

Summary of the Risk Assessment and Status Report for Trotting Park Baseball Fields

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In February 2025, Arcadis U.S., Inc. prepared a risk assessment for the Town of Falmouth as part of the ongoing environmental investigation of the former Gifford Street landfill, the current location of three baseball fields. The analysis of five topsoil samples collected from up to six inches beneath turf from Field 1 detected lead at approximately 600 parts per million (ppm¹). This concentration of lead detected in topsoil on Field 1 could pose an unacceptable risk to young children if repeated contact with soil beneath the existing turf was allowed.

The highest concentration of lead in four topsoil samples from Field 2 was 190 ppm, and 45 ppm in four topsoil samples from Field 3. The concentrations of lead on Fields 2 and 3 do not exceed the Massachusetts Department of Environmental Protection health risk-based soil standard for lead of 200 ppm (“MassDEP S-1 soil standard”) and therefore do not pose a risk to health for children contacting lead in topsoil on these fields.

Beneath the turf and topsoil the underlying landfill material had significantly higher concentrations of lead and other constituents including antimony, arsenic, PCBs, and zinc at concentrations greater than their respective MassDEP S-1 soil standards. The maximum lead concentrations in deeper soil from 0.5 to 5 feet below turf on Field 1 (1,610 ppm), Field 2 (1,710 ppm) and Field 3 (755 ppm) are greater than the S-1 soil standard and S-2/S-3 soil standard of 600 ppm that can be used to evaluate adult worker exposures. The antimony concentration in deeper soil on Field 1 is greater than the MassDEP soil standards.

Arcadis conducted an Imminent Hazard Evaluation to evaluate if current site conditions pose an Imminent Hazard in the short-term to safety, health, or the environment. From this evaluation, an Imminent Hazard to safety and health were identified. Specifically:

- Exposed landfill waste material observed along the walking paths between the fields could pose a safety risk under current conditions and should be addressed to mitigate risks from physical hazards.
- Using the MassDEP *Shortform for Imminent Hazards* to provide numerical estimates of potential risk associated with recreators’ presumed contact with the constituents detected in surface soil samples collected from the ballfields, the maximum concentration of lead in topsoil on Field 1 could pose an Imminent Hazard to health if young children’s access to this location is not restricted. The concentrations of lead and other constituents in topsoil on Fields 2 and 3 do not pose an Imminent Hazard to health based on the comparison of the Shortform numerical risk estimates to regulatory limits for evaluating Imminent Hazards to health established in the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000).

Arcadis also conducted a cumulative risk assessment to evaluate if site conditions pose a Significant Risk to health in the long-term. Using the MassDEP *Shortform for Method 3 Risk Assessment for Park Visitor Exposed to Chemicals in Soil*, numerical estimates of potential risk associated with young children as recreators’ contacting the constituents detected in topsoil and deeper soil samples collected from the ballfields were generated and compared to the MCP regulatory limits for evaluating Significant Risk to health. The concentration of lead on the three fields (and antimony on Field 1) in the material from 0.5 to 5 feet below the topsoil indicates a potential Significant Risk in the long-term from repeated exposure, if that exposure occurs as assumed in the Shortform.

¹ Reported as milligrams per kilogram (mg/kg)

Recommendations

Based on data collected to date, Arcadis made the following specific recommendations regarding use of Fields 1, 2 and 3.

- The topsoil samples from Field 1 contain concentrations of lead that indicate a short-term risk from repeated exposure. Arcadis recommends that this field be closed and not used for recreational purposes until a remedy can be implemented. The concentrations of constituents in the material below the topsoil also indicates a long-term risk from repeated exposure. A possible remedy is to place 2 to 3 feet of clean cover over a geotextile membrane over the landfill material and provide notice of the requirements to maintain the cover through an Activity and Use Limitation (AUL). The AUL would restrict exposing the underlying landfill material without the proper safety precautions and a soil management plan prepared by a Licensed Site Professional (LSP).
- The topsoil samples from Fields 2 and 3 did not contain concentrations of lead that indicate a short-term risk from repeated exposure. However, the concentration of lead in the material below the topsoil indicates a potential long-term risk from repeated exposure. On these fields, the topsoil was approximately six inches thick with an established grass layer approximately two inches thick. The topsoil and grass layer will reduce exposure to the underlying landfill material. However, the landfill material immediately below the topsoil presents a potential long-term risk. Under the MCP, the top three feet of soil are considered accessible and must meet the S-1 standards or show No Significant Risk from long-term exposure under current and future land uses. Otherwise, an AUL would be required to restrict access to soils from 0 to 3 feet.
- The current topsoil layer on Field 2 and 3 is not of sufficient thickness to be considered an adequate prevention of exposure to underlying landfill material for the long term. Arcadis recommends use of Fields 2 and 3 for recreation only be allowed for the next 12 months. The fields should be maintained during this time and no excavation or exposure of the subsurface soil should be done without the proper safety precautions, health and safety plan and soil management plan prepared by an LSP.
- Fields 2 and 3 should be inspected before the start of the playing season and periodically inspected to ensure the grass cover is intact and no landfill material is exposed.
- The pathways between Fields 1 and 2 had landfill material (broken glass) at the surface. To mitigate an Imminent Hazard to Safety, a temporary measure for this area should be to cover the pathways with geotextile material and have clean cover placed over the geotextile to prevent exposure.

