groundwater, or collected as DNAPL in one limited area around monitoring well MW-15D. In the case of chlorinated VOCs, the analytical results show that the constituents have also attenuated and degraded into daughter products. Released PCBs remain adsorbed to surface soils along the riverfront and in deep soils and groundwater at the overburden and bedrock interface.
3. The nature of the hazardous materials found at the Site include PCBs, specifically Aroclors 1232, 1242, 1248, 1254 and 1260. The most frequently detected were Aroclors 1254 and 1242. The highest concentrations found were of Aroclor 1254. Chlorinated benzenes, common components of the PCB carrier oil were also found with 1,2,4-Trichlorobenzene, 1,4-Dichlorobenzene and Chlorobenzene found most frequently. Finally, the nature of hazardous materials found at the Site included chlorinated ethenes, from tetrachloroethene (PCE) and trichloroethene (TCE) down through cis-1,2-dichloroethene and vinyl chloride. TCE and cis-1,2-dichloroethene were found most frequently and at the highest concentrations.
4. The extent of soil impacted by PCBs is relatively ubiquitous across the Property and across the riverfront portion of the Titleist property. Shallow soil above the identified peat layer was found to be impacted with PCBs along the riverfront on the Precix and Titleist properties at levels that exceed UCLs. Deep soils in the vicinity of the identified DNAPL (MW-15D) and a limited area of soils centered around boring B04B also exceeded UCL levels. While the soil sample collected beneath the building slab former pump room location also had significant levels of PCBs, the soil beneath the remainder of the former building slab did not. Significant PCB impacts were not identified north or east of the Precix building, on the western portion of the Property or the north side of the western portion of the Titleist building. The chlorinated benzene detections generally coincided with the PCB impacted locations, but chlorinated benzenes were not found at significant concentration levels or levels approaching the UCLs.
5. There are no concentrations of TCE, cis-1,2-dichloroethene and PCE detected in shallow surface soils (< 3 feet bgs) on the Property. Within the soil profile from 3 feet bgs down to 15 feet, chlorinated ethenes are present below the former Aerovox

building foundation, in the south central area of the Property near B04B and B04C, at B08B (near MW-10D and MW-27B), at MIP-43, in the UV-17 area, and within the northeast corner of the Property. Inaccessible soils below 15 feet bgs are present more pervasively across the eastern two-thirds of the Property. The soil interval between 15 feet bgs down to the bedrock surface has a higher concentrations of TCE detections in the eastern half of the Property. TCE is the only chlorinated ethene exceeding its UCL, which occurs both in the northeast corner of the Property and in the vicinity of UV-17.

6. The extent of PCB impacts to shallow overburden groundwater is limited to a small area along the waterfront centered near where the southern culvert discharge was located. The remaining shallow groundwater results across the Property and the Titleist and Precix properties indicate low or non-detect levels of PCBs. The extent of PCB impacts in deep overburden groundwater extends from midway within the Property out to the shoreline with increasing levels of PCBs closer to the river. PCB impacts in deep overburden groundwater extend partially onto the northeast corner of the Titleist property, and low levels of PCBs in deep overburden groundwater were also found in two wells on the south side of the Precix property. PCB impacts to bedrock groundwater were found in wells across the eastern two thirds of the Property, with the highest concentrations centered around the central (B04B) primary release area and along the waterfront. Bedrock groundwater concentrations in the northeast corner, in the area of identified DNAPL, exceeded the groundwater UCL for PCBs. Bedrock concentrations of PCBs on the Titleist and Precix properties were found only in a single well each, close to the river, and only at low levels.
7. The extent of chlorinated ethenes in shallow overburden groundwater extends across all but the western quarter of the Property, the southern and eastern half of the Precix property and in one location along the north side of the Titleist building. Because TCE is the dominant detected chlorinated ethene and has a heightened potential for impacting receptors via indoor air, the presence of TCE in the shallow groundwater gave rise to a vapor intrusion evaluation for the Precix and Titleist properties. The highest levels of TCE in shallow groundwater were found along Graham Street and at the discrete central (B04B) area on the Property. TCE was not found in shallow groundwater along the Aerovox waterfront. The extent of chlorinated ethenes in deep overburden groundwater covers all but the westernmost portion of the Property, the eastern half of the Precix property and the northeastern quarter of the Titleist property. Deep overburden concentrations on average are one to two orders of magnitude higher than shallow overburden concentrations. The highest levels of chlorinated ethenes in deep overburden groundwater are centered around the Aerovox waterfront and the location of the deeper bedrock trough just inland from the waterfront. Neither shallow nor deep overburden groundwater concentrations for TCE exceed UCL levels.

