



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS  
HISTORICAL PRESERVATION & HERITAGE COMMISSION

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31 January, 2020

Anna Krasko  
Remedial Project Manager  
US EPA Region 1  
5 Post Office Square, Suite 100  
Boston MA 02109-3912

Re: Centredale Manor Restoration Project Superfund Site  
North Providence RI

Dear Ms. Krasko:


The Rhode Island Historical Preservation and Heritage Commission (RIHPHC) staff has reviewed the report provided by you describing the planned remedy for the Centredale Manor restoration project, and the potential impacts to historic properties. We have the following comments.

We concur that the project, as currently planned, will have no adverse effect on the Allendale Mill, listed in the National Register, the Allendale Historic District, considered eligible for listing, and the Lymansville Company Mill, listed on the National Register. It will have no effect on any other above-ground properties.

We have concluded that the project will have no effect on any significant archaeological resources. We find the contingency plan for anticipated discoveries presented in Appendix B of the "Remedial Design and Remedial Action Impacts on Historic Tribal Resources" proposal to be a satisfactory plan of action. We would, however, like clarification of the identity of "the Archaeologist" mentioned in the plan, who we assume will be an individual meeting the professional standards required for Section 106 undertakings. In the (unlikely) event that a discovery merits archaeological excavation, a permit for this work will need to be obtained from RIHPHC.

These comments are provided in accordance with Section 106 of the National Historic Preservation Act. If you have any questions, please contact Charlotte Taylor, Senior Archaeologist, at this office.

Very truly yours,

  
J. Paul Loether  
Executive Director, RIHPHC  
State Historic Preservation Officer

Cc: John Brown, Narragansett THPO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
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BOSTON, MA 02109-3912

January 6, 2020

J. Paul Loether, Executive Director and State Historic Preservation Officer  
Rhode Island Historical Preservation and Heritage Commission  
Old State House  
150 Benefit Street  
Providence, Rhode Island 02903

Re: Centredale Manor Restoration Project Superfund Site  
North Providence, Rhode Island

Dear Mr. Loehher:

The purpose of this letter is to seek your concurrence with EPA's determination of no adverse effects on known historic resources as a result of implementation of the remedy selected in 2012 for the Centredale Manor Restoration Project Superfund Site ("the Site").

EPA formally initiated Section 106 consultation with you and John Brown, Narragansett THPO, in October 2010. The U.S. Army Corps of Engineers prepared a Stage 1A Cultural Resource Survey for the Site which you reviewed and provided comments on in April 2011. Since then, EPA has selected a cleanup plan for the Site as documented in the Record of Decision (ROD) issued in September 2012, as modified by the Explanation of Significant Differences (ESD) issued in September, 2019. In July 2018, EPA lodged a Consent Decree in the United States District Court for the District of Rhode Island that obligates the Emhart Industries, Inc. and Black & Decker Inc. (collectively the "Settling Defendants") to implement the selected remedy.

On May 1, 2019, EPA and Loureiro Engineering Associates, Inc, on behalf of the Settling Defendants, met with your staff to provide an overview of the remedy selected in the 2012 ROD as it pertains to the Allendale Historic District and Lymansville Mill Historic District. Both are listed on the National Register of Historic Places (NRHP) and are in the Area of Potential Effect. Based on the information presented at that meeting, there was general agreement that adverse impacts to historic resources were not likely to occur during implementation of the remedy selected for the Site. Your staff asked that we follow up that meeting with a summary of the planned remedy and a discussion of potential impacts to historic properties. That report is enclosed.

EPA has made the determination that the remedy, which primarily involves excavation, off site disposal and/or capping of contaminated sediment and floodplain soils, will not have an adverse effect on the structures and features of Allendale Mill or Lymansville Mill. Furthermore, EPA

has made the determination that due to a fire in 1972, there are no historic features or structures remaining at Centredale Manor that make it eligible for listing on the NRHP.

Please note that on May 1, we also met with Mr. Brown to discuss the potential for implementation of the cleanup plan to have adverse impacts to pre-contact, cultural resources. This is addressed in a separate report also attached and shared with Mr. Brown.

Please let me know if you have any questions or concerns about our determination of no adverse effects on Allendale Mill, Lymanville Mill and Centredale Manor. If I do not hear from you within 30 days of receipt of this letter, we will conclude that you concur with our determination and we will consider Section 106 consultation on the post-contact, historic resources complete.

Please feel free to contact me with any questions at 617-918-1232 or [krasko.anna@epa.gov](mailto:krasko.anna@epa.gov)

*Anna Krasko*

Anna Krasko  
Remedial Project Manager

Enclosure

cc: Gary Jablonski, RIDEM

# Remedial Design and Remedial Action Impacts on Historic State Resources

## Centredale Manor Restoration Project Superfund Site North Providence, Rhode Island

December 2019



**Loureiro Engineering Associates, Inc.**

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Comm. No. 07MD8.13

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**REMEDIAL DESIGN AND REMEDIAL ACTION IMPACTS ON HISTORIC STATE  
RESOURCES**

**Rhode Island Historical Preservation and Heritage Commission  
Centredale Manor Restoration Project Superfund Site  
North Providence, Rhode Island**

**December 2019**

**Prepared by**

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## **ACRONYMS**

ARAR	Applicable or Relevant and Appropriate Requirement
CD	Consent Decree
CMRP	Centredale Manor Restoration Project
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
HI	Hazard Index
LDR	Land Disposal Restriction
LEA	Loureiro Engineering Associates, Inc.
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NECC	New England Container Company, Inc.
NHPA	National Historic Preservation Act
PCB	Polychlorinated Biphenyls
PDI	Pre-Design Investigation
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RA	Remedial Action
ROD	Record of Decision
SD	Settling Defendant
SHPO	State Historic Preservation Officer
SOW	Statement of Work
TCDD	2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin
USACE	United States Army Corps of Engineers

## 1. INTRODUCTION

On July 9, 2018, the United States Environmental Protection Agency (EPA) lodged a Consent Decree (CD) with the United States District Court for the District of Rhode Island. The CD and its accompanying Statement of Work (SOW) describe the Remedial Design (RD)/Remedial Action (RA) activities to be performed for the Centredale Manor Restoration Project (CMRP) Superfund Site in North Providence, Rhode Island (Site). The RD/RA activities are to be undertaken by Emhart Industries, Inc. and Black & Decker Inc. (collectively, “Settling Defendants” or “SDs”). The Site is located at 2072 and 2074 Smith Street (Route 44), North Providence, Providence County, Rhode Island (Figure 1). The Site encompasses parts of two Rhode Island towns, North Providence and Johnston, and free-flowing reaches and impoundments of the Woonasquatucket River.

