

July 6, 2015

Mr. Joseph T. Martella II, Senior Engineer
RIDEM Office of Waste Management
Site Remediation Program
235 Promenade Street
Providence, RI 02908



RE: Final Response to RIDEM Review Comments
March 2015 Draft Remedial Action Work Plan
Parcel C and Phase II and Phase III Area Remediation
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, Rhode Island
AMEC Project No. 3652140032

Dear Mr. Martella:

On behalf of Textron, Inc., this letter presents the draft response to comments following the Rhode Island Department of Environmental Management (RIDEM) review of the March 2015 Draft Remedial Action Work Plan (RAWP) for the above referenced project. These responses to comments follow a conference call held between yourself and David Heislein, Amec Foster Wheeler, on May 7, 2015. The following is a summary of the review comments and responses in red to support the preparation of the Order of Approval for the remedial construction proposed to begin July 13, 2015.

1. Section 3.1.1 and 3.3.2.7 - RIDEM requested that Amec Foster Wheeler provide a simple description for the depth and removal of the contaminated sediment from the Inner Cove. **The Contractor shall remove contaminated sediment down to the sand and gravel material to a minimum depth of 1 foot and a maximum depth of 2 feet. Construction Drawing C-101 (Sheet 6 of 14) provides a detailed table of the sediment elevation, removal depth elevation and finished elevation following restoration within the Inner Cove. The contractor selected by Textron, Charter Contracting Company (Charter), will use Table 1 on Construction Drawing Sheet C-101 in conjunction with the ascii files (xyz coordinates provided by Amec Foster Wheeler) to guide the removal of sediment and restoration of the Inner Cove surface.**

Amec Foster Wheeler designed the former Carriage House Area to support the anticipated volume of sediment to be removed from the Inner Cove, dewatered and stabilized prior to onsite placement and capping. Should additional sediment need to be removed from the Inner Cove, Amec Foster Wheeler will coordinate with RIDEM to propose a small area immediately north of the Amtrak substation and west of the Narragansett Bay Commission (NBC) sewer easement for placement and capping of the dewatered and stabilized sediment.

2. Appendix E Draft Environmental Land Use Restrictions (ELUR) and Soil Management Plan (SMP) – RIDEM asked if this was prepared consistent with the most recent ELUR guidance (Remediation Regulations, Appendix G) and if the City had reviewed the Draft ELUR prior to the submittal within the Draft RAWP. Note that the Draft SMP was not included within the hard copy of the March 2015 Draft RAWP; please provide a copy for RIDEM review. **Amec Foster Wheeler prepared the Draft ELUR and SMP in accordance with the 2014 ELUR electronic document posted on the RIDEM website. The Draft ELUR and SMP were reviewed by the City of Providence prior to the submittal of the March 2015 Draft RAWP to RIDEM. The**

Draft ELUR was prepared in red line strikeout format for ease of review by RIDEM. Amec Foster Wheeler provided the Draft SMP to RIDEM June 30, 2015 in electronic form for review and comment. As part of this Final Addendum Letter, Amec Foster Wheeler has incorporated RIDEM review comments into the revised SMP to support the Order of Approval (Attachment 1). This will provide a stand-alone SMP pending the filing of the ELUR and post remediation SMP. The City will sign and record the Parcel C and C-1 ELUR and SMP, and will provide a copy of the recorded documents for inclusion within the Remedial Action Closure Report.

3. Section 3.3 first paragraph, 7.0 and 9.0 - RIDEM requested clarification of the Contractor Work Plan preparation and submittal. The selected contractor Charter is preparing a short work plan to include proposed materials/products to be used in the Inner Cove remediation and restoration and construction of the cap on the Parcel C and Phase III areas. We have attached to this Addendum a short one-page summary (Attachment 2) that Charter prepared confirming that their technical approach for the damming and dewatering of the Inner Cove will be accomplished consistent with the March 2015 Draft RAWP. This attachment also includes the Project Schedule and list of subcontractors provided to date.
4. Subsection 7.0 of the Draft RAWP and the Remediation Regulations Section 9.10 require the submittal of technical specifications prepared by a Rhode Island (RI) licensed Professional Engineer (PE) prior to the approval of the RAWP and issue of an Order of Approval. Amec Foster Wheeler has prepared the Issued for Construction set of drawings and technical specifications incorporating changes in the documents identified during the contractor bidding process and these responses to RIDEM comments on the March 2015 Draft RAWP. Both the Issued for Construction drawings and technical specifications have been stamped and signed by our RI PE. Amec Foster Wheeler submitted to RIDEM on June 26, 2015 two hard copies and an electronic copy on CD of the PE stamped set of Issued for Construction documents for the Phase II and III Areas and Parcel C remediation of the former Gorham Manufacturing Site. The electronic files were in pdf format for upload to the RIDEM project website. Additional hard copies of the Issued for Construction documents will be provided to RIDEM Wetlands and Water Resources and the USACE in support of the permits.
5. RIDEM reviewed the proposed dust control and monitoring standards presented in Section 3.3.1.2, Section 10.0 and Section 11.0 of the March 2015 RAWP. RIDEM proposed that these standards be revised to be more protective of public health based on the work being conducted adjacent to a high school and within a residential area. The proposed standards in the March 2015 DRAFT RAWP for dust were developed for the four fixed station monitoring points and hand held equipment during the remedial construction. These standards were used in the Phase I Construction at the Site in 2013. Following our meeting with RIDEM on May 28, 2015, Amec Foster Wheeler submitted revised action levels to RIDEM for the dust and VOCs consistent with our discussions. These were submitted to RIDEM on June 11, 2015 and were revised per RIDEM comments June 29, 2015. The revised document is included herein as Attachment 3. Amec Foster Wheeler has included the revised Figure 1 within Attachment 3 showing the proposed locations of the fixed air monitoring points. The Figure notes explain the proposed air monitoring locations for the sequence of construction beginning with Parcel C (locations A1-A4) to the Mashapaug Inner Cove (locations B1-B4) and then the Phase III Area (locations C1-C4). In particular, a fixed station will be maintained throughout the 5 months of construction near the gate in the southeast corner of Parcel C (A1/B1/C1) to monitor for dust at the fence line near the high school and the residents on Adelaide Avenue. Monitoring of this area will be continued to ensure that the soil cover material is stabilized and does not pose a dust issue above the revised action levels. Amec Foster Wheeler will direct the contractor to implement engineering controls (e.g., watering of

the soil) to control the dust and support the vegetation growth during the summer and fall seasons and any soil disturbance activities.

6. RIDEM asked that the storm water calculations for the finished grade of Parcel C and the Phase III Area be provided to Water Resources to support the Water Quality Certification review and approval. RIDEM does not want ponded water to infiltrate through fill material as proposed on Parcel C (northeast, northwest and southwest corners) shown on Drawing C-101 of the March 2015 Draft RAWP. Amec Foster Wheeler submitted the requested storm water calculations to RIDEM Water Resources electronically via email on June 12, 2015. Historic test pits found the depth of fill to be 13 feet in the southwest corner and increasing to 16 to 17 feet in the northern end of Parcel C. The proposed drainage features were included in the design to support the proposed future use of Parcel C as a potential parking lot and soccer field. Due to the extensive depth of fill material in these areas, Amec Foster Wheeler has revised the design for Parcel C to place a five foot depth of clean backfill material within these three storm water features. The fill material removed from these three areas will be spread on site outside these drainage features and capped as planned. This revision is shown on Drawing C-102 (formerly C-101) of the Issued for Construction set of drawings. No volatile organic compounds (VOCs) were found in the soil immediately beneath the three proposed storm water features on Parcel C. Low levels of VOCs were present in the groundwater 30 feet below the proposed storm water features in 2010; however, no VOC concentrations above MCP GW-3 or RIDEM GB criteria were found within these areas.
7. RIDEM requested an update regarding the proposed lowering of the pond surface discussed in Section 3.3.2.1 of the March 2015 Draft RAWP as this may require approval from RIDEM Water Resources. Amec Foster Wheeler conducted an inspection of the Mashapaug Pond outfall found at the southern end of the Pond on April 15, 2015. Amec Foster Wheeler notified RIDEM verbally and via email on May 15, 2015 that there were no engineering controls at the Mashapaug Pond outfall structure that would allow us to alter or increase the discharge rate from the Pond. Amec Foster Wheeler found a trash gate at the outfall structure that was filled with debris, limiting the discharge rate from the Pond. Water depth in the outfall structure at the time of the April inspection was 16 inches. Amec Foster Wheeler and RIDEM Water Resources concluded that a permit was not required for the maintenance work to clear the trash gate and increase the flow out of the Pond. Amec Foster Wheeler coordinated with the City of Providence Engineering Division to clear the trash gate. This was completed during the week of May 28, 2015. Amec Foster Wheeler continues to monitor the trash gate and depth of water in the concrete spillway entering the outfall structure. As of June 18, 2015 the trash gate remains clear and a depth of 8 inches of water was found in the spillway.
8. RIDEM reviewed the proposed methods for damming and dewatering of the Mashapaug Inner Cove as discussed in Section 3.3.2.5 of the Draft RAWP. RIDEM will need the Contractors Construction Plan to confirm the proposed methods for damming and dewatering are consistent with the March 2015 Draft RAWP. As discussed in Response 3 above, Charter is preparing the Construction Plan for submittal to RIDEM. Attachment 2 prepared by Charter has been included with this submittal confirming their technical approach for the damming, dewatering and water management, and access for the removal of the sediment from the Inner Cove. This should support the issue of the Order of Approval and Water Quality Certification from RIDEM.
9. RIDEM noted that Drawing G-002 Suggested Construction Sequence for the Inner Cove needed to reference that the Wildlife Management Plan (Appendix I, Draft RAWP) activities must be completed before the installation of the turbidity curtain and dam. The turbidity curtain

must also remain in place until the temporary dam structure has been removed. Amec Foster Wheeler revised Drawing G-001 within the Issued for Construction set to reference the proper sequence of activities.

10. Surface water sampling at five locations of the Inner and Outer Coves is proposed 30 days following the completion of the Inner Cove sediment removal and restoration, and the removal of the temporary dam and turbidity curtain. The analyte list should include both PAHs, total and dissolved metals, and dioxins. Amec Foster Wheeler will revise the analyte list as requested by RIDEM.
11. Section 3.3.3.3 of the Draft RAWP discusses the installation of the new monitoring well downgradient (north) of the former slag area and completed RCRA cap (Phase I construction). Please clarify that this new well is being installed to replace the former GZA-5 that was removed during the slag removal and offsite disposal in 2006. Drawing C-101 of the Issued for Permitting drawings (submitted with the March 2015 Draft RAWP) identified the new monitoring well MW-243 to be installed to replace the former GZA-5 well that was removed in 2006 as part of the slag removal work. A note has been added to the Issued for Construction Drawing C-501 that the proposed well MW-243 is replacing the former GZA-5.
12. Section 3.3.3.6 Asphalt Removal of the Draft RAWP discusses the removal of the asphalt within the former "Casino" of the Phase III Area. Please clarify the removal of asphalt around the former Carriage House Area. Also clarify the handling of the former Carriage House foundation and debris as discussed in Section 3.3.3.8. Amec Foster Wheeler has added a note to the Issued for Construction Drawings on C-004 stating that the existing asphalt (not including the existing easements) around the former Carriage House Area is to be removed, crushed and graded in place. This same note on C-004 also addresses the removal and offsite disposal of the organic debris (e.g., burned wood), roof shingles and metal debris, and the removal, crushing and grading in place of the concrete and brick from the former Carriage House building foundation.
13. Section 3.3.3.9 Capping of Inner Cove Sediment states in the third paragraph that "This area will not be used for any proposed future activity". Please clarify. This statement is specific to only the areas where Inner Cove sediment will be placed on the Former Carriage House Area within the Phase III Area. This area will be graded and protected so that it will not be used for future parking, playground, etc. To ensure that this area is not disturbed, Amec Foster Wheeler has added a note to Construction Drawing C-104 stating that large rocks and boulders will be placed along the edge of the Amtrak access road (west side of sediment disposal area) to prevent vehicles from parking on the former Carriage House Area following the completion of the Phase III Area cap construction. Slopes on the remaining three sides are too steep to allow any parking of vehicles on this area.
14. Section 3.3.4.1 of the Draft RAWP discusses the proposed groundwater sampling of the Western Plume (Parcel C) prior to and after the proposed construction. The end of paragraph 2 references the comparison of groundwater data to the Massachusetts Contingency Plan (MCP) GW-3 criteria for subsequent discharge of shallow groundwater into the Inner Cove. Please clarify the use of the GW-3 criteria and provide the historic groundwater data for this plume (Parcel C). Also define when the groundwater samples will be collected following the completion of the construction. Amec Foster Wheeler submitted to RIDEM June 12, 2015 the historic groundwater data for Parcel C wells and the Western Plume. A copy of the data table is included as Attachment 4 of this Addendum Letter. Within this same submittal, Amec Foster Wheeler provided Section 7.2.2 Groundwater Compliance Standards of the April 2001 RAWP

(associated with the October 11, 2001 Order of Approval and March 15, 2002 revised Order of Approval) (Attachment 5). This specifies the use of the MCP GW-3 criteria as the compliance standards for the Western Plume groundwater data. Attachment 4 data tables have been compared to the most recent MCP GW-3 criteria. None of the data points exceed these criteria as of the last groundwater sampling event in 2010.

The list of monitoring wells to be sampled in the Western Plume has been revised to include MW-235S, MW-236S, MW-237S, MW-FS, MW-241 and MW-D. This revision has been included in Construction Drawings C-002 and C-003. The six wells will be developed and sampled prior to the start of construction (July 2015). Groundwater samples will be collected using USEPA Low Flow sampling procedures. A duplicate groundwater sample will be collected along with a matrix spike and matrix spike duplicate, and a trip blank. These groundwater samples will be analyzed for VOCs using USEPA Method 8260. Groundwater samples will then be collected 30 days following completion of the construction (approximately December 2015) and again in April 2016 to cover the three seasons of groundwater (dry, mid and wet seasons). These sampling events will follow the same technical approach. Monitoring well construction logs for all of the wells have been included within the Construction Technical Specifications Appendix A. If the groundwater data is found to be increasing in concentration or to exceed the MCP GW-3 criteria during these three rounds, Textron will coordinate the follow-on actions with RIDEM to complete the closure of the Western Plume.

15. Section 3.3.4.3 Stockpiles. All stockpiles of clean and impacted material must be covered if not being worked. These covers will be secured and maintained throughout construction to minimize potential for dust. Grading, Drainage and Erosion Control Note #10 in the Construction Drawing G-001 states that all stockpiles will be stabilized and/or covered and tarps secured. Amec Foster Wheeler will communicate this with Charter during the daily tailgate briefings and inspections to ensure that they are complying with this requirement and to reduce the potential for dust exceeding the revised action levels.
16. Amec Foster Wheeler met with Amtrak representatives on April 15, 2015 to review possible requirements for the remedial construction that would be needed to continue to allow Amtrak with access to their substation and safety requirements. The following is a summary of this meeting. Amec Foster Wheeler will notify Amtrak of the proposed construction schedule one week prior to startup. Amec Foster Wheeler has a shared lock on the Amtrak gate and can provide access to Charter without interfering with Amtrak.

Amtrak needs to maintain access to the substation via the access road throughout construction. Amtrak also uses the NBC sewer easement to access the railroad ROW via gates at the northeast and southeast corners of the Phase III Area. Amec Foster Wheeler and Charter will not stockpile material on the access road and will relocate equipment to provide Amtrak the required access. Concern was raised regarding the overhead power lines connecting the electrical substation with the ROW. Construction Drawing C-104 includes notes stating no vehicles will pass under these power lines and that temporary fencing will be installed on the north and south sides of the area beneath the power lines restricting construction vehicle access. The contractor is not allowed to extend any equipment over the fence into the railroad ROW.

Amtrak identified their property lines based on the trees surrounding the substation. The proposed grading and limits of disturbance (C-104) comply with the Amtrak property line. Amtrak asked that stockpiles of materials be covered and the covers secured so nothing can blow into the electrical lines or onto the ROW. See response to comment 15 above.

17. RIDEM stated that the Completion Report must include the material submittals and as-built plans for the construction. **Amec Foster Wheeler will be collecting the pre-construction submittals, maintaining the operating log and collecting/reviewing the required documentation from Charter during the construction activities. Amec Foster Wheeler and Textron will prepare the Completion Report for submittal and review by RIDEM following the completion of the proposed work in November 2015.**
18. Please find a complete copy of Appendix A of the RAWP (Attachment 6). This has been revised to include the following RIDEM approval documents:
- a. April 1, 2015 Completed payment form for RIDEM's review of the RAWP.
 - b. April 28, 2004 Program Letter for the YMCA Parcel C.
 - c. April 24, 2006 Order of Approval for the YMCA Parcel C.
 - d. October 11, 2001 Order of Approval for the Gorham Site, including the Park Parcel (Parcels C and C-1).
 - e. March 15, 2002 revised Order of Approval for the Gorham Site, including the Park Parcel (Parcels C and C-1).
 - f. March 27, 2015 Remedial Decision Letter Phase II and Phase III Area (Parcel C-1).
19. Please find the Certification Requirements page for the RAWP signed and dated by Textron and Amec Foster Wheeler representatives June 26, 2015 for your records (Attachment 7).
20. Please Find The USACE, New England District, General Permit Work-Start Notification Form Signed And Submitted To The USACE June 26, 2015 (Attachment 8) For Your Records.

PROPOSED SCHEDULE

Textron has proposed to begin the equipment mobilization and site work for this remedial construction project on July 13, 2015. The work has been scheduled to complete the field activities near the high school before the students return from summer vacation and complete the Inner Cove restoration and capping of the Parcel C and Phase III area seeding and planting during the early fall season. Textron estimates they will complete this project in November 2015. Amec Foster Wheeler will mail written notification of this proposed work to the abutters and stakeholders, and regulatory agencies. The notification will be issued in both English and Spanish.

We look forward to working with RIDEM on this remedial construction project. Feel free to contact either Dave Heislein at (978) 396-5327 or Greg Simpson of Textron at (401) 457-2635 with any questions.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure



David E. Heislein
Senior Project Manager



Richard A. Delano
Principal Engineer

Enclosures: Attachment 1 Revised Soil Management Plan
Attachment 2 Charter Contracting Co. General Workplan for Sediment Removal
Attachment 3 Site Perimeter Action Levels
Attachment 4 Table 1 Parcel C VOCs Detected in Groundwater 1998-2010
Attachment 5 Excerpts from April 2001 RAWP
Attachment 6 Revised Appendix A RAWP
Attachment 7 Completed RAWP Section 15.0 Certification Requirements
Attachment 8 USACE General Permit Work-Start Notification Form

cc: B. Azar, City of Providence
G. Simpson, Textron, Inc.
Knight Memorial Library Repository
Amec Foster Wheeler Project File [P/BOS/Textron/3652140032/8.2/March 2015 RAWP/d50706ad.docx]

ATTACHMENT 1

1.0 INTRODUCTION

This Soil Management Plan (SMP) has been prepared to describe the procedures that are necessary to safely manage contaminated soil at Parcel C (Plat 51, Lot 324 [formerly Plat 51 Lot 170 and a portion of Lot 171, and a portion of abandoned Alvin Street]) located at 425 Adelaide Avenue (formerly identified as 333 Adelaide Avenue) in Providence, Rhode Island (the Property) (Figure 1). The Property consists of approximately 17.1 acres of land that was formerly occupied by the Gorham Manufacturing facility at 333 Adelaide Avenue and abandoned portions of Alvin Street as shown on the plan provided in Figure 2.

