

# Town of Andover, Massachusetts

## Ledge Road Landfill Closure Project

*Closure of the Ledge Road Landfill is proceeding in accordance with the Massachusetts Department of Environmental Protection (MassDEP) Solid Waste Management Regulations 310 CMR 19.000. The Town of Andover's (Town) goal is to continue post-closure use of the southern portion of the landfill site as a materials storage area for the Department of Public Works (DPW). The northern portion of the landfill may be considered for a solar energy development.*

### Site Background

The former Ledge Road Landfill, a 25.8 acre site, is located west of Ledge Road, just northeast of the I-93 / I-495 interchange. The former landfill was closed to waste disposal in 1973. During the 1980s, the Town constructed playing fields on the northern portion of the site, consisting of two ball fields and a soccer field (see Figure 1). The remaining southern portion of the site currently serves as a municipal public works yard for storage of brush, street sweepings, catch basin cleanings, and roadway construction debris.

Under the MassDEP landfill closure process, as detailed in the Solid Waste Management Regulations, an Initial Site Assessment (ISA), Comprehensive Site Assessment (CSA), and Corrective Actions Alternative Analysis (CAAA) have been completed. The CSA concluded that landfill related contamination has impacted the wetlands downgradient of the landfill, but that there are no significant impacts to human health or safety in the vicinity of the recreational fields. For this reason, recreational play has been allowed to continue on the playing fields, with regular air quality and landfill gas screening to ensure that the fields remain safe for play.

### Assessment of Landfill Gas

The primary safety consideration associated with use of the playing fields is the potential presence of landfill gas. Landfill gas is generated through the decomposition of organic matter in landfills and consists primarily of methane and carbon dioxide. As time passes, the landfill gas generation rate steadily declines. Landfill gas is non-toxic, but in enclosed spaces and at high concentrations, it may ignite. The field surfaces, parking lot, and facilities at the playing field area are screened for landfill gas on a regular basis. Methane has been detected to the northwest of the parking lot, but at low concentrations not deemed a risk to facility users. Regularly scheduled monitoring has provided no indication that landfill gas is migrating off-site. Landfill gas monitoring continues on a quarterly basis, with more rigorous air quality monitoring at the fields each spring and fall.

### Assessment of Wetlands Tributary to Fish Brook

The CSA documented the presence of unexpected concentrations of the metal arsenic in wetland sediments downgradient of the western edge of the landfill. The Town has undertaken a program to further sample and assess sediments, surface water, and groundwater in the wetland system. This wetland system is within the Fish Brook watershed—a Class A surface water that contributes to a small portion of the Town's water supply at its confluence with the Merrimack River.

Based on sampling to date, surface water sample locations within 1,000 feet of the landfill exceed the drinking water standard for arsenic. However, numerous surface water samples collected further downstream have had no detection of arsenic.

Sampling suggests that arsenic concentrations in groundwater that exceed drinking water standards extend from the bottom of slope from the landfill's mid-section to a distance of about 700 feet downgradient of the landfill.

A Supplemental CSA was completed to fully delineate the extent of arsenic impacted sediments. The detected levels of arsenic in sediment appear to be well in excess of naturally occurring background concentrations. The Supplemental CSA concluded that the arsenic impacted sediments are limited to the unnamed wetland system upgradient of Fish Brook. Additionally, the Supplemental CSA determined that the arsenic contamination is resulting from alterations to groundwater chemistry, caused by organic matter in the landfill waste, which has released and mobilized naturally occurring arsenic in the bedrock and overburden soils.