In 2011, the U.S. Army Corps of Engineers (USACE) prepared a Stage 1A Cultural Resource Survey for the Site in consultation with the EPA and Rhode Island State Historic Preservation Officer (SHPO) (Pavia, 2011). The RD/RA SOW described the need for a Stage IB cultural resources survey to comply with the National Historic Preservation Act (NHPA) and a description of an approach to determine any required levels of mitigation of any adverse effects of the remedy on the historic resources, which would be the basis for a Memorandum of Agreement with the Rhode Island SHPO.

On May 1, 2019, EPA and LEA met with staff of the Rhode Island Historical Preservation and Heritage Commission to provide an overview of the remedy selected in the 2012 Record of Decision (ROD) and the work required in the 2018 RD/RA SOW. Based on the information presented at that meeting, there was general agreement that adverse impacts to historic resources were not likely to occur during implementation of the remedy selected for the Site.

This report summarizes the elements of the remedy vis a vis the known historic resources at the Site, and, provides the basis for a determination of no adverse effects to resources listed on or eligible for listing on the National Register. The potential for adverse impacts to pre-contact, cultural resources will be addressed in a separate report.



## **2. HISTORY OF PROTECTED PLACES**

### **2.1 Lymansville Company Mill**

The Lymansville Company Mill, also known as Lymansville Mill, was added to the National Register of Historic Places in December of 2012. This large complex on the eastern bank of the Woonasquatucket River in North Providence, Rhode Island is located on the site of a former cotton factory established by Daniel Lyman in 1807 (Figure 3). The factory was built for worsted yarn and cloth manufacturing and finishing. While most of the original factory was demolished to build Lymansville Mill, the former building was used as the basis for the design of the new mill. One significant part of this mill's legacy was that it was one of the first to use power looms, which were developed by William Gilmore and David Wilkinson. The mill, designed by Auguste Albert Sack, ultimately led to the growth of a small village. The mill stayed in the Lyman family until 1877, when it was sold to F.R. and H.C. White, and then sold again in 1884 to Sack and his business partners George L. Davis and John A. Brown. It was under Sack, Davis, and Brown that the Lymansville Company formed and the Lymansville Company Mill began its period of cultural significance.

The first construction on the mill was from 1884-1885 and comprised of a Spinning and Carding Building, Boiler & Engine House, and a one-story Weave House. Mill #1, or the Spinning and Carding Building, was a three-story brick building built to produce worsted yarn with the Boiler & Engine House attached; the Boiler House was able to fit five boilers by 1905. An expansion to the complex occurred in 1887, doubling the size of Mill #1 and adding a two-story Finishing Building. The first floor of the Finishing Building was for worsted finishing, the second floor was for sorting, and the basement was for washing and scouring. The next expansion was in 1901 and included a two-story office wing for Mill #1, the addition of a one-story Dye House, and an expansion of the Weave House to twice its size. By 1901, the mill was producing 1,200,000 pounds of yarn and 1,000,000 pounds of cloth per year. Construction from 1921-1937 resulted in an extension to Mill #1 and a Factory Building attached to the back. When Sack died in 1925, the company was sold to Fred S. Peck, who was no novice to the textile industry as his family owned the wool business Asa Peck & Co. While the worsted industry suffered during the Great Depression and World War II, the company still employed about 500 workers during this time. The last owner to operate the mill was Mack Kahn, who purchased the plant in 1944. Under Kahn, a new Dye House was built, as well as the Bridge/Filter House in 1951. Kahn also modernized the plant, replacing about 90% of the machinery. However, the company still suffered financial difficulties and ultimately was forced to close in 1957. Currently, the former plant is an apartment complex, completed in 2018.

All of the above buildings and structures contribute to the complex that is protected under the National Register. In addition, the hydraulic features of the mill collectively are all counted as a contributing structure because Lymansville Mill was water-powered until circa 1942. By 1890, the plant was steam powered for all but 4 months of the year, in which it was powered by water. These hydraulic components include the Lymansville Dam (Rhode Island Department of Environmental Management State ID 134), the headrace, and the tailrace.

The state significance of the Lymansville Mill falls under criteria A and C on the nomination form (Sanderson, 2012). Criterion A states “Property is associated with events that have made a significant contribution to the broad patterns of our history.” This is true for Lymansville Mill due to its link with worsted manufacturing in the 1800s and 1900s. Part of its unique significance is that it was the only mill in the United States at the time that conducted all the processes in-house, from raw wool to the finished product. Rhode Island was a textile frontrunner and ranked 3<sup>rd</sup> for the production of worsted goods. Even the end of its historical period was a reflection of world history because it showed the decline of the worsted industry after World War II. Criterion C states “Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.” The mill complex contains the features of a classic late 19<sup>th</sup> and early 20<sup>th</sup> century Rhode Island woolen and worsted mill, with representative architecture and purposeful features.

## 2.2 Allendale Mill

Allendale was a cotton and woolen mill built in 1822 by Zachariah Allen, Junior. Architect John Holden Green oversaw the construction of the 5-story mill, 3 dwellings, the Picking House, the blacksmith, and the dam, as well as the Allen family’s personal home. Other buildings that were part of Allendale include the Greek Revival stone company store, boarding houses, a Baptist Sunday School Building, and Gothic cottages. The present mill, protected under the National Register of Historic Places consists of the original mill, 11 additions, and five outbuildings (Figure 2). While Allendale Mill was representative of woolen and cotton mills of that era, the true historical significance was in the construction. It was the first American textile mill to integrate attributes for fire prevention. These features included “heavy fire doors, a sprinkler system, a rotary fire pump, and a copper-riveted fire hose”. It is also the first to use “slow-burning” construction, in which large beams, thick flooring, and shingles in mortar were used to make the structure and roof of the building more resistant to fire. This led to Allen starting the Manufacturers’ Mutual Fire Insurance Company of Rhode Island in 1815. It eventually merged with the Firemen’s Mutual Insurance Company and became one of the biggest fire insurance companies in the world. Additional historical significance lies in the fact that it was the first mill to use a power loom in

order to manufacture broadcloth, one of the first to use calendaring, which is a process that leaves a glossy finish on the cloth, and was unique in that the building had dormer windows in the roof rather than a “trap door or shed-roofed monitor.”

