



**Environmental Site Assessment  
Grafton Memorial High School  
24 Providence Road  
Grafton, Massachusetts**

**Prepared For:**

**Symmes Maini & McKee Associates  
Cambridge, Massachusetts**

**Prepared By:**

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Sherborn, Massachusetts**

**File No. 0120  
December 2009**

# ADS ENVIRONMENTAL ENGINEERING, LLC

December 10, 2009  
File No. 0120  
SMMA PNM 0902200 P.O. 01947

Symmes Maini & McKee Associates  
1000 Massachusetts Avenue  
Cambridge, MA 02138

Attention: Mr. Daniel Ruiz

RE: Environmental Site Assessment  
Grafton Memorial High School  
24 Providence Road  
Grafton, Massachusetts

Dear Daniel:

ADS Environmental Engineering, LLC (ADS) is pleased to provide this report on the environmental site assessment services of the property occupied by the Grafton Memorial High School, 24 Providence Road, in Grafton, Massachusetts. This report was prepared by ADS in accordance with our proposal dated October 13, 2009, and the Limitations contained in Appendix A. The objective of this study is to render a professional opinion as to the potential presence of oil or hazardous material in the environment of the site with respect to Massachusetts General Laws, Chapter 21E and the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.

Studies conducted specifically for this site assessment included a site reconnaissance to visually assess conditions at the property, a review of readily available town and state regulatory agency files, and an environmental computer database search. A subsurface exploration program consisting of three days of test borings for geotechnical and environmental assessment purposes was also conducted and observed by ADS in order to view subsurface conditions and collect soil samples for preliminary screening and analytical laboratory testing.

The subject property address is 24 Providence Road in Grafton, Massachusetts, is identified on Grafton Assessor's Map No. 64, and consists of the northern portion of Lot 12. A small portion of the northernmost region of the property is also shown on Assessor's Map No. 55. A Locus Plan and Exploration Location Plan showing the studied area are provided as Figures 1 and 2, respectively. The portion of Lot 12 that is the subject of this study consists of roughly 15.4 acres of the municipal parcel of land (Lot 12) that totals 46.5 acres.

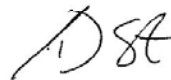
The subject property is developed with the High School and associated parking and roadways, a maintenance shed outbuilding, and athletic playing fields. In addition to the school property, two other buildings and associated underground storage tanks were included in the assessment because the planned property redevelopment may involve removal of these buildings and underground tanks. These include the School Superintendent Building (referred to as the "PA Building"), and the old Police Station building.

In summary, several areas of potential environmental concern were identified. Subsurface sampling and analytical laboratory testing did not suggest that a significant release of oil or hazardous materials has occurred in these areas. However, several recommendations were made for the property as summarized in the Conclusions section of the report.

It has been a pleasure assisting you with this project. Please feel free to contact Ms. Andrea Stiller at 781-727-6646 to further discuss the work completed and the findings.

Sincerely,

ADS ENVIRONMENTAL ENGINEERING, LLC



Andrea Dogon Stiller, LSP  
Principal

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MA DEP Bureau of Waste Site Cleanup Site Scoring Map

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## **1.0 INTRODUCTION**

The following report presents the results of an environmental site assessment of 24 Providence Road in Grafton, Massachusetts, which is occupied by Grafton Memorial High School. This report was prepared by ADS Environmental Engineering, LLC (ADS) in accordance with our proposal dated October 13, 2009, and the Limitations contained in Appendix A. The objective of this study is to render a professional opinion as to the potential presence of oil or hazardous material in the environment of the site with respect to Massachusetts General Laws, Chapter 21E and the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.

Studies conducted specifically for this site assessment included a site reconnaissance to visually assess conditions at the property, a review of readily available town and state regulatory agency files, and an environmental computer database search. A subsurface exploration program consisting of three days of test borings for geotechnical and environmental assessment purposes was also conducted and observed by ADS in order to view subsurface conditions and collect soil samples for preliminary screening and analytical laboratory testing.

## **2.0 SITE DESCRIPTION**

The subject property address is 24 Providence Road in Grafton, Massachusetts, is identified on Grafton Assessor's Map No. 64, and consists of the northern portion of Lot 12. A small portion of the northernmost region of the property is also shown on Assessor's Map No. 55. A Locus Plan and Exploration Location Plan showing the studied area are provided as Figures 1 and 2, respectively. The portion of Lot 12 that is the subject of this study consists of roughly 15.4 acres of the municipal parcel of land (Lot 12) that totals 46.5 acres.

The subject property is developed with the High School and associated parking and roadways, a maintenance shed outbuilding, and athletic playing fields. The original school building was constructed in 1964 as three separate buildings with connectors in between them. The building was originally constructed as the Upper Middle School. Additions to the building have been constructed over time, including expanding the three separate buildings so that they are one structure.

