

Tighe & Bond

Former Lunt Silversmiths
298 Federal Street
Greenfield, Massachusetts

Analysis of Brownfields Cleanup Alternatives

Prepared For:

**FRCOG & Town of Greenfield
Greenfield, Massachusetts**

July 2015

Section 1 Introduction

1.1 Site Description..... 1-1
1.1.1 Surrounding Area Description..... 1-2
1.1.2 Environmental Setting..... 1-2
1.1.3 Site History 1-2

Section 2 Previous Investigations

2.1 2011 ASTM Phase I ESA 2-1
2.2 2012 Phase II ESA..... 2-2
2.3 March 2013 Supplemental Phase II Field Program 2-2
2.4 2014 Removal Program Preliminary Assessment/Site Investigation Report
..... 2-3
2.5 2015 EPA Removal Action 2-3

Section 3 Analysis of Brownfields Cleanup Alternatives

3.1 Areas of Proposed Remediation 3-1
3.2 Remedial Alternatives Evaluation 3-1
3.2.1 Option 1 -No Action 3-2
3.2.2 Option 2 - Soil Excavation and Implementation of a Groundwater
Treatment System 3-2
3.2.3 Option 3 - Soil Capping, Installation of a Groundwater Treatment
System and Implementation of an AUL 3-3

Section 4 Comparative Analysis of Alternatives

4.1 Recommendations 4-1

Section 5 Documentation and Reporting

5.1 State Reporting Requirements..... 5-1
5.2 Public Notice 5-1
5.3 Quality Assurance Project Plan (QAPP)..... 5-1
5.4 Post Remediation Groundwater Sampling and System Monitoring 5-1

Appendices

A Figures

Section 1

Introduction

This Analysis of Brownfields Cleanup Alternatives (ABCA) has been prepared for the former Lunt Silversmiths property located at 298 Federal Street in the Town of Greenfield, Franklin County, Massachusetts (the site). This ABCA report addresses the health and safety issues associated with elevated concentrations of volatile organic compounds (VOCs) in soil and groundwater and metals in soil previously detected at the site. In addition, hazardous materials have been identified in building materials at the site. A Locus Map, Department of Environmental Protection (MassDEP) Priority Resource Areas map and an Orthophotograph are provided in Appendix A as Figures 1, 2 and 3, respectively.

This ABCA has been prepared for submittal to the United States Environmental Protection Agency (EPA) pursuant to the requirements of the EPA Brownfields program. The ABCA has been prepared in conformation with the EPA guidance for cleanups with Federal grant funds. The ABCA provides the following information to allow public comment on the environmental clean-up strategy selected for the site.

1. Summarize site background and the environmental conditions that warrant remediation
2. Identify the goals of the clean-up
3. Provide an analysis of clean-up alternatives on the basis of effectiveness, feasibility and cost
4. Describe the selected remedy and rationale

1.1 Site Description

According to the Town of Greenfield's Assessor's records, the site was formerly owned by Lunt Silversmiths, Inc. of Greenfield, Massachusetts. The site consists of one parcel of land located on the west side of Federal Street between Norwood and Kenwood Streets in the Town of Greenfield, Franklin County, Massachusetts. The Assessors card indicates that the property is zoned as General Industry, however, according to Eric Twarog from the Greenfield Department of Planning and Development, the property was rezoned to Limited Commercial on October 15, 2014. Multiple vacant industrial buildings that range between one and two stories are located on the property. The parcel is 4.72 acres in size. As previously noted, a Locus Map is provided as Figure 1 in Appendix A.

According to the Greenfield's Assessor's office, the site is listed as Parcel 95-1, as indicated on the Assessors card, which is provided in Appendix B. The geographical location of the site is 42.6007000° north latitude and -72.5946000° west longitude. The Universal Transverse Mercator (UTM) coordinates for the site are 697335.4 meters Easting and 4719065.0 meters Northing.

The site occupies an area of 4.72 acres and contains multiple connected buildings that were formerly occupied by Lunt Silversmiths. The buildings range between one and two-stories with an attic and several basements. The buildings are heated by steam and oil and are currently vacant.

1.1.1 Surrounding Area Description

The parcel is situated in a mixed commercial and residential section of Greenfield. Residences are located to the south and north of the site along Kenwood and Norwood Streets. The former design center and restaurant is connected on the north side to the manufacturing buildings, but was not included in this assessment. Ball fields, which are now owned by the Town, are located to the west of the site.

Commercial businesses including a Cumberland Farms gasoline station, Sunoco gasoline station, Tire Warehouse, and an automobile sales (no name was observed on the property) business are located across Federal Street to the east of the site. An Aubuchons Hardware Store is located across Norwood Street to the north. Goly's Garage and the former Franklin County Plumbing Supply Store (now vacant) abut the site to the south across Kenwood Street.

1.1.2 Environmental Setting

The site location is illustrated on the USGS Topographic Map for the Greenfield, Massachusetts Quadrangle (Figure 1, Appendix A). Figure 1 indicates that the site is relatively level and is located at an elevation of 272 feet above sea level.