The Allendale Historic District includes the mill village with the remaining cottages, store, chapel, and the pond. In a twist of irony, the mill caught fire in 1878 and suffered a large amount of water damage. The mill continued to produce textiles, however, until 1976. Between 1976 and 1993, it was used for a diversity of short term commercial uses until finally being converted to the Mill at Allendale Condominiums in 1993. As for the hydraulic components of the mill, the Allendale Pond was created in 1822 when the Allendale Dam was built to pond water near the mill. From the pond, the headrace directed some of the water through the water wheel, powering the mill machinery. With the building materials being primarily wood, which began to rot, the dam breached on November 26, 1991, but was replaced with a 13 foot tall concrete dam in 2001. During the construction of the concrete dam, remnants of the wooden dam including timbers set within the river bed at the base of the existing dam and the underlying sediment were excavated, cut, chipped, and disposed of along with sediment and disposed of off-Site. The timber frame located on the upstream side of the new dam remained in place, as any attempt to remove this structure would have jeopardized the safety of the dam reconstruction activities.

### 2.3 **Centredale**

The Centredale Worsted Mill was located on what is now referred to as the Source Area of the Centredale Manor Restoration Project. Centredale Village, the community that grew around the mill, was located on the site of former contained saw and grist mills, and a gunpowder mill that was established in 1776 and was Rhode Island’s only source of gunpowder in the Revolutionary War. When it was demolished by an explosion in 1779, the gunpowder mill was never rebuilt. Nearby, the Centre Cotton Manufacturing Mill was built in 1812 by Israel Arnold on the site of a former saw and grist mill. The mill attracted other small business and residents, and eventually the area became to be known as Centredale. Despite two fires burning down the mill in 1850 and 1889, it was rebuilt each time and remained in business. When the profitability of cotton declined, the company changed to the Centredale Worsted Mill in 1890 and began manufacturing worsted yarn, greatly increasing the size of the mill.

Circa 1940, the Atlantic Chemical Company - later known as Metro-Atlantic Inc. in 1953 - took over and began chemical production in place of worsted manufacturing at the former Centredale Worsted Mill. In 1952, the New England Container Company, Inc. (NECC) began operations nearby on the Site’s Source Area (Drawing 1). NECC was an incinerator-based drum reconditioning facility, with part of the land also being used as a dump. In 1972, a fire broke out

and nearly everything was demolished. The site is currently occupied by Brook Village, built in 1977, and Centredale Manor, built in 1982. In 2000, the EPA added the site to the National Priorities List due to the elevated levels of contamination found on the site from the various chemical-related activities and fires. A more detailed site background can be found in the 2012 ROD.

### 3. RELEVANT RD/RA ACTIVITIES

#### 3.1 Planned and Ongoing Activities

Based on the conceptual model for the Centredale Manor Restoration Project and previous environmental assessments, it was determined that contamination is located in the soil, groundwater, sediment, and surface water both in the Source Area and downstream. The entire Site extends down the Woonasquatucket River from Route 44 to Lyman Mill Dam with the river centerline being the North Providence/Johnston municipal boundary as shown in Drawing 1. The Site consists of all contaminated areas within the river, its impoundments, and floodplain, as well as any other location to which contamination from that area has come to be located, or from which that contamination came. Due to the extent and level of contamination, future work plans will address the following remedial action objectives (RAOs), divided by matrix (EPA, 2012):

##### 3.1.1 Source Area Soil

###### *RAOs*

Prevent direct human exposure by incidental ingestion of and dermal contact with Source Area soil that contain contaminants at concentrations in excess of Applicable or Relevant and Appropriate Requirements (ARARs) and EPA's recommended residential level for polychlorinated biphenyls (PCBs).

Prevent direct human exposure by incidental ingestion of and dermal contact with Source Area soil that contain contaminants in concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-5}$  to  $10^{-6}$  and/or a hazard index (HI) greater than 1.

In addition, prevent leaching or migration of contaminants from vadose zone soil that would result in groundwater contamination in excess of ARARs.

###### *Future Work Plans*

The remedy for the Source Area consists of constructing a Resource Conservation and Recovery Act (RCRA) Subtitle C cap that covers the majority of the Source Area. Certain areas of the Site (e.g., landscape area around Centredale Manor and portions of the tailrace) will be excavated and consolidated on site underneath the RCRA Subtitle C cap in unpaved areas. A drawing depicting the excavation area and extent of the RCRA Subtitle C cap is attached as Appendix A.

### 3.1.2 Groundwater

#### *RAOs*

Prevent migration of contaminants from groundwater within the Source Area that would result in surface water contamination in excess of ARARs.

Prevent migration of contaminants from groundwater that could indirectly lead to unacceptable human health risks, and/or that could result in exceedance of sediment cleanup levels.

Prevent direct human exposure by dermal contact with or ingestion of groundwater by receptors within the Source Area that contain contamination in excess of ARARs.

Comply with the Rhode Island's GB groundwater classification at the Source Area.

#### *Future Work Plans*

It is important to note that the groundwater classification has been modified from the federal Class IIB to the RI GB classification since the ROD was written, as stated in an Explanation of Significant Differences (ESD) dated September 2019 (EPA, 2019). Due to this change in groundwater classification, the ARARs will change so that they no longer include Maximum Contaminant Levels (MCLs) and non-zero Maximum Contaminant Level Goals (MCLGs). The ESD also changed the foot print of the groundwater cleanup area from 8 to 0.13 acres where a prior removal action took place in 2009-2010. Long-term monitoring of the groundwater will take place using existing monitoring wells, and institutional controls will prohibit the installation of drinking water wells to prevent dermal contact with contaminated groundwater.

### 3.1.3 Allendale Pond and Lyman Mill Pond Sediment

#### *RAOs*

Prevent direct human exposure by incidental ingestion of and dermal contact with sediments containing contaminants at concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1.

