

September 30, 2014

Project 101.01007.002

Mr. David McKinley
Kaestle Boos Associates, Inc.
325 Foxborough Boulevard, Suite 100
Foxborough, Massachusetts 02035

RE: Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

Dear Mr. McKinley:

Ransom Consulting, Inc. (Ransom) has prepared this letter for Kaestle Boos Associates, Inc. (KBA) summarizing the results of a Phase II Limited Subsurface Investigation (LSI) performed at the above-referenced property in Lexington and Lincoln, Massachusetts (the Site). The objective of this investigation was to determine if a release of petroleum to the environment occurred at the Site and to evaluate environmental conditions at the Site with respect to the requirements of the Massachusetts Contingency Plan (MCP). This work was performed as a follow-up to the Phase I Environmental Site Assessment (ESA) completed at the Site by Ransom in June 2014. A Site Location Map, Site Area Plan and a Site Plan are provided as Figures 1, 2, and 3, respectively.

EXECUTIVE SUMMARY

Ransom completed a Phase I ESA at the Site in June 2014. Although Ransom did not identify a release of oil and/or hazardous material (OHM) at the Site, based on the information obtained during the ESA, Ransom identified three recognized environmental conditions (RECs):

1. Possible releases of petroleum from a former 5,000-gallon gasoline tank and associated pump island and underground piping. The tank was installed in a concrete vault located east and northeast of the high school building. The tank was removed in 1998. No documentation was available for review describing the integrity of the tank and associated piping and soil conditions at the time the tank was removed.
2. Possible releases of petroleum from a former 1,000-gallon waste-oil underground storage tank (UST) located north of the high school building that was removed in 1999. As with the 1998 gasoline tank system removal, no documentation was available for review describing the integrity of the tank and associated piping and soil conditions at the time the tank was removed.
3. Possible releases of hydraulic fluid from former in-ground hydraulic lifts located in the plumbing and automotive portions of the Trades Hall. No documentation was available describing the number, locations, and conditions of the former hydraulic lifts at the Site.

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400 Commercial Street, Suite 404, Portland, Maine 04101, Tel (207) 772-2891

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Between September 10 and 17, 2014, Ransom completed an LSI at the Site to address the RECs identified during the Phase I ESA. The LSI included a geophysical survey, the advancement of ten soil borings and the installation of six groundwater monitoring wells, and the collection and chemical analysis of soil and groundwater samples. Based on the results of this investigation, Ransom draws the following conclusions:

1. Petroleum-impacted soil and water are present in the containment vault associated with the former 5,000-gallon gasoline tank. Evidence of a release to environment outside of the vault was not observed and it appears that the containment vault is intact.
2. Ransom did not identify evidence of a release of petroleum at the location of the former 1,000-gallon waste oil UST. The fill port associated with this former UST remains inside the automotive garage and has been glued shut.
3. Based on the results of the geophysical survey and field observations, one in-ground hydraulic lift is located in the plumbing portion of the Trades Hall and six in-ground hydraulic lifts are located in the automotive portion of the Trades Hall. Ransom did not identify evidence of a significant release of hydraulic fluid in the vicinities of the hydraulic lifts.
4. A condition requiring Massachusetts Department of Environmental Protection (MA DEP) notification was not identified at the Site.

Based on the results of the LSI, no further assessment is warranted at this time. Ransom recommends the following best management practices to prevent petroleum releases to soil and groundwater at the Site:

1. Remove the seven in-ground hydraulic lifts and associated reservoirs and piping.
2. Remove the petroleum-impacted soil and water from the containment vault and manage appropriately. Remove the containment vault from the ground and manage appropriately.
3. Remove the closed fill port and piping associated with the former 1,000-gallon waste-oil UST.

BACKGROUND

The Site is occupied by the Minuteman Regional High School building, an “energy house” (a residential structure used as office space by the Massachusetts Association of School Superintendents), storage buildings, parking areas, athletic fields, wooded land, and ponds and wetlands. The high school building, completed in 1975, includes a vocational “Trades Hall,” providing classrooms and work space for the automotive repair, plumbing, welding, carpentry, and HVAC training. The high school building is connected to the Town of Lexington municipal water and sewer systems and is currently heated with natural gas; it was converted from oil heat approximately 10 years ago.

Two 15,000-gallon No.4 fuel oil tanks remain in a concrete vault located southwest of the building. A 1,000-gallon waste oil UST, which was used by the automotive garages at the school building, was

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removed in 1999. A 5,000-gallon gasoline tank located in an underground concrete vault and an associated pump island were removed from the Site in 1998. No documentation with respect to the conditions of the former tank systems or the environment at the time these systems were removed was available.

During the site reconnaissance, Ransom identified evidence of former underground lifts in the plumbing and automotive portions of the Trades Hall. It is unclear how many former underground lifts were located in the high school building and whether the hydraulic fluid associated with these lifts has been removed.

Based on the information obtained during the ESA, Ransom identified three RECs in connection with the Site:

1. Possible releases of petroleum from a former 5,000-gallon gasoline tank and associated pump island and underground piping. The tank was installed in a concrete vault located east and northeast of the high school building. The tank was removed in 1998. No documentation was available for review describing the integrity of the tank and associated piping and soil conditions at the time the tank was removed.
2. Possible releases of petroleum from a former 1,000-gallon waste oil UST located north of the high school building that was removed in 1999. As with the 1998 gasoline tank system removal, no documentation was available for review describing the integrity of the tank and associated piping and soil conditions at the time the tank was removed.
3. Possible releases of hydraulic fluid from former in-ground hydraulic lifts located in the plumbing and automotive portions of the Trades Hall. No documentation was available describing the number, locations, and conditions of the former hydraulic lifts at the Site.

Based on the information obtained during the completion of the Phase I ESA, Ransom recommended that a Phase II LSI be completed at the Site to address the three RECs.

LIMITED SUBSURFACE INVESTIGATION

Between September 10 and 17, 2014, Ransom completed an LSI at the Site which included a geophysical survey in portions of the Site building for underground hydraulic lifts, the advancement of ten soil borings and the installation of six groundwater monitoring wells, and the collection and chemical analysis of soil and groundwater samples. Soil boring and groundwater monitoring well locations are provided on Figure 3. A photograph log is provided as Attachment A.

Geophysical Survey

On September 10, 2014, Ransom was on-site with Hager Geoscience, Inc. (HGS) of Woburn, Massachusetts, to complete a geophysical survey in the plumbing and automotive portions of the Trades Hall (northeast corner of building). The survey included the use of ground penetrating radar (GPR) and precision utility locators (PUL) to identify possible underground structures. An approximately 3,500-square-foot area in the automotive area, a 500-square-foot area in the plumbing trade room, and a

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500-square-foot area in the safety classroom were surveyed. Based on the geophysical survey and visual observations the following conclusions were made:

1. **Plumbing Room:** The steel plate and piston are visible in the floor of the Plumbing Room. In addition, the piping and controls are visible coming out of the floor at a concrete-block wall west of the lift. The geophysical survey confirmed the presence of one in-ground hydraulic lift.
2. **Safety Room:** The geophysical survey did not identify the presence of in-ground lifts, associated piping, reservoirs or conduits. Newer concrete and sub-base appeared in most of this area. The outline of a presumed former aboveground lift is visible on the surface of the concrete floor.
3. **Automotive Garage:** Concrete patches indicate two single piston lifts, four double piston plate lifts, and a former repair pit in this area. One metal piston is visible in the concrete floor at the northwest portion of the space. The metal outlines of the double piston plate lifts are visible in the concrete floor. The geophysical survey did not identify subsurface disturbances in the vicinity of the lifts, which suggests that the subsurface elements of the lifts remain in place.

A copy of the geophysical survey report is provided as Attachment B.

Soil Boring Advancement, Soil Sampling, and Groundwater Monitoring Well Installation

On September 12 and 13, 2014, Ransom was present at the Site to oversee the advancement of ten soil borings (SB101 through SB110). The drilling was performed by Northern Drill Service (Northern) of Northborough, Massachusetts. The soil borings were advanced using direct-push techniques using a 6620DT Geoprobe rig. Soil samples were field screened for the presence of organic vapors utilizing a photo-ionization detector (PID)-equipped instrument. Monitoring wells were installed in six of the soil borings using 2-inch-diameter factory-slotted PVC well screen and solid riser pipe, and were finished with a flush-mounted road box. Soil boring and monitoring well construction logs are provided as Attachment C

Soil samples collected during the advancement of each soil boring were placed in laboratory-prepared glassware and submitted to Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts, for confirmatory chemical analysis.

Groundwater Sampling

On September 17, 2014, Ransom returned to the Site to collect groundwater samples from five of the six recently installed monitoring wells. Monitoring well MW101 was not sampled due to indications that it is located in a containment vault for a former 5,000-gallon gasoline tank. Prior to sample collection, Ransom gauged the depth to groundwater in each well. Following the gauging, Ransom purged and sampled the wells using low-flow methods (pumping rate of less than 0.5 liter per minute). During well purging, the purged groundwater was passed through the flow cell of a Quanta Hydrolab unit, which continuously monitored specific conductivity, oxidation-reduction potential (ORP), dissolved oxygen

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(DO), pH, and temperature. Groundwater was purged until the field parameters listed below had stabilized to within the ranges presented:

Field Parameter	Stabilization Criteria
Specific Conductivity	3% of range
Oxidation-Reduction Potential	10.0 millivolts
Dissolved Oxygen	10% of range
pH	0.10 Standard pH Units
Temperature	0.2°C

Samples were dispensed into laboratory-prepared glassware, and stored on ice in a cooler. The groundwater samples were submitted to Alpha for confirmatory chemical analysis.

A summary of exploration locations and sampling/analysis rationale for the Phase II LSI is presented in the table below.

Boring & Monitoring Well IDs	Approx. Depth of Boring (feet bgs)	Purpose/Rationale	Soil Sample Chemical Analyses	Groundwater Sample Chemical Analyses
SB101/ MW101	9 (refusal)	Located in the anticipated location of the former 5,000-gallon gasoline tank. Oily sheens were observed in soil samples collected at depths between 4 and 9 feet bgs. Organic vapors were detected at concentrations of up to 3,095 parts per million by volume (ppmv). Ransom suspects that this boring and monitoring well were installed in a concrete containment vault.	Field screening	--
SB102	15	Advanced between the former 5,000-gallon gasoline tank and the associated former gasoline pump island.	Field screening, VPH, EPH	EPH and VPH
SB103/ MW106	15	Advanced downgradient of the former gasoline pump island. Organic vapors were detected at concentrations of up to 4.2 ppmv.	Field screening, EPH, VPH	EPH and VPH
SB104	10	Advanced directly adjacent to the containment vault associated with the former 5,000-gallon gasoline tank. No evidence of petroleum impacts (no staining or odors). Organic vapors were not detected in soil samples at concentrations above 1 ppmv.	Field screening, EPH, VPH	--

Boring & Monitoring Well IDs	Approx. Depth of Boring (feet bgs)	Purpose/Rationale	Soil Sample Chemical Analyses	Groundwater Sample Chemical Analyses
SB105/ MW102	15	Advanced adjacent to the northwest corner of the garage, near the location of the former 1,000-gallon waste oil UST, and in close proximity to a former hydraulic lift located inside the garage. Organic vapors were not detected in at concentrations above 1 ppmv.	Field screening, EPH, VPH and PCBs	EPH and VPH
SB106	15	Advanced in the garage, in the vicinity of in-ground hydraulic vehicle lifts.	Field screening, EPH, and PCBs	--
SB107/ MW103	15	Advanced in the automotive tech garage, in the vicinity of in-ground hydraulic vehicle lifts.	Field screening, EPH and PCBs	EPH and VPH
SB108	15	Advanced in the automotive garage, in the vicinity of in-ground hydraulic vehicle lifts.	Field screening, EPH and PCBs	--
SB109/ MW104	15	Advanced adjacent to a former in-ground hydraulic lift in the plumbing trade hall.	Field screening, EPH and PCBs	EPH and VPH
SB110/ MW105	15	Advanced adjacent to the containment vault associated with the former 5,000-gallon gasoline tank. No evidence of petroleum impacts (no staining or odors). Organic vapors were not detected in soil samples at concentrations above 1 ppmv..	Field screening, EPH, and VPH	EPH and VPH

NOTES:

1. Each soil sample was field screened for the presence of organic vapors using a PID-equipped instrument.
2. bgs = below the ground surface.
3. EPH = extractable petroleum hydrocarbons, excluding the target polycyclic aromatic hydrocarbons (PAHs), by the MA DEP Method; VPH = volatile petroleum hydrocarbons including the target volatile organic compounds, by the MA DEP Method; PCBs = polychlorinated biphenyls by U.S. EPA Method 8082.

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Groundwater Elevation Survey

On September 17, 2014, Ransom surveyed the elevations and locations of the monitoring wells and collected depth to groundwater data from the monitoring wells. Elevations are relative to a benchmark assigned an arbitrary elevation of 100.00 feet set on the top bolt of fire hydrant located north of the automotive garage. Groundwater elevation survey data is provided in Table 1.

RESULTS

Groundwater Flow Direction

Based on local topography, regional groundwater at the entire Site is presumed to flow in a southwest direction. However, groundwater elevation data indicate that in the area of the Site which was assessed groundwater flows northerly, toward a small unnamed wetland area which abuts the Site.

Analytical Results

The results of the soil and groundwater sample chemical analyses are described below. Soil and groundwater sample chemical analysis results are provided in Tables 2 and 3, respectively. Copies of the laboratory chemical analysis data reports are provided as Attachment D.

Soil

As shown in Table 2, C₁₉–C₃₆ aliphatics and C₁₁–C₂₂ aromatics were detected in the soil sample collected from soil boring SB103 at a concentration of 52.7 and 53.6 milligrams per kilogram (mg/kg), respectively. C₁₁–C₂₂ Aromatics were detected in soil samples collected from soil borings SB104 and SB110 at a concentration of 45.6 and 14.2 mg/kg, respectively. EPH fractions were not detected in soil samples collected from SB105, SB106, SB107, SB108, and SB109 at concentrations above the laboratory reporting limits.

As shown in Table 2, VPH fractions and the target VOCs were not detected in the soil samples collected from soil borings SB103, SB104, SB105, and SB110 at concentrations above the laboratory reporting limits.

As shown in Table 2, PCBs were not detected in the soil samples collected from borings SB105, SB106, SB107, SB108, and SB109 at concentrations above the laboratory reporting limits.

Groundwater

As shown in Table 3, EPH fractions and VPH fractions were not detected in the groundwater samples at concentrations above the laboratory reporting limits.

The target VOCs, benzene, ethylbenzene, and xylenes were detected in the groundwater sample collected from monitoring well MW106 at concentrations of 21.9, 3.12, and 15.41 micrograms per liter (µg/l), respectively.

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REGULATORY STATUS

Ransom compared soil and groundwater contaminant concentrations to their corresponding Reportable Concentrations (RCs) as provided in the MCP, specifically 310 CMR 40.1600, to determine whether a 120-day MA DEP reporting obligation exists at the Site.

Evaluation of MA DEP Reporting Obligation for Soil and Groundwater

Selection of Soil and Groundwater Reporting Categories

The designation of the appropriate soil and groundwater reporting categories are based on site conditions (e.g., distance to residential properties and water resources). Once the soil and groundwater reporting categories are determined, the concentrations of contaminants detected at the Site are then compared to their corresponding RCs to determine whether a 120-day MA DEP reporting condition exists at the Site, as provided by 310 CMR 40.0315.