According to the MassDEP Priority Resource Areas map (Figure 2 in Appendix A); the site is not located within a half mile of a mapped Potentially Productive Aquifer, MassDEP Approved Wellhead Protection Area (Zone II) or Interim Wellhead Protection Area. Several Protected and Recreational Open Space areas lie within a half-mile radius of the site – including the ball fields which abut the site to the west.

1.1.2.1 Surficial and Bedrock Geology

The dominant soil composition in the general area of the subject site is identified by the U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS). Soil composition maps are available online via SCS and were reviewed as part of a Phase I Environmental Site Assessment (ESA). According to the SCS, soil at the site is mapped as Windsor, consisting of loamy sands. The soils have high infiltration rates and high hydraulic conductivity. Depth to the water table is reported as greater than six feet and depth to bedrock is generally greater than 60 inches.

According to the Geologic Map of the Greenfield Quadrangle, Massachusetts - Surficial Geology by Kenneth Segerstrom (USGS, 1959), the surficial geology of the site is identified as stream-laid silt, sand, and gravel.

According to the USGS Geologic Map of the Greenfield Quadrangle, Massachusetts, the site is underlain by the Sugarloaf Arkose, a red arkose consisting of pebble conglomerate to very coarse boulder conglomerate dominated by fragments of phyllite, amphibolite and biotite gneiss.

1.1.3 Site History

Site history research was conducted as part of a Phase I ESA completed in December 2014. A search was conducted by EDR of Sanborn Fire Insurance Maps, city directories, and previous reports completed for the site.

According to the Greenfield Assessors card, the site buildings were constructed in 1850. The earliest Sanborn Fire Insurance map, dated 1896, shows the site was occupied by AF. Towle and Son Company, "manufacturers of sterling silver and silver plated ware." The 1902 map shows the buildings in the same configuration, but additional storage

buildings have been added on the west side of the property and a Coal House is located in the approximate location of a current fuel oil aboveground storage tank (AST). On the 1902 and 1909 maps, the business is identified as Rogers, Lunt and Bowen Co.

The 1914 map shows an underground gas tank that is “not used” adjacent to an Oil House on the north side of the site. The gas tank is not shown on subsequent maps.

On the 1948 map, the two buildings located on the southeastern corner of the site, that were formerly occupied by T. Morey and Son Printers, are now shown as part of the subject property.

City Directories: City Directory street listings for 2013, 2008, 2003, 1999, 1995, 1992, 1973, 1967, and 1961 were also reviewed as part of the Phase I ESA. The listings are by site address so they also include the former design center building which is not included in this investigation, but there is no differentiation in the directories. The directory findings are summarized below in Table 1-1.

TABLE 1-1
City Directory Summary

Year	Occupant
2013	No listing
2008	Cunnill USA, Inc.
	Lunt Silversmiths Rogers, Lunt and Bowlen Co.
2003	Couzon USA, Inc.
	Lunt Silversmiths Artisans Restaurant Lunt Design Center & Marketplace
1999	Lunt Design Center Restaurant
	Lunt Direct Lunt Silversmith Rogers, Lunt, and Bowlen Silversmiths
1961 - 1995	Lunt Silversmith Rogers, Lunt, and Bowlen Silversmiths

Section 2

Previous Investigations

As part of the redevelopment efforts several investigations have been conducted to determine whether any environmental concerns are present at the site. The most recent investigations are summarized below.

2.1 2011 ASTM Phase I ESA

In 2011, Weston & Sampson Engineers (W&S) of Peabody, Massachusetts conducted a Phase I Site Assessment under the Franklin Regional Council of Government's (FRCOG's) EPA Brownfields program. The Phase I included the subject parcel as well as the ball fields located to the west of the industrial buildings. At the time of the Phase I ESA, the ball fields were part of the parcel and were formerly owned by Lunt Silversmiths. The major findings of the Phase I were:

- The site consists of two parcels totaling 10.8-acres. The property consisted of vacant industrial buildings and ball fields.
- The site buildings were vacant and were formerly occupied by the Lunt Silversmiths factory which began operating in 1902.
- Trichloroethene (TCE) was the predominant chemical utilized during silver manufacturing processes. Other chemicals include petroleum products, metals, and other chemical substances.
- The site buildings are heated with petroleum stored in an enclosed 30,000-gallon AST.
- Lunt Silversmiths was identified as a small quantity RCRA generator of waste and had a release, although the site was not listed with the MassDEP.
- The western portion of the site was historically developed for housing for World War II Veteran's and currently consists of three baseball fields utilized by the Town of Greenfield.
- Suspect asbestos-containing materials (ACMs) lead-based paint and polychlorinated biphenyls (PCBs) may be present inside the building. In addition, mercury thermostats, fluorescent lights and light ballasts were observed throughout the building.