1.1 Property Description and Background

The Gorham Manufacturing Company engaged in the manufacture of silverware, both sterling and plated, and bronze castings from approximately 1890 to 1985. Operations included casting, rolling, polishing, lacquering, forging, plating, annealing, soldering, degreasing, machining and melting. Vapor degreasers reportedly used volatile organic compounds (VOCs), i.e., tetrachloroethylene (PCE), trichloroethylene (TCE) and trichloroethane (TCA) during various periods of operations.

Parcel C includes two of the four parcels identified in the 2006 Consent Order between the Rhode Island Department of Environmental Management (RIDEM) and the City of Providence that comprised the 333 Adelaide Avenue Former Gorham Manufacturing Facility Site (Figure 2). The two parcels, formerly known as the YMCA main parcel and land formerly known as the Park Parcel, are currently owned by the City of Providence. A retail development was completed on the southeastern portion of the Site (Parcel A) and a public high school (Dr. Jorge Alvarez High School) was constructed on a second parcel (Parcel B). A fast food restaurant located along Adelaide Avenue in the southeast corner of the Site makes up Parcel D of the Property. Parcel D is not owned by the City of Providence and is not part of the Gorham Site.

Historic spills and releases of oil and hazardous materials to specific areas of soil and groundwater have occurred at the Property as a result of prior manufacturing activities. Remediation activities completed on this Property have isolated contaminants that exceed the applicable Rhode Island Direct Exposure Criteria (RIDEDEC) or UCLs. In general, contaminants that remain in Parcel C soils are as follows:

1. Polycyclic aromatic hydrocarbons (PAHs), metals, and dioxin at concentrations that exceed residential and commercial RIDEDEC at various locations.

Prior sampling has shown that soil vapor present in the subsurface of the central portion of Parcel C has historically contained low levels of methane.

To prevent exposure, the final remedial action for Parcel C will include constructing an engineered barrier consisting of a permeable, high-visibility marker fabric placed over compacted, surface soil, and then overlain by six inches of cover soil and six inches of clean, imported topsoil (Figure 3). Excavated Inner Cove sediment will be placed in the area of the former Carriage House, covered with a marker fabric, six inches of cover soil and six inches of clean imported topsoil. Topsoil will be seeded using an appropriate seed mix applied with fertilizer, and mulch. An Environmental Land Use Restriction (ELUR) will be implemented for the entire Parcel C to eliminate the potential for direct exposure to contaminated soil. Construction of any structure is prohibited on Parcel C without prior approval from the RIDEM as will be described in the ELUR.

1.2 Applicability and Purpose of SMP

This SMP is a component of the Remedial Action Work Plan (RAWP) for Parcel C and is intended to address management of impacted soils and sediment during Department approved remedial

activities including excavation, stockpiling, grading, moving or any other disturbance or management. It is also intended to address post remedial management of impacted soils and placed sediments that may be excavated, temporarily stockpiled, graded, or moved during and after future intrusive activities on Parcel C. Any future intrusive activity conducted on Parcel C will be subject to the procedures contained in the final ELUR and a final SMP. It should be clarified that the procedures contained in this SMP will typically only be necessary for impacted soils and the placed sediments located on Parcel C (Figure 3). Clean fill material imported as part of the Parcel C final capping remedy would not be subject to all the SMP requirements. However, any clean soil that is disturbed within or removed from the clean cap soil of Parcel C, must be replaced with soil that is consistent in quality and composition with the existing clean soil cap. Also, all imported clean soil shall be managed, moved stockpiled or stored in a manner to minimize dust generation, including covering and watering if necessary, and also segregated from impacted material to avoid cross contamination.

2.0 GOALS

The goal of and the requirements set forth in this SMP are intended for the handling, stockpiling, and tracking of impacted soil material during Department approved remedial activities and any future intrusive activities on Parcel C so that the soil is managed properly and handled in a safe manner. Anticipated future Property activities that will require soil management include: excavation for utility installation and repair; landscaping; and maintenance of components of the Parcel C engineered soil cap.

During all future intrusive activities on Parcel C, the integrity of the engineered soil cap must be maintained. Any landscaping and soil re-grading activities must maintain the marker fabric and a minimum of 1 foot of clean soil. Construction of any structure is prohibited on Parcel C without prior approval from the RIDEM as described in the final ELUR.

3.0 HEALTH AND SAFETY

An environmental inspector shall be on Property during any Department approved remedial activities or future activity that disturbs (grading, excavation, trenching, drilling, etc.) impacted soil and sediment at the Property. Soil or sediment that is disturbed during these activities will be physically observed and screened for signs of potential contamination. The environmental inspector will document the soil/sediment management actions, perform perimeter and breathing-zone air monitoring (primarily for dust and VOCs) per the requirements of the Department approved RAWP, maintain the operating log, and summarize construction activities into the required progress reports (see Section 5.0 of this SMP).

Worker protection shall be maintained during intrusive activities through air monitoring, dust control measures, and the use of appropriate personal protective equipment (e.g., chemically-resistant gloves).

Standard dust control measures (i.e., water spray) will be instituted during all intrusive activities that have the potential to generate airborne dust. If airborne dust levels cannot be controlled, the intrusive activity generating the dust shall cease until adequate mitigation measures are implemented and dust levels reduced.

3.1 Air Monitoring

Perimeter and breathing-zone monitoring shall be performed per the Department approved RAWP during any earthmoving activities involving impacted soil/sediment that have the potential to generate airborne dust. Monitoring will primarily focus on dust monitoring to address respirable dust containing non-volatile contaminants (e.g., PAHs, metals [lead, arsenic], and dioxin).

Although considered to be unlikely based on prior investigation and remedial construction activities, exposure to methane is possible from impacted soil or soil vapor at the center of Parcel C, and shall be monitored to prevent respiratory exposure. The monitoring will be performed using a hand-held real-time dust meter to measure concentrations of respirable dust, a photo-ionization detector (PID) to measure the concentration of VOCs, and a combustible gas meter to ensure the protection of the health of the workers on the Property. The PID shall be equipped with an electron volt (eV) lamp that is capable of detecting the Property contaminants. The combustible gas meter will be calibrated to respond to methane.

Breathing zone and perimeter action levels for VOCs, dust, and combustible gases were developed in the Department approved RAWP considering Property-specific contaminant levels in soil and will be established in the Health and Safety Plan developed for the intrusive activity.

3.2 Security

During site work, the appropriate precautions will be taken to restrict unauthorized access to the Property.

4.0 SOIL DISTURBANCE ACTIVITIES

In accordance with **Section A iii and v** of the Parcel C ELUR, no soil or sediment at the Property is to be disturbed in any manner without prior written permission of the Department's Office of Waste Management (OWM), except for minor inspections, maintenance, and landscaping activities that do not disturb the contaminated soil and sediment at the Property. Department issuance of the Order of Approval for the Department approved RAWP will constitute written permission from the Department to perform all of the soil and sediment disturbance activities at the Site described in the Department approved RAWP, which fall under the jurisdiction of the (OWM).

4.1 Notification

This SMP serves to supplement the Department approved RAWP. Regarding post-remedial soil disturbance activities, this SMP serves to supplement, and will be initiated by, the RIDEM notification requirement established by the ELUR for the property. The notification shall be submitted to the Department no later than 30 days prior to the proposed initiation of the start of property activities.

- 4.1.1 As part of the notification process, the Property owner shall provide a brief written description of the anticipated Property activity involving soil or sediment excavation. The description will include an estimate of the volume of soil or sediment to be excavated, the duration of the construction project, a list of the known and anticipated contaminants of concern, a figure clearly identifying the proposed areas to be excavated/disturbed, the proposed location of any temporary storage of the soil/sediment, and the proposed disposal location of the soil/sediment.
- 4.1.2 Following written Notification, the Department will determine the post closure reporting requirements. Significant disturbances of regulated soil/sediment will require submission of a Closure Report for Department review and approval documenting that the activities were performed in accordance with this SMP and the Department approved ELUR. Minor disturbances of regulated soil/sediment may be documented through the annual certification submitted in accordance with **Section H** (Inspection & Non- Compliance) of the Department approved ELUR. The Department will also make a determination regarding the necessity of performing Public Notice to abutting property owners/tenants concerning the proposed activities. Work associated with the Notification will not commence until written Department approval has been issued. Once Department

approval has been issued, the Department will be notified a minimum of two (2) days prior to the start of activities on the Property. Shall any significant alterations to the Department approved plan be necessary, a written description of the proposed deviation, will be submitted to the Department for review and approval prior to initiating such changes.

- 4.1.3 Health and safety procedures will be followed as described in Section 3.0 above and be incorporated into a Property-specific health and safety plan developed for the activity. Excavation or moving of impacted soils or sediment will also require that dust suppression measures be available, and that perimeter and breathing-zone monitoring be performed during the course of the activity.

4.2 Material Handling and Tracking

The environmental inspector shall keep accurate records of the volumes of soil and sediment moved about the Property, the initial location of those volumes of soil/sediment, and the final location of the volumes of soil/sediment. Best soil management practices should be employed at all times, including storm water and erosion control measures to be implemented during the construction activities and/or any activity involving the disturbance of regulated soil. These measures may include but are not necessarily limited to the installation and maintenance of hay bales and silt fence, stabilized construction entrances, erosion control matting on the cap surface, as necessary, and maintenance of a proposed turbidity curtain in the Outer Cove.

- 4.2.1 The excavated soils/sediment will either be re-entered to their original location (returned to the excavation) the same day of the removal and will be placed below the applicable engineered control cap, or will be properly stored in a secured location of the Property.
- 4.2.2 To the extent it is necessary during excavation activities, the clean fill material of the engineered cap will be segregated from the regulated soil/sediment beneath the cap and stored separately and securely on and under polyethylene sheeting as described in Section 4.3. Best management practices will be utilized to minimize and control generation of dust during excavation, movement or storage of regulated soils and sediment in accordance with this SMP and the health and safety plan developed for the activity. Any regulated soil/sediment being re-entered will be placed below a RIDEM approved engineered control cap.
- 4.2.3 If the soil/sediment cannot be returned to the excavation the same day, then the segregated soils/sediment will either be stockpiled separately on polyethylene sheeting (Section 4.3), or stored separately in roll-off type containers. In either case, the segregated material in storage will be covered with secured polyethylene sheeting at the end of each workday. Stockpiled materials will be maintained with appropriate controls and best management practices to limit the loss of the cover and protect against storm water or wind erosion.
- 4.2.4 If the regulated soil/sediment cannot be returned to the original location, then a qualified environmental professional will collect samples of the excavated soils/sediment (either during excavation or from stockpiles) for laboratory testing. In the event that regulated soils/sediment are generated for which the only effective method of management is off-site disposal, then the testing program will also address the data requirements of the anticipated disposal facility.
- 4.2.5 In the event that certain soils/sediment on regulated portions of the Property were not previously characterized, these soils are presumed to be regulated until such time that it is demonstrated to the Department, through sampling and laboratory analysis that they are not regulated.

- 4.2.6 Excavated soils/sediment will be staged and temporarily stored in a designated area of the Property. Within reason, the storage location will be selected to limit the unauthorized access to the materials (i.e., away from public roadways/walkways). No regulated soil/sediment will be stockpiled on-property for greater than 60 days without prior Department approval.
- 4.2.7 In the event that stockpiled soils/sediment pose a risk or threat of leaching hazardous materials, a proper leak-proof container (i.e., drum or lined roll-off) or secondary containment will be utilized.
- 4.2.8 Soils/sediment excavated from the Property may not be re-used as fill on residential property.
- 4.2.9 Soils/sediment, which are to be disposed of off-property must be disposed of at a licensed facility in accordance with all local, state, and federal laws. Copies of the material shipping records associated with the disposal of the material shall be maintained by the Property owner and included in the Remedial Action Closure Report or annual inspection report for the Property, as applicable.
- 4.2.10 Best soil management practices should be employed at all times and regulated soils/sediment should be segregated into separate piles (or cells or containers) as appropriate based upon the results of analytical testing, when multiple reuse options are planned (i.e., reuse on-site or disposal at a Department-approved licensed facility).
- 4.2.11 All non-disposable equipment used during the soil/sediment disturbance activities will be properly decontaminated as appropriate prior to removal from the Property. All disposable equipment used during the soil/sediment disturbance activities will be properly containerized and disposed of following completion of the work. All vehicles utilized during the work shall be properly decontaminated as appropriate prior to leaving the Property as described in the health and safety plan developed for the activity.
- 4.2.12 At the completion of site work, all exposed soils/sediment are required to be recapped with Department approved engineered controls consistent or better than the Property surface conditions prior to the work that took place. These measures must also be consistent with the Department approved ELUR recorded on the property.

4.3 Polyethylene Barrier

A polyethylene barrier shall be used to isolate stockpiles (if necessary) from the underlying soils/sediment. The polyethylene shall be a minimum of 6-mil (0.006 inches) thick. At least two layers of polyethylene shall be used to protect the ground surface. At least one layer of 6-mil polyethylene will be used to cover stockpiles at all times; except when modifying stockpiles.

4.4 Stockpile Criteria

Stockpiles of soil/sediment exceeding the applicable RIDECS shall be placed on polyethylene sheeting, shall be covered with polyethylene sheeting meeting the requirements of Section 4.3 above, and the sheeting anchored to prevent blowing dust and runoff.

5.0 REPORTING AND SUBMITTALS

An annual certification report, and closure report for major activities, will be prepared for all soil/sediment management activities at Parcel C.

5.1 Annual Certification Report

The qualified environmental professional will evaluate the compliance status of the Property on an annual basis. Upon completion of the evaluation, the environmental professional will prepare and simultaneously submit to the Department and to the Property owner / or future holder of any interest in the Property, an evaluation report detailing the findings of the inspection, and noting any compliance violations at the Property. If the Property is determined to be out of compliance with the terms of the ELUR, the owner / or future holder of any interest in the Property, shall submit a corrective action plan in writing to the Department within ten (10) days of receipt of the evaluation report, indicating the plans to bring the Property into compliance with the ELUR, including, at a minimum, a schedule for implementation of the plan.

In the event of any violation of the terms of this Restriction, which remains unresolved more than ninety (90) days after written notice of violation, all Department approvals and agreements relating to the Property may be voided at the sole discretion of the Department.

5.2 Post-Closure Report

The post closure reporting requirements will be determined by the Department based on the scope of the proposed activity (Section 4.1.2).

In general, a closure report shall contain the following information:

- i. Summary of material handling and tracking (Section 4.0);
- ii. All analytical results;
- iii. Sampling dates, sample locations with depths;
- iv. Performing Party certification specifying the specific remedial measures completed (i.e., Rule #), and date;
- v. Performing Party certification that public notice to abutters was completed; and
- vi. Details of institutional controls required (ELUR's per Rule 12.06 if required).



Legend

--- Approximate Parcel Boundaries

N
0 175 350
Feet

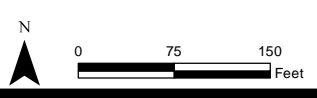
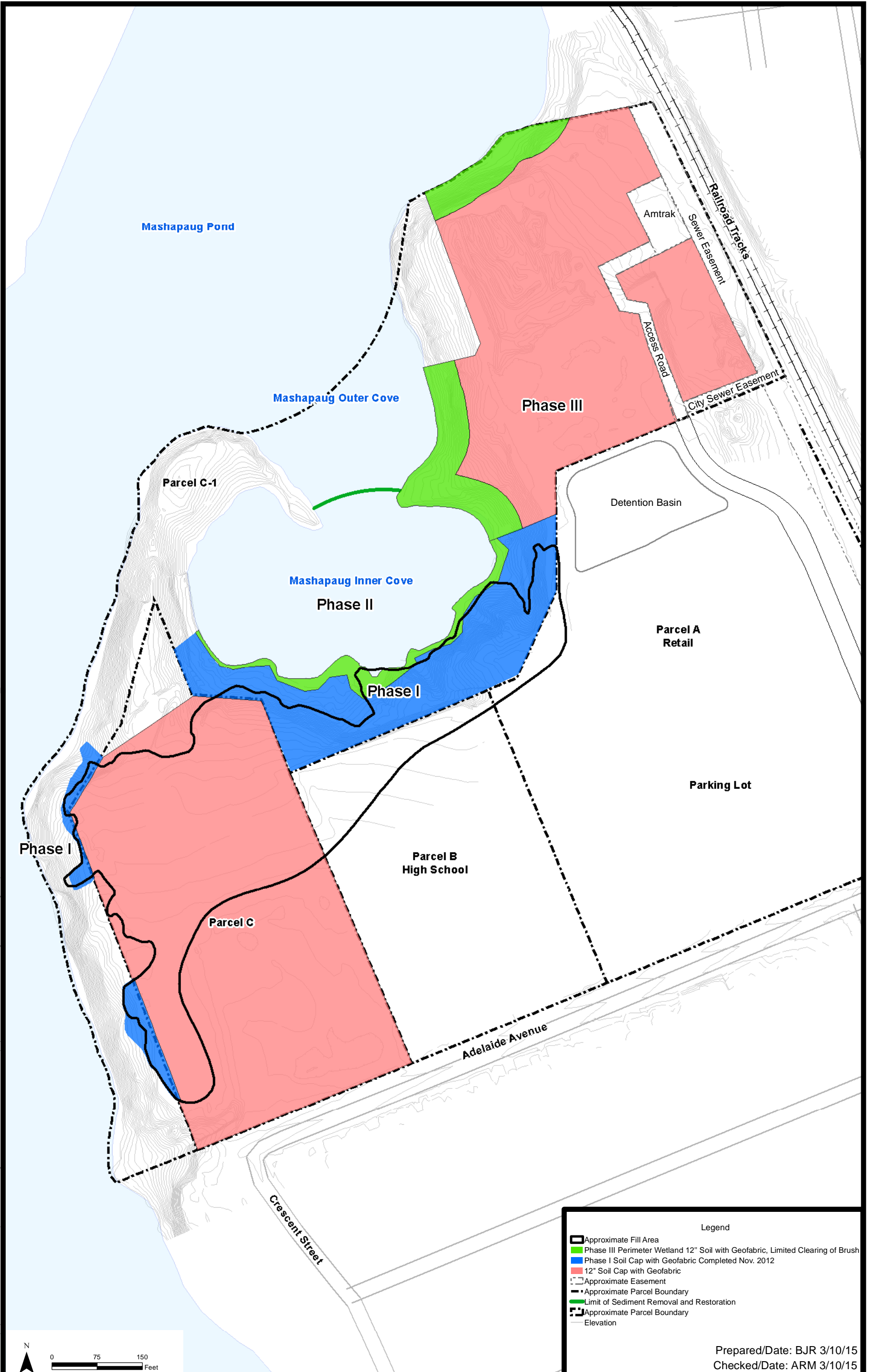
Prepared by BJR	Checked by DEH
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Exhibit B
Figure 1
Parcel C

