DRAFT Analysis of Brownfields Cleanup Alternatives
Strathmore Mill Building A
Village of Turners Falls, Montague, Massachusetts

I. Introduction & Background

This Analysis of Brownfields Cleanup Alternatives (ABCA) has been prepared to evaluate cleanup alternatives for the former Strathmore Mill located in the Village of Turners Falls Canal District, in Montague, Massachusetts (the Site). The ABCA is a condition of the town of Montague's application for a United States Environmental Protection Agency (EPA) Brownfields Cleanup Grant.

1. Site Location

The Site is located at 20 Canal road. The Site encompasses approximately 1.3-acres and comprises nine contiguous buildings, located between the Power canal on the south side and the Connecticut River on the north side. The Connecticut River is topographically lower than the power canal and the head differential has been used to power the mill since its construction in the 1800s. Strathmore Mill Building A currently occupies the site. It is in an advanced state of disrepair and is currently unsafe. A crack in the exterior wall extends a number of stories and the upstairs windows are broken. Friable asbestos that is present throughout the building has the potential to be exposed to the atmosphere and nearby receptors. Contaminated soil surrounds the accessible areas of the building and is below the building footprint. The portion of the Site that requires demolition is the focus of this grant application.

2. Previous Site Use(s) and Any Previous Cleanup / Remediation

The site is former paper mill. The building is currently vacant and blighted. The Strathmore Mill complex was constructed between 1874 and 1970 and consists of 9 contiguous buildings on 1.3 acres along the Connecticut River, Historically, mill operations included machining, stamping, forging, grinding, finishing, pulping, cutting, and bleaching. The complex has over 200,000 square feet in floor area. The site is sandwiched on a narrow strip of land between a former coal generation power plant and an active paper mill.

The Town of Montague is currently the sole owner of the property, which consists of Strathmore Mill Buildings 1-9 on approximately 1.3 acres of land. The property is one of two parcels that compromise the Strathmore Mill Complex. The property was acquired by tax title foreclosure on February 19, 2010. The Deed can be found in the Franklin County Registry of Deeds Book 5494 Page 83 and the Judgment in the tax lien case is found in Book 1826 Page 16.

A January 2004 Phase II and Response Action Outcome which included soil and groundwater testing, concluded no further remediation is required. The contamination consists of hazardous substances and is present in the building structures and boilers.

An April 2005 Hazardous Materials Survey report documented a significant number of materials throughout the mill buildings that were classified as asbestos containing materials. This report was updated in 2015. This identified over 4,000 linear feet of TSI Piping, 130 cubic yards of transite components, 20,000 square feet of transite panels, 4 industrial boilers, and 1,000 square feet of floor tile, window glazing, boiler seams, boiler gaskets, tar covered insulation. As part of the survey, the following hazardous materials were

catalogued: light fixtures (with PCB ballasts), hydraulic oil, household wastes, oils, paints, cleaners, bird guano, lead containing paints.

3. Site Assessment Findings

The various assessments have detected hazardous building materials such as asbestos containing materials (ACM), Lead-based paint (LBP) and Polychlorinated Biphenyls (PCBs) in building materials. In addition, heavy metals such as arsenic and lead, polycyclic aromatic hydrocarbons (PAHs) and PCBs have been detected in soil. Additionally, two RTNs for 20 Canal Road list petroleum these may have been from spills, overfills and were addressed and closed out. The arsenic, PAHs and lead are associated with historic fill as well as potential releases at the mill through various industrial uses over its lifespan.