Prevent human ingestion of fish and other aquatic organisms containing contaminants at concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1.

Prevent dermal contact and ingestion by ecological receptors to sediment containing contaminants at levels that would result in unacceptable impacts.

Prevent migration of contaminants from sediment that would result in River surface water concentrations in excess of ARARs or migration of contaminants downstream that could result in exceedance of sediment cleanup levels.

Reduce contaminant concentrations in fish and other aquatic organisms so that they no longer present an unacceptable human health risk (a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1).

### *Future Work Plans*

Contaminated sediment above cleanup levels will be removed by excavation, to anticipated depths of three to four feet up to the entirety of the soft depositional sediment layer. Most of the excavated sediment will be solidified and disposed of off-site at a Subtitle D Landfill. A Pre-Design Investigation (PDI) will be performed to provide enough data to generate a three-dimensional quantitative analysis of the sediments to plan the sediment excavation without the need for further confirmation sampling and analyses.

The ROD identifies that an estimated 10 percent of the excavated sediment will contain concentrations above the Land Disposal Restriction (LDR) criteria. This sediment will be excavated, dewatered, and shipped off site for incineration. The PDI will be performed to provide enough data to generate a three-dimensional delineation of all areas of sediment contamination in excess of the applicable LDRs.

Following excavation, a thin layer cover (sand, gravel and natural benthic support layer to reduce erosion potential and provide habitat support) will be installed over all excavated areas with a goal of achieving unlimited recreational use of the pond without relying on maintenance and/or the implementation of institutional controls.

#### 3.1.4 Allendale Floodplain Soil

### *RAOs*

Prevent direct human exposure by incidental ingestion of and dermal contact with sediments containing contaminants at concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1.  
Prevent human ingestion of fish and other aquatic organisms containing contaminants at concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1.

Prevent dermal contact and ingestion by ecological receptors to sediment containing contaminants at levels that would result in unacceptable impacts.

Prevent migration of contaminants from sediment that would result in River surface water concentrations in excess of ARARs or migration of contaminants downstream that could result in exceedance of sediment cleanup levels.

Reduce contaminant concentrations in fish and other aquatic organisms so that they no longer present an unacceptable human health risk (a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1).

### *Future Work Plans*

The ROD calls for remediation (via excavation) of all residential floodplain soil that exceeds background levels for several contaminants including 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (TCDD). The conceptual site model for the occurrence of contamination in floodplain soil is that contaminants from the Source Area were transported with flood waters and subsequently deposited on the surface of areas impacted by the flooding. As such, even after many years of repeated flooding and associated deposition, the contamination will be surficial (certainly within the top foot of soil) unless fill has been placed in the floodplain after a flood event resulting in contamination. The extent of contamination is believed to be confined within the 100-yr flood elevation and to a depth of one foot below ground surface. A PDI will be performed to confirm the depth and extent of contaminated floodplain soils.

#### 3.1.5 Lyman Mill Stream Sediment and Floodplain Soil (Including Oxbow)

##### *RAOs*

Prevent direct human exposure by incidental ingestion of and dermal contact with floodplain soil containing contaminants at concentrations in excess of ARARs.

Prevent direct human exposure by incidental ingestion of and dermal contact with floodplain soil containing contaminants that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-5}$  to  $10^{-6}$ , and/or an HI greater than 1.

Prevent direct human exposure by incidental ingestion of and dermal contact with sediments containing contaminants at concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1.

Prevent human ingestion of fish and other aquatic organisms containing contaminants at concentrations that would result in a total excess lifetime cancer risk greater than the target risk range of  $10^{-4}$  to  $10^{-6}$  or an HI greater than 1.

For ecological receptors, prevent dermal contact and ingestion of floodplain soil/sediment containing contaminants at levels that would result in unacceptable impacts.



For ecological receptors, maximize hazard reduction and minimize remediation related habitat loss (floodplain soil).

Prevent migration of contaminants from floodplain soil and sediment that would result in River surface water concentrations in excess of ARARs or migration of contaminants that could result in exceedance of sediment cleanup levels.

#### *Future Work Plans*

The ROD contemplated that the remedy would include excavation and removal of contaminated sediment and floodplain soil from targeted areas within the ecological habitat and recreational-use cleanup areas and/or placement of a thin layer, sand cover over the other areas where soil/sediment remains above cleanup levels. It was subsequently determined that the risk of re-contaminating Lyman Mill Pond from the erosion of the sand cover could not be adequately mitigated using engineered controls. Consequently, full excavation to anticipated depths of three to four feet up to the entirety of the soft depositional sediment layer with the ponds and one to two feet within floodplain soils would be the practical remedy for these areas. Lyman Mill stream sediment will be investigated and remediated in the same manner as described Section 3.1.3 Allendale Pond and Lyman Mill Pond Sediment. Lyman Mill Floodplain Soil (Including Oxbow) will be investigated and remediated in the same manner as described in Section 3.1.4 Allendale Floodplain Soils.

#### 3.1.6 Allendale and Lyman Mill Surface Water

##### *RAOs*

Prevent migration of contaminants from floodplain soil and sediment that would result in surface water concentrations in excess of ARARs.

##### *Future Work Plans*

The expected outcome of the components of the selected remedy that address soil, floodplain soil, groundwater and sediment should result in attainment of the surface water standards.

#### 4. IMPACTS TO KNOWN HISTORIC RESOURCES

This section describes how the selected remedy when implemented will affect Allendale Mill and Lymansville Mill, which are both included on the National Register of Historic Places, and Centredale Manor.

Allendale Mill Historic District The areas requiring cleanup in the vicinity of Allendale Mill are shown on Figure 2. Contaminated sediment that has come to be deposited in the former Allendale Mill tailrace will be excavated; a thin layer, sand cover may be installed over the excavated areas. Contaminated floodplain soils will also be excavated. These areas will be restored to existing conditions. There will be no adverse impacts to buildings in this historic district from the planned excavation of contaminated sediment and floodplain soil.

Lyman Mill Historic District The areas requiring cleanup in the vicinity of Lymansville Mill are shown on Figure 3. Contaminated floodplain soils and sediment will be excavated. In order to facilitate the remedial action in Lyman Mill Pond and the Oxbow area, it is expected that the sluice gate on Lyman Mill Dam will need to be repaired in order to lower the water level in the pond. There will be no adverse impacts to buildings in this historic district from the planned excavation of contaminated sediment and floodplain soil.