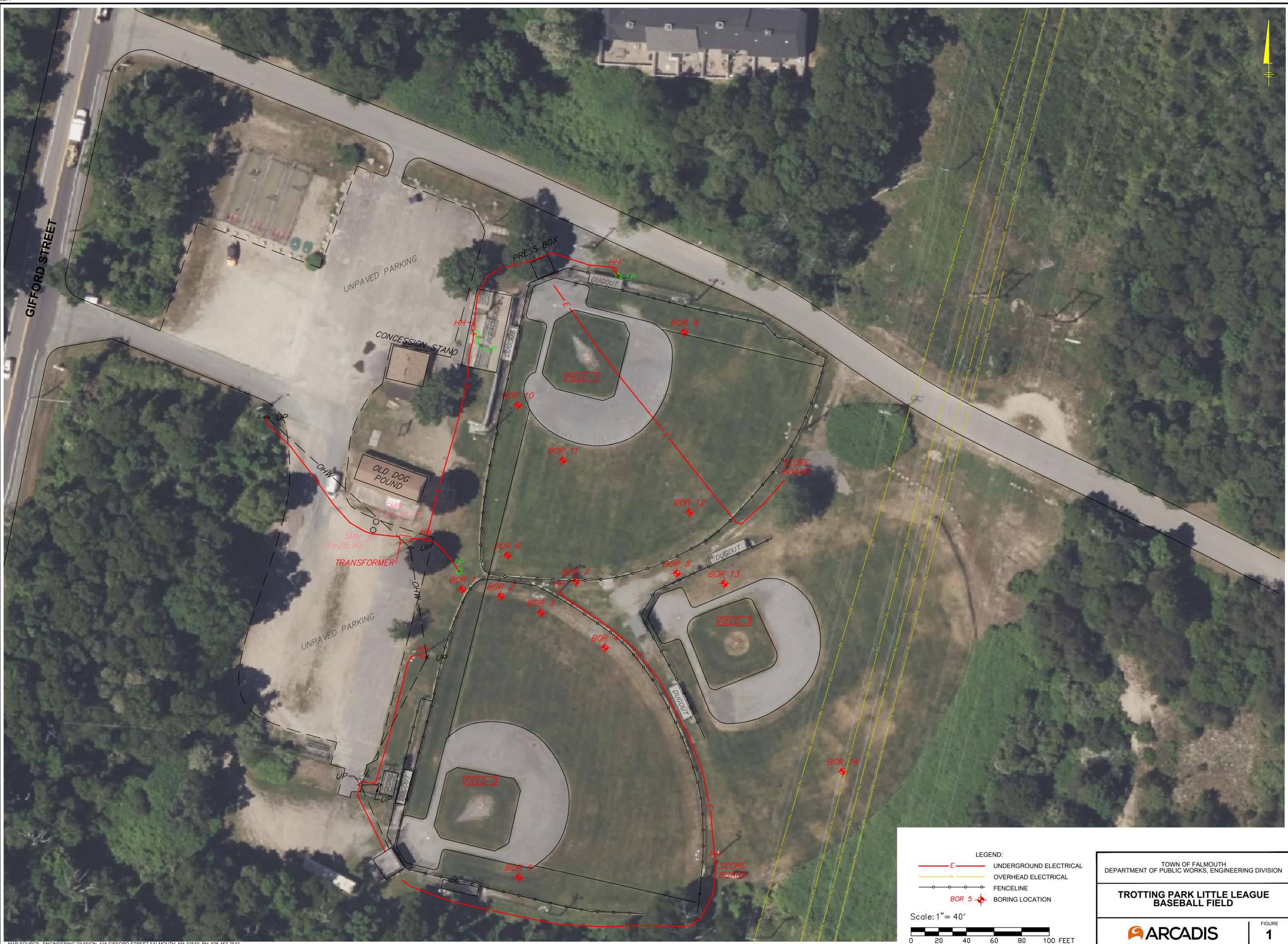
Additional investigation into the nature and extent of the landfill material underlying this area is ongoing and being managed in accordance with the MCP. These investigation activities include a geophysical study and additional soil borings to determine the extent of the landfill, and groundwater assessment to determine groundwater flow direction and groundwater quality.

Limitations

The recommendations included in the report were based on limited data and those recommendations could change if new data become available that is significantly different or other contaminants are identified.

Attachment

Figure 1 – Boring Locations on Trotting Park Little League Baseball Field



LEGEND:

- E — UNDERGROUND ELECTRICAL
- P_o — OVERHEAD ELECTRICAL
- FENCELINE
- ♦ BOR 5 BORING LOCATION

Scale: 1" = 40'

TOWN OF FALMOUTH
DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION

**TROTTING PARK LITTLE LEAGUE
BASEBALL FIELD**

ARCADIS

FIGURE
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