The Massachusetts Department of Environmental Protection (MassDEP) lists Strathmore Mill under Release tracking Number 1-15175 on its online database of MCP releases. A link is shown here - https://eeaonline.eea.state.ma.us/portal#!/wastesite/1-0015175

Two additional releases (RTNs 1-13843 and 1-16634) for 20 Canal Road are also listed and the information is included in the links below:

https://eeaonline.eea.state.ma.us/portal#!/wastesite/1-0013843
https://eeaonline.eea.state.ma.us/portal#!/wastesite/1-0016634

Numerous past studies and environmental investigations of the Strathmore Mill have been conducted by various engineers, environmental consultants, planners since 2005. The results of these efforts are documents and summarized in reports which include:

- Phase I Environmental Site Assessment - Tighe + Bond (2004).
- Phase II Environmental Site Assessment and Response Action Outcome- Tighe + Bond (2004).
- Hazardous Materials Survey (2005)- Tighe + Bond. Updated 2015 by Tighe + Bond
- Phase I Environmental Site Assessment (updated 2013)- Tighe+Bond
- Strathmore Feasibility Study (2005) Finegold Alexander + Associates Inc
- Site Development Assessment (2008) Fuss & O'Neill

Pertinent information is included as attachments.

4. Project Goal

The goals of the project are to remove blight and prevent an ecological disaster with the condition of the mill likely to collapse and impact the Connecticut River. The goals of the project include protection to human health by abating and removing asbestos and asbestos impacted building materials. The benefits also include the removal of contaminated soil and the creation of open space to serve this Environmental Justice Neighborhood. The contaminated soil poses a future risk to the public and that risk will be mitigated by the cleanup.

The goal is to improve quality fo life and the built environment by preparing the site for redevelopment and the creation of affordable housing. By cleaning up the Site, the site will achieve regulatory closure under the

MCP. Once achieved, a Permanent Solution Statement will be filed to close response actions under the Massachusetts Contingency Plan.

5. Regional and Site Vulnerabilities

The northeastern United States, including the Connecticut River valley generally experiences warm and often humid summers and cold winters. Rainfall can be severe with summer thunderstorms common and severe weather resulting from regional nor'easter anticyclone storms and/or hurricanes. Winter conditions can also be severe with ice storms and heavy snow common. In recent years, Hurricane Bob, Super Storm Sandy, Hurricane Irene, Hurricane Lee and numerous nor'easters have resulted in damage and impacts to both the natural and build environment. Localized intense rainstorm events have resulted in extreme localized flooding, erosion, street and bridge collapse. Examples in 2023 alone included severe flooding in Ludlow, VT, Leominster, MA and impacts to the Connecticut, Deerfield, Millers and many other New England rivers.

According to the US Global Change Research Program (USGCRP), the northeastern United States can expect increased temperatures and temperature variability and extreme precipitation events (see Attachment A). USGCRP notes that "heat waves, coastal flooding, and river flooding will pose a growing challenge to the region's environmental, social, and economic systems. This will increase the vulnerability of the region's residents, especially its most disadvantaged populations." Increased precipitation will increase stormwater runoff, which is applicable to the cleanup and redevelopment of the Site for residential reuse and open space.

The cleanup of the Site will result in the creation of open space as well as reduction in impervious surface area and the creation of new stormwater control systems as well as riparian zones.

According to FEMA Flood Zone Maps 25013C0217E, 25013C0236E, 25013C0219E, and 25013C0240E the Site is partially located within a Special Flood Hazard Area or Other Areas of Flood Hazard (see Attachment B). Based on the location of the Site and its proposed reuse, other factors related to climate change, such as changing temperature, rising sea levels, wildfires, changing dates of ground thaw/freezing, changing ecological zone, etc.). are likely to impact the Site in a significant way.

II. Applicable Regulations and Cleanup Standards

1. Cleanup Oversight Responsibility

The cleanup will be overseen by a Commonwealth of Massachusetts Licensed Site Professional (LSP) in accordance with Massachusetts General Law Chapter 21E and the MCP. The MassDEP will have jurisdiction, both through the Bureau of Waste Site Cleanup (for cleanup of oil and hazardous materials) and the Bureau of Air and Waste (for asbestos containing materials). The required regulatory documents prepared for this Site will be submitted to MassDEP electronically and tracked under the Release Tracking Number (RTN) issued for the Site. The cleanup of asbestos will be managed via a Non-Traditional Work Plan, which will require review and approval from Bureau of Air and Waste.

