

DRAFT

**RUSSELL FIELD
SUPPLEMENTAL ASBESTOS
SOIL AND AIR SAMPLING PLAN
FOR
CAMBRIDGE ASBESTOS ORDINANCE COMPLIANCE**

Prepared For:

**Susanne Rasmussen
Community Development Department
City of Cambridge
57 Inman Street
Cambridge, MA 02139**

Prepared By:

**Environmental Health & Engineering, Inc.
60 Wells Avenue
Newton, MA 02459-3210**

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1.0 OBJECTIVES

The objective of this sampling program is to further characterize the environmental conditions of Russell Field. Supplemental testing is proposed for subsurface soils to characterize the nature and extent of asbestos potentially present at depths greater than three feet. Soils shallower than three feet have been characterized during previous investigations. The intent of this sampling plan is compliance with the City of Cambridge Asbestos Ordinance (#1232) requirements. This plan will be submitted to the Commissioner of the Cambridge Department of Public Health in accordance with this ordinance.

2.0 STRATEGY AND METHODS

The sampling program will focus on deeper soils (greater than three feet in depth). Locations for the installation of soil borings were selected based upon the results and locations of the previous investigations and the depth of proposed soil disturbance during the upcoming renovation of Russell Field Park. Previous investigations provided coverage for a 37.5-foot on center grid of samples over the entire site (except where structures are located) for shallow soil (0 – 3'), because field renovation was assumed to disturb shallow soil over much of Russell Field. In addition, some deeper borings were completed in localized areas during the previous assessments. During this proposed phase of testing, soil borings are planned where renovation activities are anticipated to disturb soils greater than three feet in depth. The borings will extend to the proposed maximum depth of soil disturbance and follow a 35-foot on center grid pattern. Air monitoring for asbestos will be conducted during soil sampling.

The City will coordinate with Alewife Neighbors, Inc. (ANI) and/or their representative so that they can be present to observe the field program. Split samples will be provided to ANI for all borings from which adequate soil is collected. All data, analyses, and reports, including draft reports, will be sent to ANI as soon as they are available. Initiation of the drilling program is anticipated on November 10, 2003.

2.1 SOIL INVESTIGATION

Approximately 192 borings will be completed in accessible areas of the site. Boring depths range from 4 to 16 feet. All soil samples from the borings will be analyzed for asbestos. Additional analytes may be requested, depending upon field observations. The Boring Location Plan (Figure 1 in Appendix A) illustrates approximate sampling locations and depths for the boring program. Locations and depths for the borings are based upon the 100% design plans for park renovation (Construction Plans for Russell Field, City of Cambridge, MA; October 14, 2003) and follow-up consultation with the design team.

2.1.1 Sampling and Analysis Methodology

Borings will be advanced using continuous sampling techniques and a continuous log of subsurface conditions to the completion depth will be provided. In addition to providing soil classification information, boring logs will include detailed descriptions of any anthropogenic materials present, such as suspect asbestos containing materials (ACM), coal or wood ash, cinders, "klinkers," etc. Representative reference samples will be archived; at least one reference sample will be collected from each soil type observed at each boring. Drilling rigs will be used for collection at all sample locations.

If a stratum change is observed in a boring, discrete samples of each stratum will be collected and archived for possible additional analysis at a later date. Soil logs will indicate the depths of any strata change. Samples will be sprayed with de-ionized water prior to and after removal from the soil-sampling device and prior to homogenization over the selected interval. Any observed suspect ACM will be removed from the soil prior to homogenization and analyzed separately for asbestos content. Suspect ACM samples will not be split for archives or ANI. Split samples of soil will be collected for ANI and for archive purposes, if enough soil is recovered.

EH&E anticipates sample collection with disposable sample sleeves. For any non-disposable sampling equipment that is used, it shall be decontaminated between use at each boring. Methods used will be (in the following order) a Liquinox and distilled water scrub and a distilled water rinse. Sampling devices shall be visually assessed for evidence of potential cross-contamination following cleaning and before each use.

As a precaution, soils will be field screened with a photoionization detector (PID) for volatile organic compounds. The PID will be calibrated at least once daily during the field program.

Once the samples are collected, homogenized, and split in accordance with the established procedure, they shall be shipped under chain of custody to a qualified laboratory for analysis. Required accreditations for asbestos analysis are awarded by the American Industrial Hygiene Association, the National Voluntary Laboratory Accreditation Program (both air and bulk), and the Massachusetts Department of Labor

and Workforce Development. All soil samples will be analyzed for asbestos via the U.S. Environmental Protection Agency (EPA) Region 1 Protocol for Screening Soil and Sediment for Asbestos Content utilizing polarized light microscopy (PLM). Suspect ACM samples will be analyzed via PLM by the EPA 600/R-93/116 method.

2.2 AIR MONITORING

Air monitoring will be conducted during the soil sampling program for the protection of site workers, field users, and abutters, as well as to provide data for an Imminent Hazard evaluation, if needed. Personnel collecting soil samples at the site will maintain sampling devices near the areas of soil disturbance. It is anticipated that two drilling teams will be working at the field for most of the program. Additionally, three area perimeter sampling stations will be setup at one upwind and two downwind locations. Therefore, five to six samples and one duplicate will be collected.

Work area and perimeter samples will be analyzed via phase contrast microscopy using National Institute for Occupational Safety and Health (NIOSH) Method 7400. Selected samples will be reanalyzed by transmission electron microscopy via NIOSH Method 7402.

It should be noted that air samples cannot be collected on rainy days. However, hazards associated with fugitive dust that may potentially contain asbestos are minimized during rain events.

2.3 EVALUATION OF RESULTS

Results of asbestos soil sampling will be interpreted based upon comparison to City of Cambridge and Massachusetts Department of Environmental Protection (MADEP) criteria. If asbestos is detected in soil or air, an Imminent Hazard Assessment will be completed using the results of air testing, as recommended by the MADEP. A risk-based assessment will be completed to determine if an Imminent Hazard exists. Previous testing of air at Russell Field did not detect concentrations of asbestos above urban background levels.

Laboratory results from the subsurface investigation are to be sent by fax or overnight mail to Brown and Rowe, the City of Cambridge, and neighborhood representatives.

A data summary report on the results of the subsurface investigation, including daily field reports, logs, screening results, and, if needed, recommendations for follow-up actions according to Massachusetts Contingency Plan regulations, will be provided to Brown and Rowe, the City of Cambridge, and neighborhood representatives. Data shall be summarized in tabular format and will include detection limits and pertinent information that may be used for data validation at a later time by the City of Cambridge. Sample locations shall be shown accurately on a scaled site plan.

APPENDIX A

FIGURE 1