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Greenwich Board of Education and Town of Greenwich, Greenwich, CT

June 22, 2012

GREENWICH HIGH SCHOOL ENVIRONMENTAL TESTING UPDATE

Site Investigation Status: June-August 2012 Investigation Summary and Schedule

Highlights: *An environmental study of the Greenwich High School campus grounds is being completed. Several rounds of investigation have occurred (December 2011, February 2012 and April 2012), and an additional round of investigation activities is planned June-August 2012. The planned investigation includes:*

- *Completion of over 100 soil borings for further evaluation of soil impacts.*
- *Installation of 15 additional monitoring wells and additional groundwater sampling.*
- *Surface water and sediment sampling within West Brothers Brook and Cider Mill Pond for further evaluation of environmental conditions.*
- *Ambient air sampling across the site and soil vapor sampling within and near the high school buildings.*

Please also note the following:

- *Fields 3, 4, 6 and 7 will be closed beginning on 6/25/12, and will not re-open until further notice.*
- *The building will be open throughout the summer and is safe to occupy.*
- *The parking lots will be open throughout the summer.*
- *No further notices will be sent out until the August Update, with the exception of communications for any unanticipated situations.*

Introduction

In mid-July 2011, during the course of excavation work for the Greenwich High School (GHS) Music Instructional Space and Auditorium (MISA) project, unexpected soil conditions were discovered in the west (or back) parking lot, adjacent to the athletic fields. This finding prompted several rounds of environmental testing, where initial test results showed levels of a class of chemicals known as polychlorinated biphenyls (or PCBs) in soil above standards set by the Connecticut Department of Energy and Environmental Protection (DEEP). An environmental study of the high school campus grounds is currently underway. Separate phases of the study were completed in December 2011, February 2012, and April 2012, corresponding with school vacations. An additional phase of study, focused on the synthetic turf fields adjacent to the west parking lot, is scheduled to occur from late June to mid August 2012.

Earlier Project Updates have been prepared summarizing the data results from the December 2011 study (Project Update dated March 6, 2012), the February 2012 study (Project Update dated April 20, 2012), and the April 2012 study (Project Update dated Jun 14, 2012). These Updates can be found on our website (*refer to page 3 of this Update for a link to our website).* This Project Update has been prepared to communicate the planned activities for the upcoming June-August 2012 study.

How will this work affect the use of the fields, parking lots and school buildings?

The school building as well as the parking lots will remain open during the work. However, artificial turf fields 3, 4, 6 and 7 will be closed beginning on 6/25/12 so that the work can be completed. Work in fields 6 and 7 will be performed first, thus these fields may be open for use within two to three weeks. Work in fields 3 and 4, however, will take longer, thus the reopening of these fields will not be announced until later in August.

What environmental sampling is planned for June-August, and why is it being done?

The sampling activities completed so far have provided a good understanding of environmental conditions at the site, but samples still need to be collected under artificial turf fields 3, 4, 6, and 7, as well as additional areas at the site, to have a more complete understanding of overall environmental conditions. This additional sampling will be completed in June-August 2012, when spring sports activities are completed and there can be greater access to these fields. The work will take approximately 6 weeks to complete. A description of the anticipated activities is provided below.

• Soil

Approximately 100 soil borings will be completed at the site beginning in late June and ending in early August. The majority of the soil borings will be completed in the areas of fields 3, 4, and 5, while additional soil borings will also be completed in fields 2, 6 and 7, the west parking lot area, and the southern portion of the site. A few borings will be completed in the Boiler Room – this will not disrupt the

summer activities at the School. The proposed soil boring locations are shown on *Figure 1 – Proposed Soil Boring Locations,* which is available to view on the Greenwich Public Schools' website (*see link on page 3).* The soil borings will be completed using a Geoprobe direct-push drilling machine (*see photo on page 3*). A Geoprobe drilling machine has been used for all soil sampling performed to date.

Approximately 340 soil samples at various depths will be collected from approximately 100 soil boring locations during the soil boring program. The soil samples will be sent to a state-certified testing laboratory for analysis. The samples will be analyzed for PCBs, volatile organic compounds (VOCs), polynuclear aromatic compounds (PAHs), metals, pesticides and/or extractable total petroleum hydrocarbons. (*Refer to our March 6, 2012 Update for additional discussion of these classes of chemicals*).

• Groundwater

Fifteen (15) monitoring wells will be installed during the study, which will add to the existing network of 14 monitoring wells (total of 29 monitoring wells when this study is completed). Monitoring wells will be installed across the Site using a Hollow Stem Auger drilling machine (*see photo*). Proposed monitoring well locations are shown on *Figure 2 – Proposed Monitoring Well Locations*, which is available to view on our website (*see link on page 3).* The Hollow Stem Auger drilling machine is larger and more powerful than the Geoprobe drilling machines that have been used previously at the site. Use of the Hollow Stem Auger drilling machine will allow for penetration and installation of monitoring wells into bedrock which is shallow (near surface) in the area of the school buildings and other areas of the site.

Approximately 30 groundwater samples will be collected from the monitoring well network during the investigation. The groundwater samples will be sent to a state-certified testing laboratory and analyzed for PCBs, VOCs, PAHs, metals, pesticides, and extractable total petroleum hydrocarbons.

At the completion of this phase of study, there will be a network of monitoring wells at the Site that will allow for continued monitoring and assessment of groundwater conditions. Groundwater samples will be collected from the monitoring wells on an approximate quarterly schedule, and will continue even after cleanup activities -- to monitor post-remediation conditions.