8. The extent of chlorinated ethenes in bedrock groundwater could not be measured to the north of the Site because access to the Coyne property (north of the Precix property) was denied. The inferred extent, based on concentration and bedrock fracture trends would be expected to reach beyond the northern Precix property line. MassDEP assistance in obtaining access has been requested, and once access is provided additional investigation in this direction will be completed. Otherwise, the extent of chlorinated ethene impacts in bedrock extends across all but the westernmost portion of the Property and extends along the waterfront to the southern end of the Titleist property. The highest levels of TCE impacts to bedrock groundwater, above UCL concentrations, were found in the deepest fracture zone encountered at the Site in the center of the Property (MW-26B), in the deep fracture zone of MW-34B in the northeast corner of the Property, and in the shallow bedrock groundwater associated with the DNAPL area (MW-15B). (Note that carbon tetrachloride was also found above UCL levels in the northernmost bedrock well, MW-24B on the Precix property. This is not a constituent related to or originating from the Aerovox releases.)
9. A peat layer of varying thickness is present across much of the eastern portions of the Site. The sheet pile wall that defines the edge of the Property and is keyed into this peat impede the flow of contaminants with shallow groundwater and from shallow soils into the river, but constituents in deep groundwater and at the overburden bedrock interface can migrate with tidal flow both toward and away from the river.
10. The identified DNAPL area is limited in extent at the northeast corner of the sheet pile wall. It is present only at depth and likely originated both from the northern culvert discharges and from near shore dumping of capacitors. The DNAPL contains both PCBs and chlorinated solvents. Based on soil concentrations and UVOST screening results, DNAPL may also be present in shallow soil above the peat layer near the south culvert, but it has not accumulated to measureable amounts in a well. If DNAPL is present in this location, it is presently contained by the HAC cap and sheet pile wall.
11. Groundwater flow in deep overburden and in bedrock is strongly influenced by the tides, and flow direction reverses in response to tidal changes. There is strong interconnection between the shallow overburden, deep overburden and shallow bedrock aquifers and between groundwater and surface water. Vertical groundwater gradients exist at the Site between the three aquifer types, and vary between positive (upward) and negative (downward) across the Site. In portions of the Site where tidal influence on groundwater levels is greatest, reversals in vertical gradient from positive to negative are observed with changing tides. Further inland, vertical gradients are largely upward, with the magnitude of the gradient also changing with the tides. Based on data collected for the multi-level bedrock sampling devices

(Water FLUTes), a positive vertical gradient is observed in shallow bedrock, while negative vertical gradients are observed in deeper bedrock sampling intervals.

