



August 2, 2013

Connecticut Department of Economic & Community Development
Office of Brownfield Remediation and Development
505 Hudson Street
Hartford, Connecticut 06106-7106

Attn: Don Friday, Environmental Analyst

**RE: Proposal for Engineering Services
Phase III ESA, HBM Survey, and Remedial Cost Estimating
Mystic Oral School, Groton, Connecticut**

Dear Mr. Friday:

Loureiro Engineering Associates, Inc. (LEA) is pleased to submit this proposal to the Connecticut Department of Economic & Community Development (DECD) for engineering services necessary to perform a Phase III Environmental Site Assessment (ESA) and a Hazardous Building Materials (HBM) survey of the developed portion of the state-owned Mystic Oral School property located in Groton, Connecticut (herein after referred to as “the Site”). Based on our recent discussions with DECD, we understand that the primary goal of the proposed work is to be able to develop remediation cost estimates for the actions that will be needed in order to be able to transfer the subject property as a “cleaned” Site.

1.0 SUMMARY OF PHASE I / II AND HBM INVESTIGATION FINDINGS

LEA performed Phase I / II Environmental Site Assessment (ESA) activities at the Site in January 2013 (final reports dated June 2013). Based on the findings of the Phase I ESA, a total of 17 environmental areas of concern (AOCs) were identified where releases of petroleum products or hazardous substances may have occurred. Subsequent to the Phase I ESA, LEA investigated the identified AOCs via Phase II soil and groundwater (report dated May 16, 2013). Based on the results of LEA’s Phase II investigation, releases of petroleum products and / or hazardous materials including metals and pesticides were detected in soil samples collected from within the following AOCs at concentrations indicative of releases.

AOC 1 - Recreation Field

Extractable petroleum hydrocarbons (ETPH) and polynuclear aromatic hydrocarbons (PAHs) were detected in shallow soil within this AOC at concentrations above residential RSR soil criteria. The presence of these constituents may be associated with impacted fill material that was previously placed throughout the Recreation Field. Additional soil investigation is needed at AOC 1 to delineate the degree and extent of impacts that will require remedial action.

Loureiro Engineering Associates, Inc.

100 Northwest Drive • Plainville, CT 06062 • 860.747.6181 • Fax 860.747.8822 • www.Loureiro.com

AN EMPLOYEE-OWNED COMPANY

AOC 2 - Fire Department Training Area and Area of Fill

Volatile organic compounds (VOCs), PAHs, and lead were detected in shallow soil within this AOC at concentrations below residential RSR criteria. Additional soil investigation is needed confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 3 - Solid Waste Disposal Area

ETPH and PAHs were detected in shallow soil within this AOC. The detected concentrations of PAHs were above residential RSR criteria. Additional soil investigation is needed within this AOC to delineate the degree and extent of impacts that will require remedial action.

AOC 5 - Former and Existing Underground Storage Tanks

ETPH and PAHs were detected in shallow soil within this AOC at concentrations below residential RSR criteria. Additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 6 - Aboveground Storage Tanks

ETPH and PAHs were detected in shallow soil within this AOC at concentrations below residential RSR criteria. Additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 7 - Perimeter of Existing Buildings

Lead and / or pesticides (chlordane and heptachlor epoxide) were detected in shallow soil samples collected from adjacent to the Administration, Wood Shed, and Crouter buildings. Additional soil investigation is needed to further evaluate the nature and extent of these impacts and to evaluate the need for remedial action at this AOC.

AOC 8 - Transformers

ETPH and PAHs were detected in shallow soil samples collected from locations surrounding the transformer located adjacent to the Emergency Generator at concentrations above residential RSR criteria. Additional soil investigation is needed at this AOC to delineate the degree and extent of impacts that will require remedial action. Also, limited supplemental soil investigation is needed in the vicinity of the Pratt Building transformer to confirm the absence of impacts to soil in this area.