333 Adelaide Avenue
Providence, RI

amec foster wheeler AMEC Foster Wheeler
Environment & Infrastructure
271 Mill Road
Chelmsford, MA 01824

Document: P:\old_wakefield_data\projects\TEXT\TRONG\Gorham\Map\Documents\SMP\Figures2.mxd PDF: P:\old_wakefield_data\projects\TEXT\TRONG\Gorham\GIS\Figures\Exhibit B Figure 2.pdf



Legend

- Approximate Fill Area
- Phase III Perimeter Wetland 12" Soil with Geofabric, Limited Clearing of Brush
- Phase I Soil Cap with Geofabric Completed Nov. 2012
- 12" Soil Cap with Geofabric
- Approximate Easement
- Approximate Parcel Boundary
- Limit of Sediment Removal and Restoration
- Approximate Parcel Boundary
- Elevation

Prepared/Date: BJR 3/10/15
Checked/Date: ARM 3/10/15

Former Gorham Manufacturing Site
333 Adelaide Avenue
Providence, RI



Parcel C Cap

Project 3652-14-0032 Exhibit B Figure 3

ATTACHMENT 2

CHARTER CONTRACTING COMPANY, LLC
GENERAL WORKPLAN FOR SEDIMENT REMOVAL
TEXTRON – GORHAM
PHASE 2, 3, AND PARCEL C CAP

Charter Contracting will begin the process of damming off the cove by performing the wildlife mitigation activities as described in the contract documents. Immediately following the wildlife mitigation a turbidity curtain will be installed. Charter will then begin to install a Portadam across the mouth of the cove. Installation of the Portadam will take into account the limits of disturbance shown on the plans to be sure sediment around borings SED/SW33 and SED/SW34 is accessible for removal. This will require a Portadam with a maximum height of 10' to account for the depth of water at the center of the mouth of the cove. More information regarding Portadam can be found here <http://www.portadam.com/>

Upon completion of the Portadam across the inner cove the first stage of dewatering will begin. This will dewater the cove to within 1' of the bottom surface. Pump intakes with screens and floats will be utilized to keep the suction line off the bottom of the cove to minimize sediment disturbance. The discharge for this stage of dewatering will be located between the Portadam and turbidity curtain. Splash pads may be used to minimize turbidity at the discharge point. Wildlife mitigation will be ongoing as the water level is decreased across the cove.

The remaining dewatering will be performed utilizing local sump pumps consisting of electric pumps installed in 24" perforated HDPE pipes (vertically placed) surrounded by crushed stone and filter fabric. These local sump pumps will be installed as access is gained into the cove with timber mats and heavy construction equipment. These pumps will discharge to a previously prepared infiltration basin located in the Phase 3 upland area.

Sediment excavation will be performed with excavators and off road dump trucks utilizing a timber mats to help gain access across the bottom of the cove. Sediment will be hauled to the Phase 3 upland area and dumped in a containment area. Once in this area it will be processed to aid in its dewatering and preparation for final placement. Once sufficiently dewatered it will be hauled to the proposed placement area.

CHARTER CONTRACTING COMPANY, LLC

TEXTRON – FORMER GORHAM MANUFACTURING SITE

PHASE II, III, AND PARCEL C CAP

LIST OF SUBCONTRACTORS

The following Subcontractors are currently planned to be used:

Tree Tech, Inc.	Tree clearing
S & M farms	Silt fence and augmented silt fence
Citiworks Inc.	Fence removal and fabric installation
Drilex	Monitoring well abandonment and installation
New England Environmental	Invasive species control
Portadam, Inc.	Cofferdam / control of water
Hydrograss Technologies	Hydroseeding and wetland plantings

ATTACHMENT 3

Site Perimeter Action Levels
Parcel C, Phase II and Phase III Area Remedial Actions
Former Gorham Manufacturing Site
Providence, RI
June 9, 2015
Revised June 29, 2015

Per our meeting with the Rhode Island Department of Environmental Management (RIDEM) on May 28, 2015, Amec Foster Wheeler has proposed revised action levels to be used during the remedial construction of Parcel C, Mashapaug Inner Cove and the Phase III Area of the former Gorham Manufacturing Site in Providence, RI., Amec Foster Wheeler has established Site perimeter action levels for particulate and volatile organic compounds (VOCs) as follows:

Particulates (Dust):

The Site perimeter action level for particulate will be set at the United States Environmental Protection Agency (USEPA) National Ambient Air Quality Standard (NAAQS) for PM₁₀ of 150 ug/m³. Amec Foster Wheeler understands that the PM₁₀ NAAQS of 150 ug/m³, is a concentration that is measured over a 24-hour period, and is based on a rolling 3-month average. It should be noted that exhaust from both construction and non-construction vehicles operating on the Site or in close proximity to the Site, can cause periodic peaks of airborne particulate readings that reach or exceed the PM₁₀ NAAQS for peak. However, as discussed, Amec Foster Wheeler will monitor for and record the presence and origin of increasing airborne particulate concentrations. We will be vigilant in identifying the source of the particulate, and if found to be originating from Site soil remediation, further dust control measures will be implemented.

VOCs:

The Site perimeter action level for VOCs will be set at the conservative concentration 3 parts per million (ppm) for acute exposure. Like dust, VOCs may be generated from activities (e.g., vehicle operation) at or in the vicinity of the Site. Note that the acute levels established by ATSDR (1 to 14 days exposure) and CA (1 hour exposure) are based on

exposure for the duration of the time period stated. Amec Foster Wheeler's Site Action level (as sustained for 1 minute) is a concentration (measured sustained for 1 minute) established to trigger mitigation actions and is not meant to allow continuous exposure at that concentration.

Chemical	ATSDR Minimum Risk Levels (MRL) Acute	CA Acute Reference Exposure Levels (RELs)
1,2-DCE, cis-	None.	None
1,2-DCE, trans-	0.2 ppm	None
PCE	0.006 ppm	2.9 ppm (20 mg/m ³)
Toluene	1 ppm	9.8 ppm (37 mg/m ³)
1,1,1-TCA	2 ppm	None
TCE	None	None

ATSDR MRL Acute = 1 to 14 days exposure duration

CA RELs Acute = 1 hour exposure duration

DCE = dichloroethene

mg/m³ = milligrams per cubic meter

PCE = tetrachloroethene

TCA = trichloroethane

TCE = trichloroethene

<http://www.atsdr.cdc.gov/mrls/mrllist.asp>

<http://www.oehha.ca.gov/air/allrels.html>

References:

**Table 4-1
Contaminants of Concern**

Non-volatile/Metals

Compound	Maximum in Soils (Site wide Historic Results)¹	Maximum in Park Parcel Soil^{2, 3}	Maximum in Pond Sediment³	Maximum in Groundwater¹	Threshold Limit Values
Arsenic	124	67.8	244	NA	0.01 mg/m ³
Cadmium	14	14.5	7.11	NA	0.005 mg/m ³
Chromium	1,540	1,330	640	NA	0.005 mg/m ³ (TLV) Cr ⁺⁶
Copper	26,300	8,760	2,670	NA	1 mg/m ³
Dioxins ⁴	-	3x10 ⁻⁵	3x10 ⁻⁵	-	2 ng/m ³ (200 pg/m ³) ⁶
Furans ⁵					
Lead	22,600	5,580	1120	NA	0.05 mg/m ³
Nickel	5,380	390	853	NA	1 mg/m ³
Silver	472	385	227	NA	0.01 mg/m ³
Zinc	6,850	4,760	1,940	NA	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
Cyanide	4	0.5	ND	NA	5 mg/m ³

VOCs

Compound	Maximum in Soils (Site wide Historic Results) ¹	Maximum in Park Parcel Soil ^{2, 3}	Maximum in Pond Sediment ³	Maximum in Groundwater ¹	Threshold Limit Values
1,2-dichloroethylene	<.050	ND	175	0.94	200 ppm
1,1-dichloroethane	NA	ND	7.92	<0.125	100 ppm
Tetrachloroethene (PCE)	7.6	1.1	27	50	25 ppm
1,1,1-trichloroethane (TCA)	0.041	ND	6.65	3	350 ppm
Trichloroethene (TCE)	0.195	6.1	88	7.2	10 ppm
Toluene	<0.025	ND	1.92	NA	20 ppm
Vinyl chloride (VC)	NA	ND	24.8	<0.025	1 ppm

¹ From Table 4.2, AMEC Health and Safety Plan 2001

² Database Query, April 2004

³ Supplemental Site Investigation Report, Fuss & O'Neill April 2006

⁴ Dioxin is a collective term for more than 200 compounds from the group of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs), which belong to the chlorinated hydrocarbons (CHCs). Synonyms for dioxin include TCDD, TCDBD, dioxine and 2, 3, 7, 8-TCDD (the most toxic version). The maximum concentration is for 2,3,7,8-TCDD.

⁵ Furan is the parent compound for a broad class of structurally related compounds.

⁶ 1988 proposed exposure limit for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

NA = Not applicable

ND = Not Detected

NE = Not

Established

Compound	Maximum in Soils (Site wide Historic Results) ¹	Maximum in Park Parcel Soil ^{2, 3}	Maximum in Pond Sediment ³	Maximum in Groundwater ¹	Threshold Limit Values
----------	------------------------------------------------------------	---------------------------------------------	---------------------------------------	-------------------------------------	------------------------

**Table 4-3
Site Upgrade/Action Levels**

TASK (Describe)	Anticipated LOP		Upgrade LOP		LOP	Sustained Airborne Levels
	LOP	Sustained Airborne Levels	LOP	Sustained Airborne Levels		
Task S	D/Modified D. (see Section 4.6)	Total VOCs: 0 to 9 ppm Dust: ≤0.29 mg/m ³	C	Total VOCs: > 9 to 25 ppm Dust: >0.29 mg/m ³	Stop work and evaluate conditions	Total VOCs: > 25 ppm Dust: > 1 mg/m ³
THE DEFINITION OF “SUSTAINED”: THE AIRBORNE BREATHING ZONE CONCENTRATION REMAINS CONSTANT FOR 1 MINUTE.						

LOP = Level of Protection

Steps

- Identify Site contaminants. Review Site history, previous analytical data, etc.
- Determine exposure limits for contaminants (Permissible Exposure Limit [PEL], Threshold Limit Value [TLV], and Recommended Exposure Limit [REL]). Keep the contaminants with low exposure limits in mind.
- Based on Site data, determine what contaminants are expected to be at the greatest concentrations and which contaminants have low established exposure limits (e.g., 1 part per million).
- Use the **AXONMETR** spreadsheet:
 - Verify that the instrument can detect the contaminants
 - Check the action levels for upgrade to Levels C, B, A. Chose the lowest action level based on the contaminants

- Use the **VAPOR** (VOCs in water) and **SOILVAPOR** (VOCs in soil) spreadsheets (calculate air concentration at saturation). Enter the highest concentration of contaminants for the media to determine:
 - Which contaminants can be ignored
 - Which contaminant will dominate the instrument reading (total VOCs)
 - Which contaminant will drive the upgrade (refer back to AXONMETR spreadsheet)

If the spreadsheets show that the percentage of the allowable limited is:

1 to 10%: The contaminant is only an issue as part of the mixture toxicity.

100% to 400%: The contaminant could present a hazard in a confined space.

>5000%: Field exposure could be significant.

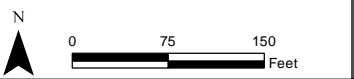
Using the results above, and experience and professional Industrial Hygiene judgment, establish a conservative action level.

Document: P:\old - Wakefield_Data\projects\TEXTRON\GORHAM\GIS\MapDocuments\RAWP - Phase III\SitePlan.mxd PDF: P:\BOS\Textron\365214\0032 - Textron Gorham Remediation\8.0 Proj Deliverables\8.2 Work Plans\Figure 2 - Site Plan.pdf



● A1, B1, C1

Perimeter Air Monitoring Locations sequenced with construction work:
 Parcel C Monitoring Locations = A1-A4
 Mashapaug Inner Cove Monitoring Locations = B1-B4
 Phase III Area Monitoring Locations = C1-C4

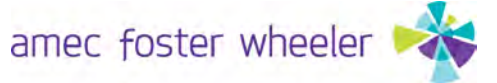


Legend
 - - - Approximate Parcel Boundary
 - - - Former Slag Area

Note: 2011 Ortho photo obtained from Rhode Island Geographic Information System (RIGIS)

Prepared/Date: CUT A 05/15
 Checked/Date: DEH 6/25/15

Former Gorham Manufacturing Site
 333 Adelaide Avenue
 Providence, RI



Fixed Perimeter Air Monitoring Locations
 Project 3652-14-0032

Figure F

ATTACHMENT 4

Table 1
Volatile Organic Compounds Detected in Groundwater 1989 - 2010
Parcel C Western Plume
Former Goreham Manufacturing Site
Providence, RI

Parameter Name	Location: Sample ID: Sample Date:	GB Groundwater Objectives	GW-3 Criteria	MW-111D	MW-235D	MW-235S	MW-236D	MW-236D	MW-236S	MW-236S	MW-236S	MW-237D	MW-237S	MW-237S	MW-238D
				MW-111D 12/29/1994	GWMW235D 11/30/2009	GWMW235S 11/30/2009	GWMW236D 11/30/2009	GWMW 236D 8/9/2010	GWMW236S 11/30/2009	GWMW236S 8/9/2010	GWMW236S DUP 8/9/2010	GWMW237D 11/30/2009	GWMW237S Dup 11/30/2009	GWMW237S 11/30/2009	GWMW238D 8/10/2010
1,1,1,2-Tetrachloroethane	mg/L		50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,1-Trichloroethane	mg/L	3.1	20	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 J	0.001 U
1,1,2,2-Tetrachloroethane	mg/L		50		0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U
1,1,2-Trichloroethane	mg/L		50		0.001 U	0.001 U	0.0009 J	0.0013	0.0026	0.0029	0.0031	0.0018	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L		20	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0003 J	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.007	30	0.005 U	0.001 U	0.0011	0.001	0.0013	0.0059	0.0061	0.0061	0.0033	0.001 U	0.001 U	0.001 U
1,1-Dichloropropene	mg/L				0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
1,2,3-Trichlorobenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,3-Trichloropropane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L		50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trimethylbenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane	mg/L	0.002			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
1,2-Dibromoethane (EDB)	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L		2		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.11	20	0.005 U	0.001 U	0.001 U	0.0005 J	0.0006 J	0.0017	0.002	0.0018	0.0015	0.001 U	0.0002 J	0.001 U
1,2-Dichloroethene (total)	mg/L														
1,2-Dichloropropane	mg/L	3	50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3,5-Trimethylbenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L		50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichloropropane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,4-Dichlorobenzene	mg/L		8		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,4-Dioxane	mg/L		50		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1-Chlorohexane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2,2-Dichloropropane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone	mg/L			0.05 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
2-Chlorotoluene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Hexanone	mg/L				0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
4-Chlorotoluene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
4-Isopropyltoluene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
4-Methyl-2-pentanone	mg/L				0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Acetone	mg/L		50	0.05 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U
Benzene	mg/L	0.14	10	0.005 U	0.001 U	0.001 U	0.0004 J	0.0004 J	0.0006 J	0.0006 J	0.0007 J	0.001 U	0.001 U	0.001 U	0.001 U
Bromobenzene	mg/L				0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Bromochloromethane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L		50		0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U
Bromoform	mg/L		50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromomethane	mg/L		0.8		0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Carbon disulfide	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Carbon tetrachloride	mg/L	0.07	5		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	3.2	1		0.001 U	0.001 U	0.001 U	0.001 U	0.0007 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroethane	mg/L				0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Chloroform	mg/L		20	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0004 J
Chloromethane	mg/L				0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
cis-1,2-Dichloroethene	mg/L	2.4	50	0.005 U	0.0119	0.0332	0.0709	0.0629	0.0886	0.098	0.0948 D	0.071	0.0012	0.0012	0.001 U
cis-1,3-Dichloropropene	mg/L				0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U
Dibromochloromethane	mg/L		50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dibromomethane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane	mg/L				0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Diethyl ether	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Diisopropyl ether	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Ethyl tertiary-butyl ether	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Ethylbenzene	mg/L	1.6	5	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Hexachlorobutadiene	mg/L		3		0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U
Hexachloroethane	mg/L		50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Isopropylbenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
m,p-Xylene	mg/L				0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Methylene chloride	mg/L			0.005 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.0005 J
Methyl-t-butyl ether	mg/L	5	50		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Naphthalene	mg/L		20		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
n-Butylbenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
n-Propyl Benzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
o-Xylene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Table 1
Volatile Organic Compounds Detected in Groundwater 1989 - 2010
Parcel C Western Plume
Former Goreham Manufacturing Site
Providence, RI

Parameter Name	Location:	GB Groundwater Objectives	GW-3 Criteria	MW-111D	MW-235D	MW-235S	MW-236D	MW-236D	MW-236S	MW-236S	MW-236S	MW-237D	MW-237S	MW-237S	MW-238D
	Sample ID:			MW-111D	GWMW235D	GWMW235S	GWMW236D	GWMW 236D	GWMW236S	GWMW236S	GWMW236S DUP	GWMW237D	GWMW237S Dup	GWMW237S	GWMW238D
	Sample Date:			12/29/1994	11/30/2009	11/30/2009	11/30/2009	8/9/2010	11/30/2009	8/9/2010	8/9/2010	11/30/2009	11/30/2009	11/30/2009	8/10/2010
Units															
sec-Butylbenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0002 J	0.0002 J	0.001 U
Styrene	mg/L	2.2	6		0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
tert-Butylbenzene	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tertiary-amyl methyl ether	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.15	30	0.005 U	0.0057	0.0069	0.001 U	0.001 U	0.0153	0.0095	0.0096	0.0367	0.0049	0.005	0.001 U
Tetrahydrofuran	mg/L				0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Toluene	mg/L	1.7	40	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	2.8	50	0.005 U	0.001 U	0.0003 J	0.001 U	0.001 U	0.0007 J	0.0006 J	0.0007 J	0.0027	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L				0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U
Trichloroethene	mg/L	0.54	5	0.005 U	0.0195	0.0672	0.0518	0.0522	1.07 D	0.793 D	0.821 D	0.617 D	0.0499	0.0511	0.0012
Trichlorofluoromethane	mg/L				0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0016	0.0063	0.0075	0.001 U
Trihalomethanes, Total	mg/L				0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U	0.0036 U
Vinyl acetate	mg/L				0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Vinyl chloride	mg/L		50	0.01 U	0.0009 J	0.0021	0.0034	0.002	0.0017	0.0014	0.0014	0.0015	0.001 U	0.001 U	0.001 U
Xylenes, Total	mg/L		5	0.01 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U

Notes:

mg/L - milligrams per liter

U - Not detected

J - Estimated Value

D - Dilution

Concentrations did not exceed Massachusetts Contingency Plan GW-3 criteria per the approved April 2001 Remedial Action Work Plan.