The Phase I ESA identified several Recognized Environmental Conditions (RECs):

- Historic industrial use of the site to manufacture silverware, hollowware, tableware using high powered machines. The various processes included cutting, stamping, degreasing, melting, annealing, electroplating, buffing, and polishing and utilized raw hazardous chemicals such as TCE and various petroleum products.
- Abandoned chemical containers were located throughout the interior of the factory building. The majority of these containers were unlabeled and improperly stored. Several were in poor condition which may present a risk to safety.
- The site was listed as a RCRA generator and potentially having a release of TCE. Additionally, chlorinated solvents have been detected in groundwater at concentrations that may exceed a Reportable Concentration under the

Massachusetts Contingency Plan (MCP). A Downgradient Property Status (DPS) has been submitted by the owners of Goly's Garage.

- A 30,000-gallon heating oil AST is present at the site. The age and condition of the tank and ground surface inside the containment structure is unknown.
- Four exterior cyclones, which were utilized to remove silver and other particulates are present outside the site buildings.
- The western portion of the site was identified as a REC due to the industrial nature of the site and the unknown quantity of fill below the ballfields.
- The suspected presence of ACMs, lead-based paint, and PCBs associated with the buildings and other exterior (i.e., cyclones) structures.

W&S recommended conducting a Phase II investigation and interior building hazardous material survey to address the RECs as well as a chemical container inventory to identify and characterize containers for disposal.

2.2 2012 Phase II ESA

In May 2012, O'Reilly, Talbot, and Okun (OTO) of Springfield, Massachusetts conducted a Phase II ESA on behalf of the Town of Greenfield. As part of the Phase II ESA, OTO advanced soil borings and installed monitoring wells; collected soil and groundwater samples; collected water samples from catchbasins and storm drains; collected soil gas and indoor air samples. Soil sample analytical results indicated elevated levels of VOCs (cis-1,2-dichloroethylene (1,2-DCE), TCE, and tetrachloroethylene (PCE)] and metals (arsenic, cadmium, chromium, copper, lead, nickel, and silver) above MCP Reportable Concentrations (RCS-1). Analytical results of the groundwater samples collected by OTO as part of the Phase II ESA indicated elevated levels of four VOCs (DCE, TCE, PCE, and vinyl chloride) above MCP RCGW-2 concentrations. Analytical results of the catchbasin water samples indicated elevated levels of DCE, TCE, and PCE, with concentrations of TCE exceeding the MCP surface water benchmarks. Soil gas sample analytical results indicated elevated levels of TCE above the MassDEP Commercial/Industrial Sub-Slab Screening Values. Indoor air samples indicated elevated levels of TCE and PCE above the MassDEP Commercial/Industrial Indoor Air Threshold Values.

Based on the findings of the Phase II investigation, MassDEP issued a Notice of Responsibility to the site owner (Lunt Silversmiths, Inc.) on September 27, 2012 and issued Release Tracking Number (RTN) 1-18869 for the site.

2.3 March 2013 Supplemental Phase II Field Program

In early 2013, OTO conducted a supplemental subsurface investigation at and downgradient of the site. The work included:

- Advancement of 17 soil borings and completion of the borings as monitoring wells
- Elevation survey of wells and existing catch basins
- Gauging of water levels in wells and catch basins
- Submittal of soil, sediment (from catch basins) and groundwater samples (from wells and catch basins) for laboratory analysis of chlorinated VOCs

The report concluded that the chlorinated VOC plume emanating from the site is being intercepted by subsurface utilities located beneath Kenwood Street. The majority of exceedances of state standards were identified on the southern portion of the site though several groundwater exceedances were identified south and west of the facility.

2.4 2014 Removal Program Preliminary Assessment/Site Investigation Report

In May 2014, EPA personnel collected additional soil and groundwater samples at the locations at and downgradient of the subject site. In addition, samples were collected from the drums located inside the site building to characterize unknown contents. The findings from the investigation concluded:

- Five metals were detected in soil at concentrations exceeding their respective MCP Method 1 S-2/GW-3 standards: silver, arsenic, lead, vanadium, and zinc.
- TCE, PCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride were detected at concentrations exceeding their respective MCP Method 1 GW-2 or GW-3 standards in groundwater.
- TCE was detected at concentrations exceeding its respective MCP Method 1 S-2/GW-3 standard in three soil samples.

2.5 2015 EPA Removal Action

The EPA is currently conducting a Removal Action at the site using a Superfund Technical Assessment and Response Team (START) contractor. The removal action is being conducted based on the 2014 Preliminary Assessment/Site Investigation conducted in May 2014 (and summarized above).

The proposed actions include:

- Additional sampling, as needed, to identify other potential source areas and to pre-characterize the soil to facilitate live-loading operations
- Collect samples from tanks and vats located in the basement to determine if liquids contain hazardous substances, and remove and dispose as appropriate
- Remove and dispose of 55-gallon drums and other containers with hazardous substances
- Excavate and dispose of contaminated surface and subsurface soils
- Backfill and regrade excavated areas

Section 3

Analysis of Brownfields Cleanup Alternatives

The objective of the remediation is to clean-up the site and provide the Town of Greenfield and a potential developer a site that can be re-developed. At this time a developer has plans to use some of the former industrial buildings as part of an opiate treatment facility. Several of the existing buildings are also scheduled to be demolished.