AOC 10 - Administration Building and Girls Wing Boiler Rooms

ETPH, PAHs and metals were detected in shallow soil samples collected in the vicinity of the former coal chute at concentrations below residential RSR criteria. Additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 11 - Administration Building Storage Rooms and Photography Lab

ETPH, total cyanide, and pyrene were detected in soil samples collected from this AOC. The sampling and analyses conducted were sufficient to characterize this AOC at concentrations below residential RSR criteria. Limited additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 12 - Hydraulic Elevators

PAHs were detected in shallow soil within this AOC. The sampling and analyses conducted were sufficient to characterize this AOC. Limited additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 13 - Emergency Generator

ETPH and PAHs were detected in soil within this AOC at concentrations below residential RSR criteria. Additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 14 - Maintenance Garage / Storage Areas

ETPH was detected in soil within this AOC at concentrations above residential RSR criteria. PAHs and silver were also detected in soil at this AOC at elevated levels. Additional soil investigation is needed at AOC 1 to delineate the degree and extent of impacts that will require remedial action.

AOC 16 - Former Rubbish Burner / Shop / Garage

ETPH, VOCs, PAHs, and metals were detected in soil within this AOC at concentrations below residential RSR criteria. Limited additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

AOC 17 - Loading Docks

Phenanthrene and ETPH were detected in soil collected from within this AOC. Limited additional soil investigation is needed to confirm the absence of impacts to soil within this AOC at concentrations that would require remediation.

Groundwater Conditions

Constituents of concern were not detected in groundwater beneath the Site at concentrations believed to be indicative of impacts to groundwater from on-site releases. Additional groundwater investigation does not appear to be warranted at this time.

In addition to the Phase I / II ESA work, a Hazardous Building Materials (HBM) survey of the buildings located at 240 Oral School Road was conducted by LEA in January 2013 to identify the type, location, and quantity of building materials that will require special handling and disposal due to the presence of asbestos, lead, mercury, PCBs, or DEHP. Based on the findings of the HBM survey, asbestos, lead, mercury, and PCBs were identified at various locations throughout the Site. DEHP was not identified during the initial HBM survey. For a detailed description of the HBM survey findings, please refer to LEA's HBM Survey Report (dated May 2013). The proposed supplemental HBM tasks and costs presented herein are believed to be needed in order to develop planning level HBM abatement cost estimates.

2.0 SCOPE OF WORK

The proposed Phase III Scope of Work (SOW) has been developed to further evaluate the aforementioned identified releases at the site.

2.1 Phase III Environmental Site Assessment

2.1.1 Phase III Subsurface Investigation Scope of Work

Prior to initiating subsurface investigation activities, LEA will conduct a ground-penetrating radar (GPR) and electro-magnetic inductance (EMI) survey to identify whether or not proposed soil boring locations conflict with existing underground utilities and other man-made structures such as UST facilities. The survey will also be used to locate any subsurface debris that may have been buried at the Site.

The Phase III investigation will include the advancement of up to 60 soil borings to depths ranging from 2 feet to 12 feet below grade, and 24 surficial soil samples ranging from 0 to 1 foot below grade. Additionally, up to six test pits will be excavated within AOC 3 to further evaluate the potential presence of buried debris and fill materials in that area. Soil borings will be advanced using LEA's Geoprobe™ direct push sampling unit or a hand auger.

Soil samples will be collected during the soil boring process and will be screened in the field for volatile organic compounds (VOCs) using a photoionization detector (PID). The soil samples will be logged and submitted to laboratory certified by the State of Connecticut Department of Health. Based on visual and olfactory observations and PID readings recorded in the field, and on the potential release mechanisms associated with the area being assessed, the laboratory will be instructed to analyze select samples. The samples will be analyzed for one or more of the following analytical parameters, depending on the area from which the samples are collected: VOCs using EPA SW-846 Method 8260C; polynuclear aromatic hydrocarbons (PAHs) using EPA SW-846 Method 8270D; polychlorinated biphenyls (PCBs) using EPA SW-846 Method 8082; extractable total petroleum hydrocarbons (ETPH) using the Connecticut-approved ETPH method; pesticides using EPA SW-846 Method 8081; and RCRA-8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver) plus copper, nickel and zinc, using the appropriate EPA SW-846 6000 and 7000 series of methods. In addition, any debris that is sampled will be analyzed for asbestos using polarized light microscopy (PLM) using EPA Method 600/R-93/116.