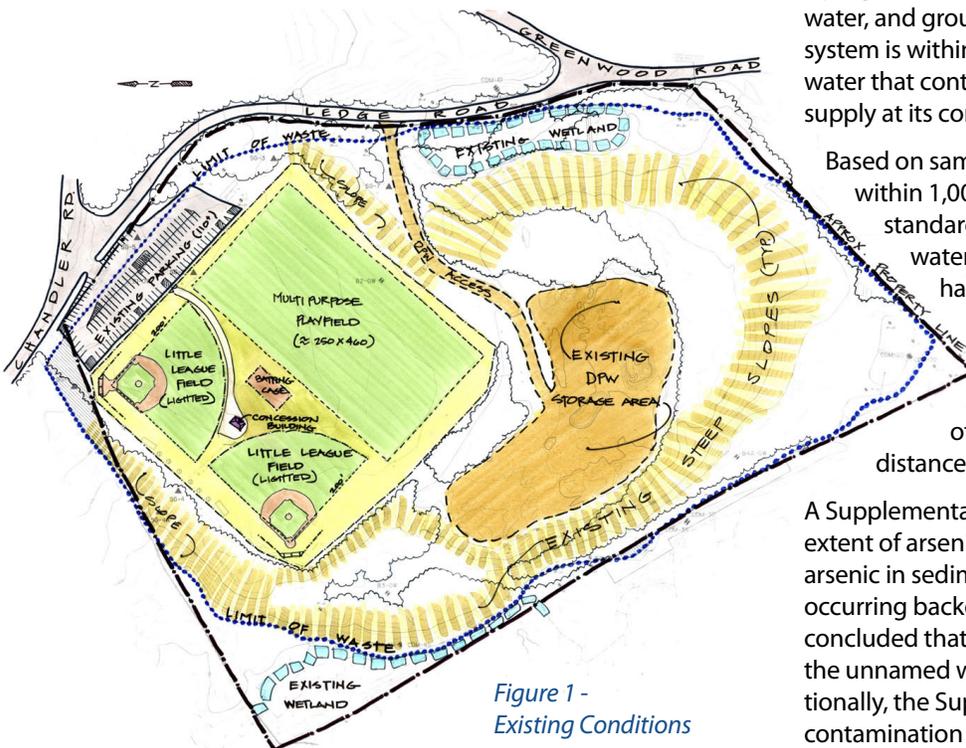


Figure 1 - Existing Conditions

## Town of Andover, Massachusetts

# Ledge Road Landfill Closure Project (Continued)

In addition to the Supplemental CSA, the human health risk assessment was revised to consider the new arsenic data. The human health risk assessment concluded that sediment with arsenic concentrations greater than 900 parts per million (ppm) requires removal. This sediment cleanup value was approved by MassDEP and includes about 0.5 acres within the downgradient wetland system. Gates and posted signs have been installed to limit access and inform users. The Town is planning to install fencing to further limit access.

The CAAA identified and evaluated corrective actions to achieve landfill closure and address impacts including landfill capping, groundwater source control, and the remediation of arsenic impacted wetland sediments. Since the CAAA was issued in 2011, efforts have focused on further evaluation of the recommended corrective actions to ensure the technical and financial feasibility of the selected approach. Results of this evaluation are expected to be issued in 2015.

### Plans for Capping and Post-Closure Use

Once the CAAA and design phases are complete, construction will proceed of the landfill cap along with any associated corrective actions such as removal of arsenic impacted wetland sediments. In preparation for closure, the Town has recently acquired private property adjacent to and downgradient of the landfill. In addition, the Town completed a land swap with the Andover Village Improvement Society (AVIS) to acquire additional areas with impacted wetland sediments. The Town continues to consider post-closure use of the landfill, including green space and solar energy options. It is intended that the southern portion of the landfill remain a DPW stockpiling area.

### Financial Status

The Town appropriated \$2.2 million at the 1999 Annual Town Meeting for the initial closure phases of the Ledge Road Landfill. At the 2006 Annual Town Meeting, \$0.5 million was appropriated for future phases of design and related activities including further assessment of wetland sediments. At the 2008 ATM the Town appropriated \$7.37 million for closure of the landfill and associated corrective actions. The most recent feasibility evaluation of the recommended corrective actions was funded by a low interest loan of \$675,000 from the MassDEP State Revolving Fund (SRF). Final construction cost estimates will be developed based on the corrective action design implemented for the landfill and adjacent wetland areas.



*Field Program Activities: Well drilling (left), sampling (top right), monitoring well (bottom right)*

### Additional Information

There are several means by which residents can obtain additional information on the landfill closure project.

- At the request of area residents, a **Public Involvement Plan (PIP)** has been prepared for the site. The PIP, prepared in accordance with MassDEP requirements, provides opportunity for public meetings and public comment on all project milestone deliverables. A mailing list is maintained by the DPW for any individuals interested in receiving notification of project milestones and meetings.
- The Town has established an **Information Repository** of all project documents for public viewing at the following locations:
 

<p><b>Andover Memorial Hall Library</b> 2 North Main St., Andover, MA 01810 M – Th 9:00 AM – 9:00 PM F – Sat 9:00 AM – 5:00 PM Sun 1:00 PM – 5:00 PM</p>	<p><b>Andover Board of Health</b> 26 Bartlett St., Andover, MA 01810 M – F 8:00 AM – 3:00 PM</p>
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- Upon request, **secure internet access to electronic copies of all documents in the Information Repository** is available to the public. Requests for access can be sent to Kathy Grant at: [kgrant@andoverma.gov](mailto:kgrant@andoverma.gov)
- For general information on the landfill closure process, please visit the **MassDEP website** at: <http://www.mass.gov/eea/agencies/massdep/service/approvals/bwp-sw-12-23-24-25.html>
- If you would like **more information** on this project or wish to be added to the PIP mailing list, please contact:

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