

**Investigation and Remediation of a Lead-Contaminated Site (Soil and Sediment) by
Capping/Lining, under the Massachusetts (US) Privatized Program**

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Bois Consulting Company, Inc. designed and implemented a site investigation program and remedial action for a property in Massachusetts (U.S.A.) that was formerly owned and operated by a lead pipe manufacturer. The site contained elevated levels of lead in the surface and subsurface soil as well as in the sediment of an on-site stream. Using a track-mounted Geoprobe™ unit for direct-push sampling, vertical profiling of the soil was completed in order to delineate the lateral and vertical extent of lead in the soil. Upstream and downstream sediment sampling for lead was also conducted.

This site investigation information was then evaluated in a human health/environmental risk assessment, which indicated direct contact with the soil would pose a “significant risk” to human health as defined by the Massachusetts regulations. Remediation options were evaluated in a feasibility study, and capping was determined to be the most feasible option for this site. The project required significant coordination with the local Conservation Commission, which regulates potential impacts to wetlands, and the municipal Engineering Department. As part of a local flood control project, the on-site stream was channel through a culverted section, necessitating work in contaminated sediments and engineering controls to prevent the sediments from further potential for downstream migration. In addition, an engineered barrier (cap) including a liner was placed on the property. The remedial solution also included placing a deed restriction on the property. This deed restriction is an “institutional control” which ensures that the future property owners are given notice that it is their responsibility to maintain the cap and to limit or prevent human exposure to the on-site soils, in order to meet Massachusetts risk-based site closure requirements.

This project also highlights the benefits of the privatized Massachusetts cleanup program for hazardous waste sites, which allows private parties to hire consultants who are specifically licensed to oversee the investigation and remediation work. These licensed consultants (referred to as Licensed Site Professionals, or “LSPs”) are allowed to determine what, if any remediation is necessary and to determine whether or not the site poses a risk to human health or the environment. Once the remediation work is complete, they make the final decision that the site is appropriate for reuse, with or without restrictions such as those noted above. This determination is made by the Licensed Site Professional in lieu of obtaining regulatory agency approval and is monitored by the state agency (Department of Environmental Protection) through an audit program. Thus, the investigation and remediation of sites by private parties occurs much more rapidly than when approval is required from an agency in order to remediate a site. This unique program serves as a model for environmental regulatory agencies in other states and/or countries that are interested in expediting the cleanup of hazardous waste sites and returning them to productive reuse.