Since the Site is used as a school, reporting category RCS-1 applies to soil at the Site. Because the Site is not located within an area classified as a Current or Potential Drinking Water Source Area (see MassGIS map in Attachment E), reporting category RCGW-2 applies to groundwater at the Site.

Comparison to Reportable Concentrations for Soil

As shown in Table 2, no contaminants were detected at concentrations exceeding their corresponding RCS-1 RCs in the soil samples collected at the Site during the LSI.

Comparison to Reportable Concentrations for Groundwater

As shown in Table 3, no contaminants were detected at concentrations exceeding the corresponding RCGW-2 RCs in the groundwater samples collected at the Site during the LSI.

MA DEP Reporting Condition

To summarize, no contaminants were detected in soil or groundwater samples collected at the Site that exceeded their respective RCS-1 or RCGW-2 RCs; therefore, a MA DEP notification obligation does not exist at the Site.

CONCLUSIONS

Based on the results of this investigation, Ransom draws the following conclusions:

1. Petroleum-impacted soil and water are present in the containment vault associated with the former 5,000-gallon gasoline tank. Evidence of a release to environment outside of the vault was not observed and it appears that the containment vault is intact.

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2. Ransom did not identify evidence of a release of petroleum at the location of the former 1,000-gallon waste oil UST. The fill port associated with this former UST remains inside the automotive garage and has been glued shut.
3. Based on the results of the geophysical survey and field observations, one in-ground hydraulic lift is located in the plumbing portion of the Trades Hall and six in-ground hydraulic lifts are located in the automotive portion of the Trades Hall. Ransom did not identify evidence of a significant release of hydraulic fluid in the vicinities of the hydraulic lifts.
4. A condition requiring MA DEP notification was not identified at the Site.

RECOMMENDATIONS

Based on the results of the LSI, no further assessment is warranted at this time. Ransom recommends the following best management practices to prevent petroleum releases to soil and groundwater at the Site:

1. Remove the seven in-ground hydraulic lifts and associated reservoirs and piping.
2. Remove the petroleum-impacted soil and water from the containment vault and manage appropriately. Remove the containment vault from the ground and manage appropriately.
3. Remove the closed fill port and piping associated with the former 1,000-gallon waste oil UST.

Should you have any questions regarding this letter, please do not hesitate to call.

Sincerely,

RANSOM CONSULTING, INC.

Heather E. Dudley-Tatman, P.G.
Project Manager

Timothy J. Snay, LSP, LEP
Vice President

DFM/HED/TJS:sh
Attachments

TABLE 1: MONITORING WELL CONSTRUCTION DETAILS AND GROUNDWATER ELEVATION DATA
Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

Well Identification	Total Well Depth (from ground surface)	Screened Interval (from ground surface)	Reference Elevation		Depth to Groundwater	Groundwater Elevation
			Top of PVC	Ground Surface	From Top of PVC	
					9/17/14	9/17/14
MW101	9	4-9	96.00	96.28	3.15	92.85
MW102	15	5-15	96.60	96.90	8.79	87.81
MW103	15	5-15	96.68	97.00	9.06	87.62
MW104	15	5-15	96.86	97.20	8.71	88.15
MW105	15	5-15	95.80	96.00	7.95	87.85
MW106	15	5-15	96.18	96.58	8.63	87.55

NOTES:

1. Measurements based on data collected by Ransom Environmental Consultants, Inc., on the dates indicated.
2. Elevations are relative to a benchmark assigned an arbitrary elevation of 100.00 feet set on the top bolt of a fire hydrant.
3. All measurements are in feet.

TABLE 2: SUMMARY OF SOIL SAMPLE CHEMICAL ANALYSIS RESULTS

Phase II Limited Subsurface Investigation
 Minuteman Regional Technical High School
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 Lexington and Lincoln, Massachusetts

Boring Identification	SB103	SB104	SB105	SB106	SB107	SB108	SB109	SB110	MCP Reportable Concentrations
Sample Identification	SB103-S2-091214	SB104-S2-091214	SB105-S2-091214	SB106-S2-091314	SB107-S2-091314	SB108-S2-091314	SB109-S2-091314	SB110-S2-091314	
Sample Depth (ft bgs)	5-7	5-8	5-9	5-7.5	7-9.5	7-9	5-8	5-7.5	RCS-1
Extractable Petroleum Hydrocarbons	Concentrations in Milligrams per Kilogram (mg/kg)								
C ₉ -C ₁₈ aliphatics	BRL (6.98)	BRL (6.81)	BRL (6.88)	BRL (7.02)	BRL (6.77)	BRL (7.04)	BRL (6.63)	BRL (7.33)	1,000
C ₁₉ -C ₃₆ aliphatics	52.7	BRL (6.81)	BRL (6.88)	BRL (7.02)	BRL (6.77)	BRL (7.04)	BRL (6.63)	BRL (7.33)	3,000
C ₁₁ -C ₂₂ aromatics	53.6	45.6	BRL (6.88)	BRL (7.02)	BRL (6.77)	BRL (7.04)	BRL (6.63)	14.2	1,000
Volatile Petroleum Hydrocarbons	Concentrations in mg/kg								
C ₅ -C ₈ aliphatics	BRL (3.33)	BRL (2.55)	BRL (2.09)	NA	NA	NA	NA	BRL (2.61)	100
C ₉ -C ₁₂ aliphatics	BRL (3.33)	BRL (2.55)	BRL (2.09)	NA	NA	NA	NA	BRL (2.61)	1,000
C ₉ -C ₁₀ aromatics	BRL (3.33)	BRL (2.55)	BRL (2.09)	NA	NA	NA	NA	BRL (2.61)	100
Target Volatile Organic Compounds (VOCs)	Concentrations in mg/kg								
benzene	BRL (0.133)	BRL (0.102)	BRL (0.084)	NA	NA	NA	NA	BRL (0.104)	2
toluene	BRL (0.133)	BRL (0.102)	BRL (0.084)	NA	NA	NA	NA	BRL (0.104)	30
ethylbenzene	BRL (0.133)	BRL (0.102)	BRL (0.084)	NA	NA	NA	NA	BRL (0.104)	40

NOTES:

1. Samples were collected on September 12 and 13, 2014, by Ransom Consulting Inc. and were analyzed by Alpha Analytical, Inc., of Westborough, Massachusetts.
2. BGS = below ground surface.
3. BRL () = below reporting limit indicated in parentheses. NA = not analyzed.
4. MCP Reportable Concentrations taken from 310 CMR 40.1600.

TABLE 2: SUMMARY OF SOIL SAMPLE CHEMICAL ANALYSIS RESULTS

Phase II Limited Subsurface Investigation
 Minuteman Regional Technical High School
 758 Marrett Road
 Lexington and Lincoln, Massachusetts

Boring Identification	SB103	SB104	SB105	SB106	SB107	SB108	SB109	SB110	MCP Reportable Concentrations
Sample Identification	SB103-S2-091214	SB104-S2-091214	SB105-S2-091214	SB106-S2-091314	SB107-S2-091314	SB108-S2-091314	SB109-S2-091314	SB110-S2-091314	
Sample Depth (ft bgs)	5-7	5-8	5-9	5-7.5	7-9.5	7-9	5-8	5-7.5	RCS-1
total xylenes	BRL (0.133)	BRL (0.102)	BRL (0.084)	NA	NA	NA	NA	BRL (0.104)	100
methyl tertiary butyl ether	BRL (0.067)	BRL (0.051)	BRL (0.042)	NA	NA	NA	NA	BRL (0.052)	0.1
naphthalene	BRL (0.266)	BRL (0.204)	BRL (0.168)	NA	NA	NA	NA	BRL (0.209)	4
Polychlorinated Biphenyls (PCBs)	Concentrations in mg/kg								
all Aroclors	NA	NA	BRL (0.0343)	BRL (0.0344)	BRL (0.035)	BRL (0.0338)	BRL (0.0331)	NA	1

NOTES:

1. Samples were collected on September 12 and 13, 2014, by Ransom Consulting Inc. and were analyzed by Alpha Analytical, Inc., of Westborough, Massachusetts.
2. BGS = below ground surface.
3. BRL () = below reporting limit indicated in parentheses. NA = not analyzed.
4. MCP Reportable Concentrations taken from 310 CMR 40.1600.

TABLE 3: SUMMARY OF GROUNDWATER SAMPLE CHEMICAL ANALYSIS RESULTS

Phase II Limited Subsurface Investigation
 Minuteman Regional Technical High School
 758 Marrett Road
 Lexington and Lincoln, Massachusetts

Well Identification	MW102	MW103	MW104	MW105	MW106	MCP Reportable Concentrations
Sample Identification	MW102-W1-091714	MW103-W1-091714	MW104-W1-091714	MW105-W1-091714	MW106-W1-091714	RCGW-2
Extractable Petroleum Hydrocarbons	Concentrations in Micrograms per Liter (µg/l)					
C ₉ -C ₁₈ aliphatics	BRL (100)	BRL (100)	BRL (100)	BRL (100)	BRL (100)	5,000
C ₁₉ -C ₃₆ aliphatics	BRL (100)	BRL (100)	BRL (100)	BRL (100)	BRL (100)	50,000
C ₁₁ -C ₂₂ aromatics	BRL (100)	BRL (100)	BRL (100)	BRL (100)	BRL (100)	5,000
Volatile Petroleum Hydrocarbons	Concentrations in µg/l					
C ₅ -C ₈ aliphatics	BRL (50)	BRL (50)	BRL (50)	BRL (50)	BRL (50)	3,000
C ₉ -C ₁₂ aliphatics	BRL (50)	BRL (50)	BRL (50)	BRL (50)	BRL (50)	5,000
C ₉ -C ₁₀ aromatics	BRL (50)	BRL (50)	BRL (50)	BRL (50)	BRL (50)	4,000
Target Volatile Organic Compounds (VOCs)	Concentrations in µg/l					
benzene	BRL (2)	BRL (2)	BRL (2)	BRL (2)	21.9	1,000
toluene	BRL (2)	BRL (2)	BRL (2)	BRL (2)	BRL (2)	40,000
ethylbenzene	BRL (2)	BRL (2)	BRL (2)	BRL (2)	3.12	5,000
total xylenes	BRL (2)	BRL (2)	BRL (2)	BRL (2)	15.41	3,000

NOTES:

1. Samples were collected on September 17, 2014, by Ransom Consulting, Inc., and were analyzed by Alpha Analytical, Inc., of Westborough, Massachusetts.
2. BRL () = below reporting limit indicated in parentheses.
3. MCP Reportable Concentrations taken from 310 CMR 40.1600.

TABLE 3: SUMMARY OF GROUNDWATER SAMPLE CHEMICAL ANALYSIS RESULTS

Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

Well Identification	MW102	MW103	MW104	MW105	MW106	MCP Reportable Concentrations
Sample Identification	MW102-W1-091714	MW103-W1-091714	MW104-W1-091714	MW105-W1-091714	MW106-W1-091714	RCGW-2
methyl tertiary butyl ether	BRL (3)	5,000				
naphthalene	BRL (4)	1,000				

NOTES:

1. Samples were collected on September 17, 2014, by Ransom Consulting, Inc., and were analyzed by Alpha Analytical, Inc., of Westborough, Massachusetts.
2. BRL () = below reporting limit indicated in parentheses.
3. MCP Reportable Concentrations taken from 310 CMR 40.1600.

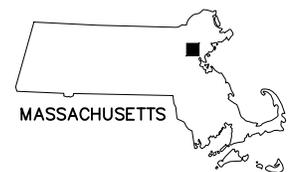


TAKEN FROM U.S.G.S. 7.5x15 MINUTE SERIES TOPOGRAPHIC MAP OF MAYNARD, MASSACHUSETTS—1987.

CONTOUR INTERVAL IS 3 METERS

SITE COORDINATES: LATITUDE 42°26'45"
LONGITUDE 71°16'11"

UTM COORDINATES: 47:01:549mN
3:13:363mE



QUADRANGLE LOCATION



SCALE in FEET
1:25,000

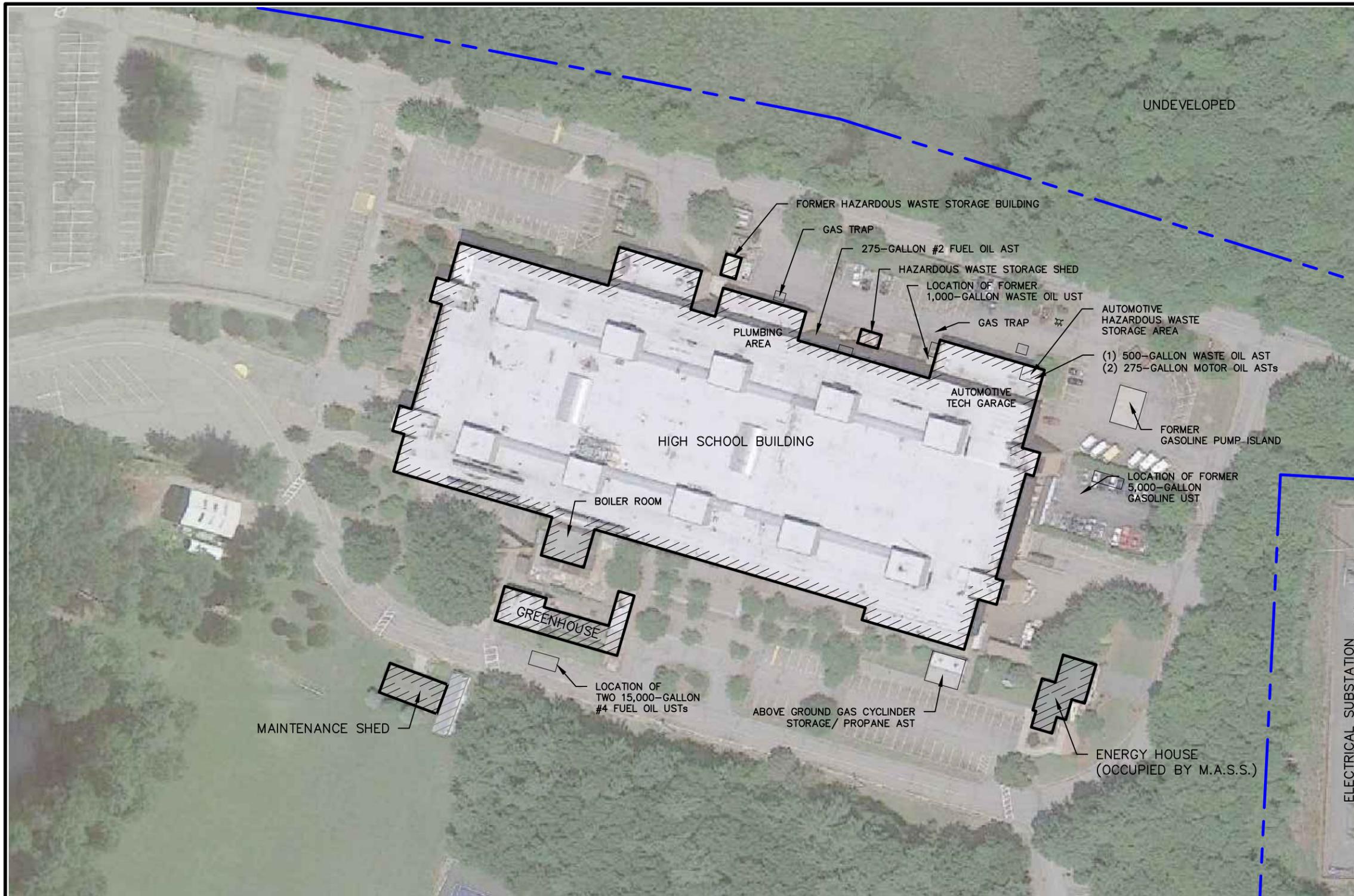
RANSOM Consulting, Inc.