3.1 Areas of Proposed Remediation

During previous site investigations several areas of concern were identified including:

- Elevated levels of VOCs in site soil and groundwater
- Elevated concentrations of metals in soil
- Six drums of oil, oil- water mixture and oil-soaked rags requiring off-site disposal
- Abatement of building materials. Due to structural concerns and the status of portions of the existing site buildings, selective demolition will be conducted at the site. Prior to the demolition of the buildings, hazardous materials (including asbestos, light ballasts, thermostats, etc.) require abatement and/or removal from the structures. The Town of Greenfield has been awarded a \$250,000 grant from MassDevelopment for the demolition and abatement portion of the project.
- Soil sampling beneath demolished buildings

An ongoing EPA removal action will be excavating and managing (off-site disposal) VOC-impacted soil. However, additional remediation is required to address the remaining site impacts including installation of a groundwater treatment system to address the VOC-impacted groundwater plume.

3.2 Remedial Alternatives Evaluation

Based on the previous work at the site the following three remedial options have been evaluated for clean-up of the site releases:

- Option 1 - No action
- Option 2 - Soil excavation and off-site disposal of cyclone-area impacted soil and installation of a groundwater treatment system
- Option 3 - Capping of cyclone-area impacted soil, installation of a groundwater treatment system, and implementation of an Activity and Use Limitation (AUL)

In addition, to the stated actions to be completed under Options 2 and 3 the following tasks will also be conducted under whichever option (2 or 3) is selected. Consequently, the cost of these items is not included in the estimates below as they will not affect the selection of the remedy.

- Six 55-gallon drums of oil-impacted materials remain at the site. These drums have been analyzed to confirm the contents, but still require off-site disposal.

- Abatement of building materials. Funds obtained from MassDevelopment have been awarded to the City for the demolition of the selected site structures. A portion of those funds will be allocated for the abatement of hazardous building materials. In the event that the MassDevelopment funds are not sufficient to cover the abatement and demolition costs (public bidding will be conducted within the next few months), a portion of the EPA funds may be necessary to cover hazardous material abatement of building materials.
- Once demolition of the buildings is completed (funded by MassDevelopment funds) additional soil sampling will be required to delineate the extent of soil impacts at the site. The exact number of samples will be determined by field observations and the results of the ongoing EPA removal action (i.e., if the removal action indicates that soil contamination extends up to the edge of a building, additional sampling will be required once the building is demolished).

Each option was evaluated for its applicability to the site and its feasibility and is discussed below.

3.2.1 Option 1 -No Action

The “no action” alternative is included in the evaluation as a standard to compare other remedial actions to in order to compare and contrast any significant reduction in site risk, as necessary. For the “no action” option, the Town of Greenfield would not take any action to abate or remediate the issues identified at the site.

As previously stated VOC and metals compounds have been identified in site soil and/or groundwater above standards established by the state. In order to close the site out and proceed with future development plans additional activities are required by the state. The No Action Alternative would not provide any mitigation of the health concerns present at the site and would impede redevelopment of the property.

Therefore, leaving the site in its current condition is not protective of human health or the environment. Based on these concerns, the “no action” alternative cannot be recommended.

Cost: No direct cost is associated with the “no action” alternative.

3.2.2 Option 2 - Soil Excavation and Implementation of a Groundwater Treatment System

This option includes:

- Removal and off-site disposal of impacted soils in the cyclone area
- Collection of confirmatory soil samples from the sidewalls and bottom of the excavation once the soil removal is complete
- Placement of clean backfill in the excavation
- Implementation of a VOC groundwater treatment system

Soil Excavation - Excavation is an effective approach to remove impacted soils above the water table. Based on the assessment completed at the site, the majority of metal-impacted soils near the cyclones is anticipated to be between the ground surface and up to a depth of three feet below grade.

Soil excavation and off-site disposal is a commonly used remedial method. This removal method should not pose a significant risk to contractors or the general public if handled/managed appropriately during excavation and staging activities. Due to the distribution of cyclones throughout the industrial complex and the associated soil impacts, up to 5,000 cubic yards (yd³) of metals-impacted soil may have to be excavated and disposed of off site.

Groundwater Treatment System – Groundwater flow at the site is to the south-southwest toward a residential neighborhood that is densely populated. During the Phase II work, a plume of TCE-impacted groundwater was identified at the site. The plume was determined to be several hundred feet in width. The plume is currently being intercepted by a storm drain in Kenwood Street. Initial testing did not detect TCE at the discharge of the storm drain, however it is uncertain whether this is from off-gassing or infiltration. Regardless, MassDEP will require that the plume be addressed. At this time, a groundwater interception and recovery system has been recommended to stop the downgradient migration of the plume. The system will include multiple well points manifolded to an air stripping tower. Ongoing monitoring and maintenance of the system will be the responsibility of the new site owner and are not included in this evaluation or cost estimate.