All samples that are submitted for analyses, including all associated quality assurance/quality control (QA/QC) samples, will be analyzed in accordance with the DEEP Reasonable Confidence Protocols (RCP).

2.1.2 Phase III Subsurface Investigation Report Preparation

Following completion of the Phase III subsurface investigation activities, LEA will prepare a Phase III Subsurface Investigation. The Phase III report will include a description of the investigation activities conducted as well as a description of the pertinent observations, findings, and results. The laboratory analytical data will be presented in tables, figures, and drawings that are appended to the report, as appropriate. The report will also include soil boring logs, monitoring well logs, laboratory analytical reports, and QA/QC documentation including Data Quality Assessment (DQA) reports, as appendices. Lastly, an updated Conceptual Site Model (CSM) will be included in the Phase III report. Preliminary remediation cost estimates and a summary of remedial options will be provided in a separate letter.

2.2 Supplemental Hazardous Building Materials Survey

Based on recent discussions with DECD, we understand that the goal of the investigation is to provide DECD with preliminary abatement cost estimates associated with the remedial actions that will likely be needed in order to be able to transfer the subject property as a “cleaned” Site. As such, the proposed supplemental HBM survey work is believed to be sufficient to satisfy the Connecticut regulations for waste characterization for disposal recommendations and cost estimating. The supplemental HBM survey tasks will include sampling and reporting of potential sources of concern to building occupants for radon gas and lead in drinking water. Additionally, LEA will include evaluations of substrates and structural components to render an opinion as to the viability of reuse of the mold-impacted Durant building.

LEA will perform additional site investigations and testing to prepare final documents to remove or manage all interior building materials of concern, including an evaluation of drinking water and radon gas levels for the site structures that may be inhabited. Site investigation tasks to satisfy the Connecticut regulations for waste characterization and disposal recommendations and cost estimating will be reviewed specifically for Mercury containing equipment of materials. LEA will review the lead-paint testing for compliance with the current State of Connecticut Child Lead Poisoning and Prevention Regulations. Where deficiencies exist LEA will prepare recommendations with cost estimates.

2.2.1 Mold Inspections

LEA's Industrial Hygienist will inspect and sample documented mold locations in the Durant Building. Where we observe the largest mold colonies LEA will attempt to determine the extent of structural damage to foundations and structural members. LEA is not licensed to remove sheetrock walls with identified asbestos-containing joint compound to examine structural members. Where mold is visibly present LEA will collect bulk samples for mold identification to be analyzed by an American Industrial Hygiene Association (AIHA) certified Laboratory.

2.2.2 Radon Gas and Lead in Drinking Water

The LEA Industrial Hygienist will install Radon test canisters in the basements of the buildings that may become occupied. Test canisters will be recollected within 2 days and submitted to our subcontract certified laboratory for analysis.

LEA will perform Lead in drinking water sampling each of the site buildings that are supplied with potable water. Samples will be collected as a first draw and a flush sample from randomly selected water taps available throughout each building. All samples will be analyzed by our subcontract certified laboratory in accordance with the EPA methods.

2.2.3 Asbestos Clarification Ruling

The joint compound on sheetrock walls within the Durant Building was initially identified as asbestos containing material (ACM) in the Delta Environmental report from March 2001. Subsequent testing, however, indicated that this material was non-ACM. In order to include or exclude the joint compound from remediation cost estimates, a final ruling from the Connecticut Department of Public Health (DPH) will be needed regarding the classification of this material. LEA will submit to DPH the existing data, along with a formal request asking DPH to provide written clarification regarding whether the joint compound is classified as ACM or non-ACM. Pending written clarification from DPH, LEA will include this material in the final abatement cost estimates for the Site.

