



*DRAFT*

## Memorandum

---

**To:** Jeanne Roberts and Lisa Pecora-Ryan, OMR Architects  
**From:** Dave Bramley, PE, LSP  
**Subject:** CCHS Landfill Remediation  
**Date:** August 8, 2012  
**Project:** CCHS Landfill Delineation  
**Project No.** 1230.3

---

The purpose of this memorandum is to present a description of the process under which the landfill area located under the eastern parking area of the Concord Carlisle Regional High School will be remediated, and the regulatory requirements that need to be addressed.

### **Background**

Between May 2011 and July 2012, CDW evaluated the environmental conditions of the school property. Historic documentation showed the use of the property as a sand and gravel pit, then as the Town Dump prior to the Town's purchase of the land in the 1950s. Several subsurface investigations have been completed to date, to confirm the environmental conditions of soil and groundwater. The investigations identified the presence of filled materials containing heavy metals and other compounds regulated by the Massachusetts Department of Environmental Protection (DEP).

The characteristics of the soils observed during these investigations were generally consistent and are primarily sand and gravel fill over layers of ash and sand. Metal, brick, glass, ceramic, and wood are mixed with the soil, primarily in ash fill materials.

The presence of significant quantities of ash with intermingled non-combustibles such as glass, metal, and ceramic suggests that the area under the parking lot was a former "burn dump". Burn dumps are sites where solid wastes have been burned at low temperature and the residual ash and debris have been landfilled. Because very little biodegradable organic debris remains after burning, little or no landfill gas is generated. The main contaminants of concern at burn dump sites are metals, with lead most commonly detected at the highest concentrations.

The lateral extent of landfill materials was identified during drilling. Based on visual characterization and laboratory results, the landfill includes the entire student parking lot and skateboard park, a portion of the faculty lot, the access driveways east and north of the student lot, and approximately half of the easternmost grassy field. Western limits could not be confirmed due to the presence of buildings. The vertical extent of landfill soils range from 1 to 18 feet with most impacts between 4 and 15 feet below grade.

The impacted area is regulated by the Massachusetts Department of Environmental Protection (DEP) – Bureau of Waste Site Cleanup (BWSC) because there is evidence of a release of "oil or hazardous material" (OHM) to the environment, and the concentrations of the oil and/or



DRAFT

## Memorandum

hazardous materials are greater than the Reportable Concentrations established by the DEP in the Massachusetts Contingency Plan (MCP) - 310 CMR 40.0000. Although the landfill was used as a landfill/dump, it never was a permitted facility therefore the presence of the landfill materials with concentrations above the applicable criteria is considered a release to the environment and regulated under the BWSC as an MCP site.

### **Regulatory Requirements**

The release was reported to the DEP on February 6, 2012 due to concentrations of cadmium, chromium, lead, copper and nickel exceeding applicable RCs and Release Tracking Number (RTN) 3-30648 was issued by DEP. Further assessment was warranted at that time to define the extent of the release within the subsurface, and to determine options to limit exposure to the compounds of concern. The concentrations detected within the landfilled area exceeded the DEP's regulatory criteria, and the landfill is now a "disposal site" as defined under the MCP.

After reporting the "release" to the DEP, the Responsible Party has one year to either "Tier Classify" the Site or submit a Response Action Outcome report that documents that the site has been remediated to achieve cleanup standards. Based upon our current knowledge and the DEP requirements, further response actions will be required to achieve regulatory closure.

The Tier classification combines a Phase I Initial Site Investigation and related forms that are used to rank the Site for its danger to human health and the environment. This ranking step has not occurred yet and it is due by February 6, 2013.

### *MCP Phases and Timelines*

The next steps in the process and the statutory deadlines are the following:

- A Phase II – Comprehensive Site Assessment in which the nature and extent of the affected soil and/or groundwater is investigated. This assessment must be submitted within three years of notification or February 6, 2015.
- A Phase III – Remedial Action Plan follows that evaluates alternative remedial measures. In this instance the recommended alternative will be the engineered barrier.
- A Phase IV includes the preparation of a Remedy Implementation Plan that describes how the selected alternative will be implemented. The Phase IV is where construction documents (drawings and specifications) are prepared for use in contractor selection. Phase III and Phase IV reports are due within four years of notification.
- Phase V is the period in which the remediation occurs. The conclusion of Phase V is the submission of a Response Action Outcome (RAO) report that documents that the Site presents a condition of No Significant Risk. This must occur within six years of notification unless an extension is granted by the DEP.



DRAFT

## Memorandum

Currently, the data needed for the preparation of the Phase II – Comprehensive Site Assessment has been generated by CDW and the two landfill delineation reports that have been prepared form the basis for the Phase II report. This report can be submitted within 45 days.

The selection of the engineered barrier as the remedial option for the landfill requires the preparation of a Phase III – Identification, Evaluation, and Selection of Comprehensive Remedial Action (commonly called the Remedial Action Plan). The report can be prepared concurrently with the Phase II – CSA and submitted following the submission of the Phase II report.

Concurrently, with the preparation of these two reports, the final design of the engineered barrier can be completed and bidding documents can be prepared as part of the Phase IV –Remedy Implementation Plan.

At this time it appears that the asphalt pavement that exists within the boundaries of the landfill area will be incorporated into the final design.

### *Anticipated Closure Strategy*

When the construction of the engineered barrier is complete, an as-built plan will be prepared and incorporated into the RAO that will close the Site with the DEP. The recording of an Activity and Use Limitation (AUL) also will be required to restrict the use of the capped area so the engineered barrier will not be disturbed. One of the AUL requirements will be to inspect and maintain the cap in perpetuity to ensure that it remains an effective barrier to any human risk of exposure to the subsurface landfill contaminants.

### *Status of Project*

The landfill cap cannot be constructed until all the required Phases have been completed. Furthermore, the extent of DEP involvement, if any, in the selection and design of the engineered barrier as a closure strategy it is unknown at this time.

The landfill assessment is a unique and separate project from the school, because it is a remediation project unrelated to the construction of the High School. Remediation of the landfill would be needed whether there was a High School construction project or not. Although the presence of the landfill was known prior to the start of the new building construction, its extent, the type of contaminants, and the range of concentrations of the constituents identified were not known. At this time it is assumed that no school related structures or recreational facilities will be located within the boundary of the landfill area.