Cost: \$816,000

3.2.3 Option 3 - Soil Capping, Installation of a Groundwater Treatment System and Implementation of an AUL

This option includes:

- Capping of impacted soils in the cyclone area
- Implementation of a VOC groundwater treatment system
- Implementation of an AUL to limit future exposures to impacted soils

Soil Capping with AUL - Due to the large area of soil impacted by the cyclones, capping of the shallow soils (covering the impacted areas with up to three feet of clean fill or placement beneath a paved parking area) to limit potential future exposures would eliminate the risk to human health. MassDEP requires the implementation of an Activity and Use Limitation (AUL), or deed restriction to minimize contact to the impacted soils in the future.

Groundwater Treatment System – As described in the previous section, a groundwater treatment system will likely be required to prevent the migration of the VOC plume.

Cost: \$186,000

Section 4

Comparative Analysis of Alternatives

Based on the foregoing evaluation of remedial options, a comparative analysis was performed. The comparative analysis qualitatively ranked each alternative using the criteria indicated in Table 4-1 included at the end of this section. Each evaluation criterion was given a score for each alternative of 1, 2, or 3, with 1 being poor, 2 being average, and 3 being good. The individual scores were summed for each alternative to give a total score, with the highest score indicating the best option. The evaluation of remedial alternatives and this comparative analysis were performed based on existing data.

As expected, soil excavation and soil capping with an AUL both in combination with a groundwater treatment system had similar scores (both scored 54). Both options will result in a significant reduction in risk at the site. The difference between the two options is that excavation and disposal of such a large quantity of soil will be very costly. Based on the raw scores either soil excavation or soil capping with an AUL could be the preferred remedial alternative.

4.1 Recommendations

Two feasible options are available to address the health and safety concerns at the Former Lunt Silversmith site. Both of these approaches, soil excavation and soil capping with an AUL, scored the same in the comparative analysis included in Table 4-1. The selection of either remedial option would address the health and safety issues by reducing the contaminants in soil and groundwater at the site. However, there is a significant cost savings by selecting the soil capping with AUL option. As previously noted, this option will also include the removal of oil-containing 55-gallon drums, abatement of building materials, and the sampling of soil beneath demolished buildings.

A summary of applicable regulations for the project is included in Table 4-2 - Applicable, Relevant, and Appropriate Requirements (ARARs), included at the end of this section.

TABLE 4-1

Comprehensive Analysis of Alternatives
Former Lunt Silversmiths, Greenfield, Massachusetts

	No Action	Soil Excavation and GW Treatment	Soil Capping/AUL and GW Treatment
Effectiveness			
Protectiveness			
Protective of public health & community	1	3	3
Protective of workers during implementation	NA	2	3
Protective of environment	1	3	3
Complies with ARARs	1	3	3
Ability to Achieve Removal Objectives			
Level of treatment/containment expected	1	2	2
No residual effects concerns	1	3	2
Will maintain control until long-term solution implemented	NA	NA	NA
Implementability			
Technical Feasibility			
Construction & operational considerations	NA	1	2
Demonstrated performance/useful life	1	3	3
Adaptable to environmental conditions	1	2	3
Contributes to remedial performance	NA	3	3
Can be implemented within one year	3	2	2
Can be implemented within six weeks	3	2	3
Availability			
Equipment	NA	3	3
Personnel & services	NA	3	3
Outside laboratory testing capacity	NA	3	3
Off-site treatment and disposal capacity	NA	3	NA
Post removal site control	NA	3	3
Administrative Feasibility			
Permits required	NA	2	2
Elimination of existing public safety & building code violations	NA	3	3
Easements or right-of-way requirements	NA	NA	NA
Impact on adjoining properties	NA	2	2
Ability to impose institutional controls	NA	3	3
Likelihood imposed obtaining exemption from statutory limits, if needed	NA	NA	NA
	Total	13	54
		54	54