2. Cleanup Standards

MassDEP is the state authority that regulates cleanup of sites in the Commonwealth of Massachusetts. The MCP, 310 CMR 40.0000, includes risk-based cleanup standards for use in screening-level and semi-site-specific risk characterizations (Method 1 and Method 2 Risk Characterizations) to evaluate risk to human health and

the environment. The MCP also outlines a Method 3 Risk Characterization, in which site-specific cleanup standards and characteristics and/or limitations on use and activity are used to evaluate risk. Under the MCP, regardless of the approach or type of risk characterization, a condition of No Significant Risk (NSR) to human health and the environment must be documented for the site to achieve regulatory closure.

Cleanup of asbestos and building materials is also managed by MassDEP Bureau of Air and Waste. The cleanup submittals will include identification of disposal facilities licensed to accept ACM and ACM impacted building debris. The disposal facilities for contaminated soil and ACM will be identified during the design and contractor selection phase.

3. Laws and Regulations

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, the MCP, and City of Springfield by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed. As described all cleanup will be in accordance with the MCP; 310 CMR 40.0000. All applicable permits and documentation (e.g., Building Permit, Dig Safe, soil transport/disposal manifests) will be obtained prior to the work commencing, and all work will be conducted in accordance with the conditions for approval.

The design for remediation and the planning for disposal of materials will be documented under a Release Abatement Measure (RAM) Plan (required under the MCP). Construction will be documented in RAM Status Reports and final deconstruction, remediation and soil and material disposal totals will be documented in a RAM Completion Report. The RAM Completion Report information will be included int eh final closure document which is a Permanent Solution Statement under the MCP.

III. Evaluation of Cleanup Alternatives

1. Cleanup Alternatives Considered

EPA requires that this ABCA includes the evaluation of three (3) remedial alternatives. To address the remediation of impacted soil and asbestos at the Site, the following three alternatives were considered, including:

- Alternative #1 – No Action
- Alternative #2 – removal of asbestos containing materials, demolition of Building A and removal Impacted soil removal to an approximate depth of 10 feet below grade (totaling approximately 13,000 tons of soil), complete foundation and subsurface utility removal / tailrace capping or demolition.
- Alternative #3 – removal of asbestos containing materials, demolition of Building A and removal Impacted soil removal to an approximate depth of 3 feet below grade (totaling approximately 4,000 tons of soil), complete foundation and subsurface utility removal / tailrace capping or demolition.

2. Cost Estimate of Cleanup Alternatives

To satisfy EPA requirements, the effectiveness, implementability, and cost of each alternative must be considered prior to selecting a recommended cleanup alternative.

Effectiveness – Including Vulnerability/Resiliency Considerations

- Alternative #1: No Action is not effective in controlling or preventing exposure of receptors exposed asbestos and to soil impacts.

- Alternative #2: Demolition and extensive soil removal, transport, and off-site disposal of all impacted soil up to 10 ft. below ground surface (bgs) with complete removal of former building foundations and subsurface utility corridors is an effective way to eliminate risk at the Site, since most/all contamination will be removed, and the exposure pathways will no longer exist.

- Alternative #3: Under this alternative, demolition and extensive soil removal, transport, and off-site disposal of all impacted soil up to 3 ft. bgs with complete removal of former building foundations and subsurface utility corridors is also an effective way to eliminate risk at the Site. The removal of 3 feet of soil, placement of a geotextile marker barrier and then placement of clean fill will also eliminate risk. MassDEP allows 3 feet of separation from impacted soil and closure with a Method 3 Risk Characterization.

