



CITY OF CAMBRIDGE  
CAMBRIDGE, MASSACHUSETTS 02139

TEL. 349-4300  
FAX. 349-4307



EXECUTIVE DEPARTMENT  
ROBERT W. HEALY  
City Manager

RICHARD C. ROSSI  
Deputy City Manager

December 19, 1997

To The Honorable, The City Council:

Please find attached for your information a copy of my memorandum sent to Superintendent of School Bobbie D'Allesandro, regarding the environmental analysis at the Tobin School.

Very truly yours,

A handwritten signature in black ink, appearing to read "Robert W. Healy", written over a horizontal line.

Robert W. Healy  
City Manager

RWH/mec  
attachment



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EXECUTIVE DEPARTMENT  
ROBERT W. HEALY  
City Manager

RICHARD C. ROSSI  
Deputy City Manager

TO: Bobbie D'Allesandro, Superintendent of Schools  
FROM: Robert W. Healy, City Manager  
DATE: December 16, 1997  
RE: Environmental Analysis at the Tobin School

A handwritten signature in dark ink, appearing to read "Robert W. Healy", is written over the "FROM:" line of the memo.

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Attached please find a letter to the City from the environmental firm Camp, Dresser & McKee (CDM) describing recent environmental investigation of soil and groundwater conditions at the Tobin School in West Cambridge. This investigation began early in 1997, when the school was notified by the Massachusetts Department of Environmental Protection (DEP) that due to the site's historical use as a clay pit, sub-surface testing was required under state law.

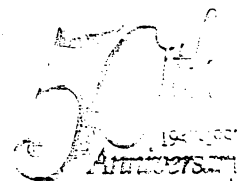
No immediate health risks have been identified at the school. However, in the course of testing, chemical conditions were identified in a limited number of soil samples which require follow-up testing. CDM has provided us with their proposed plan of action in the attached letter. City officials and CDM are available to meet with you at your request to answer any questions you may have about the work completed to date or the proposed follow-up work. We are hoping to proceed with the next phase of testing work early in the new year and hope you concur. Please don't hesitate to call me or Richard Rossi at 349-4300 to discuss this issue. Thank you.



Camp Dresser & McKee Inc.

consulting  
engineering  
construction  
operations

Ten Cambridge Center  
Cambridge, Massachusetts 02142  
Tel: 617 252-8000 Fax: 617 621-2565



December 11, 1997

Mr. Richard C. Rossi  
Deputy City Manager  
City of Cambridge  
City Hall  
795 Massachusetts Ave.  
Cambridge, MA 02139

Subject: Tobin Elementary School  
Summary of Activities and Findings of Soil and Groundwater Investigations

Dear Mr. Rossi:

This memorandum summarizes the activities and findings associated with soil and groundwater investigations conducted by Camp Dresser and McKee Inc. (CDM) at the Tobin Elementary School on behalf of the City of Cambridge. CDM is investigating this site under the Massachusetts Contingency Plan (MCP) program due to its history as a former clay pit, as required by the Massachusetts Department of Environmental Protection (DEP) and in response to a DEP notification to the Tobin School in January, 1997 requiring that the clay pit be further investigated.

In response to the DEP notification, the City authorized CDM to take prompt action, including sampling and analysis activities in the area of the former clay pit. CDM's investigation is also a follow-up to previous air monitoring performed at the school between 1986 and 1993. CDM has evaluated the findings and determined that there is no immediate health threat associated with contact with air, soil or groundwater at the school. This evaluation was based on very conservative assumptions about exposure to persons at the school. Additional work is still required by DEP, and based on our findings, a recommended course of action is presented herein.

To date, the following activities have been conducted by CDM:

- Phase I Investigations (February 1997 - July 1997) including:
  - A search for historical and background information
  - Ground conductivity survey
  - Groundwater sampling

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- Sampling conducted as a follow-up to indoor air testing last conducted in September 1993 and to verify that the sub-slab soil ventilation system installed in the Fall of 1991 is functioning properly. These sampling activities included:
  - Air sampling of six roof vents on the school that draw from the sub-slab ventilation system
  - Soil gas sampling from eight locations beneath the school

This sampling was conducted in March and April 1997.

- Follow up Phase I investigations (August and September 1997) including:
  - Excavation and sampling of five test pits in the playing fields, open space area
  - Groundwater sampling of three new wells installed on the site
- Confirmation of No Imminent Hazard (October, 1997)

Results of the Phase I Investigation have been presented in *Phase I Initial Site Investigation Report*, CDM, July, 1997. These results, along with the results of the follow up investigation and the Confirmation of No Imminent Hazard, are briefly summarized below:

## Results

- The results of the historical survey indicate that the school and playing fields overlie a former clay extraction pit which was used as a landfill from sometime between 1916 and 1952. With the exception of an area approximately 120 feet wide by 360 feet long on the western portion of the property where it does not appear that materials were landfilled, ***the results of the ground conductivity survey indicate that the horizontal limits of the landfill material appear to coincide with the boundaries of the old pond and clay pit covering almost the entire school property and National Guard Armory.***
- Previous investigations of indoor air quality conducted by various consultants for the Cambridge School Department between 1986 and 1993 found low levels of volatile chemicals in indoor air consistent with normal indoor environments. Slightly elevated levels of volatile chemicals were detected in crawl spaces beneath the building. These areas, used for storage of paints and solvents, were cleaned and a sub-slab ventilation system was installed in the Fall of 1991 to pump soil gas from beneath the school to vents discharging to the roof. ***Follow-up investigations, as well as CDM's current investigation, indicate that the active soil venting system is effectively removing fill-***

