DRAFT Analysis of Brownfields Cleanup Alternatives
Former Cohen Bros. Salvage
NS Tapley Street
Springfield, Massachusetts

I. Introduction & Background

This Draft Analysis of Brownfields Cleanup Alternatives (ABCA) has been prepared to evaluate cleanup alternatives for the former Cohen Bros. Salvage facility located at NS Tapley Street in the Bay Neighborhood of Springfield, Massachusetts (the Site). The ABCA is a condition of the City of Springfield's application for a United States Environmental Protection Agency (EPA) Brownfields Cleanup Grant.

1. Site Location

The Site encompasses a 6.60-acre parcel of land located north of the intersection of Bay and Tapley Streets in Springfield, Massachusetts. Currently, the Site is partially vegetated with tall grasses and trees. Evidence of historical uses are present at the Site and include debris from former use as a junkyard and salvage yard. Numerous piles of waste are located on the Site, including scrap metal, glass, ceramics, plastic, car parts, and empty metal drums. Site access is restricted by a chain link fence and locked gates, which provide access at the southwestern corner of Site.

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

The Site was operated as Cohen Bros. Salvage facility for approximately 60 years between the 1940s and early 2000s. Prior to 1953, Max I. Cohen and Hyman J. Cohen (d/b/a Cohen Bros.) owned the Site. In 1953, Boyco Corporation (Boyco) purchased the property and began leasing it to Cohen Bros. until at least 1994. On June 30, 2004, the City recorded an Instrument of Taking for the Site with the Hampden County Registry of Deeds due to nonpayment of taxes by Boyco. A judgement in the tax lien case was recorded on July 19, 2006, whereupon the City assumed ownership of the site. The site has remained vacant since that time.

The ASTM Phase I Environmental Site Assessment (ESA) performed by Weston & Sampson identified evidence that the NS Tapley Street parcel was used as a scrap metal facility from the 1940s through early 2000s. The Phase I ESA also noted that operations at 846 Bay Street and 876 Bay Street, located east of the site, may have encroached on NS Tapley Street.

3. Site Assessment Findings

The following subsections include summaries of response actions conducted at the Site since 2015. Tables and figures for the response actions summarized below are presented in Weston & Sampson's 2022 Phase I ISI, and most are available via the EEA Data Portal for Waste Sites & reportable Release (https://eeaonline.eea.state.ma.us/portal/dep/wastesite/detailviewer/1-0020792).

i. Weston & Sampson Phase I ESA – 2015

Weston & Sampson completed a Phase I ESA in accordance with the American Society of Testing Materials (ASTM) E1527-13 Standard. The report concluded that multiple recognized environmental conditions (RECs) existed at the NS Tapley property, including:

- The former use of the Site as a junkyard/automotive salvage yard;
- The presence of fill on-Site from unknown sources;
- The potential impact of Site environmental media from documented contaminant sources from adjoining properties; and,
- The potential vapor impact to the Site from off-site adjoining properties.

The Phase I ESA recommended further investigation in the form of a Phase II ESA to address the RECs identified.

ii. WjF Phase II ESA – 2018

During the Summer of 2018, WjF GeoConsultants, Inc. of Wilbraham, Massachusetts (WjF) completed a surficial and subsurface investigation at the NS Tapley Street property on behalf of a prospective purchaser, Northern Tree Services, Inc. (Northern Tree), as part of a due diligence program. In May and June 2018, WjF completed 43 hand borings, 25 test pits, and installed 9 groundwater monitoring wells. The soil sampling program completed by WjF including analyzing predominantly surficial soil samples for PCBs, extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), volatile organic compounds (VOCs), and metals. Groundwater samples were analyzed for EPH, VPH, VOCs, and metals. WjF's findings included the following:

- Numerous analytes, including PCBs, EPH fractions, polycyclic aromatic hydrocarbons (PAHs), arsenic, trivalent chromium, cadmium, copper, lead, nickel, zinc, trichloroethene (TCE), and tetrachloroethene (PCE) were detected in soil at concentrations exceeding the MCP Reportable Concentrations (RCs) for S-1 soil (RCS-1), triggering a 120-day notification requirement in accordance with the MCP at 310 CMR 40.0315(1).
- The highest detected concentrations of C19-C36 aliphatics and zinc in soil exceeded their respective Upper Concentration Limits (UCLs), as defined by the MCP at 310 CMR 40.0996(6).
- Concentrations of arsenic, cadmium, and PCBs in surficial (0-1 foot bgs) soil exceeded their respective concentrations listed in the MCP at 310 CMR 40.0321(2)(b). Importantly, these detections triggered a 2-hour notification requirement in accordance with the MCP at 310 CMR 40.0311(7). The presence of the railroad right-of-way was presented in the report as a means of access restriction to the Site; however, according to conversations with Mr. David Slowick of MassDEP, the railroad right-of-way did not adequately restrict access. Because the Site was accessible to trespassers, the 2-hour notification existed for the Site unless access was restricted by a fence, or similar physical barrier.
- C5-C8 aliphatics, cadmium, and cis-1,2-dichloroethene were detected in groundwater at concentrations exceeding their respective RCs for GW-2 groundwater (RCGW-2). These detections also triggered a 120-day notification requirement in accordance with the MCP at 310 CMR 40.0315(1).

- LNAPL was measured in monitoring well MW-6 at a thickness of 0.1 feet. This measurement triggered a 72-hour notification requirement in accordance with the MCP at 310 CMR 40.0313(1).

iii. Weston & Sampson Phase II ESA – 2019

Weston & Sampson completed a Phase II ESA that included the excavation of 14 test pits; the advancement of 21 soil borings; the installation of 16 groundwater monitoring wells; the collection and analysis of 55 soil samples and 16 groundwater samples, and a review of recent and historical reports. The sampling locations were determined based on a review of historical reports, the need to evaluate known historical operations and RECs at the Site, and to complete a general characterization of the Site for future redevelopment and assist in bringing the Site into compliance in accordance with the MCP. The Phase II ESA investigation results indicated the following:

- The results of the investigation performed by WjF in May to August 2018, confirmed by the Phase II ESA completed by Weston & Sampson, identified three notification conditions at NS Tapley. Notification for the following conditions should be made to MassDEP as described below:
    - The detection of arsenic, cadmium, chromium, and PCBs in surficial soil at concentrations exceeding the respective concentrations listed in the MCP at 310 CMR 40.0321(2)(b) triggers a 2-hour notification requirement in accordance with the MCP at 310 CMR 40.0311(7).
    - The measurement of LNAPL in two monitoring wells at thicknesses greater than 0.5 inches triggers a 72-hour notification requirement in accordance with the MCP at 310 CMR 40.0313(1).
    - The detection of contaminants in soil and groundwater at concentrations exceeding the applicable RCs for soil (RCS-1) and groundwater (RCGW-2) triggers a 120-day notification requirement in accordance with the MCP at 310 CMR 40.0315(1).
- Based on the concentrations of PCBs detected in soil at NS Tapley Street, the City also has an obligation to notify the EPA Region 1 PCB Coordinator under the provisions of TSCA. TSCA has special requirements for assessment and remediation that could impact the redevelopment of this property.
- Following notification, a supplemental investigation, that includes a Method 3 Risk Characterization, would assist with the evaluation of risk and remedial alternatives that focus on eliminating potential exposure to contaminated soil and groundwater under current and future use conditions.
- Regulatory closure can be achieved at NS Tapley Street if the source of impacts is eliminated or controlled, a condition of NSR exists for current and future site use conditions, and any conditions required by the EPA Region 1 PCB Coordinator are met. This would likely include a combination of additional assessment, soil remediation (removal and off-site disposal), and the implementation of an AUL.

iv. Weston & Sampson Supplemental Subsurface Investigation – 2020 & 2021

Between 2019 and 2021, Weston & Sampson performed subsurface investigations at the Site to evaluate soil and groundwater conditions at the Site. The data collected during those activities were used to support this Phase I ISI and Tier Classification. Based on the data collected, Weston & Sampson concluded that:

- Surficial soil (i.e., soil at depths less than 1 foot bgs) spanning the Site contained PCBs at concentrations up to 183 mg/kg, which exceeds the MCP UCL.
- Soil in the HA-10 AOC was impacted with EPH ranges at concentrations exceeding the Method 1 Cleanup Standards at depths of up to at least 5 feet bgs. Additional assessment would be necessary to further delineate the horizontal and vertical extent of EPH impacts in the HA-10 AOC.
- Site soil at depths greater than 1 foot bgs were impacted with PCBs at concentrations exceeding the applicable Method 1 S-1 and S-2 Standards, but at concentrations generally lower than those identified in the 0-to-1-foot depth interval.
- Soil in the WS-MW-17 and MW-6 AOCs was impacted with EPH ranges at concentrations exceeding the Method 1 S-1, S-2, and S-3 Cleanup Standards at depths of 15-17.5 feet bgs and 13.5-21 feet bgs, respectively. Soil in the interior of both AOCs also contained the EPH range C19-C36 aliphatics at concentrations exceeding the UCL for soil of 20,000 mg/kg. Additional assessment is warranted to further delineate the horizontal extent of EPH impacts in soil in both AOCs.
- Groundwater in a limited area in the southwestern portion of the Site was impacted with dissolved cadmium at concentrations exceeding the Method 1 GW-3 Cleanup Standards.
- The initial LNAPL mobility and recoverability assessment indicated that:
    - LNAPL with micro-scale mobility appeared to be present in the WS-MW-17 AOC. Recovery of LNAPL in the WS-MW-17 AOC appeared to be infeasible.
    - Non-stable LNAPL may be present in the MW-6 AOC. Recovery of LNAPL in the MW-6 AOC appeared to be feasible.
    - Further investigations in both AOCs are warranted.
- An IH condition did not exist for the Site because Site access was adequately controlled by a chain-link fence.
- Based on the Method 3 Risk Characterization, a condition of No Significant Risk did not exist for the Site.
- Although LNAPL was measured in two (2) on-Site monitoring wells at thicknesses greater than 0.5 inches, subsequent assessment and the evaluation summarized in Section 5.2 indicated that IRAs were not required to mitigate substantial migration.
- In accordance with 310 CMR 40.0500, the Site was classified as Tier II.

v. OTO RAM Plan – 2022

O'Reilly, Talbot & Okun Engineering Associates (OTO) prepared a Release Abatement Measure (RAM) Plan for RTN 1-14375, associated with the former Cohen Bros. Salvage facility at 846 Bay Street. The scope of work for this RAM Plan involved all four Bay & Tapley parcels, including the SIte. The RAM Plan included:

- Preparation of a Health and Safety Plan;
- Removal of trees, brush, metals, and solid waste;
- Installation of fencing around the Site perimeter;
- Excavation of soils impacted by releases of oil and/or hazardous materials, including PCBs;
- Waste disposal for impacted soils;
- Construction of a roadway on 846 Bay Street to provide access without disturbing impacted soils;

- Construction of work pads on NS Tapley to be used as a wood processing area; and
- Preparation of RAM Status Reports and Completion Reports.

vi. OTO RAM Completion Report – 2025

O'Reilly, Talbot & Okun Engineering Associates (OTO) prepared a Release Abatement Measure (RAM) Completion Report for RTN 1-0014375, associated with the former Cohen Bros. Salvage facility at 846 Bay Street. Work under the RAM Plan was completed for all four Bay & Tapley parcels, including NS Tapley. Trees and shrubs were removed under OTO observation. A new entryway was constructed, consisting of 12 inches of gravel base course, a non-woven geotextile separation fabric, and minimum of 6 inches of reclaimed pavement borrow base course covering previously exposed soils. Above former foundations and existing pavement, the geotextile was placed on the exposed surface, then covered with 12 inches minimum of dense graded pavement borrow base course. Stormwater flow is directed to the north and northwest to drain back on the 846 Bay Street property. This work allows access to the NS Tapley site without disturbing impacted soils.

4. Project Goal

The goals of the project are to protect human health and the environment and to redevelop an underutilized property. Redevelopment is anticipated to include municipal use. The objective is to remove or contain targeted impacted soils that pose a potential exposure risk to future users of the Site. Once complete, a Permanent Solution Statement with Conditions (PSC) supported by an Activity and Use Limitation (AUL) will be filed to close response actions under the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000).

5. Regional and Site Vulnerabilities

EPA requires that the ABCA consider potential impacts due to extreme weather events and natural hazards. The northeastern United States, including the Springfield area, experiences warm summers and cold winters. Rainfall can include summer thunderstorms and severe weather resulting from regional nor'easter anticyclone storms, tropical storms including hurricanes. Winter conditions can also be severe as ice storms and heavy snowstorms are common.

According to the US Global Change Research Program (USGCRP), the northeastern United States can expect increased temperatures and temperature variability and extreme precipitation events. 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 municipal reuse. Once developed, the Site is expected to include improved stormwater infrastructure to account for increasing precipitation.