Ambient Water Quality Criteria (AWQC) does not apply to the above volatile organic compounds.

Table 1
Volatile Organic Compounds Detected in Groundwater 1989 - 2010
Parcel C Western Plume
Former Goreham Manufacturing Site
Providence, RI

Parameter Name	Location: Sample ID: Sample Date:	GB Groundwater Objectives	GW-3 Criteria	MW-238S	MW-239	MW-240	MW-241	MW-242	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	
				GWMW238S 8/10/2010	GWMW239 8/9/2010	GWMW240 8/9/2010	GWMW241 8/10/2010	GWMW242 8/10/2010	MW-C 4/13/1989	GMMWXXCXX01X2 9/21/1994	GMMWXXCXX01XX 9/21/1994	MW-C 10/15/1997	MW-C 12/8/1998	GWMWC Dup 2/12/2010	GWMWC 2/12/2010	
1,1,1,2-Tetrachloroethane	mg/L		50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,1,1-Trichloroethane	mg/L	3.1	20	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.0003 J	0.0003 J	
1,1,2,2-Tetrachloroethane	mg/L		50	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U						0.001 U	0.0005 U	0.0005 U
1,1,2-Trichloroethane	mg/L		50	0.0004 J	0.001 U	0.001 U	0.0006 J	0.001 U						0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L		20	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.007	30	0.001	0.001 U	0.001 U	0.0023	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.002	0.0012	0.0013	
1,1-Dichloropropene	mg/L			0.002 U	0.002 U	0.002 U	0.002 U	0.002 U						0.002 U	0.002 U	0.002 U
1,2,3-Trichlorobenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.005 U	0.001 U	0.001 U	0.001 U	
1,2,3-Trichloropropane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U					0.001 U	0.001 U	0.001 U	
1,2,4-Trichlorobenzene	mg/L		50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,2,4-Trimethylbenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.005 U	0.001 U	0.001 U	0.001 U	
1,2-Dibromo-3-chloropropane	mg/L	0.002		0.005 U	0.005 U	0.005 U	0.005 U	0.005 U						0.002 U	0.005 U	0.005 U
1,2-Dibromoethane (EDB)	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L		2	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.11	20	0.0005 J	0.001 U	0.001 U	0.0003 J	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.001 U	0.001 U	
1,2-Dichloroethene (total)	mg/L								0.21							
1,2-Dichloropropane	mg/L	3	50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,3,5-Trimethylbenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L		50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,3-Dichloropropane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,4-Dichlorobenzene	mg/L		8	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
1,4-Dioxane	mg/L		50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U							0.5 U	0.5 U
1-Chlorohexane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U							0.001 U	0.001 U
2,2-Dichloropropane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
2-Butanone	mg/L			0.025 U	0.025 U	0.025 U	0.025 U	0.025 U		0.25 U	0.25 U			0.02 U	0.025 U	0.025 U
2-Chlorotoluene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
2-Hexanone	mg/L			0.01 U	0.01 U	0.01 U	0.01 U	0.01 U						0.01 U	0.01 U	0.01 U
4-Chlorotoluene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
4-Isopropyltoluene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
4-Methyl-2-pentanone	mg/L			0.025 U	0.025 U	0.025 U	0.025 U	0.025 U						0.01 U	0.025 U	0.025 U
Acetone	mg/L		50	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	0.25 U	0.25 U	0.25 U	0.1 U	0.02 U	0.025 U	0.025 U	
Benzene	mg/L	0.14	10	0.001 U	0.001 U	0.001 U	0.0002 J	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.001 U	0.001 U	
Bromobenzene	mg/L			0.002 U	0.002 U	0.002 U	0.002 U	0.002 U						0.001 U	0.002 U	0.002 U
Bromochloromethane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L		50	0.0006 U	0.0006 U	0.0041	0.0006 U	0.0006 U						0.001 U	0.0006 U	0.0006 U
Bromoform	mg/L		50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.002 U	0.001 U	0.001 U
Bromomethane	mg/L		0.8	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U						0.002 U	0.002 U	0.002 U
Carbon disulfide	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Carbon tetrachloride	mg/L	0.07	5	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	3.2	1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Chloroethane	mg/L			0.002 U	0.002 U	0.002 U	0.002 U	0.002 U						0.002 U	0.002 U	0.002 U
Chloroform	mg/L		20	0.0019	0.001 J	0.0215	0.0008 J	0.0005 J	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.001 U	0.001 U	
Chloromethane	mg/L			0.002 U	0.002 U	0.002 U	0.002 U	0.002 U						0.002 U	0.002 U	0.002 U
cis-1,2-Dichloroethene	mg/L	2.4	50	0.0161	0.0036	0.0122	0.0278	0.001 U			0.065	0.06	0.033	0.03	0.0169	0.0175
cis-1,3-Dichloropropene	mg/L			0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U						0.0005 U	0.0004 U	0.0004 U
Dibromochloromethane	mg/L		50	0.001 U	0.001 U	0.0009 J	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Dibromomethane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane	mg/L			0.002 U	0.002 U	0.002 U	0.002 U	0.002 U						0.002 U	0.002 U	0.002 U
Diethyl ether	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U							0.001 U	0.001 U
Diisopropyl ether	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U							0.001 U	0.001 U
Ethyl tertiary-butyl ether	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U							0.001 U	0.001 U
Ethylbenzene	mg/L	1.6	5	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.001 U	0.001 U	
Hexachlorobutadiene	mg/L		3	0.0006 U	0.0006 U	0.0006 U	0.0006 U	0.0006 U				0.005 U	0.0006 U	0.0006 U	0.0006 U	
Hexachloroethane	mg/L		50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U							0.001 U	0.001 U
Isopropylbenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
m,p-Xylene	mg/L			0.002 U	0.002 U	0.002 U	0.002 U	0.002 U							0.002 U	0.002 U
Methylene chloride	mg/L			0.0006 J	0.004 U	0.004 U	0.004 U	0.0002 J	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.004 U	0.004 U	
Methyl-t-butyl ether	mg/L	5	50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
Naphthalene	mg/L		20	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U				0.005 U	0.001 U	0.001 U	0.001 U	
n-Butylbenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
n-Propyl Benzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U	0.001 U
o-Xylene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U							0.001 U	0.001 U

Table 1
 Volatile Organic Compounds Detected in Groundwater 1989 - 2010
 Parcel C Western Plume
 Former Goreham Manufacturing Site
 Providence, RI

Parameter Name	Location:	GB Groundwater Objectives	GW-3 Criteria	MW-238S	MW-239	MW-240	MW-241	MW-242	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3	MW-C/B-3
	Sample ID:			GWMW238S	GWMW239	GWMW240	GWMW241	GWMW242	MW-C	GMMWXXCXXX01X2	GMMWXXCXXX01XX	MW-C	MW-C	GWMWC Dup	GWMWC
Units	Sample Date:			8/10/2010	8/9/2010	8/9/2010	8/10/2010	8/10/2010	4/13/1989	9/21/1994	9/21/1994	10/15/1997	12/8/1998	2/12/2010	2/12/2010
sec-Butylbenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U					0.001 U	0.001 U	0.001 U
Styrene	mg/L	2.2	6	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U					0.001 U	0.001 U	0.001 U
tert-Butylbenzene	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U					0.001 U	0.001 U	0.001 U
Tertiary-amyl methyl ether	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U						0.001 U	0.001 U
Tetrachloroethene	mg/L	0.15	30	0.0107	0.001 U	0.0035	0.001 U	0.001 U	0.25	0.115	0.095	0.061	0.052	0.0172	0.0182
Tetrahydrofuran	mg/L			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U					0.001 U	0.005 U	0.005 U
Toluene	mg/L	1.7	40	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.05 U	0.025 U	0.025 U	0.005 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	2.8	50	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U		0.025 U	0.025 U	0.005 U	0.001 U	0.0004 J	0.0004 J
trans-1,3-Dichloropropene	mg/L			0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U					0.0005 U	0.0004 U	0.0004 U
Trichloroethene	mg/L	0.54	5	0.262 D	0.0012	0.0089	0.245 D	0.0006 J	1.5	0.825	0.72	0.55	0.495	0.257 D	0.272 D
Trichlorofluoromethane	mg/L			0.001 U	0.001 U	0.001 U	0.001 U	0.001 U					0.002 U	0.001 U	0.001 U
Trihalomethanes, Total	mg/L			0.0036 U	0.0036 U	0.0264	0.0036 U	0.0036 U						0.0036 U	0.0036 U
Vinyl acetate	mg/L			0.005 U	0.005 U	0.005 U	0.005 U	0.005 U						0.005 U	0.005 U
Vinyl chloride	mg/L		50	0.0003 J	0.001 U	0.001 U	0.0005 J	0.001 U	0.1 U	0.05 U	0.05 U	0.01 U	0.002 U	0.0003 J	0.0003 J
Xylenes, Total	mg/L		5	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.05 U	0.05 U	0.05 U	0.005 U	0.001 U	0.003 U	0.003 U

Notes:

mg/L - milligrams per liter

U - Not detected

J - Estimated Value

D - Dilution

Concentrations did not exceed Massachusetts Contingency Plan GW-3 criteria per the approved April 2001 Remedial Action Work Plan.

Ambient Water Quality Criteria (AWQC) does not apply to the above volatile organic compounds.

Table 1
Volatile Organic Compounds Detected in Groundwater 1989 - 2010
Parcel C Western Plume
Former Goreham Manufacturing Site
Providence, RI

Parameter Name	Location:	GB Groundwater Objectives	GW-3 Criteria	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-E/B-5	MW-E/B-5	MW-FD/B-6D	MW-FS/B-6S	MW-FS/B-6S
	Sample ID:			MW-D	GMMWXXDXXX01XX	MW-D	MW-D	GWMWD	MW-E	MW-E	MW-FD	MW-FS	MW-FS
	Sample Date:			4/13/1989	9/21/1994	10/15/1997	12/9/1998	2/19/2010	4/13/1989	12/8/1998	4/14/1989	4/13/1989	12/9/1998
	Units												
1,1,1,2-Tetrachloroethane	mg/L		50				0.001 U	0.001 U		0.001 U			0.001 U
1,1,1-Trichloroethane	mg/L	3.1	20	0.01 U	0.01 U	0.005 U	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
1,1,2,2-Tetrachloroethane	mg/L		50				0.001 U	0.0005 U		0.001 U			0.001 U
1,1,2-Trichloroethane	mg/L		50				0.001 U	0.001 U		0.001 U			0.001 U
1,1-Dichloroethane	mg/L		20	0.01 U	0.01 U	0.005 U	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
1,1-Dichloroethene	mg/L	0.007	30	0.01 U	0.01 U	0.005 U	0.001 U	0.0011	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
1,1-Dichloropropene	mg/L						0.002 U	0.002 U		0.002 U			0.002 U
1,2,3-Trichlorobenzene	mg/L					0.005 U	0.001 U	0.001 U		0.001 U			0.001 U
1,2,3-Trichloropropane	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
1,2,4-Trichlorobenzene	mg/L		50				0.001 U	0.001 U		0.001 U			0.001 U
1,2,4-Trimethylbenzene	mg/L					0.005 U	0.001 U	0.001 U		0.001 U			0.001 U
1,2-Dibromo-3-chloropropane	mg/L	0.002					0.002 U	0.005 U		0.002 U			0.002 U
1,2-Dibromoethane (EDB)	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
1,2-Dichlorobenzene	mg/L		2				0.001 U	0.001 U		0.001 U			0.001 U
1,2-Dichloroethane	mg/L	0.11	20	0.01 U	0.01 U	0.005 U	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
1,2-Dichloroethene (total)	mg/L			0.057					0.005 U		0.017	0.018	
1,2-Dichloropropane	mg/L	3	50				0.001 U	0.001 U		0.001 U			0.001 U
1,3,5-Trimethylbenzene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
1,3-Dichlorobenzene	mg/L		50				0.001 U	0.001 U		0.001 U			0.001 U
1,3-Dichloropropane	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
1,4-Dichlorobenzene	mg/L		8				0.001 U	0.001 U		0.001 U			0.001 U
1,4-Dioxane	mg/L		50					0.5 U					
1-Chlorohexane	mg/L							0.001 U					
2,2-Dichloropropane	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
2-Butanone	mg/L				0.1 U		0.02 U	0.025 U		0.02 U			0.02 U
2-Chlorotoluene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
2-Hexanone	mg/L						0.01 U	0.01 U		0.01 U			0.01 U
4-Chlorotoluene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
4-Isopropyltoluene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
4-Methyl-2-pentanone	mg/L						0.01 U	0.025 U		0.01 U			0.01 U
Acetone	mg/L		50	0.05 U	0.1 U	0.1 U	0.02 U	0.025 U	0.025 U	0.02 U	0.025 U	0.025 U	0.02 U
Benzene	mg/L	0.14	10	0.01 U	0.01 U	0.005 U	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
Bromobenzene	mg/L						0.001 U	0.002 U		0.001 U			0.001 U
Bromochloromethane	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
Bromodichloromethane	mg/L		50				0.001 U	0.0006 U		0.001 U			0.001 U
Bromoform	mg/L		50				0.002 U	0.001 U		0.002 U			0.002 U
Bromomethane	mg/L		0.8				0.002 U	0.002 U		0.002 U			0.002 U
Carbon disulfide	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
Carbon tetrachloride	mg/L	0.07	5				0.001 U	0.001 U		0.001 U			0.001 U
Chlorobenzene	mg/L	3.2	1				0.001 U	0.001 U		0.001 U			0.001 U
Chloroethane	mg/L						0.002 U	0.002 U		0.002 U			0.002 U
Chloroform	mg/L		20	0.01 U	0.01 U	0.005 U	0.002	0.0002 J	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
Chloromethane	mg/L						0.002 U	0.002 U		0.002 U			0.002 U
cis-1,2-Dichloroethene	mg/L	2.4	50		0.088	0.101	0.07	0.0392		0.004			0.029
cis-1,3-Dichloropropene	mg/L						0.0005 U	0.0004 U		0.0005 U			0.0005 U
Dibromochloromethane	mg/L		50				0.001 U	0.001 U		0.001 U			0.001 U
Dibromomethane	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
Dichlorodifluoromethane	mg/L						0.002 U	0.002 U		0.002 U			0.002 U
Diethyl ether	mg/L							0.001 U					
Diisopropyl ether	mg/L							0.001 U					
Ethyl tertiary-butyl ether	mg/L							0.001 U					
Ethylbenzene	mg/L	1.6	5	0.01 U	0.01 U	0.005 U	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
Hexachlorobutadiene	mg/L		3			0.005 U	0.0006 U	0.0006 U		0.0006 U			0.0006 U
Hexachloroethane	mg/L		50					0.001 U					
Isopropylbenzene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
m,p-Xylene	mg/L							0.002 U					
Methylene chloride	mg/L			0.01 U	0.01 U	0.005 U	0.001 U	0.004 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
Methyl-t-butyl ether	mg/L	5	50				0.001 U	0.001 U		0.001 U			0.001 U
Naphthalene	mg/L		20			0.005 U	0.001 U	0.001 U		0.001 U			0.001 U
n-Butylbenzene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
n-Propyl Benzene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
o-Xylene	mg/L							0.001 U					

Table 1
Volatile Organic Compounds Detected in Groundwater 1989 - 2010
Parcel C Western Plume
Former Goreham Manufacturing Site
Providence, RI

Parameter Name	Location:	GB Groundwater Objectives	GW-3 Criteria	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-E/B-5	MW-E/B-5	MW-FD/B-6D	MW-FS/B-6S	MW-FS/B-6S
	Sample ID:			MW-D	GMMWXXDXXX01XX	MW-D	MW-D	GWMWD	MW-E	MW-E	MW-FD	MW-FS	MW-FS
Units	Sample Date:			4/13/1989	9/21/1994	10/15/1997	12/9/1998	2/19/2010	4/13/1989	12/8/1998	4/14/1989	4/13/1989	12/9/1998
sec-Butylbenzene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
Styrene	mg/L	2.2	6				0.001 U	0.001 U		0.001 U			0.001 U
tert-Butylbenzene	mg/L						0.001 U	0.001 U		0.001 U			0.001 U
Tertiary-amyl methyl ether	mg/L							0.001 U					
Tetrachloroethene	mg/L	0.15	30	0.013	0.016	0.012	0.008	0.0044	0.005 U	0.001 U	0.005 U	0.006	0.041
Tetrahydrofuran	mg/L						0.001 U	0.005 U		0.001 U			0.001 U
Toluene	mg/L	1.7	40	0.01 U	0.01 U	0.005 U	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U
trans-1,2-Dichloroethene	mg/L	2.8	50		0.01 U	0.005 U	0.001 U	0.0004 J		0.001 U			0.001 U
trans-1,3-Dichloropropene	mg/L						0.0005 U	0.0004 U		0.0005 U			0.0005 U
Trichloroethene	mg/L	0.54	5	0.28	0.298	0.37	0.272	0.761 D	0.005 U	0.002	0.023	0.02	0.1
Trichlorofluoromethane	mg/L						0.002 U	0.001 U		0.002 U			0.002 U
Trihalomethanes, Total	mg/L							0.0036 U					
Vinyl acetate	mg/L							0.005 U					
Vinyl chloride	mg/L		50	0.02 U	0.02 U	0.01 U	0.003	0.003	0.01 U	0.002 U	0.01 U	0.01 U	0.002 U
Xylenes, Total	mg/L		5	0.01 U	0.02 U	0.005 U	0.001 U	0.003 U	0.005 U	0.001 U	0.005 U	0.005 U	0.001 U

Notes:

mg/L - milligrams per liter

U - Not detected

J - Estimated Value

D - Dilution

Concentrations did not exceed Massachusetts Contingency Plan GW-3 criteria per the approved April 2001 Remedial Action Work Plan.

Ambient Water Quality Criteria (AWQC) does not apply to the above volatile organic compounds.