The approximate location of the property on the United States Geologic Survey (USGS) Grafton, Massachusetts Quadrangle is Latitude 42°12'46" North and Longitude 71°41'36" West. Universal Transverse Mercator (UTM) coordinates for the property are approximately 4,676,929 meters North and 722,316 meters East.

## **2.1 Site Reconnaissance**

On October 26, 2009 ADS visited the subject property to conduct a reconnaissance with respect to surficial evidence of oil and/or hazardous material in the environment of the subject property. ADS toured the property with Mr. Jim Pignataro, who has been Principal of the school for approximately 30 years, and Mr. Tony LeMay, Director of buildings and grounds who has worked in this capacity for approximately 1.5 years, but has worked at the school for the past 6 years. In addition to the school building, ADS toured the PA building where a pre-Kindergarten and the school district municipal offices are, as well as the “old” police department building since these buildings may be removed as part of future redevelopment plans.

### **2.1.1 Exterior Grounds**

The subject property is bounded to the north and west by Lake Ripple and Quinsigamond River. The property rises up from Providence Road which exists along the property’s eastern border, and levels off where the school building and athletic fields are located. The school building sits at the northernmost area of the site, adjacent to Lake Ripple. A steep bank exists down to the lake, and the school building and grounds are roughly 25 to 30 feet above the lake elevation.

There are two paved access drives to the school from Providence Road. Paved parking for the school exists south/southeast of the school building and a smaller parking area exists to the west of the school building.

A rectangular concrete slab with the fill port and other access ports for the underground 10,000 gallon fuel oil tank for the school building were observed in the pavement west of the school building. Another concrete pad was noted nearby to the east of the tank. ADS was informed that this was a pad used to support a propane tank that was used to heat the adjacent rooms during renovations to the building in 1994. The propane tank is gone, just the concrete pad remains. The former underground 10,000 gallon fuel oil tank existed immediately adjacent to the new art room; the tank was removed and the new one installed in 1994 during the renovations and addition of the art room. (Further discussion of underground storage tanks in Section 3.2).

Beyond the small parking area to the west of the school building, is a concrete block maintenance shed that was constructed to store and maintain lawnmowers and other grounds keeping equipment for the Grafton school district. This structure is discussed further in the Building Interiors section of this report. A fill port for an above ground 275 gallon fuel oil tank was noted in the northern wall of a small storage shed off of the maintenance building.

Also to the west of the school building, near the maintenance shed, are dumpsters for recycling and trash, and four storage trailers. One of the trailers was opened at the time of the site reconnaissance and contained drama set designs and costumes. Another trailer was opened at a later date and contained furniture. The other trailers reportedly store furniture, athletic equipment such as baseball bases and bats, fiberglass insulation, wood, fans, and other such items. Also metal drums were stored around the maintenance building. Mr. LeMay stated that they are used as trash receptacles. One unlabelled drum that appeared full reportedly stored neutralizing chips from the chip tank of the chemistry laboratory. Mr. Lemay stated that Clean Harbors would be removing this drum soon. Also stored around the maintenance shed were lawn mowers, plow attachments, and other miscellaneous items. Minor oil staining from routine use of oil was noted, however surficial indications of a significant release of oil or hazardous materials were not observed by ADS around the maintenance shed. General housekeeping could be improved in this area.

West of the maintenance shed in the northern region of the property were stockpiles of stone dust for the baseball and softball field, a pile of concrete apparently from dismantled concrete structures or curbing, and rollers to flatten the athletic fields. In the northwestern region of the property was another stockpile that was reportedly soil that had been excavated to install the new underground 10,000 gallon fuel oil tank for the school building. ADS collected samples from this pile for observation and preliminary field screening; screening readings were 0.0 and there were no indications of contamination in this soil.

A pump house exists in the northwestern region of the property, adjacent to Lake Ripple. Currently, water is pumped from a well at this location to irrigate the playing fields, but according to Mr. Matthew Pearson of the Grafton Water District Commissioners, current plans are to put this well online as a municipal water supply. This well is also noted on the MassGIS map attached to this report, and has resulted in the zoning of much of the western portion of the school property as an Approved Zone II of a public water supply. Additional information from an interview with the Water District Commission is included in Section 3.2 of this report.

A majority of the school property surrounding the west and south sides of the school building are athletic playing fields (baseball, softball, football, track, soccer, tennis courts, etc.). Mr. LeMay stated that the football field located in the southwestern region of the school property cannot be treated with fertilizers or other treatments due to Conservation Commission restrictions, and the presence of a rare species of mussel. The Natural Heritage and Endangered Species Program (NHESP) program's 2008 map obtained through MassGIS designates the southwestern leg of Lake Ripple and the area to the south surrounding the Quinsigamond River as a Massachusetts Priority Habitat of a Rare Species. This includes the western portion of the school grounds and football field/track area.