  Impacted soils will be disposed of at licensed facilities in accordance with local, state, and federal laws. Prior to soil removal activities, surficial debris, the building and portions of the subsurface utility corridors will be required to be removed to access contamination. This material will be transported off-Site for disposal in accordance with state and federal regulations. Confirmatory sampling will be required to evaluate remaining soil conditions and associated risk. A Method 3 Risk Characterization will be conducted using post-remediation data. Remaining Site-wide contaminant concentrations may not be removed to below the threshold for unrestricted use. If not, then institutional controls in the form of a deed restriction known as an AUL might be required to mitigate exposure to remaining impacted soils and maintain a condition of NSR under the MCP, the state of Massachusetts' voluntary cleanup program (VCP).

Implementability

- Alternative #1: No Action is easy to implement since no actions will be conducted.

- Alternative #2: Extensive soil removal with off-site disposal and complete removal of the former building foundations and utility corridors is moderately to highly difficult to implement. Although this alternative will not require ongoing maintenance and monitoring, greater coordination (e.g., dust suppression and monitoring) during cleanup activities and disturbance to the community (e.g., trucks transporting contaminated soils and backfill) are anticipated. Additionally, this alternative is less in line with EPA's Greener Cleanup goals and objectives.

- Alternative #3: Removal of asbestos-impacted, up to 3 ft. bgs, with off-site disposal and complete removal of former building foundations and partial removal of utility corridors is easy to moderately difficult to implement. This alternative would require ongoing maintenance and monitoring of the soil cover system, greater coordination to maintain environmental controls (e.g., dust suppression and monitoring) during remediation, and disturbance to the community (e.g., trucks transporting

contaminated soils and backfill). In addition, this alternative may require the implementation of an AUL on the property; however, this is moderately easy to implement.

Cost

- Alternative #1: There are no costs associated with No Action.
- Alternative #2: The removal of most/all impacted soil and removal of the former building and associated asbestos and utility corridors is expected to cost approximately $7,200,000.
- Alternative #3: The removal of 4,000 tons of impacted soil, removal of the former building and associated asbestos and utility corridors, and implementation of an AUL is expected to cost approximately $4,920,000.