12. A vapor intrusion assessment was completed for both the Titleist and Precix properties. The weight of evidence indicated that vapor intrusion was not a pathway of concern for Titleist. For Precix, the vapor intrusion pathway is complete but does not present a risk under current site uses. If foreseeable future uses were to include residential use, the vapor intrusion pathway would need to be mitigated.
13. A Method 3 Risk Assessment was completed based on the data collected during the Phase II CSA. The Method 3 identified receptors, exposure scenarios and calculated human health risks for current and foreseeable future uses. Risk to public safety and welfare and a Stage 1 environmental risk characterization were also completed. The Method 3 Risk assessment found that:
  - o For the Titleist property, concentrations in surface soil present unacceptable chronic non-cancer and cancer risks for various current (employee, trespasser) and future (potential residential) exposure scenarios. (Note that access control measure, including signage, fencing and gravel coverings were put in place at the outset of the Phase II to limit and control exposure under current site conditions, mitigating any subchronic or acute potential impacts until final response actions can be implemented)
  - o For the Precix property, under current conditions non-cancer risks and incremental lifetime carcinogenic risks are within acceptable limits for employees. Under future conditions, non-cancer and cancer risks are above acceptable limits for hypothetical residents who could be exposed to VOCs in indoor air via inhalation.
  - o For the Property, the results show that non-cancer and cancer risks are within acceptable limits for future construction work on the western side of the Property but above acceptable limits for future construction work within the eastern half of the Property and in the central area surrounding boring B 04BN.
  - o A risk to public welfare exists for the Site because PCBs and TCE are above UCLs in soil in some areas on the Property. The results also indicate that the average concentrations of PCBs in groundwater in the vicinity of the DNAPL area (MW-15B) are above the UCL.
  - o A Stage I Environmental Screening indicates that groundwater concentrations have the potential to impact surface water above the MassDEP benchmarks. However the foreseeable migration of groundwater contaminants to surface water is valid if and only to the extent that the Site could act as a continuing source to the river after both MCP Phase IV (at the Site) and EPA CERCLA (at NBH Superfund Site) response actions are complete. Only clearly identified contaminants, if any, coming from the Site can be compared to these



benchmarks, and not contaminants from other sources historically or presently impacting the river or from historical conditions in the river that may remain after EPA CERCLA response actions are complete.

Based on the findings of the Phase II CSA described herein, the updated Conceptual Site Model and the results of the Risk Characterization, in the opinion of the Licensed Site Professional of record for the Site, Comprehensive Remedial Actions are necessary at the Site to achieve a Permanent or Temporary Solution as described in 310 CMR 40.1000. A Phase III study for the identification, evaluation and selection of Comprehensive Remedial Action Alternatives as described in 310 CMR 40.0850 is necessary to select remedial action alternatives.

In accordance with the requirements of the MCP at 310 CMR 40.1003, additional response actions will be evaluated to provide source elimination and control, to control subsurface migration of PCBs and CVOCs remaining at the Site in soil and groundwater and to eliminate non-stable NAPL and remove or contain the identified NAPL if and to the extent feasible. Source control remedial action alternatives to be evaluated will include an assessment of a variety of containment or combination containment and treatment technologies.

Public Involvement Statement

Additional public involvement opportunities are available under the MCP pursuant to 310 CMR 40.1400.

Point of Contact

If you have questions concerning these actions, please contact the undersigned at (603) 606-4824, as the LSP of Record and contact person representing AVX Corporation, who is conducting the response actions at the Site.