Near the football field are structures used for the press box, announcing during games, and concessions. A building in the southeastern region of the school grounds is used to house lighting controls for the field.

Pad mounted transformers were noted adjacent to the football field lighting control shed and to the west of the school building. Pole mounted transformers were noted in the northern region of the property, one near the maintenance shed and another further west near the water supply well pump house, and a pole containing three transformers was noted near the football field lighting control shed. National Grid was contacted regarding the PCB content of the transformers on the school property. Ms. Joanne Luca stated that she would send a field engineer to assess the Transformers at the property, and that this process would take a few weeks. They would then issue a letter summarizing the findings. As of the date of the publication of this report, a letter from National Grid has not been received.

To the south of the school athletic fields the grade rises up to the municipal property where basketball courts and a skateboard park exist within a fenced area, and the town buildings sit to the south including the Grafton Memorial Municipal Center which includes the town offices and a senior center, and a separate building that houses the school district offices and a preschool. The town hall building was originally constructed as the Junior High School, and the PA building was constructed as the Practical Arts building to accompany the Junior High School. These buildings were constructed circa 1957 according to Assessor's records.

In general, the municipal buildings are not included in the current environmental site assessment, except that buildings that may be impacted by the planned site redevelopment were assessed by ADS. These buildings include the PA Building and the Old Police Station (now occupied by the Massachusetts Chiefs of Police Association) and associated underground storage tanks. The Old Police Station building is located to the southeast of the school parking lot and southern access drive, and the underground gasoline tank is located to the northeast of this building.

Fill pipes/manholes and vent pipes were visible for underground storage tanks observed to the northeast of the PA building, and west of the municipal building. Minor oil staining from routine filling of the tanks was noted on the ground near these fixtures, however surficial evidence of a significant release was not observed.

### **2.1.2 Building Interiors**

#### **School Building**

The school building was originally constructed as three separate buildings: Building A which contains primarily classrooms; Building B which contains the auditorium and gymnasium; and, building C which contains the woodshop and the cafeteria.

The boiler room was observed by ADS. Fuel oil from the underground storage tank is used for fuel to heat the building. The boiler room contained a floor drain near hot water pipes that reportedly connects to the sewer. Boiler blow-down is also released to a drain that is connected to the municipal sewer. Indications of incidental staining of oil were noted but surficial indications of a significant spill were not noted.

ADS observed the wood shop where polyurethane, stains, and paints were stored on shelves in a metal cabinet. Floor drains were not observed in the wood shop room. Air filter bags to collect sawdust were noted in the room. These are reportedly emptied to the dumpsters for disposal. Storage rooms adjacent to the wood shop contained paints, stains, saws, sanders, wood glue, wire, and miscellaneous tools. A storage room also contained a helium and propane tanks. ADS requested Material Safety Data Sheets for the cleaning and other chemicals used in the building, but they could not be located at the time of the site reconnaissance.

The custodial room adjacent to the wood shop contained cleaning products including floor finishers, stainless steel cleaners. Floor drains were not observed in this room. Maintenance closets throughout the school building were viewed by ADS. Most contained a slop sink or containment basin on the floor with a floor drain. The drains reportedly connect to the municipal sewer system. The maintenance rooms stored varying cleaning and disinfecting products stored in labeled bottles on shelves.

The chemistry classroom contained a separate storage room where chemicals are stored. Various solutions were noted stored on shelves. Corrosives and Flammables were stored separately in labeled metal cabinets. Drains from the chemistry classroom/lab flow to a neutralizing chip tank before being pumped to the municipal sewer. Mr. LeMay stated that Clean Harbors had replaced the chips in the chip tank last year.

Hazardous building material assessments for materials such as asbestos, lead based paint and others are not part of ADS' scope of work. Potentially asbestos containing 9"x9" vinyl floor tile were observed in the building by ADS; Mr. LeMay stated that those were the only asbestos containing materials in the building that he could recall.

#### **Maintenance Shed:**

The concrete block maintenance shed was toured by ADS. The floor of the shed was concrete. Stains were noted by ADS on the concrete due to the routine use of oil and other products. Significant cracks in the concrete were not observed by ADS.

Oil changes are reportedly conducted in this building. Mr. LeMay recalled that a small quantity of oil spilled in the shed in the past, and entered a floor drain in the shed. The floor drain has since been filled with grout; the quantity of oil that spilled was not known. The outlet of the former floor drain was not known, but it is believed to be a drywell according to Mr. LeMay. ADS did not find a report of this small quantity oil spill during the file review at the town offices and DEP

The sink in the maintenance shed also appeared to drain to an open pit directly below it, which is essentially a drywell. Standing water was observed in the hole beneath the sink; there was no indication of an oil sheen on this water at the time of ADS' site visit.