1=Poor; 2=Average; 3=Good

NA – Not applicable

TABLE 4-2

ARARs for the Recommended Alternative

ARARS	STATUS	MAJOR REQUIREMENTS	RECOMMENDED ALTERNATIVE ACTION
Massachusetts Contingency Plan (MCP) 310 CMR 40.0000	Applicable	Establishes methodology for evaluation and remediation of oil/hazardous materials, and cleanup standards for risk characterization.	Town will be hiring an LSP to assist with the design and implementation of the remedial alternative
USEPA Disposal of PCBs 40 CFR Parts 750 and 761	Not Applicable	Establishes methods and standards for the removal and disposal of PCB-impacted media and decontamination for PCB contaminated materials	PCBs are not a contaminant of concern at the site
OSHA 29 CFR Parts 1926	Applicable	Regulates worker protection standards and exposures.	The recommended alternative will require the Contractor to prepare a Health & Safety Plan in accordance with OSHA standards.
Standards Applicable to Generators of Hazardous Waste, 49 CFR Part 362, Subpart C, Pre-Transport Requirements: §262.30 Packaging; §262.31 Labeling; and §262.32 Marking	Applicable	Regulates the preparation of hazardous materials.	The packaging, labeling and marking of hazardous materials (if encountered) will be met by proper pre-disposal characterization methods by the Contractor, and reviewed by the LSP.
Massachusetts Rivers Protection Act	Not Applicable	Regulates activities occurring within 200 feet of a river.	No resource areas are located in close proximity to the site.
Clean Air Act – federal	Applicable	Establishes program control land prevents airborne particulates and toxic emissions and control volatile and other hazardous emissions.	Construction activities will be conducted under specific emission controls including dust suppression and wetting.
Resource Conservation and Recovery Act and regulations	Applicable	Defines federal dangerous waste requirements for those who generate, store, treat or dispose of it. Key elements included requirements for and permitting of disposal facilities and land disposal facilities.	The Town will be generating remediation waste as part of site activities. The waste will be transported under manifests or Bill of Lading as appropriate.

Section 5

Documentation and Reporting

The selected soil remediation plan is soil capping in conjunction with an AUL. In addition, a groundwater treatment system will be installed to address the VOC plume. The property is already owned by the Town and will be conducting clean-up activities in accordance with the MCP.

5.1 State Reporting Requirements

The MCP requires that the clean-up be conducted under the license of a registered environmental professional or Licensed Site Professional (LSP). The Town will be selecting an LSP who will prepare and submit the required documentation in accordance with the MCP and this ABCA submittal. Upon completion of the site work, reports summarizing the findings and results of the remedial actions will be submitted to MassDEP with the results of the remediation activities. The report will include a summary of activities completed at the site, data tables summarizing sample data, figures identifying the extent of work, complete laboratory reports, and documentation of waste disposal.

Prior to conducting building abatement, a permit needs to be submitted to MassDEP in accordance with the asbestos regulations.

5.2 Public Notice

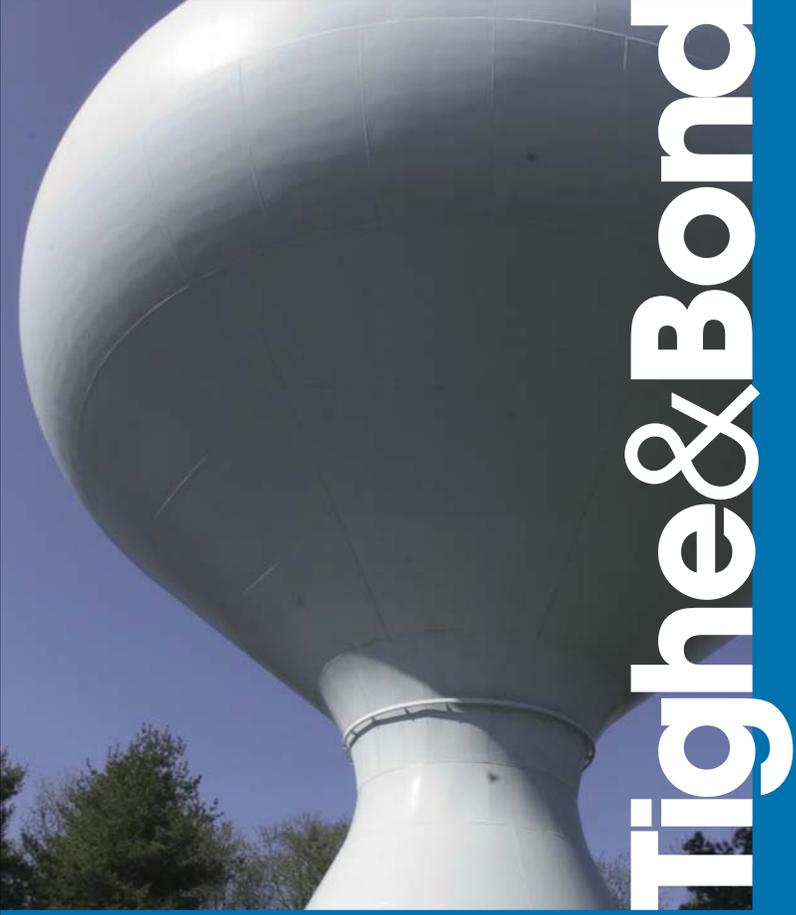
The provisions of the EPA Grant require that notice be provided to the general public to allow stakeholders notice and opportunity to comment on the clean-up proposal presented in the ABCA. A 30-day public comment period will be provided and a public meeting will be held in the site neighborhood to provide interested stakeholders the opportunity to obtain more information on the project.