Centredale Manor Due to a fire in 1972, there are no historic features or structures remaining that make it eligible for listing on the National Register of Historic Places.

## 5. REFERENCES

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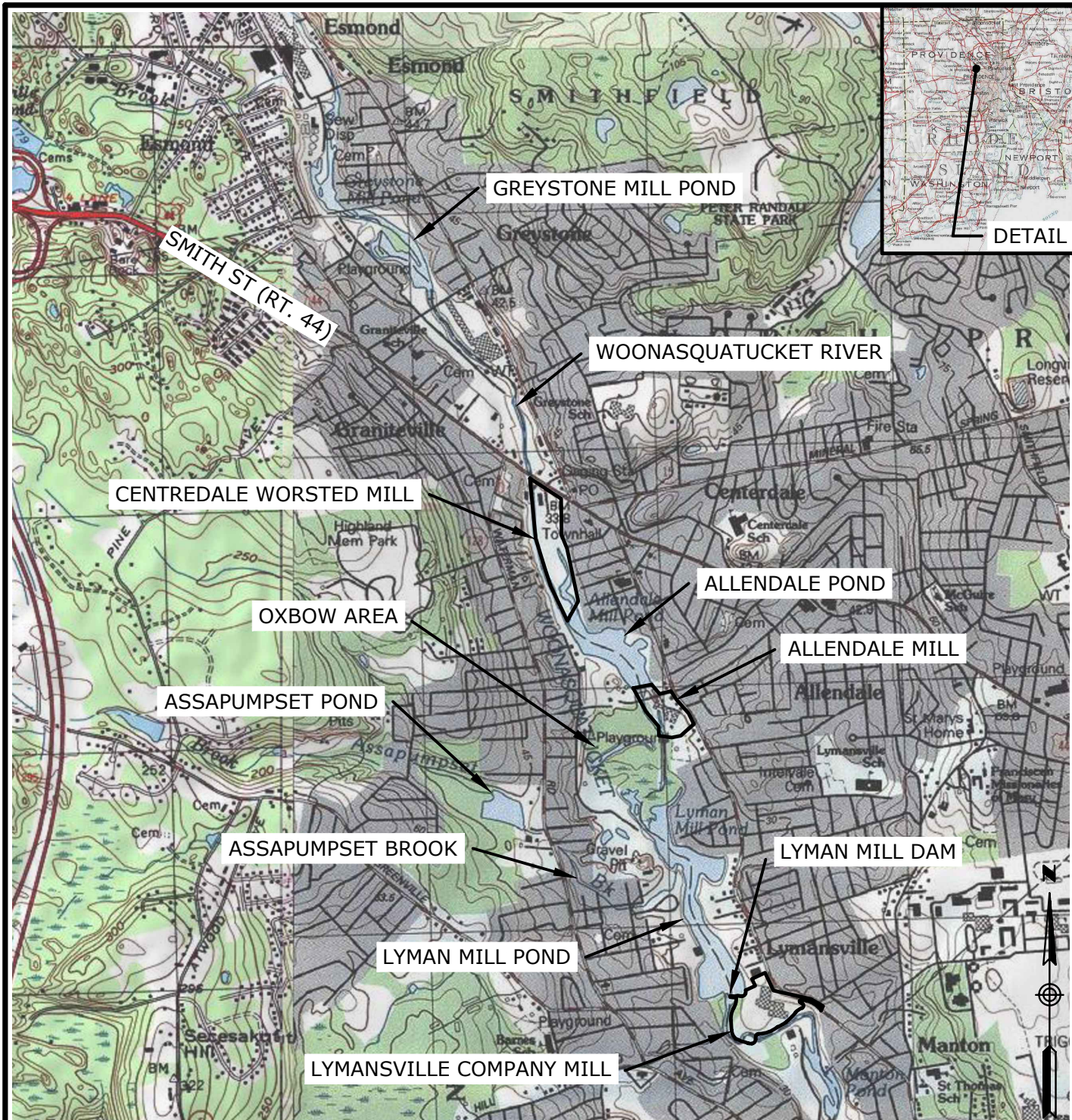
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## FIGURES

**FIGURE 1**  
**Site Location Map**

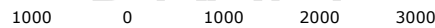




**MAP REFERENCES:**

1. SECTION OF THE USGS 7.5 MINUTE SERIES TOPOGRAPHIC MAP FOR PROVIDENCE, RI. MAP VERSION DATE 1966, PAWTUCKET, RI. MAP VERSION DATE 1998, GEORGIAVILLE, RI. MAP VERSION DATE 1999, NORTH SCITUATE, RI. MAP VERSION DATE 1996, MAP CREATED WITH TOPO! © 2006 NATIONAL GEOGRAPHIC & © 2005 TELE ATLAS, NORTH AMERICA, INC., RELEASE 08/2005.
2. "UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE/NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM 10-900, LYMANVILLE COMPANY MILL, PROVIDENCE COUNTY, RI". 2012.
3. "NEW ENGLAND TEXTILE MILL SURVEY II, ALLENDALE MILL, CENTREDALE (NO. PROVIDENCE), PROVIDENCE COUNTY, HISTORIC AMERICAN BUILDINGS SURVEY". SURVEY NO. R1 302, SHEET 1 OF 5. DATE 1968. OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR.