SITE LOCATION MAP

PREPARED FOR:
KAESTLE BOOS
ASSOCIATES, INC.
325 FOXBOROUGH BLVD
FOXBOROUGH, MASSACHUSETTS

SITE:
MINUTEMAN REGIONAL
TECHNICAL HIGH SCHOOL
758 MARRETT ROAD
LEXINGTON & LINCOLN, MASSACHUSETTS

DATE: SEPTEMBER 2014
PROJECT: 101.01007
FIGURE: 1

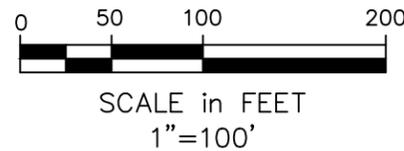


LEGEND:

--- SITE BOUNDARY

NOTES:

1. SITE PLAN BASED ON MEASUREMENTS AND OBSERVATIONS MADE BY RANSOM CONSULTING, INC. IN SEPTEMBER 2014. AERIAL IMAGE PROVIDED BY GOOGLE EARTH.
2. SOME FEATURES ARE APPROXIMATE IN LOCATION AND SCALE.
3. THIS PLAN HAS BEEN PREPARED FOR KAESTLE BOOS ASSOCIATES, INC. ALL OTHER USES ARE NOT AUTHORIZED, UNLESS WRITTEN PERMISSION IS OBTAINED FROM RANSOM CONSULTING, INC.



RANSOM Consulting, Inc.		SITE AREA PLAN	
PREPARED FOR: KAESTLE BOOS ASSOCIATES, INC. 325 FOXBOROUGH BLVD FOXBOROUGH, MASSACHUSETTS	SITE: MINUTEMAN REGIONAL TECHNICAL HIGH SCHOOL 758 MARRETT ROAD LEXINGTON & LINCOLN, MASSACHUSETTS	DATE: SEPTEMBER 2014	PROJECT: 101.01007
		FIGURE: 2	

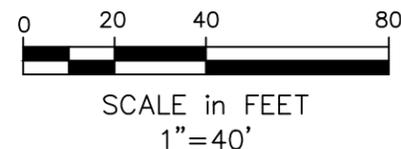


LEGEND:

SB101/MW101		SOIL BORING/ MONITORING WELL
SB102		SOIL BORING
		IN-GROUND HYDRAULIC LIFT
		FIRE HYDRANT

NOTES:

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RANSOM Consulting, Inc.

PREPARED FOR:
KAESTLE BOOS
ASSOCIATES, INC.
325 FOXBOROUGH BLVD
FOXBOROUGH, MASSACHUSETTS

SITE:
MINUTEMAN REGIONAL
TECHNICAL HIGH SCHOOL
758 MARRETT ROAD
LEXINGTON & LINCOLN, MASSACHUSETTS

SITE PLAN

DATE: SEPTEMBER 2014
PROJECT: 101.01007
FIGURE: 3

ATTACHMENT A

Photograph Log

Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

Photograph Log



Location of vault and former 5,000-gallon gasoline tank.



Metal plate and two piston caps, with associated hydraulic line controls in plumbing area.



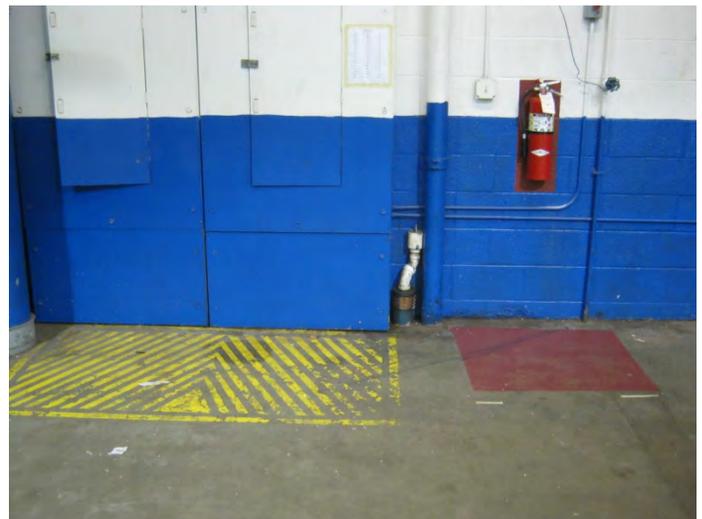
Piston (center, under aboveground lift) with associated hydraulic controls against wall (left), automotive garage.



Concrete patch at piston, with lines running north to the wall in southeast portion of automotive garage.



In-ground hydraulic lift (one of four) in automotive garage.



Fill port associated with the former 1,000 gallon waste oil UST located on west wall of automotive garage.

ATTACHMENT B

Geophysical Survey Report

Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

**GEOPHYSICAL SURVEY
FOR UTILITIES AND OBSTRUCTIONS
MINUTEMAN REGIONAL TECHNICAL HIGH SCHOOL
758 MARRETT ROAD
LEXINGTON, MASSACHUSETTS**

Prepared for:

Ransom Consulting, Inc.
12 Kent Way, Suite 100
Byfield, MA 01922-1221

Prepared by:

Hager GeoScience, Inc.
596 Main Street
Woburn, MA 01801

File 2014063
September 2014

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Hager GeoScience, Inc.

1.0 INTRODUCTION

This report details the results of a geophysical survey conducted by Hager GeoScience, Inc. (HGI) for Ransom Consulting, Inc. at the Minuteman Regional Technical High School in Lexington, Massachusetts. The objective of the survey was to locate in-floor hydraulic lifts possibly still in place under the floor in three areas on the ground floor of the high school. The secondary objective was to locate utilities and possible obstructions within and below the concrete slab.

2.0 DATA ACQUISITION

HGI personnel performed the survey during the evening on September 10th, 2014, using ground penetrating radar (GPR) supplemented by Ditch Witch Subsite 950 R/T and 3M Dynatel 2250 precision utility locators (PUL). A Ransom Consulting, Inc. representative was onsite to delineate the extent of the survey areas.

HGI personnel used spray paint and fiberglass tapes to lay out three GPR survey grids covering the locations suspected of having buried hydraulic lifts. The three grids were located in the OSHA training room, the plumbing room and the automotive service garage. The locations of select surface features and the survey areas are shown on Plates 1 through 3, AutoCAD maps created from the HGI field notes, interpretations, and field measurements taken at the time of the survey. In all three plates, north is up.

Discussions specific to the GPR and PUL collection are provided below, while Appendix A provides a more general discussion of the methods and their limitations.

2.1 GPR Data Acquisition

GPR data were collected using a Geophysical Survey Systems, Inc. (GSSI) SIR-20 digital acquisition system. A 400-MHz antenna mounted with a survey wheel for horizontal distance control was used for the data collection. GPR data were collected along bidirectional traverses, spaced 1 foot apart in the primary direction and 5 feet apart in the orthogonal direction. All data were displayed in real time on the system's color monitor while being simultaneously recorded on its hard disk drive (HDD).

The effective signal penetration was variable throughout the site and ranged from 5 to 8 feet below grade depending on the grid location, making it difficult to reliably detect targets below these depths in those areas.

Table 1 in Appendix B shows the pertinent parameters used for the GPR data collection.

Data from the GPR survey were downloaded to a PC at the HGI office for processing and analysis using GSSI's RADAN® 7 software.

2.2 Precision Utility Locating

A Ditch Witch Subsite 950 R/T and 3M Dynatel 2250 Precision Utility Locator (PUL) were used in conjunction with the GPR method to provide real-time utility locating. Where utilities were physically accessible (e.g., electrical conduits), the Subsite transmitter box was directly coupled with them in order to propagate a current with a unique frequency along the conductive conduit or utility. A receiver wand was then used to identify the location of the connected utility. The Subsite receiver was also used independently of the transmitter box in passive 50/60 Hz and radio mode to locate live electric lines. The Dynatel was used to sweep the survey area for underground utilities that had no surface features on which to induce a current.

The PUL-identified utilities were marked in the field with spray paint using industry-standard colors.

3.0 DATA REDUCTION AND ANALYSIS

The downloaded GPR data were archived, processed, and analyzed using GSSI's RADAN® 7. Prior to analysis, the raw GPR data required processing to reduce the detrimental effects of site-specific noise associated with interfering background frequency signals and reflections from surface and subsurface structures. The processed records were then used to construct 3D models of the surveyed areas. 3D models are useful for viewing the spatial qualities of the data and identifying subtle spatial features that may not be apparent in individual 2D records. The 3D models were sliced horizontally and vertically to observe patterns of GPR anomalies present in the radar data.

Each 2D record was also individually evaluated for possible anomalies. Preliminary interpretations based on analysis of the individual 2D records were plotted and evaluated in a spatial context using the 3D model. Conversely, spatial anomalies observed in the 3D model were re-examined on the individual records to ensure that all possible anomalies were evaluated.

The interpreted individual GPR targets were then exported to AutoCAD, where linear trends and areal anomalies were determined.

Due to the non-uniqueness of the reflected GPR signal, the exact identity of features causing anomalies cannot always be determined, and further investigation through excavation or drilling is recommended.

4.0 RESULTS

The results of the survey area shown on Plates 1 through 3:

Plate 1	OSHA Training Room
Plate 2	Plumbing Room
Plate 3	Automotive Service Garage

Plate 1, Grid 1: OSHA Training Room

The GPR and PUL results did not indicate the presence of any buried lifts or associated piping, reservoirs or conduits at this location. The majority of the survey area appeared to be composed of a newer concrete and sub-base and likely indicates that the former systems have been removed.

Plate 2, Grid 2: Plumbing Room

The GPR and PUL interpretations did not indicate the presence of any unknown buried in-place lifts. The lift and associated piping of a known lift that was in-place during the time of the survey were identifiable in the GPR records and marked in the field during the survey. The GPR data show that the hydraulic lines do not extend beyond the one lift visible in the floor.

Plate 3, Grid 3: Automotive Service Garage

The GPR and PUL interpretations identified the lines and obstructions associated with the known automotive lifts present in the west and southeast portions of the garage. Plate 3 also shows the location of a large area of concrete, outlined in purple, with rebar pattern different from that in the rest of the garage. It is clear that the area was cut and replaced, potentially in order to remove lifts formerly present. Two other anomalies, labeled A and B (southeast portion of survey area), were detected near two current surface lifts. The sources of these originate near the surface and are likely the result of a change in concrete and not the presence of additional in-place lifts.

Multiple linear anomalies identified as possible utilities were also mapped in all three survey areas. These are shown on Plates 1 through 3 in industry-standard colors or, if unknown, as violet-colored lines.

The GPR-identified utilities are categorized based on their proximity to PUL markings and surface features (e.g., catch basin). The "GPR-Identified - Linear Anomaly" category represents utilities that could not be categorized as to type. Short segments in this category may represent portions of utilities or buried debris. Dashed lines/shapes indicate a lower confidence level in the interpretation, tildes indicate the termination of a potential utility/linear feature in the GPR records, and arrows indicate the possible continuation of a linear feature beyond the survey area. The utilities are color-coded in accordance with industry-accepted standards.

The "GPR-Identified - Anomalous Zone" category (cyan) represents an area containing multiple individual anomalies with a geometry and/or signal strength that stands out from the background GPR signal. These anomalies should be considered potential obstructions and can have causes ranging from changes in the soil/fill to buried debris. GPR anomaly and anomalous zone shapes may vary from those depicted in the legend. The shape of each anomaly reflects the general

outline that best fits that anomalous area and may not actually reflect the shape of the potential subsurface obstruction.

Depths shown adjacent to both GPR-identified utilities and anomalies are intended to indicate the approximate top of the utility or anomaly, not its vertical extent. These depths are based on velocity migration calculations and are approximate.

GPR- and PUL-identified features are labeled with their approximate depth in feet below ground surface. Where PUL-identified features do not show an approximate depth, this means that the feature's depth could not be determined while at the site. It should also be noted that a utility identified with both GPR and PUL may be shown at slightly different positions and depths by each method due to the different nature of the two sensing technologies.

In order to meet the objectives of the geophysical investigation, HGI used a conservative approach for anomaly identification. Obstructions of varying types can produce many unique and non-unique responses, particularly in the GPR records. Even slight variations in the GPR signals may be caused by legitimate obstructions and should be considered suspect. However, a subsurface medium with a high degree of heterogeneity (e.g., fill containing bricks, cobbles, etc.) can produce a high number of GPR anomalies that might not be considered obstructions by others.

HGI recommends a minimum buffer of 2 to 3 feet on either side of the utility centerlines indicated on the map due to utility dimensions and inaccuracies from grid creation, data collection, and survey locating. It should be noted that GPR is an indirect method and thus cannot unambiguously determine the physical properties of anomalies, or that all reflectors interpreted as utilities or anomalies are related (see Limitations Section). In areas of particular concern, we recommend hand digging.

APPENDIX A: THE GEOPHYSICAL METHODS

A.1 Ground Penetrating Radar (GPR)

A.1.1 Description of the Method. The principle of ground penetrating radar (GPR) is the same as that used by police radar, except that GPR transmits electromagnetic energy into the ground. The energy is reflected back to the surface from interfaces between materials with contrasting electrical (dielectric and conductivity) and physical properties. The greater the contrast between two materials in the subsurface, the stronger the reflection observed on the GPR record. The depth of GPR signal penetration depends on the properties of the subsurface materials and the frequency of the antenna used to collect radar data. The lower the antenna frequency, the greater the signal penetration, but the lower the signal resolution.

A.1.2 Data Collection. HGI collects GPR data using a Geophysical Survey Systems (GSSI) SIR 2, 20, 2000 or 3000 ground penetrating radar system. Data are digitally recorded on the internal hard drive or flash memory of the GPR system. System controls allow the GPR operator to filter out noise, attributed to coupling noise caused by conductive soil conditions, spurious noise caused by local EMF fields, and internal system noise. For shallow surveys, we use antennas with center frequencies ranging from 2000- to 400-megahertz (MHz). For deeper penetration, we use lower frequency antennas ranging from 300 MHz to 15 MHz, depending on the anticipated target depth and the degree of signal penetration. All of these antenna configurations can collect data in continuous mode, distance mode, or as discrete point measurements using signal-stacking techniques. Since there is a trade-off between signal penetration and resolution, test data are sometimes collected using antennas at several different frequencies, with the highest frequency antenna that produces the highest quality data used. In some cases, data are collected with several antenna frequencies.

