Analysis of Brownfields Cleanup Alternatives (ABCA)

DRAFT FOR PUBLIC COMMENT

City of Meriden, Connecticut
144 Pratt Street

1. Introduction & Background

Site Location: The site is located at 144 Pratt Street, Meriden, Connecticut 06450. The site encompasses approximately 4.01 acres and is located in downtown Meriden. The City of Meriden is in New Haven County, Connecticut, midway between Hartford and New Haven. Located at the "Crossroads of Connecticut," the city is bisected by two of the state's major freeways: Interstate Highways 91 and 691.

The property is bordered by Pratt Street to the south, Mill Street to the west, Cedar Street to the east, and the Meriden Commons mixed-use residential and commercial development to the north. The site is situated along the Harbor Brook corridor and at the nexus of critical transportation and emergency response infrastructure in a densely populated residential and commercial area.

Site History and Previous Uses: Historically, the property was part of a manufacturing center downtown corridor dating back to the 1800s, when manufacturing facilities were located along both banks of Harbor Brook. As development occurred, portions of Harbor Brook were enclosed in conduits and built upon, resulting in a heavily developed floodplain. Past site uses and surrounding land uses are typical of historic industrial and urban development in the City of Meriden and have contributed to site conditions associated with historic urban fill and former industrial activity.

Environmental Assessment Summary: Environmental investigations conducted at the site include a Phase I Environmental Site Assessment and a Phase II/III Environmental Site Assessment, which included soil and groundwater sampling and analysis. A Conceptual Site Model developed in 2018 identified five Recognized Environmental Concerns related to historical site operations, urban development, and potential off-site impacts.

Soil and groundwater investigations identified polycyclic aromatic hydrocarbons (PAHs), metals (including lead and arsenic), and extractable total petroleum hydrocarbons (ETPH). Soil impacts are primarily associated with historic urban fill material extending from the surface to depths of approximately 15 feet below ground surface. Groundwater sampling identified metals and PAHs exceeding applicable screening criteria at select monitoring locations. These findings are consistent with conditions observed on neighboring properties within the Harbor Brook corridor.

A Conceptual Site Model (CSM) developed in 2018 by AECOM, as part of a Phase II/III Environmental Site Investigation for the site, identifies five Recognized Environmental Concerns (RECs) resulting from historical site operations, urban development, and potential off-site impacts. The CSM has been updated based on data and observations that were made during the Phase II/III ESA. The Phase III ESA builds upon the findings of the Phase IESAs.

Based on Phase II/III soil boring logs completed in July and September, evidence of urban fill material has been observed at depths of up to 15 ft bgs.

Soil: Soil samples collected during the Phase II/III indicate that ETPH, PAHs, and metals are present in subsurface materials at the site at concentrations above the R DEC, I/C DEC, and/or GB PMC. The following COCs identified in the Phase III exceeded criteria at the following locations:

1. PAHs, including Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b) fluoranthene, Benzo(k)fluoranthene, Fluoranthene, Phenanthrene, and Pyrene, are present above GB PMC in samples B-144-03 (0-2) and B-144-04 (4-6). Benzo(a)anthracene was also present above the R DEC in sample B-144-03 (0-2). Benzo(a)pyrene was also present above the R DEC and IC DEC in sample B-144-03 (0-2). Benzo(b)fluoranthene was also present above the R DEC in samples 144-03 (0-2) and B-144-04 (4-6).
2. Lead was present above the R DEC at depths ranging from four to six feet bgs in the sample B-144-04. Lead was present above the R DEC and the IC DEC in sample B-144-04 at depths ranging from six to eight feet;
3. ETPH was detected at concentrations below the R DEC for all of the Phase II and Phase III samples.

It can be concluded that the urban fill at the site is a result of historic site use. PAHs, metals, and ETPH are chemicals typically identified in urban fill. Soil boring logs indicate that the urban fill consisted of coarse sand and silt with varying quantities of gravel, clay, rock fragments, asphalt, and other miscellaneous debris from depths of about 0 to 15 feet bgs.

Groundwater: Groundwater samples collected during Phase II/III indicate the presence of PAHs and metals. The following COCs exceed SWPC at the following locations:

1. Arsenic was present above SWPC in groundwater at MW-1.
2. Phenanthrene was present above SWPC in groundwater at MW-2.

The arsenic, lead, and mercury identified in the groundwater are likely due to leaching from urban fill. This site is enrolled in a CT environmental regulatory program.

The soil and groundwater results observed during the Phase II/III ESA are consistent with the previous CSM included in the Phase I ESA. Soil and groundwater results consisting of PAHs, metals, and ETPH are characteristic of the fill material across the site and on neighboring properties.