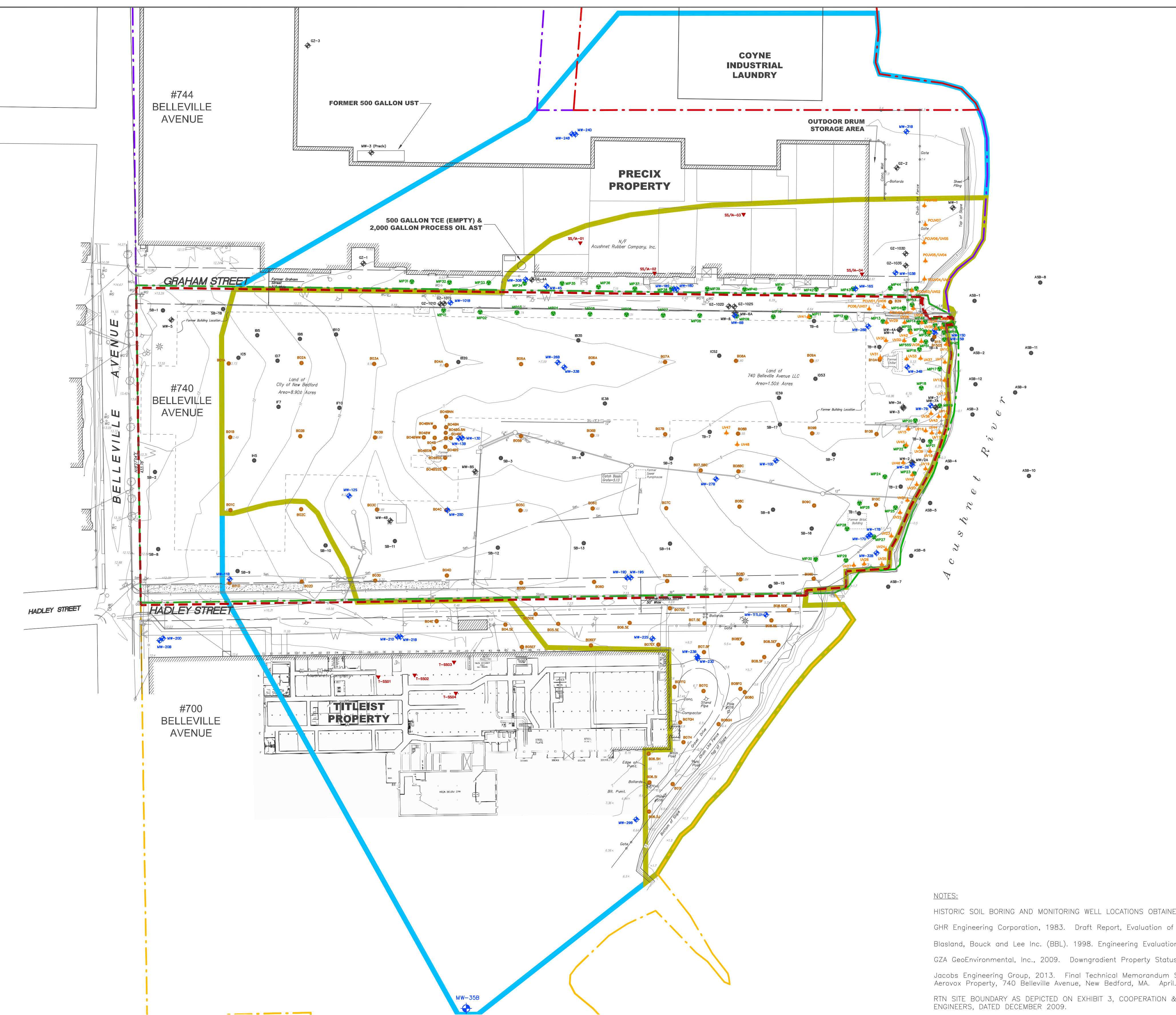
Sincerely,  
**AECOM**



Marilyn Wade, P.E. LSP  
Senior Project Manager

cc: Mr. Evan Slavitt, AVX Corporation  
Ms. Michele Paul, City of New Bedford

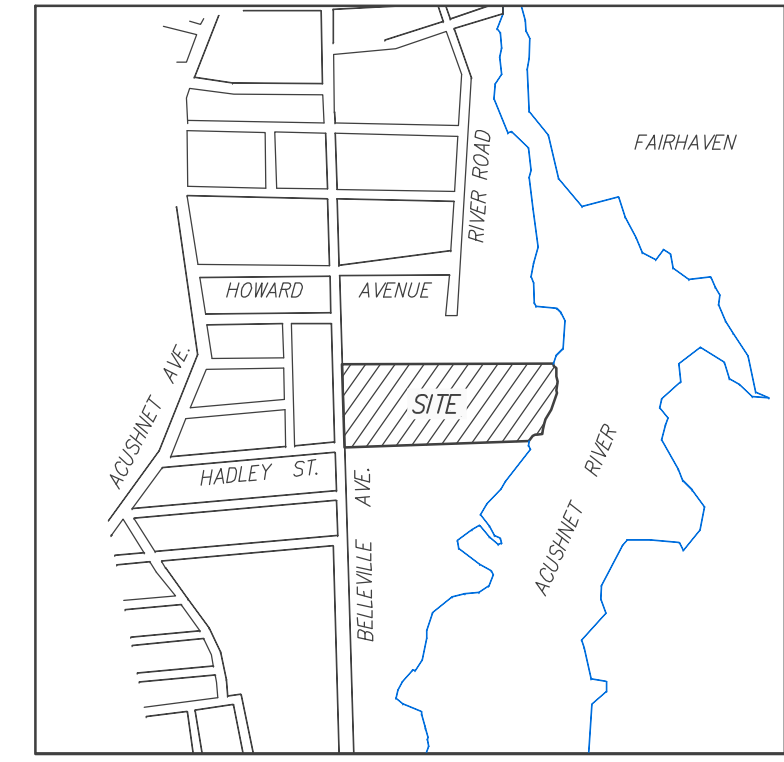
Attachment: Site Figure



### LEGEND

- MONITORING WELL (AECOM)
- SOIL BORING (AECOM)
- MIP BORING (AECOM)
- INDOOR AIR/SUB SLAB VAPOR POINT (AECOM)
- UVOST BORING (AECOM)
- HISTORIC SOIL BORING INSTALLED BY OTHERS\*
- HISTORIC MONITORING WELL INSTALLED BY OTHERS\*
- AEROVOX PROPERTY LINE
- RTN SITE BOUNDARY
- CURRENT RTN SITE BOUNDARY BASED ON SOIL RESULTS FROM PHASE II CSA
- INFERRED SITE BOUNDARY BASED ON GROUNDWATER PLUME CONCENTRATIONS
- PRECIX PROPERTY LINE
- TITLEIST PROPERTY LINE
- COYNE INDUSTRIAL LAUNDRY PROPERTY LINE

### LOCATION MAP (NOT TO SCALE)



**NOTES:**

HISTORIC SOIL BORING AND MONITORING WELL LOCATIONS OBTAINED FROM THE FOLLOWING REPORTS:

GHR Engineering Corporation, 1983. Draft Report, Evaluation of Remedial Alternatives for the Aerovox Property, New Bedford, MA. January 11.

Biasland, Bouck and Lee Inc. (BBL). 1998. Engineering Evaluation/Cost Analysis, Aerovox Inc. New Bedford, Massachusetts. August.