The horizontal scale of the GPR record shows distance along the survey traverse. In the continuous data collection mode, the horizontal scale on each GPR record is determined by the antenna speed along the surface. When a survey wheel is used, the GPR system records data with a fixed number of traces per unit distance. The GPR record is automatically marked at specified distance intervals along the survey line. The vertical scale of the radar record is determined by the velocity of the transmitted signal in the media under study and the range setting, or recording time window of the GPR system. The recording time interval, or range, represents the maximum two-way travel time in which data are recorded. The conversion of the two-way travel time of the transmitted signals to depth is determined by the propagation velocity of the GPR signal, which is site (media) specific. When little or no information is available about the makeup of subsurface materials, we estimate propagation velocities from handbook values and experience at similar sites or by CDP velocity surveys with a bi-static antenna.

A.1.3 Data Processing. After completion of data collection, the GPR data are transferred to a PC for review and processing using RADAN® software. When appropriate, we prepare 3D models of GPR data, which can be sliced in the X, Y, and Z directions.

The size, shape, and amplitude of GPR reflections are used to interpret GPR data. Objects such as metallic UST's and utilities produce reflections with high amplitude and distinctive hyperbolic shapes. Clay, concrete pipes, boulders and other in-situ features may produce radar signatures of similar shape but lower amplitude. The boundaries between saturated and unsaturated materials such as sand and clay, bedrock and overburden, generally also produce strong reflections.

A.1.4 Limitations of the Method. GPR signal penetration is site-specific. It is determined by the dielectric properties of local soil and fill materials. GPR signals propagate well in resistive materials such as sand and gravel; however, soils containing clay, ash- or cinder-laden fill or fill saturated with brackish or otherwise electrically conductive groundwater cause GPR signal attenuation and loss of target resolution. Concrete containing rebar or wire mesh also inhibits signal penetration.

The interpreted depths of objects detected using GPR are based on on-site calibration, handbook values, and/or estimated GPR signal propagation velocities from similar sites. GPR velocities and depth estimates may vary if the medium under investigation or soil water content is not uniform throughout the site.

Utilities are interpreted on the basis of reflections of similar size and depth that exhibit a linear trend; however GPR cannot unambiguously determine that all such reflectors are related. Fiberglass USTs or utilities composed of plastic or clay may be difficult to detect if situated in soils with similar electromagnetic properties, or if situated in fill with other reflecting targets that generate "clutter" or signal scattering and thus obscure other deeper reflectors. Objects buried beneath reinforced concrete pads or slabs may also be difficult, but possible, to detect.

As a rule of thumb, GPR can resolve utilities with a diameter of 1" per foot of depth (i.e., a 1"-diameter utility can be detected to a burial depth of 1 foot).

Changes in the speed at which the GPR antenna is moved along the surface causes slight variations in the horizontal scale of the recorded traverse. Distance interpolation may be performed to minimize the error in interpreted object positions. The variation in the horizontal scale of the GPR record may be controlled, to a certain extent, with a distance encoder or survey wheel. The GPR antenna produces a cone-shaped signal pattern that emanates approximately 45 degrees from horizontal front and back of the antenna. Therefore, buried objects may be detected before the antenna is located directly over them. GPR anomalies may appear larger than actual target dimensions.

GPR interpretation is more subjective than other geophysical methods. The interpretive method is based on the identification of reflection patterns that do not uniquely identify a subsurface target. Borings, test pits, site utility plans and other ground-truth are recommended to verify the interpreted GPR results.

A.2 Precision Utility Locating (PUL)

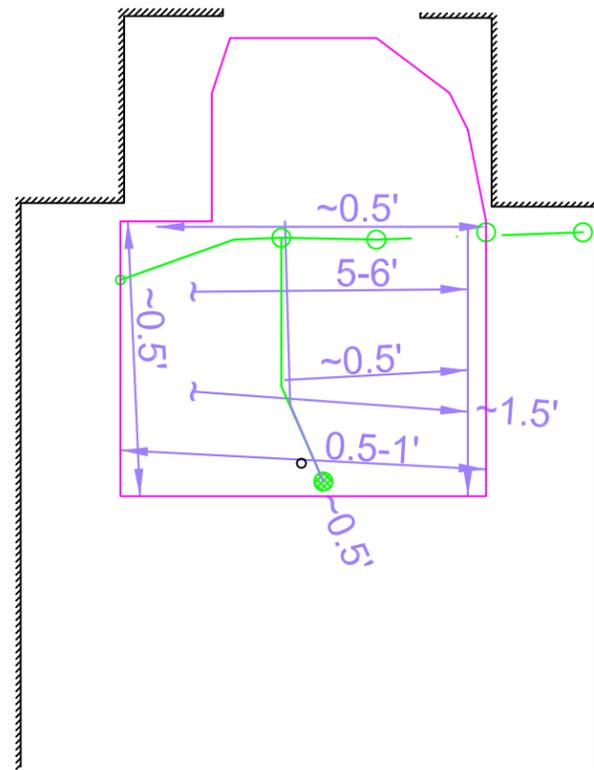
A.2.1 Description of the Method. HGI uses a Schonstedt MAC-51B, Ditch Witch SUBSITE 950 R/T precision utility locators, and/or a 3M Dynatel 2250 pipe and cable locator for utility location. The locator is a two-part system consisting of a signal transmitter and receiver. In active mode using the transmitter, utilities are traced by inducing a variety of signals onto exposed portions of conduits and piping. Alternatively, in the absence of convenient exposures, signals can be induced onto the lines by placing the transmitter on the ground above the suspected utility location. The receiver can also be used without the transmitter as a magnetic locator or to detect signal emissions (e.g., 60 Hertz for electric lines) at specific frequencies.

A.2.2 Limitations of the Method. Mapping subsurface objects, pipes, and utilities using a locator depends on recognizing physical phenomena at the ground surface. These phenomena can be electromagnetic waves or magnetic fields that are interpreted as being caused by subsurface objects. These waves or fields, however, can be attenuated and/or distorted by factors including soil moisture, steel reinforced concrete, and proximity to other surface and subsurface utilities. It has been found that vertical depth resolution beyond 5 feet below grade is questionable.

APPENDIX B: TABLE

Table 1
GPR Survey Acquisition Parameters

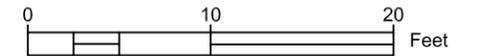
Antenna Frequency (MHz)	Range (ns)	Survey Mode	Scan Rate (per sec)	Scan Rate (per ft)	Sample Rate (samples)	Effective Signal Depth (ft)
400	75	Wheel	120	30	512	5-8



Grid - 1 OSHA Room

Legend

- Survey Extent
- GPR Traverse
- GPR-Identified Water
- GPR-Identified Gas / Steam
- GPR-Identified Sewer / Drain
- GPR-Identified Linear Anomaly
- GPR-Identified Anomalous Zone
- GPR-Identified Change in Rebar
- PUL-Identified Electric
- PUL-Identified Water
- PUL-Identified Gas / Steam
- X HGI-Located Water Valve
- HGI-Located Catch Basin
- HGI-Located Electric Manhole
- HGI-Located Drain Manhole
- HGI-Located Metal Floor Plates
- HGI-Located Footing
- ⊕ HGI-Located Potential Core Location



NOTES:

- 1.) The base map was created from HGI field notes, grid marks, PUL and GPR interpretations.
- 2.) HGI's contributions to the base map are listed in the legend.
- 3.) The locations of utilities and obstructions presented by HGI are a **"best fit"** to the HGI created base map and should be considered approximate. Reference to HGI-located features is recommended.
- 4.) The "~" symbol indicates the termination of a utility or the inability of the geophysical tool to resolve that utility.
- 5.) An arrow ending a feature indicates the possible continuation of that feature beyond the surveyed limits.
- 6.) Dashed GPR-identified utilities indicate lower confidence in the interpretation of the feature.
- 7.) Values listed with GPR- and PUL-identified features are depths in feet; depths of GPR-identified features are based on GPR two way travel time velocity conversions and are approximate.
- 8.) PUL-identified utilities showing no depths are the result of inconclusive findings at the time of the survey.
- 9.) GPR-identified utilities are categorized based on their proximity to PUL markings and/or surface features (e.g., manholes, catch basins, hydrants, etc.).
- 10.) A utility identified with both GPR and PUL may be shown at slightly different positions by each method due to the different nature of the two sensing technologies.
- 11.) The "GPR-Identified - Anomalous Zone" category represents an anomalous areas with geometry and/or signal strength that stands out from the background GPR signal. These anomalies can have causes ranging from changes in the soil/fill to buried debris.
- 12.) GPR anomalous zone shapes may vary from those depicted in the legend. The shape of each anomaly reflects the general outline that best fits that anomalous area and may not actually reflect the shape of the potential subsurface obstruction.
- 13.) "HGI-Inferred" utilities are identified based on their alignment with surface features such as manholes and catch basins and/or are the continuation of partial GPR-identified alignments. These alignments have not been confirmed via GPR and/or PUL.
- 14.) Utility information presented on the base map not identified by HGI should be considered as present during any drilling or excavation activities.
- 15.) HGI recommends a minimum buffer of 2 to 3 feet on either side of utility centerlines and around anomaly extents as indicated on the map due to utility dimensions and inaccuracies from grid creation, data collection, and survey locating. We recommend a larger buffer for electric lines, and further that they be turned off prior to excavating. In addition, it should be assumed that utilities that appear to terminate prior to crossing any excavation may actually continue, but could not be traced farther with GPR and/or PUL. Drilling and/or excavating should proceed with caution.

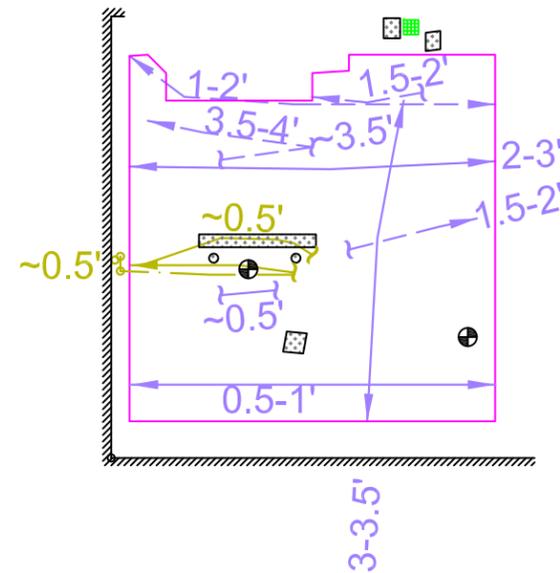
Plate 1

September 2014 | Project # 2014063

**Geophysical Survey Results
Grid - 1
OSHA Training Room
Minuteman Regional TECH. HS
Lexington, MA**

**Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781) 935-8111 hgi@hagergeoscience.com**

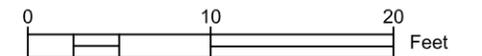
**NOT ALL SUBSURFACE FEATURES
MAY BE DEPICTED ON THIS MAP**



Grid-2 Plumbing Room

Legend

- Survey Extent
- GPR Traverse
- GPR-Identified Water
- GPR-Identified Gas / Steam
- GPR-Identified Sewer / Drain
- GPR-Identified Linear Anomaly
- GPR-Identified Anomalous Zone
- ++ GPR-Identified Change in Rebar
- PUL-Identified Electric
- PUL-Identified Water
- PUL-Identified Gas / Steam
- X HGI-Located Water Valve
- HGI-Located Catch Basin
- HGI-Located Electric Manhole
- HGI-Located Drain Manhole
- ++ HGI-Located Metal Floor Plates
- HGI-Located Footing
- ⊕ HGI-Located Potential Core Location



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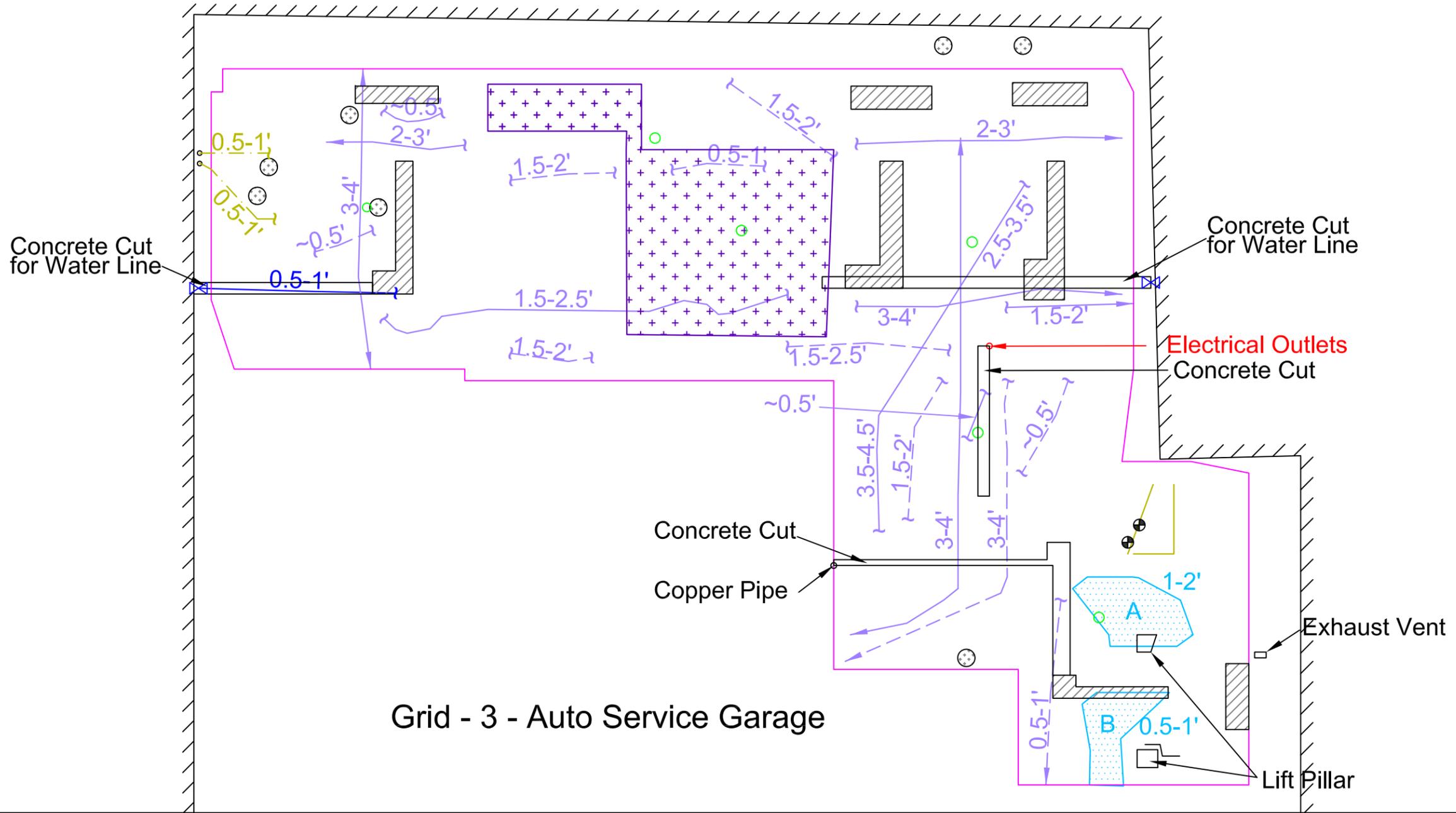
Plate 2