**DRAFT**



APPROXIMATE SCALE IN FEET

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**SITE LOCATION MAP**

---

CENTREDALE MANOR RESTORATION PROJECT SUPERFUND SITE

---

PREPARED FOR:

**EMHART INDUSTRIES, INC. AND BLACK & DECKER INC.**  
701 E. JOPPA ROAD, TOWSON, MARYLAND

SCALE  
**1" = 2000'**

---

COMM. NO.  
**07MD813**

---

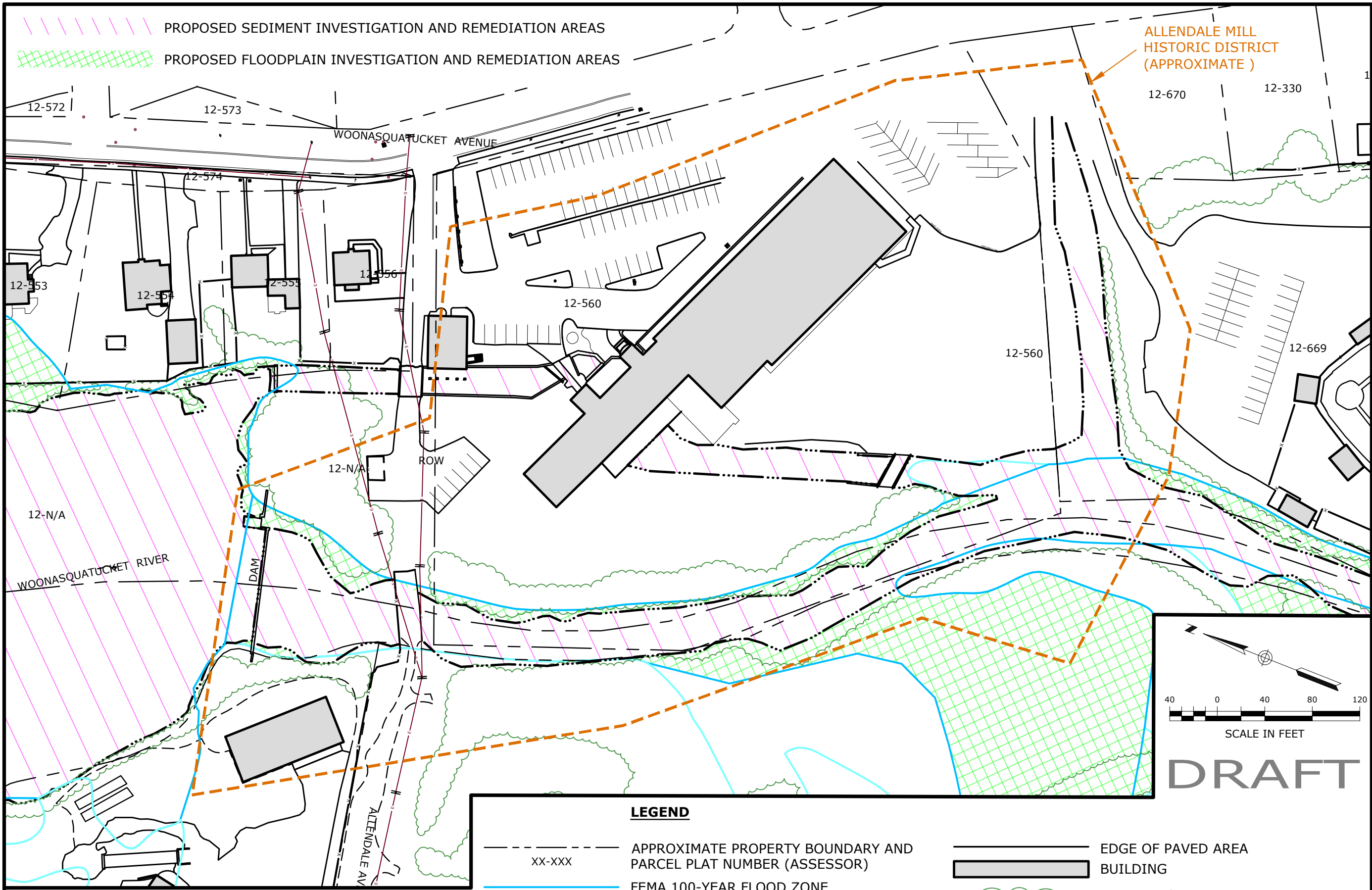
DATE  
**08/02/2019**

**FIGURE 1**

**FIGURE 2**

**Allendale Historic District**





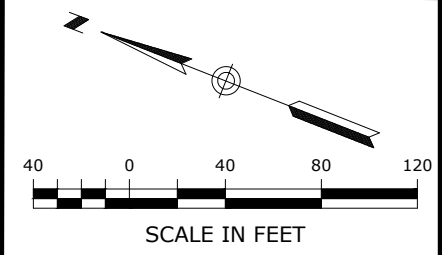
ALLENDALE MILL HISTORIC DISTRICT (APPROXIMATE)

PROPOSED SEDIMENT INVESTIGATION AND REMEDIATION AREAS  
 PROPOSED FLOODPLAIN INVESTIGATION AND REMEDIATION AREAS

MAP REFERENCES:  
 1. "UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE/NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM 10-900, LYMANVILLE COMPANY MILL, PROVIDENCE COUNTY, RI". 2012.  
 2. "NEW ENGLAND TEXTILE MILL SURVEY II, ALLENDALE MILL, CENTREDALE (NO. PROVIDENCE), PROVIDENCE COUNTY, HISTORIC AMERICAN BUILDINGS SURVEY". SURVEY NO. R1 302, SHEET 1 OF 5. DATE 1968. OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR.

**LEGEND**

XX-XXX	APPROXIMATE PROPERTY BOUNDARY AND PARCEL PLAT NUMBER (ASSESSOR)	—	EDGE OF PAVED AREA
— (Blue)	FEMA 100-YEAR FLOOD ZONE	▭ (Grey)	BUILDING
— (Cyan)	FEMA 500-YEAR FLOOD ZONE	— (Green)	TREELINE/VEGETATION
— (Dashed)		— (Dotted)	EDGE OF WATER COURSE/WATERBODY
— (Red)		— (Red)	ELECTRICAL/OVERHEAD LINES



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SCALE  
**1" = 80'**

COMM. NO.  
**07MD813**

DATE  
**08/09/2019**

ALLENDALE MILL HISTORIC DISTRICT

REMEDIAL DESIGN AND REMEDIAL ACTION IMPACTS ON CULTURAL RESOURCES FOR RHODE ISLAND HISTORICAL PRESERVATION AND HERITAGE COMMISSION