Prepared by: AN 5/27/2015

Checked by: LCG 5/27/2015

Revised by: LCG 6/12/2015

ATTACHMENT 5

**REMEDIAL ACTION WORK PLAN
FORMER GORHAM MANUFACTURING FACILITY
PROVIDENCE, RHODE ISLAND**

Prepared for:

**Textron, Inc.
40 Westminster Street
Providence, Rhode Island**

Prepared by:

**Harding ESE
107 Audubon Road
Wakefield, Massachusetts**

PN: 44997.0911144

APRIL 2001

7.2 GROUNDWATER**7.2.1 Locations**

Per previous discussions with RIDEM (meeting held on March 14, 2001), compliance points will be located 30 feet upgradient of the sewer drain located along the eastern edge of the property, upgradient of the cove, downgradient of the TPH UCL/NAPL remediation area, and between the source area and Adelaide Avenue. It is expected that there will be two wells installed upgradient of the sewer line, two wells upgradient of the cove, and a single well between the source area and Adelaide Avenue. A single well will also be installed downgradient of the TPH UCL/NAPL remediation area for TPH monitoring (HLA, 2000) (Figure 9). Based on groundwater sampling results in the SIR (HLA, 1999) and the groundwater LDI, the screened interval in the wells along the eastern property line will be 45 to 55 feet bgs, the screened interval in the wells adjacent to the cove will be 30 to 40 feet bgs, and the Adelaide Avenue compliance well will be screened from 25 to 35 feet bgs. The well downgradient of the TPH/UCL remediation area will be screened across the water table (approximately 25 to 35 feet bgs).

7.2.2 Groundwater Compliance Standards

As noted in the response to RIDEM SIR comments letter (HLA, 2000), the groundwater compliance standards which apply to the sewer line are the GB Remedial Objectives based on the 10 percent LELs as described in RIDEM Policy Memo 95-02. There is no standard for PCE promulgated based on the 10 percent UCL because there is no LEL for PCE. Therefore, the only compliance standard at the sewer line is TCE at 87,000 $\mu\text{g/L}$.

The groundwater compliance standard at Adelaide Avenue will be the promulgated GB-groundwater criteria for the contaminants of concern (RIDEM, 1996), i.e., 150 $\mu\text{g/L}$ for PCE and 540 $\mu\text{g/L}$ for TCE.

Monitoring of groundwater within the source area will also occur to demonstrate that PCE remediation succeeded in meeting the remedial goals. Monitoring wells within the treatment zone will continue to be monitored for PCE rebound for 3 months after system shutdown. After this period, if no significant rebound is observed, groundwater will continue to be monitored for VOCs on a quarterly basis. When PCE concentrations have been demonstrated to remain below 7,700 $\mu\text{g/L}$ for 3 consecutive quarters, monitoring of the source area will cease.

The northern VOC plume discharges to Mashapaug Pond. As noted in Section 8.08 of the RIDEM's Rules and Regulations (RIDEM, 1996), compliance standards can be established

SECTION 7

based on the results of the ecological risk assessment. Compliance standards were derived for all chemicals detected in groundwater that may, in the future, discharge to surface water in Mashapaug Cove. The compliance standards have been identified as the Massachusetts Contingency Plan (MCP) Method 1 GW-3 Groundwater Standards, which are derived to protect aquatic organisms in surface water from contaminants in groundwater that discharges to the surface. These standards are consistent with the ecological analysis conducted as part of the SIR (HLA, 1999). The compliance standards for chemicals detected in groundwater from monitoring wells MW-B, MW-C, MW-D, MW-FS, MW-GZA3, MW-GZA5, and MW-GZA6 are presented in Table 7-1, along with the detected concentrations of chemicals. All previous detections were below the compliance standards for discharge to the Cove.

The two compliance wells installed upgradient of the Cove will be monitored for the chemicals listed in Table 7-1 and compared to the appropriate standard.

As previously agreed (HLA, 2000), one compliance well will be installed downgradient of the TPH UCL/NAPL remediation area. Groundwater from this well will be sampled and analyzed for TPH to demonstrate that remaining TPH in soils is not impacting groundwater. There is no promulgated standard for TPH in groundwater, but the chosen compliance standard that is considered protective is 20 mg/L.

**Table 7-1
Mashapaug Pond Compliance Standards
Former Gorham Manufacturing Facility**

Compound	Units	Groundwater Compliance Monitoring Standard [a]	GZA-3 12/9/1998	GZA-5 12/9/1998	GZA-6 12/9/1998	MW-B 9/21/1994	MW-C 12/8/1998	MW-D 12/9/1998	MW-FS 12/9/1998
Lead	mg/L	0.03		0.005					
1,1,1-Trichloroethane	ug/L	50,000		4					
1,1-Dichloroethane	ug/L	50,000	16						
1,1-Dichloroethene	ug/L	50,000	4				2		
Chloroform	ug/L	10,000						2	
cis-1,2-Dichloroethene	ug/L	50,000	40	5			30	70	29
Isopropylbenzene	ug/L	NA	1						
Tetrachloroethene	ug/L	5,000	23	12		9	52	8	41
Trichloroethene	ug/L	20,000	41	439		11	495	272	100
Vinyl Chloride	ug/L	40,000	7					3	

Notes:

[a] The groundwater compliance monitoring standard is equal to the Massachusetts Department of Environmental Protection (MADEP) Method 1 GW-3 standard (310 CMR 40.0974(2), October 31, 1997 update), which is protective of aquatic organisms in surface water from discharge of chemicals in groundwater.

ATTACHMENT 6



**Rhode Island Department of Environmental Management
Office of Waste Management**

REMEDIAL ACTION APPROVAL APPLICATION FEE FORM

Rule 10.02 of the Department's Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases, requires an application fee for Remedial Action Approvals in the amount of one thousand (\$1,000) dollars. Please submit this form and check, made payable to the State of Rhode Island General Treasurer, directly to:

**R.I. Department of Environmental Management
Office of Management Services- Rm 340
235 Promenade Street
Providence, RI 02908**

Please complete this page and attach it to the check or money order. This information must be provided to coordinate your fee with the application submitted.

Site Name: Former Gorham Manufacturing

Address: 333 Adelaide Avenue

Town/City: Providence

File Number: SR-0549D

Contact Person: Greg Simpson, Textron

Phone No: 401-457-2635

RIDEM Project Manager: Joe Martella

FOR RIDEM OFFICE USE ONLY:

Fee Amount Received: _____

Date Received: _____

Check #: _____

Receipt Account:

10.074.3765103.03.461043

cc:74:3481 Leg.17-18-841

Vendor: 35565 State of Rhode Island General

NO. 380587
Date April 2, 2015

Invoice
RQ040115

Date
2015/04/01

Invoice Amount
\$1,000.00

Net Amount
\$1,000.00

AMEC - ENVIRONMENT & INFRASTRUCTURE
1105 Lakewood Parkway
Suite 300
Alpharetta, GA 30009
(770) 360-0600

Remittance - Detach Before Depositing

\$1,000.00

ORIGINAL CHECK HAS A COLORED BACKGROUND PRINTED ON CHEMICAL REACTIVE PAPER - SEE BACK FOR DETAILS



AMEC - ENVIRONMENT & INFRASTRUCTURE
1105 Lakewood Parkway
Suite 300
Alpharetta, GA 30009
(770) 360-0600

JPMorgan Chase Bank N.A.
Syracuse, N.Y.
50-937/213

380587

20150402
YYYYMMDD

PAY **ONE THOUSAND DOLLARS ZERO CENTS**

\$ 1,000.00

VOID AFTER 180 DAYS

TO
THE
ORDER
OF

State of Rhode Island General
Treasure
Office of Management Services-RM 340
235 Promenade Street Room 340
Providence, RI 02909 US

⑈00380587⑈ ⑆021309379⑆

777142290⑈

Enter Your Office Name Here
CHELMSFORD, MA 01824



US CHECK REQUEST FORM

- PROCESS THIS FORM THROUGH WEBNOW & INDICATE 'CK REQUEST' IN THE EFORM PO AREA.
- TAKE CARE TO CODE APPROPRIATELY ON THE EFORM & USE THE COMMENT AREA AS NEEDED
- THIS CHECK REQUEST FORM MUST BE SIGNED BY THE APPROVING MANAGER

Date of Request: 4/1/2015	Date Needed: ASAP	Vendor Email:
---------------------------	-------------------	---------------

Make Check Payable To:

Name: State of Rhode Island, Tresurer, Division of Taxation _____

Address: 1 Capital Hill, Ste 9 _____

City, State, Zip: Providence, RI 02908-5811 _____

Attention: Office of Management Services _____

NEW VENDOR? Please make sure to include copy of W-9

Posting Information:

Project Number	Phase	Task	Dept	GL Account	Amount
3652140032	01	****	3652	5750-00	1,000.00
Total Amount of Check					1,000.00

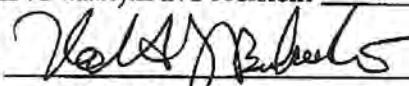
Purpose for Check:
Application Fee for Remedial Action Approval

Instructions:
 Return Check to Requestor
 Mail Check Only
 Mail Check with Attached Documentation
X Other: Please return check to Priscilla Black

IF CHECK IS TO BE OVERNIGHTED PLEASE PUT OFFICE FEDEX ACCOUNT NUMBER TO BE CHARGED: 341624495

Approval:

Requestor (PRINT name): Dave Heislein _____ Date: 4/1/2015 _____

Unit Manager:  _____ Date: 4/1/2015 _____

Approving Signature *Print Name After Signature

NOTE Check Requests must be processed through WebNow, including backup



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

April 28, 2004

PROGRAM LETTER

Case No. 2004-014 (Formerly part of Case No. 97-030)

Ms Susan Rittscher
President and CEO
YMCA of Greater Providence
222 Richmond Street
Providence, RI 02903

RE: Providence YMCA – Parcel C (Formerly a portion of the Gorham/Textron Dump site)
333 Adelaide Avenue, Providence, RI

Ms. Rittscher:

On 24 February 2004, the Rhode Island Department of Environmental Management (the Department) enacted the amended Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in an efficient manner.

The Department's Office of Waste Management (OWM) has received the following documents, submitted on behalf of the YMCA of Greater Providence (YMCA), for the purpose of completing the Site Investigation of Parcel C:

1. Site Investigation Report – Additional Assessment Tasks, Providence YMCA – Parcel C, Providence, Rhode Island, prepared by GZA GeoEnvironmental, Inc., (GZA), dated 9 January 2002;
2. Site Investigation Report – Additional Assessment Tasks, Providence YMCA – Parcel C, Providence, Rhode Island, prepared by GZA, dated 29 May 2003, received 27 August 2003;
3. Letter from GZA to the Department, Re: Former Gorham Property, Site Investigation Report, YMCA Development, Providence, Rhode Island, dated 9 February 2004, received 17 February 2004; and
4. Letter from GZA to the Department, Re: Response to Comments, Site Investigation Report – Additional Assessment Tasks (Revised), Former Gorham Site (Providence YMCA – Parcel C), Providence, Rhode Island, dated 21 February 2004.

In accordance with Section 7 (Site Investigation) of the Remediation Regulations, OWM personnel have reviewed these documents in conjunction with the previously submitted site wide Site Investigation Reports prepared for former property owner, Textron, Inc. (Textron), by Harding Lawson Associates (HLA):

5. Supplemental Site Investigation Report, Proposed Park Subdivision, Former Gorham Manufacturing Property, Adelaide Avenue, Providence, Rhode Island, prepared by HLA, dated 1 December 1998; and
6. Site Investigation Summary Report and Risk Assessment, Former Gorham Manufacturing Property, 333 Adelaide Avenue, Providence, Rhode Island, prepared by HLA, dated 29 July 1999.

The Department acknowledges that the current site investigation activities for the "main" portion of Parcel C are complete, and considers the above listed reports to constitute a complete Site Investigation Report (SIR) pursuant to Rule 7.03 of the Remediation Regulations. It is the Department's understanding that the YMCA intends to complete the SIR for the "campground" portion of Parcel C separately at a later date. The Department is not yet able to formally approve the SIR until it has given the public the opportunity to comment on the completed package with the preferred remedial alternative.

Rules 7.07 and 7.09 of the Remediation Regulations address the requirements for public notice regarding the substantive findings of the completed investigation and the opportunity for public review and comment on the technical feasibility of the proposed remedial alternative. To date, it is the Department's understanding that the YMCA intends to fulfill its public notice obligation through written notification to abutting property owners.

The Department will formally approve the SIR in the form of a Remedial Decision Letter (RDL) once the above listed outstanding issue is addressed and upon Department approval of all final responses to relevant public comments. At that point, we can proceed forward into the Remedial Action phase of the project, which entails the submission of a draft Remedial Action Work Plan (RAWP) for review and approval. It is the Department's understanding that the proposed Remedial Action will incorporate the following items:

- 1) Encapsulation of all regulated site soils through the installation of Department approved engineered controls (including the building foot print, side walks, asphalt parking areas, landscaped areas, or other engineered caps). All engineered controls will provide a level of protection equivalent to a minimum of two feet of clean soil. All engineered controls over areas known or suspected to be subject to the Rules and Regulations for Composting Facilities and Solid Waste Management Facilities (Solid Waste Regulations), and under the jurisdiction of the Landfill Closure Program, will consist of a minimum of two feet of clean soil;

- 2) Installation and continuous operation of an active sub-slab ventilation (SSV) system designed to extract soil vapor from under the building, and to prevent the accumulation and/or buildup of methane gas. The SSV system shall also be equipped with an alarm system, and system operation and maintenance will include periodic monitoring of methane levels below the building and in the extracted soil vapor;
- 3) Preparation and submission of a Remedial Action Closure Report documenting the work performed, and including as applicable all original laboratory analytical data results from the remedial activities, disposal documentation, compliance and confirmation sampling, and clean fill sampling;
- 4) An Institutional Control in the form of an Environmental Land Usage Restriction (ELUR) will be recorded in the City of Providence Land Evidence Records at the time of this project's completion and will specify all of the site conditions, restrictions and emergency provisions in order to meet the appropriate Remedial Objectives as defined in the Remediation Regulations. A recorded copy of the Department approved ELUR will be forwarded back to the Office of Waste Management (OWM) prior to the issuance of the No Further Action Letter; and
- 5) Maintenance and annual inspection and certification of the engineered controls and portions of the property subject to the institutional controls by an environmental professional.

As the Performing Party, the YMCA will be responsible for properly conducting the above-listed activities.

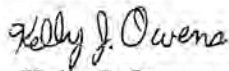
All correspondences should be sent to my attention. If you have any questions regarding this letter or if you would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797 x7109 or by e-mail at jmartell@dem.state.ri.us.

Sincerely,



Joseph T. Martella II, Senior Engineer
Office of Waste Management
Department of Environmental Management

Authorized by:



Kelly J. Owens, Supervising Engineer
Office of Waste Management
Department of Environmental Management

cc: John Langlois, Esq., RIDEM/OLS
Jeffrey Crawford, RIDEM/OWM
Frank Gally, RIDEM/OWM
Christopher Walusiak, RIDEM/OWM Landfill Closure Program
Susan Kaplan, RIEDC
Judith Crowley, YMCA
John P. Hartley, GZA
David M. McCabe, Textron
Robert Nicoloro, MACTEC (f.k.a. Harding ESE)
Gregory Benik, Esq., H&K



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

May 24, 2004

REMEDIAL DECISION LETTER

Case No. 2004-014 (Formerly part of Case No. 97-030)

Ms Susan Rittscher
President and CEO
YMCA of Greater Providence
222 Richmond Street
Providence, RI 02903

RE: Providence YMCA – Parcel C (Formerly a portion of the Gorham/Textron Dump site)
333 Adelaide Avenue, Providence, RI

Ms. Rittscher:

On 24 February 2004, the Rhode Island Department of Environmental Management (the Department) enacted the amended Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, (the Remediation Regulations). A Remedial Decision Letter is a formal Department approval of a conceptual remedy proposed by the performing party as a result of the findings of the Site Investigation.

The Department's Office of Waste Management (OWM) has received the following documents, submitted on behalf of the YMCA of Greater Providence (YMCA), for the purpose of completing the Site Investigation of Parcel C:

1. Site Investigation Report – Additional Assessment Tasks, Providence YMCA – Parcel C, Providence, Rhode Island, prepared by GZA GeoEnvironmental, Inc., (GZA), dated 9 January 2002;
2. Site Investigation Report – Additional Assessment Tasks, Providence YMCA – Parcel C, Providence, Rhode Island, prepared by GZA, dated 29 May 2003, received 27 August 2003;
3. Letter from GZA to the Department, Re: Former Gorham Property, Site Investigation Report, YMCA Development, Providence, Rhode Island, dated 9 February 2004, received 17 February 2004;
4. Letter from GZA to the Department, Re: Response to Comments, Site Investigation Report – Additional Assessment Tasks (Revised), Former Gorham Site (Providence YMCA – Parcel C), Providence, Rhode Island, dated 21 April 2004; and

5. Letter from GZA to the Department, Re: Abutter Notification, Former Gorham Site (Providence YMCA – Parcel C), Providence, Rhode Island, dated 29 April 2004.

In accordance with Section 7 (Site Investigation) of the Remediation Regulations, OWM personnel have reviewed these documents in conjunction with the previously submitted site wide Site Investigation Reports prepared for former property owner, Textron, Inc. (Textron), by Harding Lawson Associates (HLA):

6. Supplemental Site Investigation Report, Proposed Park Subdivision, Former Gorham Manufacturing Property, Adelaide Avenue, Providence, Rhode Island, prepared by HLA, dated 1 December 1998; and
7. Site Investigation Summary Report and Risk Assessment, Former Gorham Manufacturing Property, 333 Adelaide Avenue, Providence, Rhode Island, prepared by HLA, dated 29 July 1999.

These documents fulfill the requirements of a Site Investigation Report (SIR), as described in Section 7 of the Remediation Regulations, for the “main” portion of Parcel C. It is the Department’s understanding that the YMCA intends to complete the SIR for the “campground” portion of Parcel C separately at a later date. Furthermore, given that appropriate public notice for a Site Investigation has been conducted pursuant to Rule 7.07 (Public Notice), as well as appropriate public review and comment pursuant to Rule 7.09 (Remedy Selection), the Department offers its conceptual concurrence with the proposed Remedial Action for the “main” portion of Parcel C.