September 2014 | Project # 2014063

**Geophysical Survey Results
Grid - 2
Plumbing Room
Minuteman Regional TECH. HS
Lexington, MA**

**Hager GeoScience, Inc.
596 Main Street, Woburn, MA 01801
(781) 935-8111 hgi@hagergeoscience.com**

**NOT ALL SUBSURFACE FEATURES
MAY BE DEPICTED ON THIS MAP**



Legend

- Survey Extent
- GPR Traverse
- GPR-Identified Water
- GPR-Identified Gas / Steam
- GPR-Identified Sewer / Drain
- GPR-Identified Linear Anomaly
- GPR-Identified Anomalous Zone
- GPR-Identified Change in Rebar
- PUL-Identified Electric
- PUL-Identified Water
- PUL-Identified Gas / Steam
- X HGI-Located Water Valve
- HGI-Located Catch Basin
- HGI-Located Electric Manhole
- HGI-Located Drain Manhole
- HGI-Located Metal Floor Plates
- HGI-Located Footing
- + HGI-Located Potential Core Location

0 10 20
Feet

Grid - 3 - Auto Service Garage

- NOTES:**
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Plate 3

September 2014	Project # 2014063
<p>Geophysical Survey Results Grid - 3 Automotive Service Garage Minuteman Regional TECH. HS Lexington, MA</p>	
<p>Hager GeoScience, Inc. 596 Main Street, Woburn, MA 01801 (781) 935-8111 hgi@hagergeoscience.com</p>	
<p>NOT ALL SUBSURFACE FEATURES MAY BE DEPICTED ON THIS MAP</p>	

ATTACHMENT C

Soil Boring and Monitoring Well Logs

Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

BORING AND MONITORING WELL LOG: SB101/MW101

Reviewed by: <i>DFM/HED</i>	Total Depth: 9 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/12/14 to 9/12/14
GW Observed at: 5 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/RECOVERY	OVM (ppmv)	DEPTH	WELL CONSTRUCTION
	2" Asphalt. S1 (0' - 5.0') Brown, fine SAND, trace fine Gravel, Dry.		S1	NA	60/19	1.8		
5	S2 (5.0' - 9.0') Top 4" - brown, fine to medium SAND. Next 6" - brown, fine to coarse SAND and fine GRAVEL. Next 3" - organics. Bottom 11" - brown, fine to medium SAND, some Silt, trace fine to coarse Gravel, Wet throughout. Heavy petroleum sheens throughout, petroleum odors.		S2	NA	48/24	3095	5	
10	Refusal, base of vault; bottom of boring 9'.						10	
15							15	

LEGEND:

						
Filter Sand	Native Fill	Bentonite	Bentonite Grout	Concrete	PVC Screen	Solid PVC Riser

NOTES:

- Boring advanced using Geoprobe 6620DT and direct-drilling techniques.
- Sample designated with solid fill submitted for laboratory analysis.
- Well finished with a locking, flush-mounted roadbox, cemented into ground.
- NA = not applicable; NM = not measured.

CLIENT:

Kaestle Boos Associates Inc.

SITE:

Minuteman Regional Technical H.S.
758 Marrett Road
Lincoln/Lexington, Massachusetts



BORING LOG:

SB102

Reviewed By: <i>DFM/HED</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/12/14 to 9/12/14
GW Observed at: 6.5 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/RECOVERY	OVM (ppmv)	DEXSIL (ppm)	DEPTH
	2" Asphalt. S1 (0' - 5.0') Brown, fine to medium SAND, some fine to medium Gravel, trace brick, Dry.		S1	NA	60/30	<1	NM	
5	S2 (5.0' - 10.0') Brown, fine SAND, trace fine to coarse Gravel, Wet at 6.5'.		S2	NA	60/49	<1	NM	5
10	S3 (10.0'-15.0') Grayish-brown, fine SAND and SILT, Wet.		S3	NA	60/60	<1	NM	10
15	Bottom of boring 15'.							15

NOTES:

- Boring advanced using Geoprobe 6620DT and direct-drilling techniques.
- Sample designated with solid fill submitted for laboratory analysis.
- NA = not applicable; NM = not measured.

CLIENT:

Kaestle Boos Associates Inc.

SITE:

Minuteman Regional Technical H.S.
758 Marrett Road
Lincoln/Lexington, Massachusetts

BORING AND MONITORING WELL LOG: SB103/MW106

Reviewed by: <i>DFM/MEP</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/12/14 to 9/12/14
GW Observed at: 7 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY	OVM (ppmv)	DEPTH	WELL CONSTRUCTION
	2" Asphalt.							
	S1 (0' - 5.0') Top 4" - brown, fine to medium SAND and fine Gravel. Next 9" - brown, fine SAND, trace Gravel, Wet. Next 3" - dark-brown, fine to medium SAND and fine GRAVEL, Dry. Bottom 25" - brown, fine to medium SAND, some fine to medium Gravel, trace concrete, Dry.		S1	NA	60/41	<1		
5	S2 (5.0' - 10.0') Top 18" - similar to bottom 25" of S1. Middle 26" - dark-brown, fine SAND, some organics, trace fine Gravel, Wet. Bottom 16" - brown, fine SAND, trace fine Gravel, Wet.		S2	NA	60/60	4.2	5	
10	S3 (10.0' - 15.0') Grayish-brown, fine to medium SAND and SILT, Wet.		S3	NA	60/60	2.8	10	
15	Bottom of boring 15'.						15	

LEGEND:

						
Filter Sand	Native Fill	Bentonite	Bentonite Grout	Concrete	PVC Screen	Solid PVC Riser

NOTES:

- Boring advanced using Geoprobe 6620DT and direct drilling techniques.
- Sample designated with solid fill submitted for laboratory analysis.
- Well finished with a locking, flush-mounted roadbox, cemented into ground.
- NA = not applicable; NM = not measured.

CLIENT:

Kaestle Boos Associates Inc.

SITE:

Minuteman Regional Technical H.S.
758 Marrett Road
Lincoln/Lexington, Massachusetts



BORING LOG:

SB104

Reviewed By: <i>DFM/HED</i>	Total Depth: 10 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/12/14 to 9/12/14
GW Observed at: 8 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY	OVM (ppmv)	DEXSIL (ppm)	DEPTH
	2" Asphalt. S1 (0' - 5.0') Brown, fine to medium SAND, some fine to medium Gravel, Dry.		S1	NA	60/22	<1	NM	
5	S2 (5.0' - 10.0') Similar to S1, Wet at 8'.		S2	NA	60/13	<1	NM	5
10	Bottom of boring 10'.							10
15								15

NOTES:

- Boring advanced using Geoprobe 6620DT and direct drilling techniques.
- Sample designated with solid fill submitted for laboratory analysis.
- NA = not applicable; NM = not measured.

CLIENT:

Kaestle Boos Associates Inc.

SITE:

Minuteman Regional Technical H.S.
758 Marrett Road
Lincoln/Lexington, Massachusetts

BORING AND MONITORING WELL LOG: SB105/MW102

Reviewed by: <i>DFM/HED</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/12/14 to 9/12/14
GW Observed at: 9 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/RECOVERY	OVM (ppmv)	DEPTH	WELL CONSTRUCTION
	2" Asphalt. S1 (0' - 5.0') Top 5" - brown, fine SAND, trace coarse Gravel. Middle 2" - concrete. Bottom 19" - brown, fine to medium SAND, some fine Gravel, Dry.		S1	NA	60/26	<1		
5	S2 (5.0' - 10.0') Similar to bottom 19" of S1, Wet at 9'.		S2	NA	60/35	1.0	5	
10	S3 (10.0' - 15.0') Brown, medium to coarse SAND, some fine to medium Gravel, trace cobble, Wet.		S3	NA	60/37	<1	10	
15	Bottom of boring 15'.						15	

LEGEND:

Filter Sand	Native Fill	Bentonite	Bentonite Grout	Concrete	PVC Screen	Solid PVC Riser

- NOTES:**
- Boring advanced using Geoprobe 6620DT and direct drilling techniques.
 - Sample designated with solid fill submitted for laboratory analysis.
 - Well finished with a locking, flush-mounted roadbox, cemented into ground.
 - NA = not applicable; NM = not measured.

CLIENT:
Kaestle Boos Associates Inc.

SITE:
Minuteman Regional Technical H.S.
758 Marrett Road
Lincoln/Lexington, Massachusetts



BORING LOG:

SB106

Reviewed By: <i>DFM/MED</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/13/14 to 9/13/14
GW Observed at: 9.5 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY	OVM (ppmv)	DEXSIL (ppm)	DEPTH
	10" - concrete. S1 (10" - 5.0') Brown, fine SAND, trace fine to medium Gravel, Dry.		S1	NA	60/23	<1	NM	
5	S2 (5.0' - 10.0') Top 24" - similar to S1. Bottom 4" - brown, fine to medium SAND and cobble, Wet at 9.5'.		S2	NA	60/28	<1	NM	5
10	S3 (10.0 - 15.0') Brown, medium to coarse SAND, some fine to coarse Gravel, Wet.		S3	NA	60/39	<1	NM	10
15	Bottom of boring 15'.							15

<p>NOTES:</p> <ol style="list-style-type: none"> Boring advanced using Geoprobe 6620DT and direct drilling techniques. Sample designated with solid fill submitted for laboratory analysis. NA = not applicable; NM = not measured. 	<p>CLIENT: Kaestle Boos Associates Inc.</p>
	<p>SITE: Minuteman Regional Technical H.S. 758 Marrett Road Lincoln/Lexington, Massachusetts</p>
	<p>Project No.:101.01007</p>
	<p>Page: 1</p>

BORING AND MONITORING WELL LOG: SB107/MW103

Reviewed by: <i>DFM/HEP</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/12/14 to 9/12/14
GW Observed at: 9 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY	OVM (ppmv)	DEPTH	WELL CONSTRUCTION
	5" - concrete. S1 (5" - 5.0') Brown, fine SAND, trace fine Gravel, Dry.		S1	NA	60/21	<1		
5	S2 (5.0' - 10.0') Brown, fine to medium SAND, some fine to medium Gravel, Wet at 9'.		S2	NA	60/22	<1	5	
10	S3 (10.0' - 15.0') Top 21" - brown, fine to coarse SAND, some fine to medium Gravel, Wet. Middle 10" - dark-brown, fine to medium SAND, trace fine Gravel, Wet. Bottom 19" - brown, fine to medium SAND, some Silt, little fine to coarse Gravel, Wet.		S3	NA	60/50	<1	10	
15	Bottom of boring 15'.						15	

LEGEND:

						
Filter Sand	Native Fill	Bentonite	Bentonite Grout	Concrete	PVC Screen	Solid PVC Riser

NOTES:

- Boring advanced using Geoprobe 6620DT and direct drilling techniques.
- Sample designated with solid fill submitted for laboratory analysis.
- Well finished with a locking, flush-mounted roadbox, cemented into ground.
- NA = not applicable; NM = not measured.

CLIENT:

Kaestle Boos Associates Inc.

SITE:

Minuteman Regional Technical H.S.
758 Marrett Road
Lincoln/Lexington, Massachusetts

BORING LOG:

SB108

Reviewed By: <i>DFM/HED</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/13/14 to 9/13/14
GW Observed at: 9 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/RECOVERY	OVM (ppmv)	DEXSIL (ppm)	DEPTH
	5" - concrete. S1 (0' - 5.0') Brown, fine SAND, some fine Gravel, Dry.		S1	NA	60/20	<1	NM	
5	S2 (5.0' - 10.0') Top 19" - similar to S1. Middle 1" - concrete. Bottom 20" - brown, fine to coarse SAND, trace fine Gravel, Wet at 9'.	 	S2	NA	60/40	<1	NM	5
10	S3 (10.0 - 15.0') Top 9" - similar to bottom 20" of S2. Middle 18" - brown, medium to coarse SAND, some fine to medium Gravel, Wet. Bottom 21" - brown, fine to medium SAND and medium to coarse Gravel, trace cobble, Wet.		S3	NA	60/48	<1	NM	10
15	Bottom of boring 15'.							15

<p>NOTES:</p> <ol style="list-style-type: none"> Boring advanced using Geoprobe 6620DT and direct drilling techniques. Sample designated with solid fill submitted for laboratory analysis. NA = not applicable; NM = not measured. 	<p>CLIENT: Kaestle Boos Associates Inc.</p>
	<p>SITE: Minuteman Regional Technical H.S. 758 Marrett Road Lincoln/Lexington, Massachusetts</p>
	<p>Project No.:101.01007</p>
	<p>Page: 1</p>

BORING AND MONITORING WELL LOG: SB109/MW104

Reviewed by: <i>DFM/HED</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/13/14 to 9/13/14
GW Observed at: 8 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION RECOVERY	OVM (ppmv)	DEPTH	WELL CONSTRUCTION
	5" - concrete. S1 (0' - 5.0') Brown, fine SAND, trace medium Gravel and concrete, Dry.		S1	NA	60/34	<1		
5	S2 (5.0' - 10.0') Top 5" - concrete. Middle 15" brown, fine SAND, some fine Gravel, Dry. Bottom 24" - dark-brown, fine SAND, Wet, slight petroleum odors.		S2	NA	60/44	<1	5	
			S3			<1		
10	S3 (10.0' - 15.0') Similar to bottom 24" of S2.		S4	NA	60/50	<1	10	
15	Bottom of boring 15'.						15	

LEGEND:

Filter Sand	Native Fill	Bentonite	Bentonite Grout	Concrete	PVC Screen	Solid PVC Riser

<p>NOTES:</p> <ol style="list-style-type: none"> Boring advanced using Geoprobe 6620DT and direct drilling techniques. Sample designated with solid fill submitted for laboratory analysis. Well finished with a locking, flush-mounted roadbox, cemented into ground. NA = not applicable; NM = not measured. 	<p>CLIENT: Kaestle Boos Associates Inc.</p>
	<p>SITE: Minuteman Regional Technical H.S. 758 Marrett Road Lincoln/Lexington, Massachusetts</p>
	<p>Project No.: 101.01007 Page: 1</p>

BORING AND MONITORING WELL LOG: SB110/MW105

Reviewed by: <i>DFM/HED</i>	Total Depth: 15 Feet	Logged By: DFM
Date Reviewed: <i>9/30/14</i>	Boring Diameter: 2 Inches	Date Drilled: 9/13/14 to 9/13/14
GW Observed at: 7.5 Feet	Well Stickup: 0	Driller: Northern Drill Service

DEPTH	DESCRIPTION (Based on a modified Burmeister Soil Classification System)	SAMPLE	SAMPLE NUMBER	BLOW COUNTS (per 6 inches)	PENETRATION/ RECOVERY	OVM (ppmv)	DEPTH	WELL CONSTRUCTION
	2" asphalt. S1 (0' - 5.0') Brown, fine SAND, some fine to medium Gravel, Dry.		S1	NA	60/27	<1		
5	S2 (5.0' - 10.0') Top 11" - similar to S1. Bottom 20" - brown, fine SAND, some fine to medium Gravel, trace Silt, Wet at 7.5'.		S2	NA	60/31	<1	5	
10	S3 (10.0' - 15.0') Similar to bottom 20" of S2.		S3	NA	60/37	<1	10	
15	Bottom of boring 15'.						15	

LEGEND:

Filter Sand	Native Fill	Bentonite	Bentonite Grout	Concrete	PVC Screen	Solid PVC Riser

<p>NOTES:</p> <ol style="list-style-type: none"> Boring advanced using Geoprobe 6620DT and direct drilling techniques. Sample designated with solid fill submitted for laboratory analysis. Well finished with a locking, flush-mounted roadbox, cemented into ground. NA = not applicable; NM = not measured. 	<p>CLIENT: Kaestle Boos Associates Inc.</p>
	<p>SITE: Minuteman Regional Technical H.S. 758 Marrett Road Lincoln/Lexington, Massachusetts</p>
	<p>Project No.: 101.01007 Page: 1</p>

ATTACHMENT D

Copies of Laboratory Chemical Analysis Data Reports

Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts



ANALYTICAL REPORT

Lab Number:	L1421283
Client:	Ransom Consulting, Inc. 12 Kent Way Suite 100 Byfield, MA 01922-1221
ATTN:	Heather Dudley-Tatman
Phone:	(978) 465-1822
Project Name:	MINUTEMAN H.S.
Project Number:	101.01007.002
Report Date:	09/24/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1421283-01	SB103-S2-091214	SOIL	LINCOLN/LEXINGTON	09/12/14 13:29	09/16/14
L1421283-02	SB104-S2-091214	SOIL	LINCOLN/LEXINGTON	09/12/14 13:55	09/16/14
L1421283-03	SB105-S2-091214	SOIL	LINCOLN/LEXINGTON	09/12/14 14:37	09/16/14
L1421283-04	SB106-S2-091314	SOIL	LINCOLN/LEXINGTON	09/13/14 08:10	09/16/14
L1421283-05	SB107-S2-091314	SOIL	LINCOLN/LEXINGTON	09/13/14 08:33	09/16/14
L1421283-06	SB108-S2-091314	SOIL	LINCOLN/LEXINGTON	09/13/14 09:03	09/16/14
L1421283-07	SB109-S2-091314	SOIL	LINCOLN/LEXINGTON	09/13/14 10:11	09/16/14
L1421283-08	SB110-S2-091314	SOIL	LINCOLN/LEXINGTON	09/13/14 11:15	09/16/14

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO
For any questions answered "No", please refer to the case narrative section on the following page(s).		