Changing weather conditions in the northeast region may increase temperatures and temperature variability and extreme precipitation events. Specific to this project, heat waves, river flooding, and more intense precipitation pose a potential risk to the engineered cap. To be resilient to severe weather, the engineered cap is designed to not exceed a 3:1 slope the site design will include stormwater drainage.

The Site grading and restoration will minimize erosion risks during extreme weather. The proposed Site cleanup detailed in this ABCA is not expected to be significantly impacted by severe weather conditions or increase these risks.

According to FEMA Flood Zone Map 25013C0218E, the Site is not located within a Special Flood Hazard Area or Other Areas of Flood Hazard. 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 unlikely 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. In addition, required regulatory documents prepared for this Site will be submitted to the Massachusetts Department of Environmental Protection (MassDEP) electronically and tracked under the Release Tracking Number (RTN) issued for the Site by MassDEP (RTN 1-20792). Additionally, due to the concentrations of PCBs in soil at the Site, EPA approval will be required prior to implementing the selected alternative.

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. In addition, the Site will require cleanup under the federal PCB regulations at 40 CFR 761.61.

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, 40 CFR 761.61, 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.

III. Evaluation of Cleanup Alternatives

1. Cleanup Alternatives Considered

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

- Alternative #1 – Removal of all soil across site to 2 feet below ground surface
- Alternative #2 – Removal of PCB hot spots, asphalt/cap encapsulation and risk-based closure
- Alternative #3 – No action

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: Extensive soil removal, transport, and off-site disposal of all impacted soil up to 2 ft. bgs is an effective way to eliminate risk at the Site, since most contamination will be removed and the exposure pathways will no longer exist. The LNAPL plume areas would remain undisturbed.

- Alternative #3: Under this alternative, targeted removal of 230 tons/175 cubic yards of PCB-impacted soils greater than 50 ppm will be completed. Impacted soils will be disposed of at licensed facilities in accordance with local, state, and federal laws. Prior to soil removal activities, surficial debris and vegetation 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. PCB-impacted soils less than 50 ppm will remain in place, and the entire site will be encapsulated with a minimum of 1.5 feet of subbase and 0.5 feet of asphalt or topsoil. 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 will not be removed to below the threshold for unrestricted use; therefore, institutional controls in the form of a deed restriction known as an AUL will 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).

- Alternative #3: No Action is not effective in controlling or preventing exposure of receptors to soil impacts.

Implementability

- Alternative #1: Extensive soil removal with off-site disposal 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, separating waste streams, soil collection and testing) during cleanup activities and disturbance to the community (e.g., trucks transporting contaminated soils and backfill) are anticipated. Confirmatory samples would be needed to satisfy TSCA requirements and restore the majority of the site without TSCA restrictions. An AUL would be required under MCP for the LNAPL plume areas only. Additionally, this alternative is less in line with EPA's Greener Cleanup goals and objectives.

- Alternative #2: Removal of PCB hot spots via off-site disposal and asphalt/cap encapsulation of PCBs greater than 1 ppm, with geotextile demarcation barrier across the entire site, is easy to moderately difficult to implement. This alternative may 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 would require the implementation of an AUL on the property; however, this is moderately easy to implement.

- Alternative #3: No Action is easy to implement since no actions will be conducted

Cost

- Alternative #1: The removal of most/all impacted soil to 2 feet below ground surface is expected to cost approximately $7,050,000.
- Alternative #2: The removal of 230 tons of impacted soil, encapsulation and capping of entire site, and implementation of an AUL is expected to cost approximately $4,000,000.
- Alternative #3: There are no remediation costs associated with No Action.

3. Recommended Cleanup Alternative

Alternative #3: 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 #1: Removal of All Soil Across Site to 2 feet Below Ground Surface, while effective at eliminating the direct contact exposure to residual soil contamination, the cost to implement such a remedy could approximately be 2-3 times or more than the cost of controlling the exposure risks in Alternative #2. Additionally, Alternative #1 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.

Therefore, Alternative #2, while more expensive than no action, allows for the reuse and redevelopment of the site and is capable of reducing risk while having the smallest impact on the surrounding community and the environment. For these reasons, the recommended cleanup alternative is Alternative #2: Removal of PCB Hot Spots, Asphalt/Cap Encapsulation, and Risk-Based Closure.

Green and Sustainable Remediation Measures for Selected Alternative

The selected alternative is the most sustainable alternative and requires less trucking and limited 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.