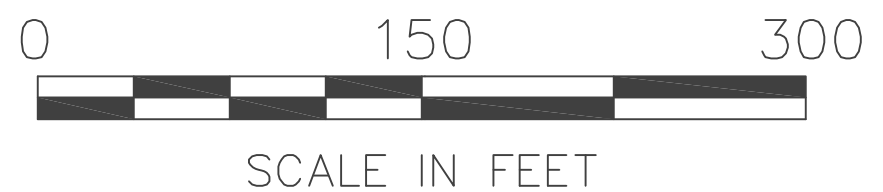
GZA GeoEnvironmental, Inc., 2009. Downgradient Property Status Opinion, 744 Belleville Avenue, New Bedford, Massachusetts, RTN 4-21348. June.

Jacobs Engineering Group, 2013. Final Technical Memorandum Summary of Findings, New Bedford Harbor Superfund Site, 2012 Near-Shore Boring Program Adjacent to the Former Aerovox Property, 740 Belleville Avenue, New Bedford, MA. April.

RTN SITE BOUNDARY AS DEPICTED ON EXHIBIT 3, COOPERATION & SETTLEMENT AGREEMENT, AEROVOX PROPERTY, DEPARTMENT OF THE ARMY NEW ENGLAND DISTRICT CORPS OF ENGINEERS, DATED DECEMBER 2009.



AECOM  
1155 ELM ST, SUITE 401  
MANCHESTER, NH 03101-1508  
Tel: 603.606.4800  
Fax: 603.606.4801  
www.aecom.com



PROJECT NO:	60422003
DESIGN:	JL
APPROVED:	MW
DRAWN:	FS
SCALE:	AS SHOWN
DATE:	SEPT 2015
FILE NO:	Site Plan and Explorations

CLIENT:	AVX CORPORATION
PROJECT:	PHASE II CSA 740 BELLEVILLE AVENUE NEW BEDFORD, MA

TITLE:	SUBSURFACE INVESTIGATION PLAN
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FIGURE NO.:	2-2
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