2.2.3 PCB Investigations

The baseline screening investigations performed by LEA in January 2013 indicated that PCBs are present above the EPA Toxic Substance Control Act (TSCA) criteria for bulk product materials (BPM). As such, supplemental testing is needed to determine what underlying substrates may have been impacted by PCB migration. Specifically, LEA will perform supplemental and confirmatory PCB testing of the window caulking at the Whipple and Crouter buildings. Samples of window caulking, surrounding porous substrates and soil beneath the identified source locations will be tested. A sampling plan will be developed to include all sides and all levels of the Whipple Building. Sample results will be plotted on building drawings as available and a base remediation document will be prepared.

Bulk substrate samples will be collected using a mechanical drill and a ½” bit. Substrates such as brick block or concrete shall be drilled to a ½” depth to provide sufficient quantity of materials for reliable analysis. Soil samples will be collected at 12” and 24” distances from the building foundation on all four sides to a depth of 4 inches.

3.0 PROPOSED FEES

LEA proposes to complete the supplemental subsurface and HBM investigations, and provide preliminary remediation and HBM abatement cost estimates for a lump sum fee of \$138,000, in general conformance with the following breakdown.

Supplemental Soil Investigation and Remedial Cost Estimates	\$115,000.00
Supplemental HBM Survey and Abatement Cost Estimates	\$23,000.00
Total Lump Sum Fee	\$138,000.00

The proposed fee includes costs associated with labor, materials, laboratory analytical fees, and equipment. The supplemental Phase III soil and HBM investigations, and seOur proposed fee is based on our current understanding of the project and the level of effort necessary to complete the scope of services specified herein. Should additional information or circumstances affect the level of effort necessary to complete the proposed work, we will inform you of any anticipated changes in scope and/or resulting impact on the project schedule and cost.

3.1 Basic Assumptions

- The cost estimate for the HBM survey is based on the assumption that LEA will be granted full access to the building and roofing systems.
- LEA will be provided with whatever information is available with respect to building floor plans, as-built drawings, elevation drawings, column plans, heating ventilation and air conditioning drawings, etc.

- The cost estimate for the HBM survey is based on the sample quantities identified in the attached cost spreadsheets.
- The cost estimate for HBM inspection services are based on a one week turn around time for analytical results.
- A summary report will be prepared to document the results of the Phase III activities. The evaluation of results of these activities will include a comparison of the data to the DEEP Remediation Standard Regulations (RSRs). This investigation is not intended to satisfy the requirements of a complete Phase III ESA in accordance with the 2010 DEEP SCGD, but rather to obtain data needed to estimate the cost of further action at the Site.
- Soil investigation-derived waste (IDW) will be generated during the Phase III activities. All IDW will be placed into 55-gallon drums for disposal. This scope of work does not include the management or disposal of IDW.
- The cost does not include the cost to advance soil borings into bedrock, if necessary, using air rotary drilling methods.

4.0 SCHEDULE

We are prepared to complete the proposed services with the delivery of draft reports and preliminary remediation cost estimates within eight weeks of authorization to proceed. To ensure that DECD will receive deliverables within the proposed schedule, LEA will provide weekly progress updates throughout the duration of the project. Any unforeseen field conditions or circumstances that have the potential to affect the project schedule will be communicated to DECD well in advance, and appropriate measures will be taken to either modify the scope with DECD approval.

We appreciate the opportunity to present this proposal and look forward to working with you. If you should have any questions regarding the contents of this proposal, please feel free to contact me at (860) 410-2956.

Sincerely,

LOUREIRO ENGINEERING ASSOCIATES, INC.



Darby W. Hittle, LEP
Senior Project Manager