5.3 Quality Assurance Project Plan (QAPP)

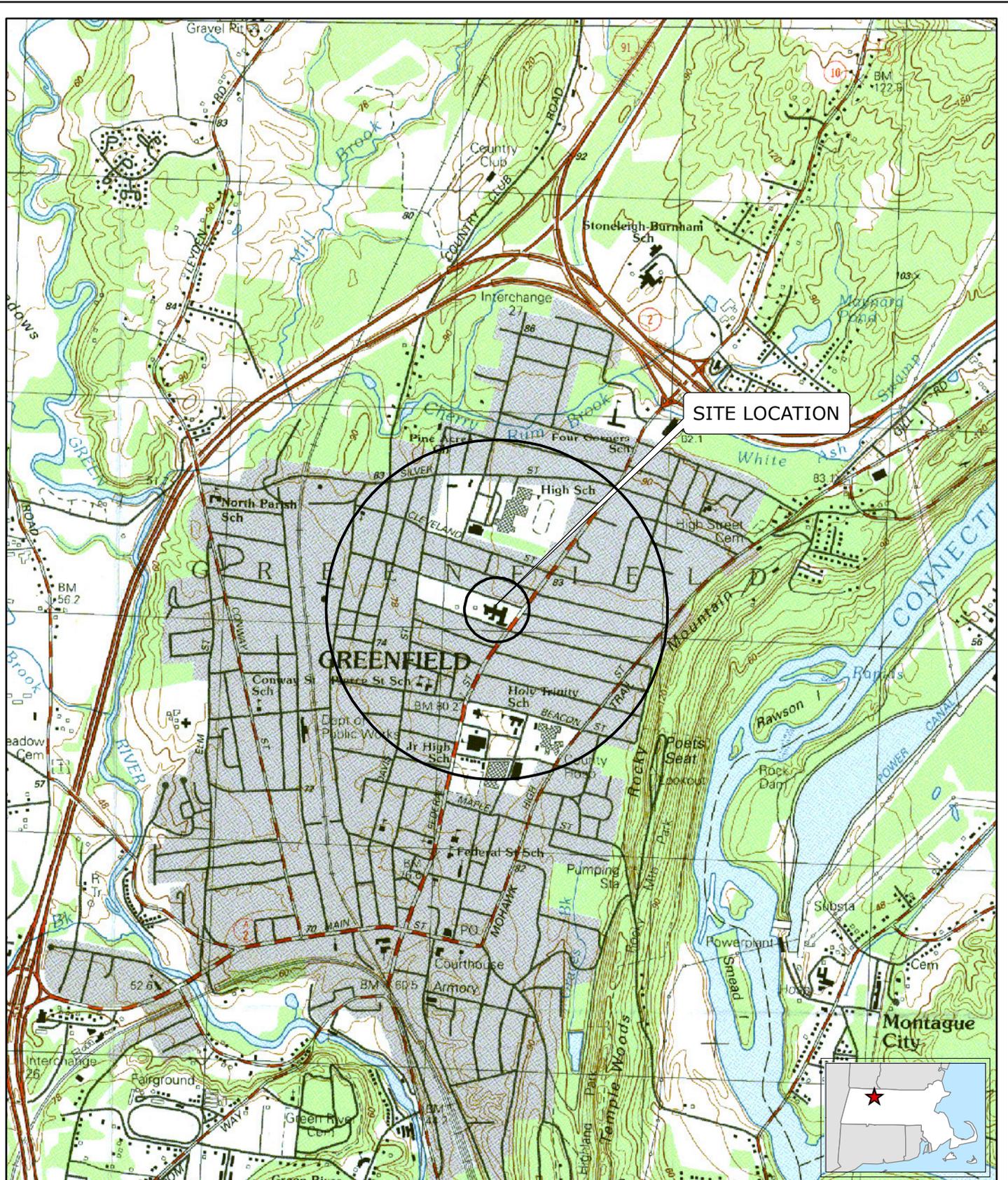
A site-specific QAPP will be developed prior to implementation of site remedial activities, as necessary. The fieldwork activities, sampling protocols, laboratory analysis and associated quality assurance/quality control (QA/QC) measures to be followed during the project are outlined in the QAPP.

5.4 Post Remediation Groundwater Sampling and System Monitoring

Upon completion of the soil capping work and installation of the groundwater treatment system ongoing monitoring will be required to confirm the effectiveness of the system. This monitoring will be the responsibility of the new site owner