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Case Narrative (continued)

MCP Related Narratives

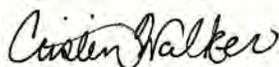
EPH

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/24/14

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-01
 Client ID: SB103-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/23/14 12:03
 Analyst: BS
 Percent Solids: 91%

Date Collected: 09/12/14 13:29
 Date Received: 09/16/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Were samples received in methanol? Covering the Soil
 Methanol ratio: 1:1 +/- 25%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	3.33	--	1
C9-C12 Aliphatics	ND		mg/kg	3.33	--	1
C9-C10 Aromatics	ND		mg/kg	3.33	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	3.33	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	3.33	--	1
Benzene	ND		mg/kg	0.133	--	1
Toluene	ND		mg/kg	0.133	--	1
Ethylbenzene	ND		mg/kg	0.133	--	1
p/m-Xylene	ND		mg/kg	0.133	--	1
o-Xylene	ND		mg/kg	0.133	--	1
Methyl tert butyl ether	ND		mg/kg	0.067	--	1
Naphthalene	ND		mg/kg	0.266	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	89		70-130
2,5-Dibromotoluene-FID	93		70-130

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-01
 Client ID: SB103-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/23/14 20:37
 Analyst: AR
 Percent Solids: 91%

Date Collected: 09/12/14 13:29
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 15:35
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	6.98	--	1
C19-C36 Aliphatics	52.7		mg/kg	6.98	--	1
C11-C22 Aromatics	53.6		mg/kg	6.98	--	1
C11-C22 Aromatics, Adjusted	53.6		mg/kg	6.98	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	56		40-140
o-Terphenyl	87		40-140
2-Fluorobiphenyl	109		40-140
2-Bromonaphthalene	101		40-140

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-02
 Client ID: SB104-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/23/14 12:05
 Analyst: BS
 Percent Solids: 97%

Date Collected: 09/12/14 13:55
 Date Received: 09/16/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Were samples received in methanol? Covering the Soil
 Methanol ratio: 1:1 +/- 25%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	2.55	--	1
C9-C12 Aliphatics	ND		mg/kg	2.55	--	1
C9-C10 Aromatics	ND		mg/kg	2.55	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.55	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.55	--	1
Benzene	ND		mg/kg	0.102	--	1
Toluene	ND		mg/kg	0.102	--	1
Ethylbenzene	ND		mg/kg	0.102	--	1
p/m-Xylene	ND		mg/kg	0.102	--	1
o-Xylene	ND		mg/kg	0.102	--	1
Methyl tert butyl ether	ND		mg/kg	0.051	--	1
Naphthalene	ND		mg/kg	0.204	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	120		70-130
2,5-Dibromotoluene-FID	118		70-130

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-02
 Client ID: SB104-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/24/14 10:39
 Analyst: SR
 Percent Solids: 97%

Date Collected: 09/12/14 13:55
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 15:35
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	6.81	--	1
C19-C36 Aliphatics	ND		mg/kg	6.81	--	1
C11-C22 Aromatics	67.0		mg/kg	6.81	--	1
C11-C22 Aromatics, Adjusted	45.6		mg/kg	6.81	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	76		40-140
2-Fluorobiphenyl	90		40-140
2-Bromonaphthalene	83		40-140

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-03
 Client ID: SB105-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/23/14 12:46
 Analyst: BS
 Percent Solids: 95%

Date Collected: 09/12/14 14:37
 Date Received: 09/16/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Were samples received in methanol? Covering the Soil
 Methanol ratio: 1:1.4

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	2.09	--	1
C9-C12 Aliphatics	ND		mg/kg	2.09	--	1
C9-C10 Aromatics	ND		mg/kg	2.09	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.09	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.09	--	1
Benzene	ND		mg/kg	0.084	--	1
Toluene	ND		mg/kg	0.084	--	1
Ethylbenzene	ND		mg/kg	0.084	--	1
p/m-Xylene	ND		mg/kg	0.084	--	1
o-Xylene	ND		mg/kg	0.084	--	1
Methyl tert butyl ether	ND		mg/kg	0.042	--	1
Naphthalene	ND		mg/kg	0.168	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	122		70-130
2,5-Dibromotoluene-FID	121		70-130

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-03
 Client ID: SB105-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/23/14 22:11
 Analyst: AR
 Percent Solids: 95%

Date Collected: 09/12/14 14:37
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 15:35
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	6.88	--	1
C19-C36 Aliphatics	ND		mg/kg	6.88	--	1
C11-C22 Aromatics	ND		mg/kg	6.88	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.88	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	72		40-140
o-Terphenyl	86		40-140
2-Fluorobiphenyl	110		40-140
2-Bromonaphthalene	101		40-140

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-04
 Client ID: SB106-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/23/14 22:58
 Analyst: AR
 Percent Solids: 92%

Date Collected: 09/13/14 08:10
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 15:35
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	7.02	--	1
C19-C36 Aliphatics	ND		mg/kg	7.02	--	1
C11-C22 Aromatics	ND		mg/kg	7.02	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.02	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	65		40-140
o-Terphenyl	67		40-140
2-Fluorobiphenyl	86		40-140
2-Bromonaphthalene	79		40-140

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-05
 Client ID: SB107-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/23/14 23:46
 Analyst: AR
 Percent Solids: 95%

Date Collected: 09/13/14 08:33
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 15:35
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	6.77	--	1
C19-C36 Aliphatics	ND		mg/kg	6.77	--	1
C11-C22 Aromatics	ND		mg/kg	6.77	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.77	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	78		40-140
o-Terphenyl	92		40-140
2-Fluorobiphenyl	106		40-140
2-Bromonaphthalene	98		40-140

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-06
Client ID: SB108-S2-091314
Sample Location: LINCOLN/LEXINGTON
Matrix: Soil
Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/24/14 00:32
Analyst: AR
Percent Solids: 94%

Date Collected: 09/13/14 09:03
Date Received: 09/16/14
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 09/19/14 15:35
Cleanup Method1: EPH-04-1
Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
Sample Temperature upon receipt: Received on Ice
Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	7.04	--	1
C19-C36 Aliphatics	ND		mg/kg	7.04	--	1
C11-C22 Aromatics	ND		mg/kg	7.04	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	7.04	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	66		40-140
o-Terphenyl	61		40-140
2-Fluorobiphenyl	89		40-140
2-Bromonaphthalene	80		40-140

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-07
 Client ID: SB109-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/24/14 01:19
 Analyst: AR
 Percent Solids: 95%

Date Collected: 09/13/14 10:11
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 15:35
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	6.63	--	1
C19-C36 Aliphatics	ND		mg/kg	6.63	--	1
C11-C22 Aromatics	ND		mg/kg	6.63	--	1
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.63	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	71		40-140
o-Terphenyl	77		40-140
2-Fluorobiphenyl	95		40-140
2-Bromonaphthalene	89		40-140

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-08
 Client ID: SB110-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 100,VPH-04-1.1
 Analytical Date: 09/23/14 13:27
 Analyst: BS
 Percent Solids: 88%

Date Collected: 09/13/14 11:15
 Date Received: 09/16/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Were samples received in methanol? Covering the Soil
 Methanol ratio: 1:1.3

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		mg/kg	2.61	--	1
C9-C12 Aliphatics	ND		mg/kg	2.61	--	1
C9-C10 Aromatics	ND		mg/kg	2.61	--	1
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.61	--	1
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.61	--	1
Benzene	ND		mg/kg	0.104	--	1
Toluene	ND		mg/kg	0.104	--	1
Ethylbenzene	ND		mg/kg	0.104	--	1
p/m-Xylene	ND		mg/kg	0.104	--	1
o-Xylene	ND		mg/kg	0.104	--	1
Methyl tert butyl ether	ND		mg/kg	0.052	--	1
Naphthalene	ND		mg/kg	0.209	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	152	Q	70-130
2,5-Dibromotoluene-FID	149	Q	70-130

Project Name: MINUTEMAN H.S.**Lab Number:** L1421283**Project Number:** 101.01007.002**Report Date:** 09/24/14**SAMPLE RESULTS**

Lab ID: L1421283-08
Client ID: SB110-S2-091314
Sample Location: LINCOLN/LEXINGTON
Matrix: Soil
Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/24/14 02:07
Analyst: AR
Percent Solids: 88%

Date Collected: 09/13/14 11:15
Date Received: 09/16/14
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 09/19/14 15:35
Cleanup Method1: EPH-04-1
Cleanup Date1: 09/22/14

Quality Control Information

Condition of sample received: Satisfactory
Sample Temperature upon receipt: Received on Ice
Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		mg/kg	7.33	--	1
C19-C36 Aliphatics	ND		mg/kg	7.33	--	1
C11-C22 Aromatics	19.7		mg/kg	7.33	--	1
C11-C22 Aromatics, Adjusted	14.2		mg/kg	7.33	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	51		40-140
o-Terphenyl	77		40-140
2-Fluorobiphenyl	97		40-140
2-Bromonaphthalene	90		40-140

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/23/14 13:38
Analyst: AR

Extraction Method: EPA 3546
Extraction Date: 09/19/14 15:35
Cleanup Method: EPH-04-1
Cleanup Date: 09/22/14

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-08 Batch: WG723652-1					
C9-C18 Aliphatics	ND		mg/kg	6.36	--
C19-C36 Aliphatics	ND		mg/kg	6.36	--
C11-C22 Aromatics	ND		mg/kg	6.36	--
C11-C22 Aromatics, Adjusted	ND		mg/kg	6.36	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	73		40-140
o-Terphenyl	71		40-140
2-Fluorobiphenyl	88		40-140
2-Bromonaphthalene	80		40-140

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Method Blank Analysis
Batch Quality Control

Analytical Method: 100,VPH-04-1.1
Analytical Date: 09/23/14 10:57
Analyst: BS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01 Batch: WG724515-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--
Benzene	ND		mg/kg	0.107	--
Toluene	ND		mg/kg	0.107	--
Ethylbenzene	ND		mg/kg	0.107	--
p/m-Xylene	ND		mg/kg	0.107	--
o-Xylene	ND		mg/kg	0.107	--
Methyl tert butyl ether	ND		mg/kg	0.053	--
Naphthalene	ND		mg/kg	0.213	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	71		70-130
2,5-Dibromotoluene-FID	74		70-130

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 100,VPH-04-1.1
Analytical Date: 09/23/14 11:24
Analyst: BS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 02-03,08 Batch: WG724521-3					
C5-C8 Aliphatics	ND		mg/kg	2.67	--
C9-C12 Aliphatics	ND		mg/kg	2.67	--
C9-C10 Aromatics	ND		mg/kg	2.67	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.67	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.67	--
Benzene	ND		mg/kg	0.107	--
Toluene	ND		mg/kg	0.107	--
Ethylbenzene	ND		mg/kg	0.107	--
p/m-Xylene	ND		mg/kg	0.107	--
o-Xylene	ND		mg/kg	0.107	--
Methyl tert butyl ether	ND		mg/kg	0.053	--
Naphthalene	ND		mg/kg	0.213	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	101		70-130
2,5-Dibromotoluene-FID	98		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-08 Batch: WG723652-2 WG723652-3								
C9-C18 Aliphatics	75		67		40-140	11		25
C19-C36 Aliphatics	83		73		40-140	13		25
C11-C22 Aromatics	86		84		40-140	2		25
Naphthalene	72		65		40-140	10		25
2-Methylnaphthalene	79		73		40-140	8		25
Acenaphthylene	75		71		40-140	5		25
Acenaphthene	75		72		40-140	4		25
Fluorene	80		76		40-140	5		25
Phenanthrene	82		78		40-140	5		25
Anthracene	80		77		40-140	4		25
Fluoranthene	82		78		40-140	5		25
Pyrene	83		79		40-140	5		25
Benzo(a)anthracene	78		74		40-140	5		25
Chrysene	82		78		40-140	5		25
Benzo(b)fluoranthene	83		82		40-140	1		25
Benzo(k)fluoranthene	77		73		40-140	5		25
Benzo(a)pyrene	80		77		40-140	4		25
Indeno(1,2,3-cd)Pyrene	60		57		40-140	5		25
Dibenzo(a,h)anthracene	75		71		40-140	5		25
Benzo(ghi)perylene	76		72		40-140	5		25
Nonane (C9)	53		44		30-140	19		25

Lab Control Sample Analysis Batch Quality Control

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-08 Batch: WG723652-2 WG723652-3								
Decane (C10)	60		51		40-140	16		25
Dodecane (C12)	68		60		40-140	13		25
Tetradecane (C14)	72		65		40-140	10		25
Hexadecane (C16)	75		68		40-140	10		25
Octadecane (C18)	76		69		40-140	10		25
Nonadecane (C19)	78		70		40-140	11		25
Eicosane (C20)	78		70		40-140	11		25
Docosane (C22)	79		70		40-140	12		25
Tetracosane (C24)	79		71		40-140	11		25
Hexacosane (C26)	80		71		40-140	12		25
Octacosane (C28)	78		69		40-140	12		25
Triacontane (C30)	82		72		40-140	13		25
Hexatriacontane (C36)	75		66		40-140	13		25

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Chloro-Octadecane	63		22	Q	40-140
o-Terphenyl	81		76		40-140
2-Fluorobiphenyl	89		95		40-140
2-Bromonaphthalene	81		88		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		



Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG724515-1 WG724515-2								
C5-C8 Aliphatics	99		100		70-130	1		25
C9-C12 Aliphatics	99		100		70-130	1		25
C9-C10 Aromatics	93		94		70-130	1		25
Benzene	99		100		70-130	1		25
Toluene	96		97		70-130	1		25
Ethylbenzene	101		102		70-130	1		25
p/m-Xylene	96		97		70-130	1		25
o-Xylene	97		98		70-130	1		25
Methyl tert butyl ether	102		104		70-130	2		25
Naphthalene	89		93		70-130	5		25
1,2,4-Trimethylbenzene	93		94		70-130	1		25
Pentane	108		110		70-130	2		25
2-Methylpentane	100		101		70-130	1		25
2,2,4-Trimethylpentane	102		103		70-130	1		25
n-Nonane	93		94		30-130	1		25
n-Decane	100		100		70-130	0		25
n-Butylcyclohexane	106		108		70-130	2		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01 Batch: WG724515-1 WG724515-2								

<u>Surrogate</u>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
2,5-Dibromotoluene-PID	78		80		70-130
2,5-Dibromotoluene-FID	82		84		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02-03,08 Batch: WG724521-1 WG724521-2								
C5-C8 Aliphatics	128		124		70-130	3		25
C9-C12 Aliphatics	122		121		70-130	1		25
C9-C10 Aromatics	112		111		70-130	1		25
Benzene	125		122		70-130	2		25
Toluene	121		119		70-130	2		25
Ethylbenzene	125		123		70-130	2		25
p/m-Xylene	125		124		70-130	1		25
o-Xylene	125		124		70-130	1		25
Methyl tert butyl ether	122		122		70-130	0		25
Naphthalene	105		108		70-130	3		25
1,2,4-Trimethylbenzene	112		111		70-130	1		25
Pentane	130		126		70-130	3		25
2-Methylpentane	128		124		70-130	3		25
2,2,4-Trimethylpentane	125		123		70-130	2		25
n-Nonane	120		119		30-130	1		25
n-Decane	122		120		70-130	2		25
n-Butylcyclohexane	122		121		70-130	1		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
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Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02-03,08 Batch: WG724521-1 WG724521-2

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
2,5-Dibromotoluene-PID	112		112		70-130
2,5-Dibromotoluene-FID	109		109		70-130

PCBS

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-03
 Client ID: SB105-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 97,8082
 Analytical Date: 09/20/14 21:07
 Analyst: JW
 Percent Solids: 95%

Date Collected: 09/12/14 14:37
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 20:31
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/20/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/20/14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.3	--	1	A
Aroclor 1221	ND		ug/kg	34.3	--	1	A
Aroclor 1232	ND		ug/kg	34.3	--	1	A
Aroclor 1242	ND		ug/kg	34.3	--	1	A
Aroclor 1248	ND		ug/kg	34.3	--	1	A
Aroclor 1254	ND		ug/kg	34.3	--	1	A
Aroclor 1260	ND		ug/kg	34.3	--	1	A
Aroclor 1262	ND		ug/kg	34.3	--	1	A
Aroclor 1268	ND		ug/kg	34.3	--	1	A
PCBs, Total	ND		ug/kg	34.3	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	62		30-150	A
Decachlorobiphenyl	58		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	67		30-150	B

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-04
Client ID: SB106-S2-091314
Sample Location: LINCOLN/LEXINGTON
Matrix: Soil
Analytical Method: 97,8082
Analytical Date: 09/20/14 21:20
Analyst: JW
Percent Solids: 92%

Date Collected: 09/13/14 08:10
Date Received: 09/16/14
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 09/19/14 20:31
Cleanup Method: EPA 3665A
Cleanup Date: 09/20/14
Cleanup Method: EPA 3660B
Cleanup Date: 09/20/14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.4	--	1	A
Aroclor 1221	ND		ug/kg	34.4	--	1	A
Aroclor 1232	ND		ug/kg	34.4	--	1	A
Aroclor 1242	ND		ug/kg	34.4	--	1	A
Aroclor 1248	ND		ug/kg	34.4	--	1	A
Aroclor 1254	ND		ug/kg	34.4	--	1	A
Aroclor 1260	ND		ug/kg	34.4	--	1	A
Aroclor 1262	ND		ug/kg	34.4	--	1	A
Aroclor 1268	ND		ug/kg	34.4	--	1	A
PCBs, Total	ND		ug/kg	34.4	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	61		30-150	A
Decachlorobiphenyl	59		30-150	A
2,4,5,6-Tetrachloro-m-xylene	71		30-150	B
Decachlorobiphenyl	67		30-150	B

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-05
Client ID: SB107-S2-091314
Sample Location: LINCOLN/LEXINGTON
Matrix: Soil
Analytical Method: 97,8082
Analytical Date: 09/20/14 21:32
Analyst: JW
Percent Solids: 95%

Date Collected: 09/13/14 08:33
Date Received: 09/16/14
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 09/19/14 20:31
Cleanup Method: EPA 3665A
Cleanup Date: 09/20/14
Cleanup Method: EPA 3660B
Cleanup Date: 09/20/14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.0	--	1	A
Aroclor 1221	ND		ug/kg	35.0	--	1	A
Aroclor 1232	ND		ug/kg	35.0	--	1	A
Aroclor 1242	ND		ug/kg	35.0	--	1	A
Aroclor 1248	ND		ug/kg	35.0	--	1	A
Aroclor 1254	ND		ug/kg	35.0	--	1	A
Aroclor 1260	ND		ug/kg	35.0	--	1	A
Aroclor 1262	ND		ug/kg	35.0	--	1	A
Aroclor 1268	ND		ug/kg	35.0	--	1	A
PCBs, Total	ND		ug/kg	35.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	A
Decachlorobiphenyl	62		30-150	A
2,4,5,6-Tetrachloro-m-xylene	73		30-150	B
Decachlorobiphenyl	69		30-150	B

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-06
 Client ID: SB108-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil
 Analytical Method: 97,8082
 Analytical Date: 09/20/14 21:44
 Analyst: JW
 Percent Solids: 94%

Date Collected: 09/13/14 09:03
 Date Received: 09/16/14
 Field Prep: Not Specified
 Extraction Method: EPA 3546
 Extraction Date: 09/19/14 20:31
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/20/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/20/14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.8	--	1	A
Aroclor 1221	ND		ug/kg	33.8	--	1	A
Aroclor 1232	ND		ug/kg	33.8	--	1	A
Aroclor 1242	ND		ug/kg	33.8	--	1	A
Aroclor 1248	ND		ug/kg	33.8	--	1	A
Aroclor 1254	ND		ug/kg	33.8	--	1	A
Aroclor 1260	ND		ug/kg	33.8	--	1	A
Aroclor 1262	ND		ug/kg	33.8	--	1	A
Aroclor 1268	ND		ug/kg	33.8	--	1	A
PCBs, Total	ND		ug/kg	33.8	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	A
Decachlorobiphenyl	64		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	76		30-150	B

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-07
Client ID: SB109-S2-091314
Sample Location: LINCOLN/LEXINGTON
Matrix: Soil
Analytical Method: 97,8082
Analytical Date: 09/20/14 21:57
Analyst: JW
Percent Solids: 95%

Date Collected: 09/13/14 10:11
Date Received: 09/16/14
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 09/19/14 20:31
Cleanup Method: EPA 3665A
Cleanup Date: 09/20/14
Cleanup Method: EPA 3660B
Cleanup Date: 09/20/14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	33.1	--	1	A
Aroclor 1221	ND		ug/kg	33.1	--	1	A
Aroclor 1232	ND		ug/kg	33.1	--	1	A
Aroclor 1242	ND		ug/kg	33.1	--	1	A
Aroclor 1248	ND		ug/kg	33.1	--	1	A
Aroclor 1254	ND		ug/kg	33.1	--	1	A
Aroclor 1260	ND		ug/kg	33.1	--	1	A
Aroclor 1262	ND		ug/kg	33.1	--	1	A
Aroclor 1268	ND		ug/kg	33.1	--	1	A
PCBs, Total	ND		ug/kg	33.1	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	61		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	68		30-150	B

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 97,8082
 Analytical Date: 09/20/14 22:59
 Analyst: JW

Extraction Method: EPA 3546
 Extraction Date: 09/19/14 20:31
 Cleanup Method: EPA 3665A
 Cleanup Date: 09/20/14
 Cleanup Method: EPA 3660B
 Cleanup Date: 09/20/14

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 03-07 Batch: WG723720-1						
Aroclor 1016	ND		ug/kg	31.6	--	A
Aroclor 1221	ND		ug/kg	31.6	--	A
Aroclor 1232	ND		ug/kg	31.6	--	A
Aroclor 1242	ND		ug/kg	31.6	--	A
Aroclor 1248	ND		ug/kg	31.6	--	A
Aroclor 1254	ND		ug/kg	31.6	--	A
Aroclor 1260	ND		ug/kg	31.6	--	A
Aroclor 1262	ND		ug/kg	31.6	--	A
Aroclor 1268	ND		ug/kg	31.6	--	A
PCBs, Total	ND		ug/kg	31.6	--	A

Surrogate	%Recovery	Qualifier	Acceptance	Column
			Criteria	
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	56		30-150	A
2,4,5,6-Tetrachloro-m-xylene	75		30-150	B
Decachlorobiphenyl	69		30-150	B



Lab Control Sample Analysis Batch Quality Control

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 03-07 Batch: WG723720-2 WG723720-3									
Aroclor 1016	84		82		40-140	2		30	A
Aroclor 1260	90		88		40-140	2		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		65		30-150	A
Decachlorobiphenyl	59		59		30-150	A
2,4,5,6-Tetrachloro-m-xylene	74		75		30-150	B
Decachlorobiphenyl	71		68		30-150	B



INORGANICS & MISCELLANEOUS

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-01
 Client ID: SB103-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/12/14 13:29
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-02
 Client ID: SB104-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/12/14 13:55
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.6		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-03
 Client ID: SB105-S2-091214
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/12/14 14:37
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-04
 Client ID: SB106-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/13/14 08:10
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-05
 Client ID: SB107-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/13/14 08:33
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.6		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-06
 Client ID: SB108-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/13/14 09:03
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-07
 Client ID: SB109-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/13/14 10:11
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.4		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

SAMPLE RESULTS

Lab ID: L1421283-08
 Client ID: SB110-S2-091314
 Sample Location: LINCOLN/LEXINGTON
 Matrix: Soil

Date Collected: 09/13/14 11:15
 Date Received: 09/16/14
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.2		%	0.100	NA	1	-	09/17/14 20:21	30,2540G	RT



Lab Duplicate Analysis
Batch Quality Control

Project Name: MINUTEMAN H.S.

Project Number: 101.01007.002

Lab Number: L1421283

Report Date: 09/24/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG722980-1 QC Sample: L1421283-01 Client ID: SB103-S2-091214						
Solids, Total	91.2	91.4	%	0		20

Project Name: MINUTEMAN H.S.

Lab Number: L1421283

Project Number: 101.01007.002

Report Date: 09/24/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1421283-01A	Vial MeOH preserved	A	N/A	4.4	Y	Absent	VPH-DELUX-10(28)
L1421283-01B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),TS(7)
L1421283-02A	Vial MeOH preserved	A	N/A	4.4	Y	Absent	VPH-DELUX-10(28)
L1421283-02B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),TS(7)
L1421283-03A	Vial MeOH preserved	A	N/A	4.4	Y	Absent	VPH-DELUX-10(28)
L1421283-03B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),MCP-8082-10(365),TS(7)
L1421283-04A	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	TS(7)
L1421283-04B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),MCP-8082-10(365)
L1421283-05A	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	TS(7)
L1421283-05B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),MCP-8082-10(365)
L1421283-06A	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	TS(7)
L1421283-06B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),MCP-8082-10(365)
L1421283-07A	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	TS(7)
L1421283-07B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),MCP-8082-10(365)
L1421283-08A	Vial MeOH preserved	A	N/A	4.4	Y	Absent	VPH-DELUX-10(28)
L1421283-08B	Amber 120ml unpreserved	A	N/A	4.4	Y	Absent	EPH-10(14),TS(7)

*Values in parentheses indicate holding time in days



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a "Total" result is defined as the summation of results for individual isomers or Aroclors. If a "Total" result is requested, the results of its individual components will also be reported. This is applicable to "Total" results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Report Format: Data Usability Report



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

Data Qualifiers

- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421283
Report Date: 09/24/14

REFERENCES

- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.
- 97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.
- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility

EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 625: 4-Chloroaniline, 4-Methylphenol.

SM4500: Soil: Total Phosphorus, TKN, NO₂, NO₃.

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water

EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

EPA 332: Perchlorate.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water

EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC,

SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

EPA 353.2: Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4,**

SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



ANALYTICAL REPORT

Lab Number:	L1421763
Client:	Ransom Consulting, Inc. 12 Kent Way Suite 100 Byfield, MA 01922-1221
ATTN:	Heather Dudley-Tatman
Phone:	(978) 465-1822
Project Name:	MINUTEMAN H.S.
Project Number:	101.01007.002
Report Date:	09/26/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1421763-01	MW102-W1-091714	WATER	758 MARRETT ROAD	09/17/14 13:59	09/18/14
L1421763-02	MW103-W1-091714	WATER	758 MARRETT ROAD	09/17/14 15:25	09/18/14
L1421763-03	MW104-W1-091714	WATER	758 MARRETT ROAD	09/17/14 16:41	09/18/14
L1421763-04	MW105-W1-091714	WATER	758 MARRETT ROAD	09/17/14 12:36	09/18/14
L1421763-05	MW106-W1-091714	WATER	758 MARRETT ROAD	09/17/14 13:12	09/18/14

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	YES
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES
A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	YES
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO
For any questions answered "No", please refer to the case narrative section on the following page(s).		