PREPARED FOR:  
**EMHART INDUSTRIES, INC. AND BLACK & DECKER INC.**  
 701 E. JOPPA ROAD, TOWSON, MARYLAND

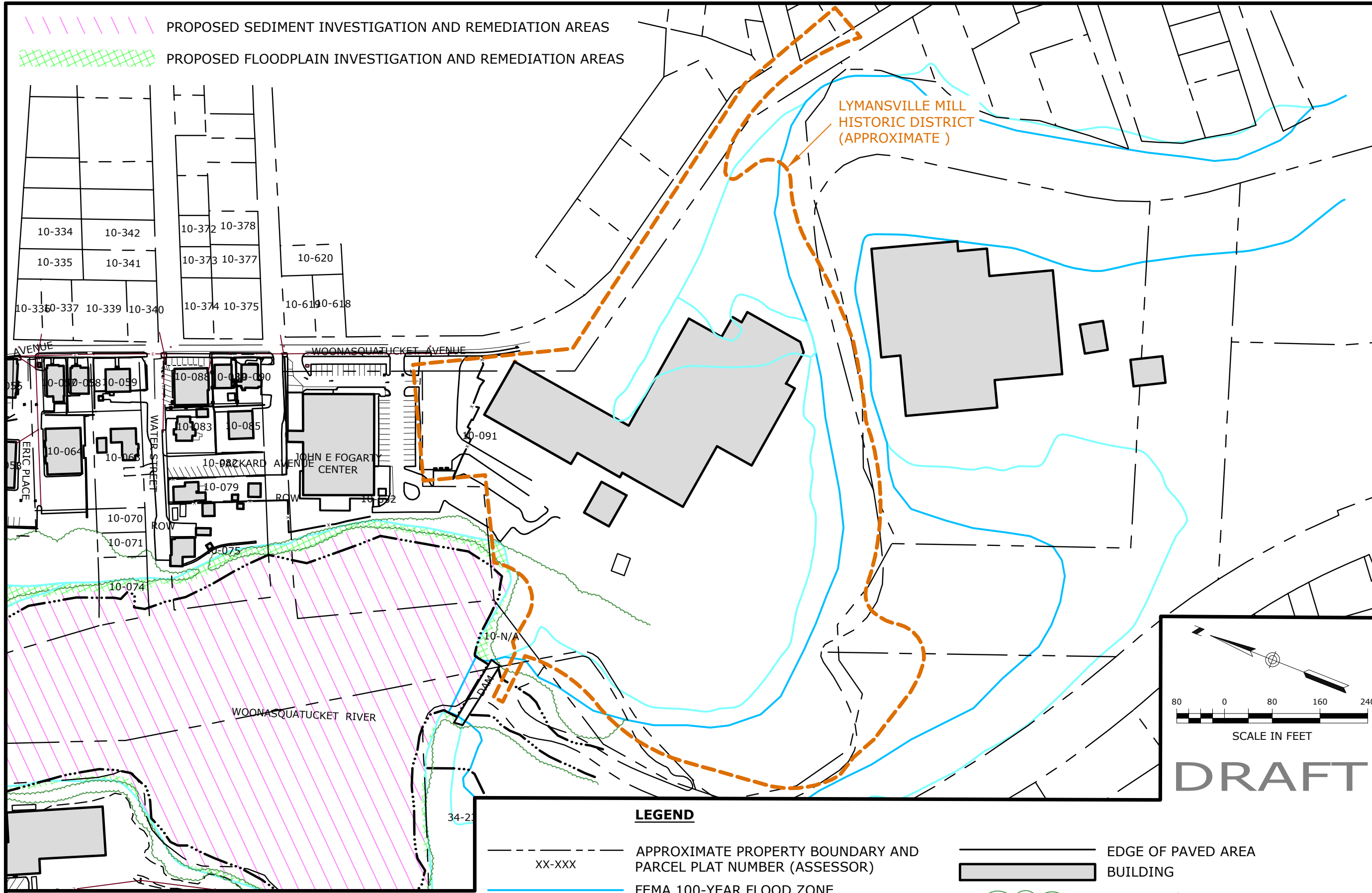
**FIGURE 2**

V:\RI\NORTH PROVIDENCE\SMITH ST\CMRP-07MD813\DWGS\SITEWIDE ENVIRONMENTAL\RI\_SHPD\RI\_SHPD.DWG Tab: AM\_SHPD Saved: 8/9/2019 4:03 PM Plotted: 8/9/2019 4:07 PM



**FIGURE 3**

**Lymansville Mill Historic District**



MAP REFERENCES:  
 1. "UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE/NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM 10-900, LYMANVILLE COMPANY MILL, PROVIDENCE COUNTY, RI". 2012.  
 2. "NEW ENGLAND TEXTILE MILL SURVEY II, ALLENDALE MILL, CENTREDALE (NO. PROVIDENCE), PROVIDENCE COUNTY, HISTORIC AMERICAN BUILDINGS SURVEY". SURVEY NO. R1 302, SHEET 1 OF 5. DATE 1968. OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR.

**LEGEND**

--- XX-XXX	APPROXIMATE PROPERTY BOUNDARY AND PARCEL PLAT NUMBER (ASSESSOR)	—	EDGE OF PAVED AREA
—	FEMA 100-YEAR FLOOD ZONE	■	BUILDING
—	FEMA 500-YEAR FLOOD ZONE	~	TREELINE/VEGETATION
---		---	EDGE OF WATER COURSE/WATERBODY
---		---	ELECTRICAL/OVERHEAD LINES

80 0 80 160 240  
 SCALE IN FEET  
**DRAFT**

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SCALE  
**1" = 160'**

COMM. NO.  
**07MD813**

DATE  
**08/09/2019**

**LYMANVILLE MILL HISTORIC DISTRICT**

REMEDIAL DESIGN AND REMEDIAL ACTION IMPACTS ON CULTURAL RESOURCES FOR RHODE ISLAND HISTORICAL PRESERVATION AND HERITAGE COMMISSION