• Surface Water and Sediment

Fourteen (14) surface water and sediment samples will be collected from West Brothers Brook and Cider Mill Pond. The samples will be analyzed for PCBs, VOCs, PAHs, metals and pesticides at a state-certified laboratory. Sediment samples will also be analyzed for total organic carbon (TOC). Sampling locations are shown on Figures 3 and 4, which are available to view on our website (*see link on next page).*

Data obtained during the surface water and sediment sampling program will be used to further evaluate environmental conditions in the areas of West Brothers Brook and Cider Mill Pond, and complete an Ecological Risk Assessment for these areas.

• Ambient Air and Soil Vapor:

Ambient air and soil vapor samples will also be collected during this study. Ambient air sampling has already been done at the Site, and the data indicate that ambient air is not a concern. Additional ambient air samples, as well as soil vapor samples, are needed in order to complete the next phase of our study: the Human Health Risk Assessment.

Eight (8) ambient air samples will be collected during the study. These samples will be collected using pumps and sampling media housed in metal canisters (*see photo).* The ambient air samples will be collected over a 24-hour sampling period. Ambient air samples will be collected across the entire site. Sampling locations are shown on Figure 5, which is available to view on our website (*see link on next page).*

In the soil that is above the water table (called *unsaturated* soil), there are small spaces in between the soil particles. The spaces (called voids) are filled with air, which is referred to as soil vapor (or soil gas). This air will be sampled during a soil vapor study. Typically, this type of sampling is done when VOCs are chemicals of concern at a site. Although VOCs have been detected in soil at the Site, they are not present above regulatory levels. Nevertheless, in order to complete the Human Health Risk Assessment for the Site, we will collect soil vapor samples.

Soil vapor samples are collected by driving a slotted pipe into the unsaturated soil and attaching a sampling pump, flow regulator and sample collection canister to the pipe. The air pump draws soil vapor from the ground at a pre-determined rate for a period of 1-2 hours. Approximately six (6) soil vapor samples will be collected from within the school building and adjacent to the school in the west parking lot. The building and parking lots will be open throughout this sampling program, and are safe to occupy. The samples will be analyzed for VOCs and PCBs. Sampling locations are also shown on Figure 5, which is available to view on our website (*see link on next page).*

What equipment will be out there during the study?

This study is the most intensive (and comprehensive) to be completed thus far at the Site; therefore, more equipment will be necessary. Trucks and drill rigs will be visible by neighbors, and a passersby. A small boat will be used to collect the surface water and sediment samples. Also, it will be necessary to bring a temporary storage unit (10' x 10' container) to the Site, to store inert material (such as sand, glassware, clay, etc.)

What happens next?

The upcoming field activities are expected to be completed by mid August, prior to the start of fall scholastic athletic programs, with data management tasks ending in September 2012. Additional activities over the next months will include:

- A Project Update will be prepared in August to notify the GHS community about the status of the fields for access and the beginning of the fall scholastic athletic season.
- Another Project Update will follow in September 2012 which will include information pertaining to the results of the June-August investigation.
- Beginning a study (called a Feasibility Study) to identify and evaluate remedial (cleanup) alternatives for the site. This study will evaluate different strategies for the environmental cleanup and include estimates for the overall cost for the cleanup. The Feasibility Study is anticipated to be completed by late Fall 2012.

After completing the Feasibility Study, the team will still have much work ahead, including remedial planning and design, and coordination with regulatory agencies for approvals to move forward.

For all information requests, please contact:
Kim Eves, Greenwich Public Schools Director of Communications
203-625-7415 or
kim_eves@greenwich.k12.ct.us

OR, please visit the Greenwich Public Schools' website for further information:
http://www.greenwichschools.org/
see link for "Updates for Environmental Testing at GHS"

Proposed Investigation Figures – available on the website
Figure 1 – Proposed Soil Boring Locations
Figure 2 – Proposed Monitoring Well Locations
Figure 3 – Proposed Sediment Sampling Locations
Figure 4 – Proposed Surface Water Sampling Locations
Figure 5 – Proposed Ambient Air and Soil Vapor Sampling Locations

Personal Protective Equipment used for Environmental Study

A Safety Plan for all work completed on the Site has been in place since the very first field study. As each study is planned, a Task Hazard Analysis (THA) is completed for each activity to be performed during the investigation (soil borings, groundwater sampling, sediment sampling, etc.). The THA is a recommended step by the Occupational Safety and Health Administration (OSHA). Each THA evaluates the work to be done and how to complete the work in a manner that is protective of worker safety. The THA's completed for the Site indicate that appropriate OSHA level of personal protective equipment is "Level D," which means the Site workers will be wearing the following personal protective equipment:

- High visibility (e.g., florescent color) safety vests.
- Safety glasses for eye protection from debris.
- Chemical resistance gloves for skin protection during sampling.
- Work boots with safety (steel) toes for protection from falling and heavy objects.
- During drilling and other activities, workers will be wearing hard hats and hearing protection.

Site workers will not be wearing Tyvek suits (long sleeve white suits) because minimal exposure to soil occurs during sampling. Soil samples are contained within sampling tooling during drilling and only small amounts of soil are removed by the workers. The soil that is removed is immediately placed in glassware for transfer to the laboratory.

Monitoring During Study Activities

During drilling activities, workers will be monitoring the air in the work zone for chemicals of concern and total dust. When the soil samples are removed from the ground, they are contained in a plastic sleeve called a Macrocore sampler. The sampler is opened to access the soil core for sampling and logging. After the soil sample is collected from the sleeve, the soil is placed back in the ground at the location and depth from which it was removed. Workers only handle small amounts of soil and minimal dust is generated during the sampling process.

Air and dust monitoring will be conducted during drilling activities in the immediate area of the work zone to ensure worker safety. Air monitoring will be conducted using a hand-held photoionization detector (PID) which measures total VOCs in air. Dust monitoring will be completed using a portable total dust monitor.