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

Case Narrative (continued)

MCP Related Narratives

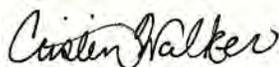
EPH

In reference to question I:

All samples were analyzed for a subset of MCP compounds per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/26/14

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-01
 Client ID: MW102-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/24/14 18:06
 Analyst: BS

Date Collected: 09/17/14 13:59
 Date Received: 09/18/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	84		70-130
2,5-Dibromotoluene-FID	81		70-130

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-01
 Client ID: MW102-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/25/14 17:08
 Analyst: SR

Date Collected: 09/17/14 13:59
 Date Received: 09/18/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/14 12:08
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/25/14

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	47		40-140
o-Terphenyl	62		40-140
2-Fluorobiphenyl	75		40-140
2-Bromonaphthalene	74		40-140

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-02
 Client ID: MW103-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/24/14 18:45
 Analyst: BS

Date Collected: 09/17/14 15:25
 Date Received: 09/18/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	82		70-130
2,5-Dibromotoluene-FID	81		70-130

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-02
 Client ID: MW103-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/25/14 17:53
 Analyst: SR

Date Collected: 09/17/14 15:25
 Date Received: 09/18/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/14 12:08
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/25/14

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	69		40-140
o-Terphenyl	84		40-140
2-Fluorobiphenyl	82		40-140
2-Bromonaphthalene	82		40-140

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-03
 Client ID: MW104-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/24/14 19:24
 Analyst: BS

Date Collected: 09/17/14 16:41
 Date Received: 09/18/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	81		70-130
2,5-Dibromotoluene-FID	81		70-130

Project Name: MINUTEMAN H.S.**Lab Number:** L1421763**Project Number:** 101.01007.002**Report Date:** 09/26/14**SAMPLE RESULTS**

Lab ID: L1421763-03
Client ID: MW104-W1-091714
Sample Location: 758 MARRETT ROAD
Matrix: Water
Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/25/14 18:38
Analyst: SR

Date Collected: 09/17/14 16:41
Date Received: 09/18/14
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 09/23/14 12:08
Cleanup Method1: EPH-04-1
Cleanup Date1: 09/25/14

Quality Control Information

Condition of sample received: Satisfactory
Aqueous Preservative: Laboratory Provided Preserved Container
Sample Temperature upon receipt: Received on Ice
Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	52		40-140
o-Terphenyl	81		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	78		40-140

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-04
 Client ID: MW105-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/24/14 20:03
 Analyst: BS

Date Collected: 09/17/14 12:36
 Date Received: 09/18/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Petroleum Hydrocarbons - Westborough Lab

C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	ND		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	ND		ug/l	2.00	--	1
p/m-Xylene	ND		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	83		70-130
2,5-Dibromotoluene-FID	82		70-130

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-04
 Client ID: MW105-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/25/14 19:23
 Analyst: SR

Date Collected: 09/17/14 12:36
 Date Received: 09/18/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/14 12:08
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/25/14

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Extractable Petroleum Hydrocarbons - Westborough Lab

C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	57		40-140
o-Terphenyl	80		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	82		40-140

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-05
 Client ID: MW106-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 100, VPH-04-1.1
 Analytical Date: 09/24/14 20:42
 Analyst: BS

Date Collected: 09/17/14 13:12
 Date Received: 09/18/14
 Field Prep: Not Specified

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Petroleum Hydrocarbons - Westborough Lab						
C5-C8 Aliphatics	ND		ug/l	50.0	--	1
C9-C12 Aliphatics	56.0		ug/l	50.0	--	1
C9-C10 Aromatics	ND		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--	1
Benzene	21.9		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	3.12		ug/l	2.00	--	1
p/m-Xylene	11.1		ug/l	2.00	--	1
o-Xylene	4.30		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	ND		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	85		70-130
2,5-Dibromotoluene-FID	84		70-130

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

SAMPLE RESULTS

Lab ID: L1421763-05
 Client ID: MW106-W1-091714
 Sample Location: 758 MARRETT ROAD
 Matrix: Water
 Analytical Method: 98,EPH-04-1.1
 Analytical Date: 09/25/14 20:08
 Analyst: SR

Date Collected: 09/17/14 13:12
 Date Received: 09/18/14
 Field Prep: Not Specified
 Extraction Method: EPA 3510C
 Extraction Date: 09/23/14 12:08
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 09/25/14

Quality Control Information

Condition of sample received: Satisfactory
 Aqueous Preservative: Laboratory Provided Preserved Container
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Extractable Petroleum Hydrocarbons - Westborough Lab						
C9-C18 Aliphatics	ND		ug/l	100	--	1
C19-C36 Aliphatics	ND		ug/l	100	--	1
C11-C22 Aromatics	ND		ug/l	100	--	1
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	45		40-140
o-Terphenyl	77		40-140
2-Fluorobiphenyl	80		40-140
2-Bromonaphthalene	78		40-140

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

Method Blank Analysis
Batch Quality Control

Analytical Method: 98,EPH-04-1.1
Analytical Date: 09/24/14 13:23
Analyst: SR

Extraction Method: EPA 3510C
Extraction Date: 09/23/14 12:08
Cleanup Method: EPH-04-1
Cleanup Date: 09/23/14

Parameter	Result	Qualifier	Units	RL	MDL
Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-05 Batch: WG724462-1					
C9-C18 Aliphatics	ND		ug/l	100	--
C19-C36 Aliphatics	ND		ug/l	100	--
C11-C22 Aromatics	ND		ug/l	100	--
C11-C22 Aromatics, Adjusted	ND		ug/l	100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Chloro-Octadecane	64		40-140
o-Terphenyl	83		40-140
2-Fluorobiphenyl	83		40-140
2-Bromonaphthalene	85		40-140

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 100,VPH-04-1.1
Analytical Date: 09/24/14 11:34
Analyst: BS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-05 Batch: WG725160-3					
C5-C8 Aliphatics	ND		ug/l	50.0	--
C9-C12 Aliphatics	ND		ug/l	50.0	--
C9-C10 Aromatics	ND		ug/l	50.0	--
C5-C8 Aliphatics, Adjusted	ND		ug/l	50.0	--
C9-C12 Aliphatics, Adjusted	ND		ug/l	50.0	--
Benzene	ND		ug/l	2.00	--
Toluene	ND		ug/l	2.00	--
Ethylbenzene	ND		ug/l	2.00	--
p/m-Xylene	ND		ug/l	2.00	--
o-Xylene	ND		ug/l	2.00	--
Methyl tert butyl ether	ND		ug/l	3.00	--
Naphthalene	ND		ug/l	4.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	83		70-130
2,5-Dibromotoluene-FID	81		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG724462-2 WG724462-3								
C9-C18 Aliphatics	44		50		40-140	13		25
C19-C36 Aliphatics	57		66		40-140	15		25
C11-C22 Aromatics	84		84		40-140	0		25
Naphthalene	66		65		40-140	2		25
2-Methylnaphthalene	70		70		40-140	0		25
Acenaphthylene	66		68		40-140	3		25
Acenaphthene	71		73		40-140	3		25
Fluorene	72		75		40-140	4		25
Phenanthrene	74		79		40-140	7		25
Anthracene	80		85		40-140	6		25
Fluoranthene	76		82		40-140	8		25
Pyrene	78		84		40-140	7		25
Benzo(a)anthracene	76		82		40-140	8		25
Chrysene	81		88		40-140	8		25
Benzo(b)fluoranthene	75		88		40-140	16		25
Benzo(k)fluoranthene	82		83		40-140	1		25
Benzo(a)pyrene	82		89		40-140	8		25
Indeno(1,2,3-cd)Pyrene	66		72		40-140	9		25
Dibenzo(a,h)anthracene	78		85		40-140	9		25
Benzo(ghi)perylene	79		86		40-140	8		25
Nonane (C9)	36		42		30-140	15		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

Parameter	LCS		LCSD		%Recovery Limits	RPD	RPD	
	%Recovery	Qual	%Recovery	Qual			Qual	Limits
Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG724462-2 WG724462-3								
Decane (C10)	42		48		40-140	13		25
Dodecane (C12)	53		59		40-140	11		25
Tetradecane (C14)	56		64		40-140	13		25
Hexadecane (C16)	59		68		40-140	14		25
Octadecane (C18)	61		71		40-140	15		25
Nonadecane (C19)	62		72		40-140	15		25
Eicosane (C20)	62		72		40-140	15		25
Docosane (C22)	63		73		40-140	15		25
Tetracosane (C24)	63		72		40-140	13		25
Hexacosane (C26)	63		73		40-140	15		25
Octacosane (C28)	62		71		40-140	14		25
Triacontane (C30)	65		74		40-140	13		25
Hexatriacontane (C36)	64		72		40-140	12		25

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
Chloro-Octadecane	47		68		40-140
o-Terphenyl	77		82		40-140
2-Fluorobiphenyl	75		78		40-140
2-Bromonaphthalene	75		78		40-140
% Naphthalene Breakthrough	0		0		
% 2-Methylnaphthalene Breakthrough	0		0		



Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG725160-1 WG725160-2								
C5-C8 Aliphatics	105		98		70-130	7		25
C9-C12 Aliphatics	89		87		70-130	3		25
C9-C10 Aromatics	91		92		70-130	0		25
Benzene	103		100		70-130	3		25
Toluene	104		101		70-130	3		25
Ethylbenzene	104		101		70-130	3		25
p/m-Xylene	100		99		70-130	2		25
o-Xylene	100		99		70-130	1		25
Methyl tert butyl ether	99		100		70-130	1		25
Naphthalene	99		105		70-130	6		25
1,2,4-Trimethylbenzene	91		92		70-130	0		25
Pentane	108		100		70-130	8		25
2-Methylpentane	106		100		70-130	6		25
2,2,4-Trimethylpentane	102		97		70-130	5		25
n-Nonane	93		90		30-130	3		25
n-Decane	82		79		70-130	4		25
n-Butylcyclohexane	94		91		70-130	3		25

Lab Control Sample Analysis

Batch Quality Control

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

Parameter	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>%Recovery</i> Limits	<i>RPD</i>	<i>Qual</i>	<i>RPD</i> Limits
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Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-05 Batch: WG725160-1 WG725160-2

<i>Surrogate</i>	<i>LCS</i> %Recovery	<i>Qual</i>	<i>LCSD</i> %Recovery	<i>Qual</i>	<i>Acceptance</i> <i>Criteria</i>
2,5-Dibromotoluene-PID	94		96		70-130
2,5-Dibromotoluene-FID	92		94		70-130

Project Name: MINUTEMAN H.S.

Lab Number: L1421763

Project Number: 101.01007.002

Report Date: 09/26/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler

A Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1421763-01A	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-01B	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-01C	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-01D	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-01E	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-02A	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-02B	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-02C	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-02D	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-02E	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-03A	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-03B	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-03C	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-03D	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-03E	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-04A	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-04B	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-04C	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-04D	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-04E	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-05A	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-05B	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-05C	Vial HCl preserved	A	N/A	2.9	Y	Absent	VPH-DELUX-10(14)
L1421763-05D	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)
L1421763-05E	Amber 1000ml HCl preserved	A	<2	2.9	Y	Absent	EPH-10(14)

*Values in parentheses indicate holding time in days



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a "Total" result is defined as the summation of results for individual isomers or Aroclors. If a "Total" result is requested, the results of its individual components will also be reported. This is applicable to "Total" results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

Report Format: Data Usability Report



Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

Data Qualifiers

- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: MINUTEMAN H.S.
Project Number: 101.01007.002

Lab Number: L1421763
Report Date: 09/26/14

REFERENCES

- 98 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, July 2010.
- 100 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, May 2004, Revision 1.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility

EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.

EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.

EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.

EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene, 1,4-Diphenylhydrazine.

EPA 625: 4-Chloroaniline, 4-Methylphenol.

SM4500: Soil: Total Phosphorus, TKN, NO₂, NO₃.

EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility

EPA 8270D: Biphenyl.

EPA 2540D: TSS

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water

EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7:** Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

EPA 332: Perchlorate.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water

EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;

EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;

EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F,**

EPA 353.2: Nitrate-N, **SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF.**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ATTACHMENT E

Massachusetts Geographic Information System (MassGIS) Map

Phase II Limited Subsurface Investigation
Minuteman Regional Technical High School
758 Marrett Road
Lexington and Lincoln, Massachusetts

MassDEP - Bureau of Waste Site Cleanup

Site Information:

MINUTEMAN REGIONAL TECHNICAL HIGH SCHOOL
758 MARRETT ROAD LINCOLN, MA

NAD83 UTM Meters:
4701765mN , 313508mE (Zone: 19)
September 30, 2014

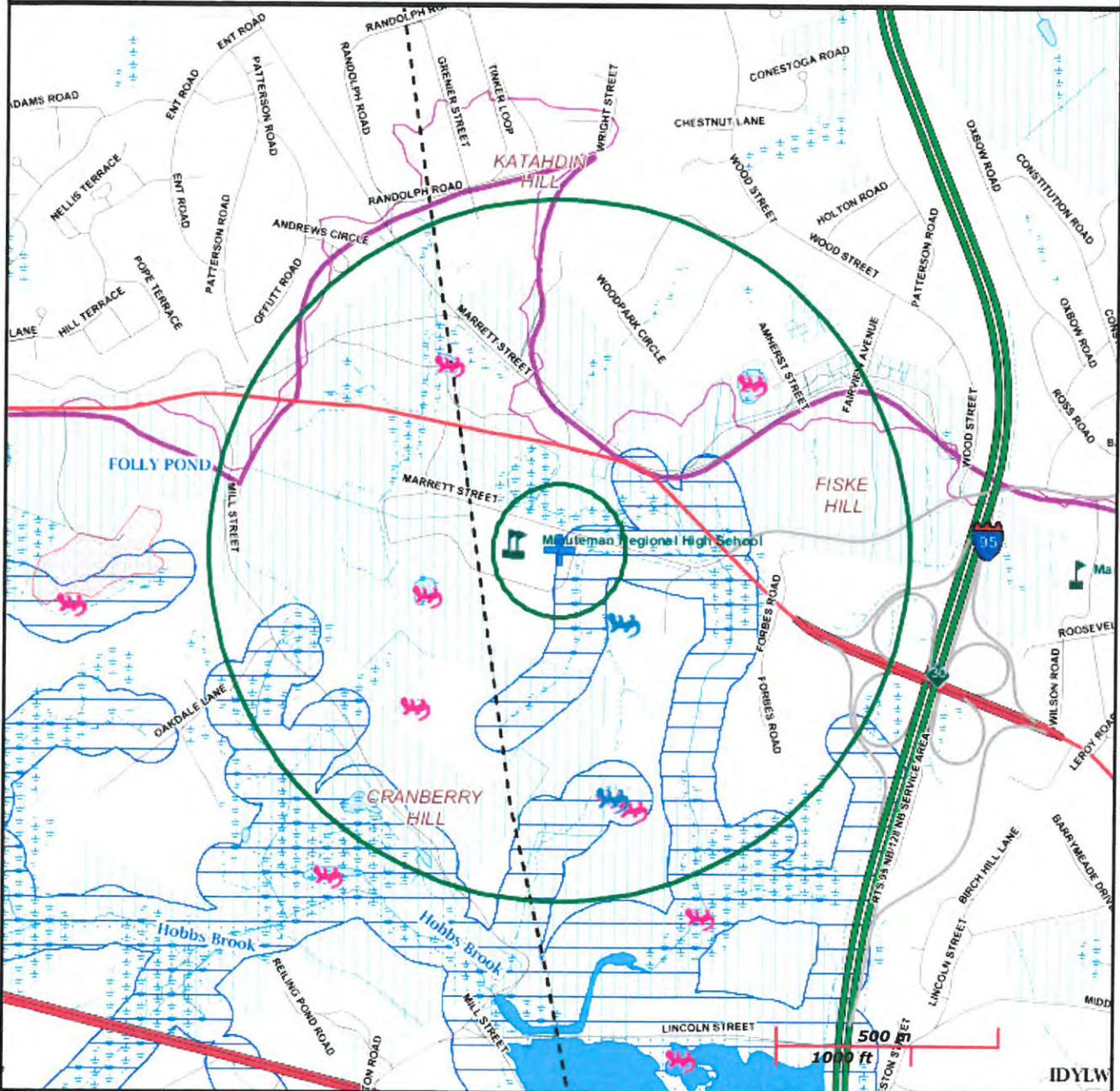
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at:
<http://www.mass.gov/mgis/>



MassDEP

Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail	PWS Protection Areas: Zone II, IWPA, Zone A		
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct	Hydrography: Open Water, PWS Reservoir, Tidal Flat		
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam	Wetlands: Freshwater, Saltwater, Cranberry Bog		
Aquifers: Medium Yield, High Yield, EPA Sole Source	FEMA 100yr Floodplain; Protected Open Space; ACEC		
Non Potential Drinking Water Source Area: Medium, High (Yield)	Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential		
	Solid Waste Landfill; PWS: Com. GW, SW, Emerg., Non-Com		