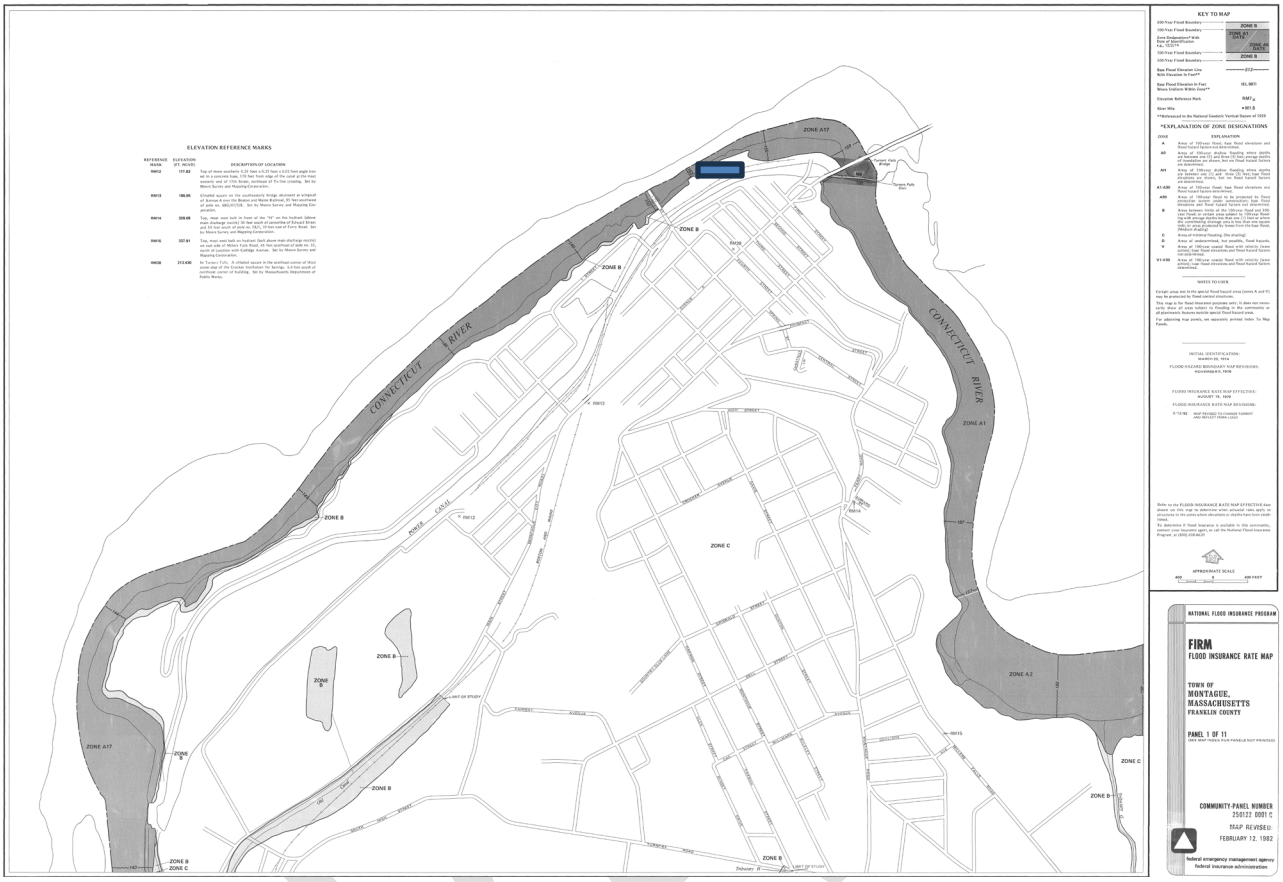
3. Recommended Cleanup Alternative

Alternative #1: No Action cannot be recommended because it does not address site risk and doesn't allow for the Site to be used in a beneficial way to the City or the surrounding community. Alternative #2: Extensive Removal, Transport, and Off-Site Disposal of Impacted Soil, while effective at eliminating the exposure pathways at the Site, the cost to implement such a remedy could approximately be significantly higher than Alternative #3 for no additional benefit and reduction of risk. Alternative #2 will require many more trucks, will increase impacts to the neighborhood, will take up more space in landfills, and will take more time to implement.

Alternative #3: ACM abatement and demolition and targeted removal of top 3 feet of soil, would be more cost effective and control exposure risks; Additionally, Alternative #3 will require fewer trucks compared to Alternative #2. In addition Alternative #2, may require a greater degree of site restoration ,such as new retaining walls to maintain site stability. Alternative #3 is a more sustainable approach in line with EPA's Clean and Green Cleanup guidelines.

Green and Sustainable Remediation Measures for Selected Alternative

The selected alternative is the most sustainable alternative and requires less trucking and no disposal of impacted soil. The City of Springfield will refer to ASTM Standard E-2893: Standard Guide for Greener Cleanups, EPA's Principles for Greener Cleanups, and MassDEP's Greener Cleanup Guidance (WSC #14-150) to incorporate practices and procedures that reduce carbon emissions, burning of fossil fuels, and the impact on the environment. This will include standard specifications prohibiting equipment idling, encouraging the selection of disposal facilities that are not at excessive distance, and requiring reuse/recycling/treatment over disposal when available.


ELEVATION REFERENCE MARKS
KEY TO MAP
*EXPLANATION OF ZONE DESIGNATIONS
NOTES TO USER
CONNECTICUT RIVER
ZONE A17
ZONE A1
ZONE A2
ZONE B
ZONE C
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF MONTAGUE, MASSACHUSETTS FRANKLIN COUNTY
PANEL 1 OF 11
COMMUNITY-PANEL NUMBER 250122 0001 C
MAP REVISED: FEBRUARY 12, 1982
federal emergency management agency
federal insurance administration