The Phase II/III ESA provided sufficient information to support preliminary planning for future property use and remedial design. Based on testing of PAHs and metals during the Phase II/III ESA, the detections are likely due to urban fill. The results from the SPLP analysis performed on the metals indicate exceedances of the GB PMC.

Project Goal and Reuse Plan: The goal of the project is to remediate the site's environmental conditions to support its redevelopment as a downtown park and flood storage basin capable of retaining up to 11 acre-feet of floodwater during storm events. The proposed reuse supports the City of Meriden's flood risk reduction, climate resilience, environmental restoration, and downtown revitalization goals. When combined with the adjacent Meriden Green, the overall system will provide up to 64 acre-feet of stormwater storage during a 100-year storm.

The proposed reuse aligns with the City of Meriden's economic development, environmental protection, and community resilience goals.

2. Applicable Regulations and Cleanup Standards

Cleanup Oversight Responsibility: Cleanup activities will be conducted under the oversight of the Connecticut Department of Energy and Environmental Protection (CT DEEP). The City of Meriden anticipates enrolling the site in a CT DEEP regulatory or voluntary remediation program, as appropriate. Cleanup activities may be overseen by a Licensed Environmental Professional (LEP) in accordance with state requirements.

Cleanup Standards: Cleanup activities will comply with the Connecticut Remediation Standard Regulations (RSRs). Cleanup criteria will be selected based on the planned reuse of the site. Applicable soil and groundwater standards will be applied to contaminants of concern.

Applicable Laws and Regulations: Cleanup activities will be conducted in compliance with all applicable federal, state, and local laws and regulations, including:

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- Connecticut Remediation Standard Regulations (RSRs)
- CT DEEP guidance and policies
- Local land use and environmental regulations

3. Evaluation of Cleanup Alternatives

Alternative 1: No Action

Under the No Action alternative, no remediation activities would be conducted at the site.

- Effectiveness: Does not address contamination or protect human health or the environment.
- Implementability: No implementation required.
- Estimated Cost: $0
- Extreme Weather Considerations: Existing contamination may be mobilized during flooding or extreme weather events.

Alternative 2: Excavation & Removal of Contaminated Soil

This alternative involves excavating the site to the grades shown on the plans and disposing of contaminated soils off-site at a licensed Treatment & Disposal facility.

- Effectiveness: This option will result in the complete removal of impacted soils from the property and the elimination of impacts to human health and the environment.
- Implementability: Project can be completed in 10 months.
- Estimated Cost: Total cost of the project: $8,315,000

  Cost of Remediation & Soil Disposal: $4,486,000
- Extreme Weather Considerations: Flood storage created during the project will protect the site and neighboring properties from flooding and prevent the migration of contaminants during extreme weather events.

Alternative 3: Partial Excavation and Capping of the Site

This alternative involves Excavation of 2-feet of Soil across the site and Construction of Environmental Cap on the Site

- Effectiveness: Eliminates the risk to the public of direct exposure to contaminants of concern, but does not completely remove contaminants from the environment and does not allow for the planned reuse of the property by the City.
- Implementability: Project can be completed in 6 months
- Estimated Cost: $1,500,000
- Extreme Weather Considerations: This option does not protect the site and neighboring properties from flooding. The risk of erosion of the cap during flooding events and exposure of the underlying contaminants cannot be eliminated.

4. Climate and Extreme Weather Considerations

The site is located in an area with climate projection data indicating that the frequency of extreme precipitation events (defined as days with more than 2 inches of rainfall) is expected to increase over time under both lower- and higher-emissions scenarios. Historically, the area experienced approximately 0.8 such events per year. Projections indicate an increase to approximately 1.1 – 1.2 events per year by mid-century, with higher-emissions scenarios projecting up to 1.5 events per year by the late century. These trends indicate an increased likelihood of flooding, erosion, and contaminant mobilization, and were considered in evaluating the long-term effectiveness and resilience of cleanup alternatives.

(Source: https://livingatlas.arcgis.com/assessment-tool/explore/details)

Cleanup alternatives were evaluated for their ability to remain protective under changing climate conditions, including increased storm intensity and fluctuating groundwater levels. Cleanup approaches that remove or permanently isolate contamination provide increased long-term resilience.

5. Recommended Cleanup Alternative

Based on effectiveness, implementability, cost, and climate resilience considerations, the recommended cleanup alternative is **Option 2**. This alternative protects human health and the environment and supports the planned reuse of the property.

6. Public Participation

This Analysis of Brownfields Cleanup Alternatives will be made available for public review and comment before submission of the EPA Brownfields Cleanup Grant application, in accordance with EPA Brownfields Program requirements.