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*related or school operations-related volatile chemicals and methane under the school footprint. Results indicate indoor air quality remains well protected.*

- Groundwater was sampled from one on-site well and several off-site wells located on nearby properties within a two block radius of the school to provide regional information. From the well located on the school property, groundwater chemical concentrations were all below drinking water standards established by the DEP in the Massachusetts Contingency Plan. Petroleum hydrocarbons were observed in one and a common plasticizer chemical was observed in two different off-site wells, but are not believed to have originated from the former clay pit on the school property. *On-site wells meet drinking water standards and off-site wells are consistent with groundwater quality throughout most urban areas. Groundwater at the site is not used for drinking water and does not discharge to nearby Fresh Pond Reservoir.*
- Within the former clay pit, a group of chemicals were detected that are formed during the incomplete combustion of burning coal, oil and gas, garbage, or other organic substances. These chemicals are referred to as PAHs - polycyclic aromatic hydrocarbons. *At the levels detected, PAHs are very common in samples of fill material which often contain ash from coal or wood burning. Vehicle exhaust, asphalt roads and any ash material, including ash from wood stoves, contain PAHs at concentrations similar to those detected in the playing fields. The levels detected are similar to those detected in public parks located in urban areas.*
- Five PAHs were detected at concentrations just above MCP standards, i.e., at a level requiring further investigation, but not posing any imminent hazard. Detected concentrations that exceeded the most conservative MCP standards were from both the top 6 inches of soil and deeper. Outside the former clay pit, concentrations were below MCP standards. One test pit in particular, TP-3 (see Figure 1) showed concentrations above what would be expected in these background materials and a strong odor and black oily soil was observed starting at two feet below ground. *It is recommended that this test pit be further investigated to define the limits of this material.*
- Groundwater results from the three new wells were inconclusive due to high levels of suspended particulates in the samples. These wells will be resampled during the next round of field work (see below, Recommendations).

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### *Confirmation of No Imminent Hazard*

Because the site is a school, a further evaluation was conducted in August 1997 to determine whether the detected concentrations represented a risk to public health that warranted a short term measure be taken. The results of this evaluation are as follows:

- ***Materials detected at the playing fields do not represent an imminent hazard. This determination was made on the basis of very conservative (very protective of human health) assumptions about the amount of time children potentially spend playing or in contact with soil on the playing fields.*** Children were used in the evaluation because they would have the highest level of contact with soil. Further, children are generally more sensitive to chemical exposure than adults. The evaluation assumed children might play at the playing fields 7 days each week from April through October and could be exposed to dust from the playing fields 5 days per week from November through March. The evaluation also assumed children might play at the playing fields for a total of seven years and each time they played they could get soil on their hands, arms and legs and would incidentally ingest some of the soil through hand to mouth behavior. It was assumed that children could breath dust from the playing fields for eight hours per day.
- ***Short term measures targeted to PAH contamination are not necessary because no immediate risk was found based on criteria set forth in the MCP.***

### *Recommendations for Future Actions*

The majority of the materials observed in test pits at the site were consistent with general refuse and urban fill materials. However, based on MCP requirements, the presence of slightly higher concentrations in one of the test pits and the observation of black oily soil and a strong odor starting at a depth of two feet warrants further investigation in the vicinity of this test pit. It is also recommended that additional samples be collected to better characterize average exposures across the site and provide a stronger statistical data set with which to conduct a complete health risk assessment. The proposed sample locations are presented on Figure 1.

The City has authorized us to go forward with this additional sampling. Sampling results will be available approximately four weeks following sampling and the health risk assessment can be completed within approximately six weeks following receipt of the data. The three on-site groundwater wells will also be resampled, using techniques to

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exclude suspended particulates from the water samples. When the testing and risk assessment are completed, CDM will make recommendations to the City for any further action, if necessary.

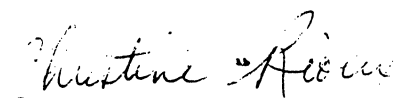
## DEP Time Frames

In accordance with the Massachusetts Contingency Plan, the City has two years from the date of Tier Classification (July 8, 1997) to submit a Response Action Outcome Statement (RAO) or a Phase II Site Investigation. The RAO signifies no further action is necessary, except for operations and maintenance of any on-going treatment system or enforcement of an Activity and Use Limitation (AUL) that may be required to restrict access in some situations. The RAO will be submitted after the risk assessment is conducted, and if remediation is necessary, after the remediation is conducted.

Should you have any questions regarding the information contained herein, please feel free to contact the Project Manager, Michael Miller, at 617/252-8822.

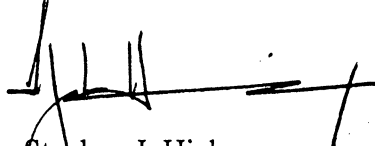
Very truly yours,

CAMP DRESSER & McKEE INC.



Christine Rioux, LSP  
Environmental Scientist

APPROVED BY:

  
Stephen J. Hickox  
Senior Vice President

\cmg

Attachment

5-823  
Memo from Robert W., Healy, City Manager,  
to Bobbie D'Allesando, Superintendent  
of Schools regardin the environmental  
analysis at the Tobin School.

In City Council December 22, 1997