PREPARED FOR:  
**EMHART INDUSTRIES, INC. AND BLACK & DECKER INC.**  
 701 E. JOPPA ROAD, TOWSON, MARYLAND

**FIGURE 3**

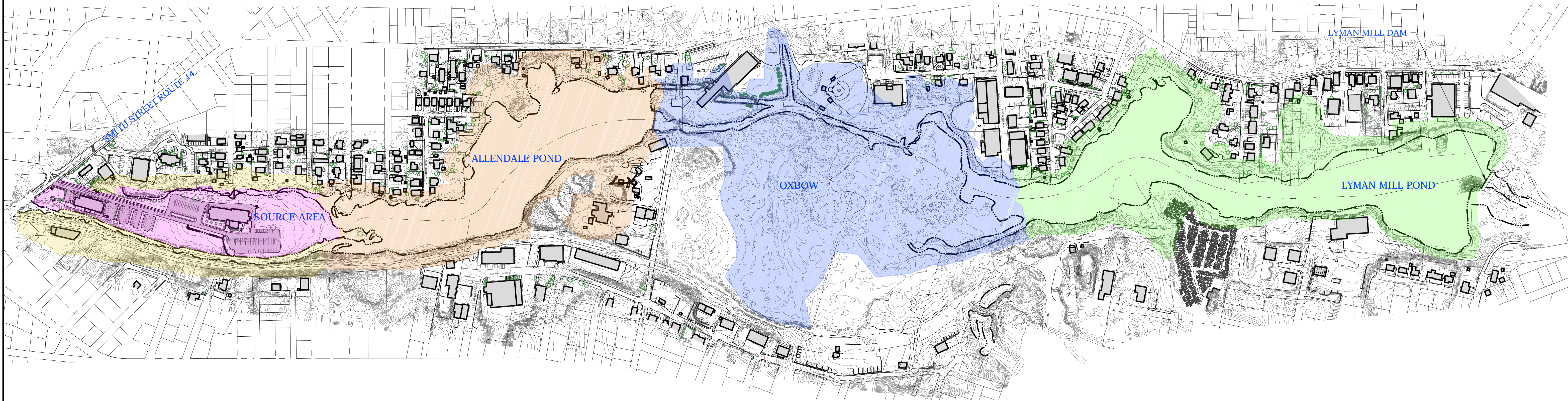
V:\RI\NORTH PROVIDENCE\SMITH ST\CMPR-07MD813\DWGS\SITEWIDE ENVIRONMENTAL\RI\_SHPD\RI\_SHPD.DWG Tab: LM\_SHPD Saved: 8/9/2019 4:03 PM Plotted: 8/9/2019 4:05 PM

## **DRAWINGS**

**DRAWING 1**

**Site Plan**



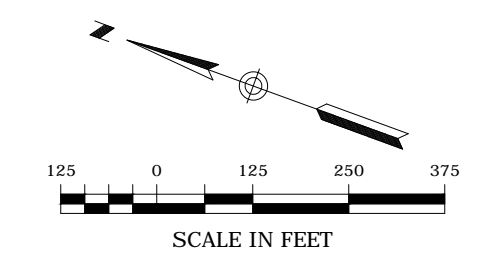


- LEGEND**
- APPROXIMATE PROPERTY BOUNDARY
  - EDGE OF PAVED AREA
  - ▭ BUILDING
  - TOPOGRAPHIC CONTOUR
  - EDGE OF WATER COURSE/WATERBODY
  - ● VEGETATION
  - SOURCE AREA
  - ALLENDALE POND SEDIMENT AND FLOODPLAIN SOILS, 2018 ACTIVITIES
  - ALLENDALE POND SEDIMENT AND FLOODPLAIN SOILS, 2019-2021 ACTIVITIES
  - OXBOW AREA AND LYMAN MILL STREAM SEDIMENT
  - LYMAN MILL POND SEDIMENT AND FLOODPLAIN SOILS

**MAP REFERENCES:**

1. JOHNSTON, RHODE ISLAND PARCELS WERE PROVIDED BY APPLIED GEOGRAPHICS INC. LAST UPDATED ON 12/08/17.
2. NORTH PROVIDENCE, RHODE ISLAND PARCELS WERE PROVIDED BY THE TOWN OF NORTH PROVIDENCE GIS DEPARTMENT.

**DRAFT**



<b>SITE PLAN</b> <b>REMEDIAL DESIGN WORK PLAN</b> CENTREDALE MANOR RESTORATION PROJECT SUPERFUND SITE <b>EMHART INDUSTRIES, INC. AND BLACK &amp; DECKER INC.</b> 701 E. JOYPA ROAD, TOWSON, MARYLAND		SCALE 1" = 250' CORN. NO. 07MD099	DATE 08/24/2018	DATE 08/24/2018
		DRAWN BY PJA	APPROVED BY DWP	DATE 08/24/2018
SHEET NO. 1		NO. OF SHEETS 1		DATE 08/24/2018
REVISION NO. 1		DESCRIPTION OF REVISION		DATE





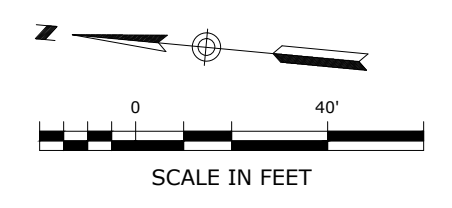
## **Appendices**

**Appendix A**  
**Source Area Cap Remedial Design Drawing**





- LEGEND**
- REMEDIAL EXCAVATION
  - RCRA SUBTITLE C CAP IN LANDSCAPED AREA
  - RCRA SUBTITLE C CAP IN PAVED AREA



<b>SCALE</b> 1" = 40'		<b>DATE</b> 09/07/2019	
<b>CONTR. NO.</b> 07WD813	<b>DESIGNED BY</b> GAR/GEF	<b>APPROVED BY</b> ECK	<b>DATE</b> 09/07/2019
<b>STAMP</b>			
<p style="font-size: small; text-align: center;"> <b>Loureiro</b>              Engineering &amp; Construction • 1932 • Energy              Loureiro Engineering &amp; Construction, Inc.              100 Northwood Drive • Fairfield, Connecticut 06424              Phone: 860-742-6333 • Fax: 860-742-8822              An Equal Opportunity Employer              © Loureiro Engineering &amp; Construction, Inc. All rights reserved 2019           </p>			
<b>SOURCE AREA CAP REMEDIAL DESIGN</b> <b>CENTREDALE MANOR RESTORATION PROJECT SUPERFUND SITE</b> <b>Emhart Industries, Inc. &amp; Black And Decker, Inc.</b>			
<b>DRAWING</b> <b>A-1</b>		<b>SHEET NO.</b> 1	<b>NO. OF SHEETS</b> 1
		<b>REV.</b>	<b>DESCRIPTION OF REVISION</b>
		<b>DATE</b>	<b>APPR.</b>