It is the Department’s understanding that the proposed Remedial Action will incorporate the following items:

- 1) Encapsulation of all regulated site soils through the installation of Department approved engineered controls (including the building foot print, side walks, asphalt parking areas, landscaped areas, or other engineered caps). All engineered controls will provide a level of protection equivalent to a minimum of two feet of clean soil. All engineered controls over areas known or suspected to be subject to the Rules and Regulations for Composting Facilities and Solid Waste Management Facilities (Solid Waste Regulations), and under the jurisdiction of the Solid Waste Program, will consist of a minimum of two feet of clean soil;
- 2) Installation and continuous operation of an active sub-slab ventilation (SSV) system designed to extract soil vapor from under the building, and to prevent the accumulation and/or buildup of methane gas. The SSV system shall also be equipped with an alarm system, and system operation and maintenance will include periodic monitoring of methane levels below the building and in the extracted soil vapor;
- 3) Preparation and submission of a Remedial Action Closure Report documenting the work performed, and including, as applicable, all original laboratory analytical data results from

the remedial activities, disposal documentation, compliance and confirmation sampling, and clean fill sampling;

- 4) An Institutional Control in the form of an Environmental Land Usage Restriction (ELUR) will be recorded in the City of Providence Land Evidence Records at the time of this project's completion and will specify all of the site conditions, restrictions and emergency provisions in order to meet the appropriate Remedial Objectives as defined in the Remediation Regulations. A recorded copy of the Department approved ELUR will be forwarded back to the Office of Waste Management (OWM) within 15 days, prior to the issuance of the No Further Action Letter; and
- 5) Maintenance and annual inspection and certification of the engineered controls and portions of the property subject to the institutional controls by an environmental professional.

Please submit a Remedial Action Work Plan (RAWP) to the Department for review and approval. Once the Department's review for consistency with Sections 8 and 9 of the Remediation Regulations is complete, any written comments generated as a result of the review will be forwarded to you immediately. Upon finalization of the RAWP the Department will issue an Order of Approval Letter (Order) signifying that the Department approved RAWP may be implemented. Pursuant to Rule 10.02 of the Remediation Regulations, the application fee for Remedial Action Approvals is one thousand (\$1,000) dollars. Please remit a check in that amount to this office made out to the State of Rhode Island General Treasurer.

As the Performing Party, the YMCA will be responsible for properly conducting the above-listed activities.

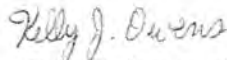
All correspondences should be sent to my attention. If you have any questions regarding this letter or if you would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797 x7109 or by e-mail at jmartell@dem.state.ri.us.

Sincerely,



Joseph T. Martella II, Senior Engineer
Office of Waste Management
Department of Environmental Management

Authorized by:



Kelly J. Owens, Supervising Engineer
Office of Waste Management
Department of Environmental Management

cc: John Langlois, Esq., RIDEM/OLS
Jeffrey Crawford, RIDEM/OWM
Frank Gally, RIDEM/OWM
Susan Kaplan, RIEDC
Christopher Walusiak, RIDEM/OWM
Judith Crowley, YMCA
Robert Nicoloro, MACTEC (f.k.a. Harding ESE & HLA)

David M. McCabe, Textron
John P. Hartley, GZA
Gregory Benik, Esq., H&K



1. RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-831-5508

File

REMEDIAL DECISION LETTER

June 15, 2001

Mr. Mark Salvetti
Harding ESE
107 Audubon Road
Suite 301
Wakefield MA 01880

RE: Former Gorham Manufacturing
Providence RI
Case No 97-030

Dear Mr. Salvetti:

In August 1996, the Rhode Island Department of Environmental Management (the Department) amended the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. A Remedial Decision Letter is a formal Department approval of a remedy proposed by the performing party as a result of the findings of the Site Investigation.

In the matter of the above referenced site, the Department has received and reviewed:

1. Site Investigation Summary Report (SIR) for the Former Gorham Manufacturing submitted by Harding Lawson Associates (HLA) on behalf of Textron received September 2, 1999.
2. Responses to RIDEM Comments on Site Investigation Report and Risk Assessment received June 6, 2000
3. Notification to Abutters of Completion of Site Investigation Activities dated October 30, 2000 and received May 1, 2001.

These documents collectively fulfill the requirements of a Site Investigation Report (SIR) as described in Section 7 of the Remediation Regulations. Furthermore, given that appropriate public notice has been conducted pursuant to Rule 7.07 (Public Notice), the Department offers its concurrence with the proposed remedial alternative which includes excavation and asphalt batching

NATURE SAVER™ FAX MEMO 01616		Date 6/21/01	# of pages 3
To Dave McCabe	From Mark Salvetti		
Co./Dept.	Co.		
Phone #	Phone #		
Fax #	Fax #		

of soils containing petroleum and metal, treatment of groundwater, placement of a soil, asphalt, and/or buildings cover, groundwater-monitoring and an Environmental Land Usage Restriction (ELUR) and soil management plan.

In accordance with Section 9.0 of the Remediation Regulations, the Department has received and is reviewing a Remedial Action Work Plan associated with the implementation of this remedy. Upon approval of the ELUR, the Department will issue an Order of Approval signifying that the remedial action can begin.

If you have any questions or are in need of any clarification regarding this document, please contact me at (401) 222-2797 ext. 7107.

Sincerely,



Garry C. Waldeck
Acting Principal Engineer
Office of Waste Management

cc: Leo Hellested, Chief, RI DEM, Office of Waste Management
John Langlois, Esq, RI DEM Office of Legal Services
Dave McCabe, Textron



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

April 24, 2006

CERTIFIED MAIL

Ms Susan Rittscher
President and CEO
YMCA of Greater Providence
222 Richmond Street
Providence, RI 02903

RE: Order of Approval, YMCA of Greater Providence - Parcel C
Formerly a portion of the Gorham/Textron Dump site
333 Adelaide Avenue, Providence, RI
Case No. 2004-014 (Formerly part of Case No. 97-030)

Dear Ms. Rittscher:

Enclosed please find the Order of Approval (Order) for the proposed remediation plan for the above referenced facility. Please review the stipulations of this Order thoroughly to ensure your compliance with the requirements. This Order places primary responsibility for the construction, operation, maintenance and monitoring of the approved Remedial Action Work Plan (RAWP) on the YMCA of Greater Providence (YMCA). In order to enable the Department to monitor the YMCA's compliance with the RAWP, the Order requires the YMCA to notify the Department of any condition that is non-compliant with the Order or that constitutes an interruption of the RAWP. In order to maintain compliance with the Order and the RAWP, the YMCA's responsibilities under the Order necessarily include the responsibility to respond to and correct non-compliant conditions in a timely and professional manner that minimizes non-compliance with the Order and RAWP, and protects human health and the environment.

Please notify this office 48 hours prior to the beginning of any work related to the remediation of the property. If you have any questions regarding this matter, please contact me at (401) 222-2797 x7109.

This Order shall be recorded in the land evidence records of the City of Providence as required by law, and a recorded copy must be returned to the Department within 7 days of recording.

Sincerely,

Joseph T. Martella II
Senior Engineer, Office of Waste Management



cc: Terrence D. Gray, P.E., Assistant Director, RIDEM/AW&C
Leo Hellested, P.E., Chief, RIDEM/OWM
Kelly J. Owens, RIDEM/OWM
Sarah Destefano, RIDEM/OWM
Brian Wagner, Esq., RIDEM/OLS
Christopher Walusiak, RIDEM/OWM
Dorrie Paar, USEPA
Dr. Robert Vanderslice, PHD, RIDOH
Hon. David N. Cicilline, Mayor, City of Providence
Senator Juan M. Pichardo, District 2
Representative Thomas Slater
Providence City Councilman Ronald Allen
John J. Lombardi, City of Providence
Thomas Deller, City of Providence
Gerald Petros, Esq., Hinkley Allen
John P. Hartley, GZA
Tracy C. Baran, Esq. PS&H
Sara Rapport, Esq., City of Providence
James Ryan, Esq. PS&H
Timothy Regan, EA
Gregory Simpson, Textron
Steven Fischbach, Esq., RILS

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

**In the matter of Remedial Action Approval at:
The YMCA of Greater Providence – Parcel C
(Formerly a portion of the Gorham/Textron Dump site)
333 Adelaide Avenue, Providence, RI, Plat 51, Lot 324 (the Site)**

Case No. 2004-014

ORDER OF APPROVAL

In the above entitled matter wherein, the **YMCA of Greater Providence (YMCA), in its capacity as a Performing Party for the remediation of property located at 333 Adelaide Avenue, Providence**, has filed the following documents with the Rhode Island Department of Environmental Management (the Department):

1. Remedial Action Work Plan, Providence YMCA – Parcel C, Providence, Rhode Island, prepared by GZA GeoEnvironmental, Inc., (GZA), dated February 9, 2005;
2. Memo from GZA to the Department, Re: Stockpile Testing – Gorham Property – Parcel C, dated September 7, 2005; and
3. Response to Comments, Providence YMCA – Parcel C, prepared by GZA, dated February 16, 2006.

Subject to the conditions herein, these documents fulfill the requirements of Section 9.00 (Remedial Action Work Plan) of the Department's Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases (Remediation Regulations), effective March 31, 1993 and amended February 24, 2004, and describe a plan to remediate existing contamination pursuant to 23-19.14-1 et seq. and Department's Remediation Regulations, amended February 24, 2004 in accordance therewith.

This Order of Approval (Order) places primary responsibility for the construction, operation, maintenance and monitoring of the approved Remedial Action Work Plan (RAWP) on the YMCA. In order to enable the Department to monitor the YMCA's compliance with the RAWP, the Order requires the YMCA to notify the Department of any condition that is non-compliant with the Order or that constitutes an interruption of the RAWP. In order to maintain compliance with the Order and the RAWP, the YMCA's responsibilities under the Order necessarily include the responsibility to independently and proactively respond to and correct non-compliant conditions in a timely manner.

The intent and purpose of this Order is to clarify and reinforce the YMCA's obligations under the Order, including its responsibility to address non-compliant site conditions (e.g. equipment malfunctions or exceedances of established contaminant limits). As the performing party, the YMCA is expected to implement the RAWP semi-autonomously; i.e. with Department oversight but without the need for constant Department direction or approval of the YMCA's activities. Upon identifying any non-compliant condition, the YMCA is expected to act accordingly to develop and implement an appropriate response to re-establish compliance. The YMCA's response(s) to non-compliant conditions must be implemented in an expeditious and professional manner that minimizes non-compliance with the Order and RAWP, and protects human health and the environment.

It is the Department's intent that this Order implement clear and specific timelines for deliverables that must be met by the YMCA with respect to the on-site monitoring, reporting and operation & maintenance requirements necessary to maintain the Remedy in a state of compliance. Upon consideration thereof, and in accordance with Rule 10.1 (Remedial Action Approvals) of the Remediation Regulations, the Department conditionally approves said RAWP through this Order, provided that:

- 1) All work, operations, activities and schedules shall be performed in accordance with the terms and conditions of this Order, the Department approved RAWP, and all other applicable federal, state and local laws and regulations.
- 2) The YMCA shall prepare and distribute a community notice to the residents in the reservoir triangle neighborhood and to other interested parties (e.g. community groups and local elected officials). The notice shall be printed in English and Spanish and shall include an estimated schedule for remedial activities and construction, a brief description of the work to be performed and the precautions to be taken to protect the community, and relevant contact information for the YMCA and its on-site contractors (name, phone, e-mail ... etc.) for questions and complaints.
- 3) In order to meet the requirements for the Rhode Island Brownfields Cleanup Revolving Loan Fund (RIBCRLF), the following conditions must be met **prior** to commencing the remedial action at Site:
 - a) Satisfactorily address the Department's comments on the proposed RAWP, Sampling & Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP), and Health & Safety Plan (HASP) for the above referenced property, issued via email by Sarah DeStefano on February 7, 2006, to John Hartley of GZA on behalf of the YMCA;
 - b) Receive Department and EPA approval for the site-specific Quality Assurance Project Plan (QAPP). The QAPP is applicable for all samples collected and analyzed during the performance of the Remedy, including samples collected for both field screening and laboratory analysis;
 - c) Receive Department approval for the Health and Safety Plan, submitted in accordance with OSHA requirements (29 CFR 1910), for the proposed Remedial Action; and
 - d) Receive Department, EPA and EDC approval of the finalized remediation budget analysis for the selected Remedial Alternative. This budget should show itemized costs for components of the remedy, the costs to be paid for by the YMCA and the costs proposed for reimbursement from the grant. The YMCA may be required to demonstrate that it has sufficient funds to cover its costs.
- 4) Upon the YMCA completing the above-mentioned RIBCRLF requirements, the Department will issue a letter to the YMCA, confirming that the RIBCRLF requirements have been met and that the YMCA may implement the Department approved RAWP in accordance with this Order. **Please be advised that the YMCA's eligibility to receive and utilize funding from the Rhode Island**

Brownfields Cleanup Revolving Loan Fund to perform the proposed environmental response actions at the site is contingent upon all of the above items being satisfied prior to the implementation of the remedy.

- 5) Work shall be initiated at the Site within thirty (30) days of the Department issuing the above-mentioned approval letter indicating that the YMCA has sufficiently addressed the RIBCRLF requirements in items 3 and 4 above.
- 6) No hazardous waste shall be accepted from any off-site sources for treatment or disposal at the Site.
- 7) Sampling and analysis of all media involved in the Remedial Action shall be conducted in accordance with the requirements of the RAWP and this Order.
- 8) The Site remedy as described in the RAWP shall incorporate the following:
 - a) All work, operations, and activities shall be performed to ensure the applicable remedial objectives for the site are achieved for all hazardous substances at the site, so as to manage actual or potential risks to human health and the environment.
 - b) Encapsulation of all regulated site soils through the installation of Department approved engineered controls (including the building foot print, side walks, asphalt parking areas, landscaped areas, or other engineered caps). A Department approved engineered control shall cover every portion of Parcel C up to the "barrier to prevent access to the Park Parcel" described in the March 29, 2006 Superior Court Consent Order (Parcels B & C). All engineered controls shall provide a level of protection equivalent to a minimum of two feet of clean soil. Any additional proposed engineered control design, not previously described in the RAWP and approved through this RAL, must be submitted to the Department for approval prior to installation. Engineered control caps consisting of concrete pavement or walkways shall be completed with a minimum six (6) inch base of appropriate clean material covered with a minimum of four (4) inches of concrete. All engineered controls over areas known or suspected to be subject to the Solid Waste Regulations, and under the jurisdiction of the Solid Waste Program, shall consist of a minimum of two feet of clean soil. All regulated site soils and engineered controls shall be subject to an Environmental Land Usage Restriction (ELUR).
 - c) Construction, installation, maintenance and continuous operation of an active sub-slab ventilation (SSV) system designed to extract soil vapor from under the building, and to prevent the accumulation and/or buildup of methane gas or volatile organic compounds (VOCs), and to ensure levels of methane and or VOCs are maintained below applicable "Action Levels." The SSV system shall also be equipped with an alarm system, and system operation and maintenance will include periodic monitoring of methane and VOC levels below the building and in the extracted soil vapor.
 - d) In order to determine if treatment, a permit, or registration for the SSV system is required under Air Pollution Control (APC) Regulation No. 9, a submission to the Department's Office of Air

Resources (OAR) shall be made concurrent with the implementation of the RAWP, which shall include a calculated estimate of the amount of contaminant vapor to be discharged based upon the design specifications of the SSV system. Following the installation of the sub-slab ventilation system, its proper operation shall be tested to demonstrate compliance with the Department approved performance criteria in the final RAWP, and to verify actual emission values.

- e) Implementation of a long term vapor and air-monitoring program sufficient to ensure site conditions are maintained in compliance with the applicable remedial objectives. Said monitoring program shall include at a minimum:
 - i) Incorporation of remedial "Action Levels" as follows:
 - (1) Within buildings, the remedial Action Level shall be 1 percent of the methane lower explosive limit (LEL).
 - (2) Under buildings, the remedial Action Level shall be 10 percent of the methane LEL.
 - (3) The remedial Action Level for VOCs shall be the Connecticut Residential Proposed Target Indoor Air Concentrations (TACs). An appropriate analytical method shall be selected with a detection limit sufficiently sensitive to allow proper comparison of detected VOC concentrations to each applicable TAC (e.g. speciated VOCs using EPA method TO-15).
 - ii) The proposed location of each interior methane monitor/alarm (i.e. continuous within the buildings), as well each proposed interior and sub slab sample collection location shall be provided to the Department prior to installation.
 - iii) Performance of baseline ambient air monitoring within the subsurface slab area and the building interior shall be conducted, prior to system start up and any occupancy, to evaluate concentrations of methane and VOCs at the site.
 - iv) The schedule for periodic compliance monitoring shall be weekly from system start-up through the first quarter of system operation, followed by monthly provided that there are no exceedances of the applicable remedial Action Levels. After successfully demonstrating one year of continuously compliant system operation, the YMCA may petition the Department to decrease the required monitoring frequency.
 - v) The air quality of each interior monitoring location shall be sampled by combustible gas indicator (CGI) for comparison to the methane LEL. Each sub slab monitoring location shall be sampled and analyzed for both methane and VOCs. In the event that concentrations of VOCs in the sub slab air are detected at a level which exceeds an Action Level, VOC samples shall immediately be collected and analyzed from each interior monitoring location.
 - vi) In the event that a remedial Action Level is exceeded in a location that is already being addressed by the active sub-slab ventilation system (i.e. indoor air or under a building), the YMCA shall immediately notify the Department by telephone and respond to and correct non-compliant conditions in a timely manner. Written notification to the Department shall follow within seven (7) days with any plans to upgrade or adjust the system to remedy the problem, including steps taken to address the non-compliance. It shall be the YMCA's responsibility to assess immediate threat or emergency situations and to address non-compliant conditions in an

- expeditious and professional manner that minimizes non-compliance with the Order and RAWP, and protects human health and the environment.
- vii) Each of the interior methane monitors shall be operated continuously and be connected to the remote alarm system in such a manner as to trigger the alarm should the concentration of methane in any building exceed the remedial Action Level of 1 percent of the methane LEL. Each interior methane monitor shall be powered in a manner such that operation will not be interrupted during a power failure. In the event that the concentration of methane in any building exceeds the remedial Action Level of 1 percent of the methane LEL, the YMCA shall act accordingly to develop and implement an appropriate response to re-establish compliance, and protect human health and the environment. Response protocols may include, but not necessarily be limited to, building evacuation, notification of the Providence Fire Department via "911", notification of the Department, and other steps, as appropriate, designed to identify and correct any alarm system or SSV system-related problems that may have contributed to site conditions, which caused the methane sensor alarm.
 - viii) All equipment shutdowns (intentional and unintentional) or operational problems shall be reported to the Department immediately. Intentional equipment shutdowns for regular maintenance shall not require immediate notification to the Department provided that the shutdown is for less than twenty-four (24) hours and the maintenance activity is discussed in the next quarterly report.
 - ix) Monitoring of methane and VOCs shall continue at the specified rate as long as a source of contamination exists.
- f) Preparation and submission of quarterly air monitoring reports in accordance with this Order, and including the recording of the following parameters:
- i) The concentrations of methane and VOCs detected in each sample collected and analyzed during monitoring activities for the current reporting period.
 - ii) A summary table of the concentrations of methane and VOCs detected in each sample collected and analyzed during prior reporting periods.
 - iii) The occurrences of any alarm activations during the quarter and the resulting activities performed in response to the alarm activation.
 - iv) The occurrences of any remedial Action Level exceedances during the quarter and resulting activities performed in response to the exceedance.
 - v) The system operational status during the quarter, particularly noting the length of any system shutdown due to power failure, system malfunction, repairs, scheduled maintenance, etc.
 - vi) The anticipated delivery date of the next scheduled monitoring report submittal.
- g) Management of all Site soil in accordance with the requirements of the RAWP and this Order.
- h) Implementation of appropriate procedures to manage, control and monitor regulated soil, asbestos containing material (ACM) and dust in a manner consistent with the asbestos and fugitive dust management precautions employed during the Department-approved Limited Remedial Action Work Plan (LRAWP) for Parcel B, including but not limited to:

- i) All on-site workers must be fitted with ACM monitoring devices during any remedial or construction activity with the potential to generate dust. The monitoring devices shall include vacuum intakes located near the workers' breathing zone to provide results that are representative of the levels within the inhalation area of the workers. Samples shall be collected from the monitoring devices and analyzed regularly with a quick turn-around to ensure the safety of on-site workers.
 - ii) Real-time dust monitoring shall be conducted at the perimeter of the site to ensure that site activities do not create unacceptable impacts to off-site air quality and risks to nearby populations. Portable dust monitoring stations shall be established at upwind and downwind locations and shall be relocated on a regular basis as upwind and downwind locations change based on meteorological conditions. Monitoring equipment shall be equipped with alarms to indicate when site-specific action levels are exceeded. Dust monitoring results must be submitted to the Department on a weekly basis, at a minimum, and be made part of the Operating Log for the RAWP. The Department must be immediately notified of any exceedances of any approved action levels (see above referenced LRAWP), any corrective action that was performed, and the results and effectiveness of corrective action measures.
 - iii) Regular application of water to the work area or any area of soil disturbance to control dust through the use of either a water truck equipped with multiple spray nozzles and a manual hose attachment, or multiple oscillating water sprinklers.
- i) Preparation and submission of a Remedial Action Closure Report documenting the work performed and including at a minimum the following items:
- i) A post remediation survey of the entire site with as-built plans demarcating the exact location (e.g. vertical and horizontal extent and type) of the installed engineered controls, including: geotextile fabric, clean fill, utilities, structures, basins, swales, the storm water detention pond, the SSV system, and all monitoring locations.
 - ii) Analytical results and summary of all post remediation/post construction methane, VOC and air monitoring performed to date, demonstrating compliance with the requirements of this Order.
 - iii) All original laboratory analytical data results from the remedial activities, compliance and confirmation sampling, and clean fill sampling as applicable.
 - iv) A statement from the facility or environmental consultant attesting to the origin of the clean fill and/or loam, and suitability consistent with the RAWP and this Order. Any organic topsoil utilized shall conform to the general vegetated top cover criteria outlined in Rule 2.2.12 of the Solid Waste Regulations.
- j) A draft ELUR shall be submitted to the Department for review and approval at the conclusion of the remedial action, and once approved by the Department, shall be recorded in the City of Providence land evidence records of the subject property.
- k) Long-term maintenance of the engineered controls and portions of the property subject to the ELUR, including annual inspection and certification by an environmental professional.

- 9) The SSV system (including the alarm system) shall be operated and maintained to prevent methane and/or VOC concentrations from reaching or exceeding the remedial Action Levels within any and all occupied structures at the site.
- 10) Any temporarily stockpiled regulated soils shall be placed upon and covered with polyethylene of thickness at least 6mm or greater to prevent tearing, and segregated from clean fill material to prevent cross contamination.
- 11) All excess fill material generated on site, shall have all solid waste and debris removed prior to reuse as closure cap subgrade beneath the filter fabric layer.
- 12) Any material discovered during excavation activities that qualifies as "Solid Waste," as defined by the Department's Solid Waste Regulations, must be disposed of at a licensed Solid Waste Facility. This includes, but is not limited to, any solid waste material removed under the proposed building footprint as well as any solid waste material excavated within the footprint of the proposed storm-water detention pond.
- 13) All RAWP activities shall be performed in compliance with all appropriate Office of Air Resources (OAR) Rules and Regulations, including but not limited to the monitoring and control of any air emissions and the timely acquisition of any required Air Pollution Control Permits (Air Permits).
- 14) Any portion of the RAWP or development project conducted on the Site which falls under the jurisdiction of the Department's Freshwater Wetlands Program must be done in accordance with the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act (the Wetlands Regulations), including but not limited to the timely acquisition of a Wetlands Permit.
- 15) All waste derived from implementation of the RAWP, the repair and maintenance of the Remedy, or the engineered systems shall be managed in accordance with the Department's Remediation Regulations, Rules and Regulations for Hazardous Waste Management, and Solid Waste Regulations, as appropriate. In accordance with Rule 11.07 (Initiator) of the Remediation Regulations, the YMCA must comply with the requirements of the Solid Waste Regulations, as amended, for all solid waste shipments that they initiate, and documentation of disposal shall be provided to the Office of Waste Management (OWM).
- 16) All fill material brought onto the Site and all soil utilized for the engineered control cap must be compliant with the Department's Method 1 Residential Direct Exposure Criteria pursuant to the Remediation Regulations. All clean fill, including sub-grade material and loam, imported to the site must be sampled in accordance with the RAWP and this Order, prior to delivery and placement. Laboratory analytical results must be submitted to the OWM via fax (401) 222-3812. Written approval (via e-mail, fax or letter) to use the fill must be received from the Department prior to use.
- 17) Within sixty (60) days of completion of the Remedial Action described in the RAWP, a Remedial Action Closure Report, detailing the Remedial Action and current site status, and including a draft

ELUR including a Site specific post remediation Soil Management Plan (SMP), and a post remediation survey and as-built plan, shall be submitted to the OWM for review and approval.

- 18) Within thirty (30) days of receiving Department approval of the Remedial Action Closure Report and ELUR, the YMCA will have the Department approved ELUR recorded in the Providence land evidence records, and submit a recorded (stamped) copy to the OWM within fifteen (15) days of the date that it is recorded.
- 19) Within ten (10) days of submittal of the recorded (stamped) copy of the Department approved ELUR to the OWM, the YMCA shall notify all abutting property owners, tenants, and interested parties that the ELUR has been recorded.
- 20) The YMCA, its representatives, employees, agents and contractors shall adhere to the following timelines in its management, operation and maintenance of the Site.
 - a) The YMCA shall immediately notify the OWM of any Site or operating condition that results in non-compliance with this Order, or that indicates that the Remedy is not meeting its intended goal of preventing human exposure to hazardous materials contained in the former manufacturing facility site.
 - b) The OWM shall be notified in writing immediately if the YMCA suspects or has reason to believe that any of the remedial objectives will not be met.
 - c) The OWM will be notified a minimum of five (5) working days in advance of any changes in contractors and/or consultants for the remedial activities in this RAWP, and will be promptly supplied with complete contact information for each new contractor or consultant (including but not limited to company name and address, contact name and address, contact telephone number and e-mail address).
 - d) Any RAWP interruptions shall be reported to the OWM by telephone within one (1) working day and in writing within seven (7) days.
 - e) All exceedances of the "Action Levels" established in the Order that are detected during any site monitoring activity (including but not limited to monitoring of sub-slab ventilation systems, or interior methane monitors/alarms) shall be reported to the OWM immediately and responded to immediately by the YMCA.
 - f) All equipment shutdowns (intentional and unintentional) or operational problems shall be reported to the OWM immediately. Intentional equipment shutdowns for regular maintenance shall not require immediate notification to the OWM provided that the shutdown is for less than twenty-four (24) hours and the maintenance activity is discussed in the next quarterly report.
 - g) All repairs or replacements of equipment or other actions taken in response to any non-compliance with the RAWP shall be completed within fourteen (14) days of discovery of the non-compliant

condition. Additional time may be requested from the OWM in writing, provided that the request is supported with a justifiable explanation as to why the work cannot be completed within 14 days and includes a binding timetable for the completion of all work. All requests for additional time shall be submitted to the OWM as soon as the YMCA becomes aware that additional time is necessary, but not later than 14 days from the discovery of the non-compliant condition. Documentation describing the repairs and certifying that the malfunction was corrected and that the equipment is operational must be received by the OWM within 5 (five) days of completion of the repairs.

- h) All deficiencies in the approved engineered cap (including but not limited to sinking, cracking or excavation of soil, asphalt, cement or foundations) shall be reported to the OWM immediately upon discovery and shall be repaired within fourteen (14) days. Until repairs are made, the YMCA shall prevent access to the deficient areas by staff, clients or visitors. Documentation describing the deficiency, the repairs and certifying that the repairs meet the requirements of the Remedy must be received by the OWM within 5 days of completion of the repairs.
 - i) Any report or notice required to be submitted to the OWM "immediately," shall require verbal notification to the OWM within twenty-four (24) hours and written notification to the OWM within seventy-two (72) hours. The report or notice shall include a description of: the point of non-compliance (e.g. Action Level exceedance, equipment problems); the known or suspected cause for the non-compliance; any response actions taken as of the time of the report or notice; preliminary concepts for response actions to address, correct and/or prevent recurrence of the non-compliance; and a preliminary timetable for the completion of any further response actions. Final plans and timetables for response actions shall be reported to the OWM as soon as they are developed.
- 21) All notifications or reports required to be made or submitted to the Department under this Order, any other information pertinent to the RAWP, and/or any other notification regarding the YMCA site shall be reported to:

Joseph T. Martella II, Senior Engineer
RIDEM – Office of Waste Management
235 Promenade St., 3rd Floor
Providence, RI 02908-5767

Tel: (401) 222-2797 x7109

Fax: (401) 222-3812

E-mail: joseph.martella@dem.ri.gov

- 22) This Order does not remove the obligation of the YMCA to obtain any other permits, licenses or approvals from any state, local, or federal agencies (including the Department) that may be necessary to comply with this Order.

- 23) It is the YMCA's sole obligation to obtain all necessary approvals and permits required to implement the RAWP in a timely manner consistent with the RAWP schedule and deadlines in this Order.
- 24) The YMCA shall have this Order recorded in the City of Providence, land evidence records of the subject property within thirty (30) days of execution of this Order.
- 25) There shall be no occupation or use of any building, facility or grounds on the Site until all the requirements described in the RAWP and this Order have been met to ensure that the applicable remedial objectives for the site are achieved for all hazardous substances, so as to manage actual or potential risks to human health and the environment for workers, clients, visitors and trespassers at the Site.

Subject to future revisions or amendments by the Department, this Order shall remain in full force and effect for as long as said RAWP shall be operated and maintained in a condition satisfactory to the Department. Failure to comply with all points outlined in the Department approved RAWP and stipulated in this Order shall result in the issuance of a Notice of Violation and Order against the YMCA and the owner of the property.

This Order shall be subject to modification or revocation in accordance with law.

Entered as an approval by the Department this 24th day of April, 2006.

By:



Leo Hellested, P.E.
Chief, Office of Waste Management
Department of Environmental Management



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-831-5508

CERTIFIED MAIL

October 11, 2001

Mr. Mark Salvetti
Harding ESE
107 Audubon Road
Suite 301
Wakefield MA 01880

RE: Former Gorham Manufacturing
Providence RI
Case No 97-030

Dear Mr. Salvetti:

Enclosed please find the **Order of Approval** (OA) for the above referenced facility. Please review the stipulations of this Order thoroughly to ensure your compliance with the requirements.

Please notify this office 48 hours prior to the beginning of any work related to the remediation of the property. If you have any questions regarding this matter, please contact Garry Waldeck at 222-2797 ext. 7107.

This order shall be recorded in the land evidence records of the facility's city/town as required by law.

Sincerely,

Garry C. Waldeck
Acting Principal Engineer, Office of Waste Management

cc: Leo Hellested, Chief Office of Waste Management, RIDEM
Terrence Gray, Associate Director, RIDEM
Kelly Owens, Supervising Engineer, RIDEM/DSR
John Langlois, Esquire, RIDEM/Office of Legal Services
Craig Roy, RIDEM OWR

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

In the matter of the application
for Remedial Action Approval at:
**Former Gorham Manufacturing
Providence, RI**

Case No. 97-030

ORDER OF APPROVAL

In the above entitled matter wherein **Textron Corporation in its capacity as Owner of a Operator of the Gorham Manufacturing site**, filed with the Rhode Island Department of Environmental Management (RIDEM) the following documents: Remedial Action Work Plan submitted by Harding ESE dated April 25, 2001 and Responses to Departments comments dated September 25, 2001 (Remediation Plan). These documents describe a plan or means to prevent pollution as defined in Chapter 46-12 of the General Laws of 1956, as amended and the Department's Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, amended August 1996 in accordance therewith.

Upon consideration thereof, the Department of Environmental Management, Office of Waste Management approves said plan or means to prevent pollution provided that:

1. The Remediation Plan shall be initiated according to the schedule provided in the Remediation Plan.
2. The groundwater cleanup goal shall be a combination of Method 1 GB Groundwater Criteria at the property boundaries as defined in the Remediation Regulations and calculated Method 2 GB Groundwater Criteria onsite as approved in the Remedial Decision Letter dated June 15, 2001. Upon achieving this goal and/or after the first 12 months of operation Textron shall submit verification of the remedial system effectiveness.
3. As described in the Remediation Plan, the soil cleanup goal shall be a combination of Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure as defined in the Remediation Regulations. These goals will be achieved through the installation of engineered controls. In addition, Textron must eliminate Upper Concentration Limit exceedances.
4. In accordance with Rule 10.02 of the Remediation Regulations submit a Remedial Action Approval Fee within forty-five (45) days.
5. Samples of all media involved in the Remedial Action shall be conducted according to the requirements of the Remediation Plan.

6. Results of all environmental sampling shall be sent to Garry Waldeck, Office of Waste Management, 235 Promenade Street, Providence, RI 02908.
7. Textron may request an alteration of the sampling frequency, number of wells tested, and/or parameters tested for should data indicate these changes will not compromise the monitoring of site remediation.
8. Status reports shall be submitted to the Office of Waste Management on a monthly basis upon issuance of this Order of Approval (OA).
9. The remediation system shall be inspected on a daily basis during the first month of operation and on a weekly basis thereafter.
10. The Office of Waste Management shall be immediately notified of any site or operation condition that results in non-compliance with this OA.
11. Any interruptions shall be reported to the Office of Waste Management by telephone within one (1) working day and in writing within seven (7) days of occurrence.
12. All waste derived from installation and operation of the remediation system shall be disposed of in accordance with the Department's Rules and Regulations for Hazardous Waste Management and Rules and Regulations for Solid Waste Management Facilities and documentation of disposal shall be provided to the Office of Waste Management.
13. This OA does not remove Textron's obligation to obtain any necessary permits from other state, local, or federal agencies.
14. This OA shall be recorded in the Providence land evidence records of the subject property.
15. Within 90 days of the conclusion of the soil remedy a preliminary closure report, detailing the Remedial Action and current site status, shall be submitted to the Office of Waste Management for review.
16. Within 90 days of the conclusion of the groundwater remedy a preliminary closure report, detailing the Remedial Action and current site status, shall be submitted to the Office of Waste Management for review.

This OA shall remain in full force and effect as long as said plan or means shall be operated and maintained in a condition satisfactory to the Department of Environmental Management. Failure to comply with all points stipulated in this OA shall result in the issuance of a Notice of Violation and Order against the responsible parties.

This OA shall be subject to modification or revocation in accordance with law.

Gorham OOA
October 4, 2001

Entered as the Order of the Department of Environmental Management this 10TH day of OCTOBER, 2001.

By:

A handwritten signature in black ink, appearing to read "Leo Hellested". The signature is fluid and cursive, with a large loop at the end.

Leo Hellested, PE
Chief, Office of Waste Management, Department of Environmental Management



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-831-5508

March 15, 2002

CERTIFIED MAIL

Mr. David McCabe
Manager of Site Remediation
Textron, Inc.
40 Westminster Street
Providence, RI 02903

RE: Revised Order of Approval, Former Gorham Manufacturing, Providence, RI, Case No. 97-030

Dear Mr. McCabe:

Enclosed please find the revised **Order of Approval** (Order) for the above referenced facility. Please review the stipulations of this Order thoroughly to ensure your compliance with the requirements. Be advised that this Order replaces the Order issued by the Department on 10 October 2001.

In addition, the Underground Injection Control (UIC) Program has reviewed the IT Corporation (IT) 28 November 2001 in situ chemical oxidation proposal for the injection of sodium permanganate to remediate groundwater at the above referenced site. Based on the information contained in the proposal and subsequent submissions by Textron, Inc. (10 January 2002) and IT (28 January and 12 February 2002), the UIC Program approves the proposed injection of sodium permanganate. In lieu of a separate UIC Program approval, this Order incorporates any UIC Program specific requirements. The original UIC Program Order of Approval granted to Textron, Inc. on 11 October 2001 will be rescinded upon issuance of this Order. The rescission will be sent to Textron, Inc. under separate cover.

Please notify this office 48 hours prior to the beginning of any work related to the remediation of the property. If you have any questions regarding this matter, please contact me at (401) 222-2797 ext. 7109.

This order shall be recorded in the land evidence records of the facility's city/town as required by law.

Sincerely,

Joseph T. Martella II
Senior Engineer, Office of Waste Management

cc: Terrence Gray, P.E., Associate Director, RIDEM
Leo Hellested, P.E., Chief, RIDEM/OWM
Kelly J. Owens, Supervising Engineer, RIDEM/OWM
John Langlois, Esquire, RIDEM/OLS
Craig Roy, Senior Scientist, RIDEM OWR

Mark Salvetti, Harding ESE
Richard Lewis, IT Corp.

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

In the matter of the application
for Remedial Action Approval at:
Former Gorham Manufacturing
333 Adelaide Avenue, Providence, RI

Case No. 97-030

ORDER OF APPROVAL

In the above entitled matter wherein **Textron, Inc. (Textron) in its capacity as former Owner and Operator of the Former Gorham Manufacturing site**, filed with the Rhode Island Department of Environmental Management (Department) the following documents:

1. Remedial Action Work Plan, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, RI, prepared by Harding ESE (Harding), dated 25 April 2001;
2. Letter from Harding to the Department, Re: Response to RIDEM Comments on the Remedial Action Work Plan, Former Gorham Manufacturing Property, 333 Adelaide Avenue, Providence, Rhode Island, dated 24 July 2001;
3. Letter from Harding to the Department, Re: Response to RIDEM Comments Dated September 4, 2001, Remedial Action Work Plan, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, Rhode Island, dated 25 September 2001;
4. Letter from IT Corporation (IT) to the Department, Re: Remedial Action Work Plan, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, RI, dated 28 November 2001;
5. Memorandum from Harding to the Department (delivered via e-mail), Re: TPH soil issue at Gorham, dated 26 November 2001 (revised 18 December 2001 at the request of RIDEM);
6. Letter from Textron to the Department, Re: Response to RIDEM Comments, Remedial Action Work Plan, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, RI, dated 10 January 2002;
7. Letter from IT to the Department, Re: Remedial Action Work Plan Revisions, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, RI, dated 28 January 2002;
8. Letter from IT to the Department, Re: Remedial Action Work Plan Revisions, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, RI, dated 12 February 2002;

9. Revised Site Map for Remedial Action Work Plan, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, RI, prepared by IT, submitted 5 March 2002.