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SITE LOCATION

GREENFIELD

Montague City

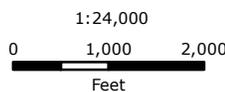
**FIGURE 1
SITE LOCATION MAP**

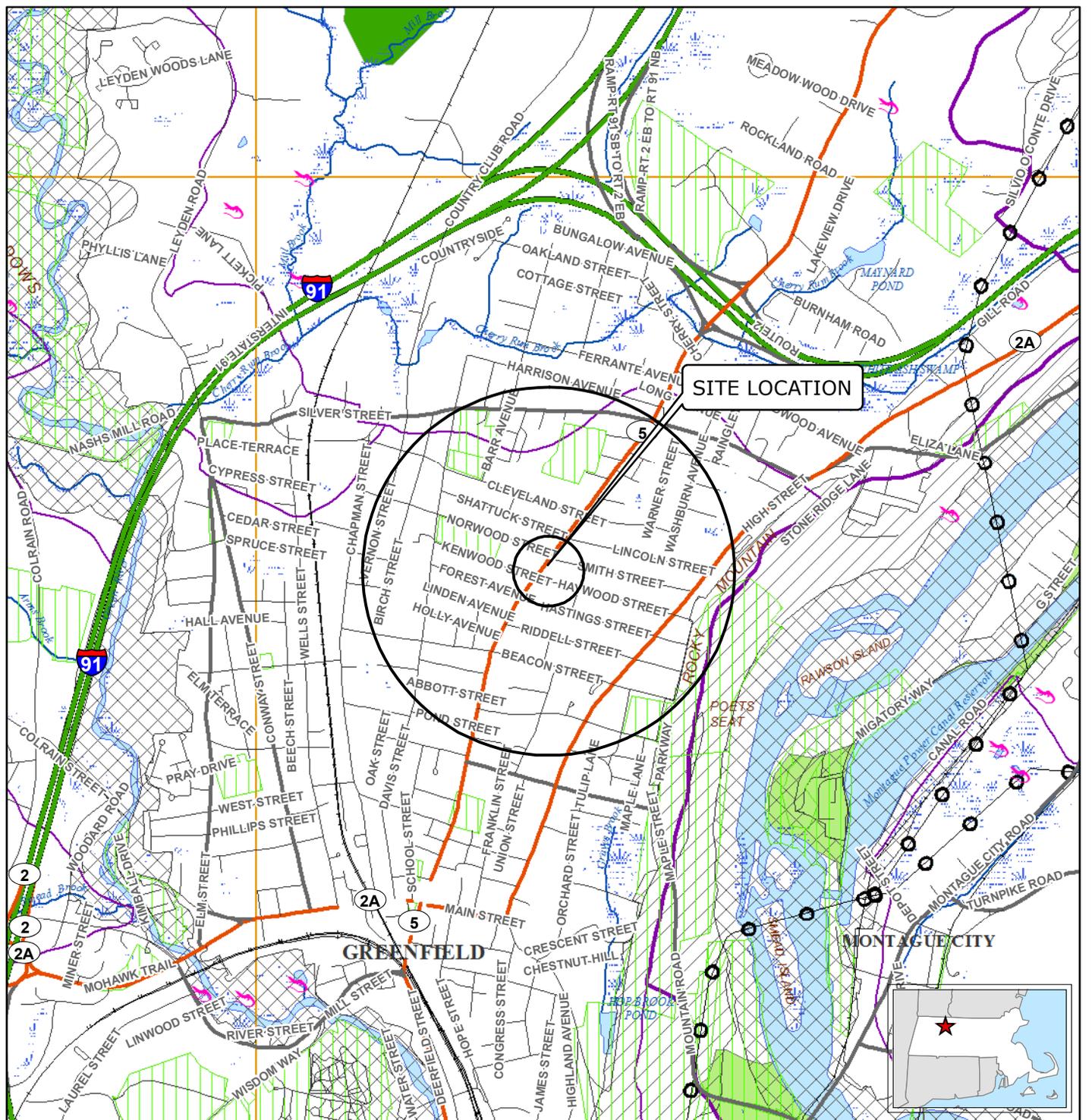
298 Federal Street
Greenfield, Massachusetts

November 2014



Based on USGS Topographic Map for
Greenfield, MA Quadrangle, Revised 1990.
Circles indicate 500-foot and half-mile radii





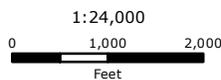
LEGEND

- NHESP Certified Vernal Pools
- NHESP Potential Vernal Pools
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer
- EPA Designated Sole Source Aquifer
- DEP Approved Wellhead Protection Area (Zone II)
- DEP Interim Wellhead Protection Area (IWPA)
- NHESP Priority Habitats for Rare Species
- NHESP Estimated Habitats for Rare Wildlife
- Public Surface Water Supply Protection Area (Zone A)
- Protected and Recreational Open Space
- Area of Critical Environmental Concern (ACEC)
- Solid Waste Landfill
- Public Surface Water Supply (PSWS)
- Inland Wetlands (MA DEP)
- Coastal Wetlands (MA DEP)
- Waterbodies
- Major Drainage Basin
- Sub Drainage Basin
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Highway
- Major Road - Collector
- Minor Street or Road
- Town Boundary
- County Boundary
- Quad Sheet Boundary
- Track or Trail
- Train
- Powerline
- Pipeline
- Aquaduct

**FIGURE 2
PRIORITY RESOURCE MAP**

298 Federal Street
Greenfield, Massachusetts

Data source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs. Circles indicate 500-foot and half-mile radii. Data valid as of February 2014.



November 2014



SITE LOCATION

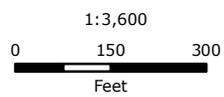
**FIGURE 3
ORTHOPHOTOGRAPH**

298 Federal Street
Greenfield, Massachusetts

November 2014



Based on MassGIS Color Orthophotography (2012)



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