These documents describe a plan or means to prevent pollution as defined in Chapter 46-12 of the General Laws of 1956, as amended and the Department's Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, amended August 1996 in accordance therewith.

Upon consideration thereof, the Department of Environmental Management, Office of Waste Management approves said plan or means to prevent pollution provided that:

1. The Remediation Plan shall be initiated according to the schedule provided in the Remediation Plan.
2. The groundwater cleanup goal shall be a combination of Method 1 GB Groundwater Criteria at the property boundaries as defined in the Remediation Regulations and calculated Method 2 GB Groundwater Criteria onsite as approved in the Remedial Decision Letter dated June 15, 2001. Upon achieving this goal and/or after the first 12 months of operation Textron shall submit verification of the remedial system effectiveness.
3. As described in the Remediation Plan, the soil cleanup goal shall be a combination of Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure as defined in the Remediation Regulations. These goals will be achieved through the installation of engineered controls. In addition, Textron must eliminate Upper Concentration Limit exceedances.
4. Samples of all media involved in the Remedial Action shall be conducted according to the requirements of the Remediation Plan.
5. Textron may request an alteration of the sampling frequency, number of wells tested, and/or parameters tested for, should data indicate these changes will not compromise the monitoring of site remediation.
6. Results of all environmental sampling shall be sent to Joseph T. Martella II, Office of Waste Management, 235 Promenade Street, Providence, RI 02908.
7. Copies of all injection and groundwater monitoring data must be submitted to the Department's Underground Injection Control (UIC) Program.
8. Status reports shall be submitted to the Office of Waste Management on a monthly basis upon issuance of this Order.
9. The remediation system shall be inspected on a daily basis during the first month of operation and on a weekly basis thereafter.

10. The Office of Waste Management shall be immediately notified of any site or operation condition that results in non-compliance with this Order.
11. Any interruptions shall be reported to the Office of Waste Management by telephone within one (1) working day and in writing within seven (7) days of occurrence.
12. All waste derived from installation and operation of the remediation system shall be disposed of in accordance with the Department's Rules and Regulations for Hazardous Waste Management and Rules and Regulations for Solid Waste Management Facilities, and documentation of disposal shall be provided to the Office of Waste Management.
13. This Order does not remove Textron's obligation to obtain any necessary permits from other state, local, or federal agencies.
14. This Order shall be recorded in the Providence land evidence records of the subject property.
15. Within 90 days of the conclusion of the soil remedy a preliminary closure report, detailing the Remedial Action and current site status, shall be submitted to the Office of Waste Management for review.
16. Within 90 days of the conclusion of the groundwater remedy a preliminary closure report, detailing the Remedial Action and current site status, shall be submitted to the Office of Waste Management for review.

This Order shall remain in full force and effect as long as said plan or means shall be operated and maintained in a condition satisfactory to the Department of Environmental Management. Failure to comply with all points stipulated in this Order shall result in the issuance of a Notice of Violation and Order against the responsible parties.

This Order shall be subject to modification or revocation in accordance with law.

Entered as the Order of the Department of Environmental Management this 15th day of March 2002.

By:



Leo Hellested, PE
Chief, Office of Waste Management, Department of Environmental Management



PROGRAM LETTER

January 20, 2015

File No. SR-28-0549D

(Formerly Case No. 2005-059 - Associated with Case No. 97-030)

Mr. Gregory L. Simpson, Project Manager
Textron, Inc.
40 Westminster Street
Providence, RI 02903

RE: Former Gorham Manufacturing Site
Phase II Area- Mashapaug Pond and Cove, Phase III Area - Northeast Upland and Parcel C
333 Adelaide Avenue, Providence, Rhode Island

Dear Mr. Simpson:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) enacted the amended Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of petroleum and hazardous material contaminated sites in order to eliminate and/or control threats to human health and the environment in an efficient manner. A Program Letter is a document used by the Department to signify that a Site Investigation has been completed and that a Performing Party must conduct public notice in accordance with Rules 7.07(A)(ii) and 7.09 of the Remediation Regulations concerning the findings of the investigation and the proposed remedial alternatives.

In the matter of the above-referenced property (the Site), the Department's OWM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Site Investigation Report, Former Gorham Manufacturing Site, Phase II Area – Mashapaug Pond and Cove, Phase III Area – Northeast Upland and Parcel C, 333 Adelaide Avenue, Providence, Rhode Island, received by the Department on November 12, 2013, and prepared by AMEC Environment & Infrastructure, Inc. (AMEC);
2. Site Investigation Report, Former Gorham Manufacturing Site, Phase II Area – Mashapaug Pond and Cove, Phase III Area – Northeast Upland and Parcel C, 333 Adelaide Avenue, Providence, Rhode Island, received by the Department on December 19, 2014, and prepared by AMEC; and

3. Response to RIDEM Review Comments, December 17, 2014 Risk Memo, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, Rhode Island, received by the Department on January 19, 2015, and prepared by AMEC.

The Department regards the information provided in these reports as meeting the requirements pursuant to Rule 7.08 of the Remediation Regulations. The preferred remedial alternative proposes the following remedy:

The Phase II Area Remedial Alternative is removal of approximately two (2) feet of impacted inner cove sediment by either Option A (dredging via hydraulic pumping) or Option B (placement of a Porta Dam between the inner cove and outer cove, dewatering the inner cove and mechanical excavation of the sediment). The excavated and dewatered sediment will be placed in the former Carriage House portion of the Phase III Area, under an engineered cap. After the sediment removal is completed, the remaining inner cove sediments will be capped by one foot of clean soil, followed by wetland restoration activities.

The Phase III Area Remedial Alternative is capping of the existing impacted soils in place and capping the excavated and dewatered sediment from the inner cove in the former Carriage House area. The proposed engineered cap will be constructed of a permeable high-visibility marker fabric, placed over the compacted surface soil and impacted sediments, overlain by 12 inches of clean imported topsoil, which will be seeded and maintained.

The Parcel C Area Remedial Alternative is an engineered cap consistent with what is proposed for the Phase III Area, constructed of a permeable high-visibility marker fabric, placed over the compacted surface soil and overlain by 12 inches of clean imported topsoil, which will be seeded and maintained.

The Department acknowledges that the site investigation activities are complete. The Department is not yet able to formally approve the SIR, however, due to the necessity to first allow the public to comment on the technical feasibility of the preferred remedial alternative. Rules 7.07(A)(ii) and 7.09 of the Remediation Regulations outline the requirements for public notice after the SIR is deemed complete to all abutting property owners, tenants, easement holders, the municipality and the Environmental Justice Focus Area, regarding the substantive findings of the completed investigation and the opportunity for public review and comment on the technical feasibility of the preferred remedial alternative. Please submit a draft notification to the Department via E-mail for review and approval prior to distribution. A boilerplate notification to be distributed can be found online at <http://www.dem.ri.gov/programs/benviron/waste/topicrem.htm>. The Department will require a copy of the approved public notice letter and a list of all recipients upon issuance.

The Department will formally approve the SIR in the form of a Remedial Decision Letter (RDL) once Public Notice is completed and upon Department approval of all final responses to relevant public comments. At that point, the Department will require submission of the draft Remedial Action Work Plan (RAWP), Environmental Land Usage Restriction (ELUR), and Soil Management Plan (SMP), for review and approval in accordance with Sections 8.00 and 9.00 of the

Remediation Regulations. Upon receipt of the RDL, be prepared to submit the Remedial Action Approval Application Fee of one thousand dollars (\$1,000.00) in check form made payable to General Treasurer - State of Rhode Island directly to the Office of Management Services.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 7109, or by E-mail at joseph.martella@dem.ri.gov.

Sincerely,



Joseph T. Martella II
Senior Engineer
Office of Waste Management

cc: Terrence D. Gray, P.E., Assistant Director, RIDEM/AW&C
Kelly J. Owens, RIDEM/OWM
Susan Forcier, Esq., RIDEM/OLS
Elizabeth Scott, RIDEM/OWR
Alisa Richardson, RIDEM/OWR
Charles Horbert, RIDEM/OWR/Freshwater Wetlands Program
Richard Enander, PhD, RIDEM/OC&TA
Hon. Jorge Elorza, Mayor, City of Providence
Senator Juan M. Pichardo, District 2
Representative Scott A. Slater
Councilman Wilbur W. Jennings Jr., Ward 8
Robert E. Azar, Providence Planning Department
Robert F. McMahon, Providence Parks Department
David Heislein, AMEC
EJLRI
Knight Memorial Library – Project Repository



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

REMEDIAL DECISION LETTER

March 27, 2015

File No. SR-28-0549D

(Formerly Case No. 2005-059 - Associated with Case No. 97-030)

Mr. Gregory L. Simpson, Project Manager
Textron, Inc.
40 Westminster Street
Providence, RI 02903

RE: Former Gorham Manufacturing Site
Phase II Area- Mashapaug Pond and Cove, Phase III Area - Northeast Upland and Parcel C
333 Adelaide Avenue, Providence, Rhode Island

Dear Mr. Simpson:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) amended the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. A Remedial Decision Letter (RDL) is a formal, written communication from the Department that approves a site investigation, identifies the preferred remedial alternative and authorizes the development of a Remedial Action Work Plan (RAWP) in order to achieve the objectives of the environmental clean-up.

In the matter of the above-referenced property (the Site), the Department's OWM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. Site Investigation Report, Former Gorham Manufacturing Site, Phase II Area - Mashapaug Pond and Cove, Phase III Area - Northeast Upland and Parcel C, 333 Adelaide Avenue, Providence, Rhode Island, received by the Department on November 12, 2013, and prepared by AMEC Environment & Infrastructure, Inc. (AMEC);
2. Site Investigation Report, Former Gorham Manufacturing Site, Phase II Area - Mashapaug Pond and Cove, Phase III Area - Northeast Upland and Parcel C, 333 Adelaide Avenue, Providence, Rhode Island, received by the Department on December 19, 2014, and prepared by AMEC;

3. Response to RIDEM Review Comments, December 17, 2014 Risk Memo, Former Gorham Manufacturing Facility, 333 Adelaide Avenue, Providence, Rhode Island, received by the Department on January 19, 2015, and prepared by AMEC; and
4. Gorham Public Questions & Answers, Site Investigation Report, Former Gorham Manufacturing Facility, Phase II Area – Mashapaug Pond and Cove, Phase III Area – Northeast Upland Parcel C, 333 Adelaide Ave., Providence, RI, Public Meeting Date: February 5, 2015, Public Comment Period Closed: February 20, 2015, received by the Department on March 16, 2015, and prepared by AMEC.

Collectively, these documents define "Existing contamination" at the Site, and fulfill the requirements of a Site Investigation Report (SIR) as described in Rule 7.08 of the Remediation Regulations. In addition, according to our records, public notice was conducted to all abutting property owners, tenants, easement holders, the municipality and the Environmental Justice Focus Area, regarding the substantive findings of the completed investigation in accordance with Rules 7.07(A)(ii) and 7.09 of the Remediation Regulations. The Department has received documentation demonstrating that the requirements of Rhode Island General Laws (R.I.G.L.), Title 23, Health and Safety, Chapter 23-19.14, Industrial Property Remediation and Reuse Act, 23-19.14-5, Environmental Equity and Public Participation, have been fulfilled. The opportunity for public review and comment on the technical feasibility of the proposed remedial alternatives commenced on February 5, 2015, and the period closed on February 20, 2015. Public comments were received regarding dust management, sediment removal, dewatering activities, and responsibility for maintaining the engineered caps, and were formally responded to in writing on March 17, 2015, by AMEC on behalf of Textron. No additional comments on the technical feasibility of the proposed remedy were received.

The preferred remedial alternative, as stated in the SIR, consists of the following conceptual measures:

The Phase II Area Remedial Alternative is removal of approximately two (2) feet of impacted inner cove sediment by placement of a Porta Dam between the inner cove and outer cove, dewatering the inner cove and mechanical excavation of the sediment. The excavated and dewatered sediment will be placed in the former Carriage House portion of the Phase III Area, under an engineered cap. After the sediment removal is completed, the remaining inner cove sediments will be capped by one foot of clean soil, followed by wetland restoration activities.

The Phase III Area Remedial Alternative is capping of the existing impacted soils in place and capping the excavated and dewatered sediment from the inner cove in the former Carriage House area. The proposed engineered cap will be constructed of a permeable high-visibility marker fabric, placed over the compacted surface soil and impacted sediments, overlain by 12 inches of clean imported topsoil, which will be seeded and maintained.

The Parcel C Area Remedial Alternative is an engineered cap consistent with what is proposed for the Phase III Area, constructed of a permeable high-visibility marker fabric,

placed over the compacted surface soil and overlain by 12 inches of clean imported topsoil, which will be seeded and maintained.

All remedial areas will be subject to an Environmental Land Usage Restriction (ELUR) and Soil Management Plan (SMP).

The Department hereby approves the SIR, with the above identified preferred remedial alternative, and requires a RAWP be submitted for review and approval, and implemented, to achieve the objectives of the environmental clean-up, in accordance with the following conditions:

1. In accordance with Sections 8.00 and 9.00 of the Remediation Regulations, a RAWP, ELUR, and SMP shall be submitted for Department review and approval within sixty (60) days from the date of this letter. The RAWP shall describe all of the technical details, engineer design elements, and schedules associated with the implementation of the proposed remedy. All of the subsections outlined in Section 9.00 of the Remediation Regulations must be included in order to facilitate the review and approval of the RAWP. If an item is not applicable to this Site, simply state that it is not applicable and provide an explanation in the RAWP.
2. Pursuant to Rule 10.02 of the Remediation Regulations, an application fee for Remedial Action Approvals in the amount of one thousand (\$1,000.00) dollars shall be made payable to the State of Rhode Island General Treasurer and remitted to the Office of Management Services with the attached Remedial Action Approval Application Fee Form. Receipt of this Remedial Action Approval Application Fee is required prior to the Department's RAWP review.
3. Once the Department reviews the RAWP for consistency with Sections 8.00 and 9.00 of the Remediation Regulations, any written comments generated and forwarded as a result of the review(s) shall be incorporated forthwith into a RAWP Addendum, to be submitted for final approval.
4. Upon finalization of the RAWP, the Department will issue a Remedial Approval Letter (RAL), signifying Department approval. All remedial measures required by the Department shall be implemented, in accordance with the approved schedule, to ensure all applicable exposure pathways at the site are appropriately addressed.

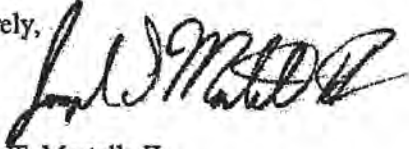
Please be advised that the Department reserves the right to require additional actions under the aforementioned Remediation Regulations at the Property should any of the following occur:

- Conditions at the Site previously unknown to the Department are discovered;
- Information previously unknown to the Department becomes available;
- Policy and/or regulatory requirements change; and/or

- Failure by Textron, the City of Providence, or any future holder of any interest in the Property to adhere to the terms and conditions of the Department approved RAWP, schedule, RAL, ELUR and/or SMP for the Property.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 7109, or by E-mail at joseph.martella@dem.ri.gov.

Sincerely,



Joseph T. Martella II
Senior Engineer
Office of Waste Management

cc: Terrence D. Gray, P.E., Assistant Director, RIDEM/AW&C
Kelly J. Owens, RIDEM/OWM
Susan Forcier, Esq., RIDEM/OLS
Elizabeth Scott, RIDEM/OWR
Alisa Richardson, RIDEM/OWR
Charles Horbert, RIDEM/OWR/Freshwater Wetlands Program
Richard Enander, PhD, RIDEM/OC&TA
Michael J. Elliott, Army Corps of Engineers
Hon. Jorge Elorza, Mayor, City of Providence
Senator Juan M. Pichardo, District 2
Representative Scott A. Slater
Councilman Wilbur W. Jennings Jr., Ward 8
Robert E. Azar, Providence Planning Department
Robert F. McMahon, Providence Parks Department
David Heislein, AMEC
EJLRI
Knight Memorial Library - Project Repository

Attachment: Remedial Action Approval Application Fee Form

ATTACHMENT 7

Textron, Inc.
Former Gorham Manufacturing Facility, Providence, RI
Remedial Action Work Plan: Phase II Area – Mashapaug Inner Cove,
Phase III Area – Northeast Upland And Parcel C
Project No.: 3652140032
June 26, 2015



15.0 CERTIFICATION REQUIREMENTS

The following certifications are provided pursuant to Rule 9.19 of the Remediation Regulations.

The undersigned hereby certifies that to the best of their knowledge the information contained in this report is complete and accurate based on the information available at the time of its preparation. Furthermore, the undersigned certifies that to the best of their knowledge the report is as complete and accurate of a representation of the Site and the release based on the available information, and contains the known facts surrounding the release.

Amec Foster Wheeler Environment & Infrastructure, Inc.

A handwritten signature in black ink, appearing to read "D. Heislein", written over a horizontal line.

David E. Heislein
Senior Project Manager

June 26, 2015

Date

Textron, Inc.

A handwritten signature in black ink, appearing to read "G. Simpson", written over a horizontal line.

Gregory Simpson
Senior Project Manager, Site Remediation

June 26, 2015

Date

ATTACHMENT 8



**US Army Corps
of Engineers** [®]
New England District

**GENERAL PERMIT
WORK-START NOTIFICATION FORM**
(Minimum Notice: Two weeks before work begins)

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

Corps of Engineers Permit No. 2013-2359 was issued to Textron, Inc. The site is the former Gorham Manufacturing Facility located at 425 Adelaide Avenue in Providence, RI. They are authorized to perform a site remediation involving work in and along Mashpaug Pond. They will construct a temporary coffer dam to isolate and de-water Inner Cove from Mashaug Pond to allow work in the dry. Work includes excavating one to two feet of contaminated sediments from the 2.8 acre area in Inner Cove and placing one-foot of clean fill on the bottom. Also, an adjacent palustrine wetland (11,075 square feet or 0.25 acres) along the shoreline will also be impacted with soils removed and the wetlands subsequently restored.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: Textron, Inc.

Business Address: 40 Westminster Street
Providence, RI 02903

Telephone Numbers: (401) 457-2635 ()

Proposed Work Dates: Start: 7/13/2015 Finish: 11/30/2015

Permittee/Agent Signature:  Date: 6/26/2015

Printed Name: David E. Heislein Title: Senior Project Manager

Date Permit Issued: 6/3/2015 Date Permit Expires: 2/22/2017

FOR USE BY THE CORPS OF ENGINEERS

PM: M. Elliott

Submittals Required: No

Inspection Recommendation: _____