At the time of the site visit, the shed stored ride-on tractors, acetylene and oxygen compressed gas tanks, oil in quart sized containers, batteries, old paint, carburetor cleaner, paint thinner, air compressors, and other equipment and materials commonly used in a garage. In addition, an old self contained Safety-Kleen® solvent parts washer system was noted in the rear of the garage, but it is not used any longer according to Mr. LeMay. This was evident by the tools piled on top of it.

Adjacent to the maintenance shed to the west is a small room with a concrete floor, which houses an above ground #2 fuel oil tank used to heat the maintenance shed. Cracks were not observed on the floor of this room. Also stored were roughly twenty 5-gallon pails, many of which were filled to varying degrees with waste oil from oil changes conducted on the grounds keeping equipment. Some of the buckets did not have lids. According to Mr. LeMay, the buckets of waste oil are transported periodically to a storage tank at the Grafton Sewer Department. The room around the oil tank was constructed approximately 5 to 6 years ago according to Mr. LeMay; prior to that, the fuel oil tank was outside.

### **PA Building**

This building is not part of the school grounds but was toured as it may be demolished during future site redevelopment. This building is a 1-story concrete block and brick building occupied by a pre-kindergarten school and offices for the school district. The boiler room is in the eastern side of the building and is accessed from an exterior door. Problems with the heating system were reported by Mr. LeMay, and a 5 gallon bucket which had been used in the past for a fuel supply while the system was being repaired was noted on the floor. An underground fuel oil tank exists to the northeast of the PA building, and it reportedly has been having problems including taking on water due to an accident when a plow hit the vent pipe that sticks up from the ground nearby. Mr. LeMay states that he had called Clean Harbors to pump out the water when significant amounts accumulated at the bottom of the tank. Mr. LeMay did not recall having to pump the tank over the past year.

Also in the boiler room were containers of cleaning agent packets stored on shelves, as well as some other maintenance items. A maintenance closet inside the building also contains cleaners, water based paint, and floor cleaner.

### **Old Police Building**

This building is not part of the subject school grounds but was toured by ADS as it may be demolished during future site redevelopment. This structure is a single story concrete block building, and is being operated by the Massachusetts Chiefs of Police Association.

Oils and/or hazardous materials were not observed by ADS during a reconnaissance of the building interiors. The building is heated by a natural gas fired furnace in the mezzanine of the building.

Outside of this building to the north is a gasoline fuel pump and fill ports for an adjacent underground gasoline storage tank. According to the former Fire Chief, Mr. Philip Gauthier, this tank is a fiberglass tank, although it is noted to be a steel tank in the Fire Department records. This tank is discussed further in Section 3.0 of this report.

## **2.2 Abutters**

The following properties abut the subject property:

- To the north is Lake Ripple;
- To the south is a playground (“Super Park”), and municipal property occupied by the Grafton Town Offices, The Police Station, and School Department, beyond which is Brigham Hill Road and residential properties;
- To the west is Lake Ripple, beyond which are primarily residential properties; and,
- To the east is Lake Ripple and Providence Road, beyond which is an historic graveyard, and residential properties.

## **2.3 Hydrologic Setting**

A review of a Grafton, Massachusetts topographic map published by the United States Geological Survey (USGS) shows the subject property to be situated adjacent to Lake Ripple which abuts the school property to the north and east. The southerly flowing Quinsigamond River flows into and out of Lake Ripple. Axtell Brook also feeds Lake Ripple at its northeast side. The property is in the Blackstone drainage basin.

The subject property is situated in a generally level topographic area that rises up to roughly elevation 340 (Lake Ripple is noted to be at elevation 304). Brigham Hill rises to roughly elevation 570 to the west of Lake Ripple, and Pigeon Hill rises to roughly elevation 640 to the east of Lake Ripple.

In general, groundwater is expected to flow in a southerly direction in region, although locally it may flow toward Lake Ripple to the north, east, or west. It should be noted that seasonal fluctuations in the groundwater level and flow directions may occur due to variations in precipitation, temperature, other environmental conditions, or due to subterranean structures or geologic conditions. A groundwater table elevation survey to

determine groundwater flow direction was not conducted as part of the scope of work herein.

According to the Massachusetts DEP Bureau of Waste Site Cleanup Site Scoring Map dated October 19, 2009 (copy attached in the Figures section), the western portion of the subject property is located within an approved Zone II of a public water supply (groundwater well 2110000-0CG). The eastern portion of the subject property is noted as a FEMA 100-year floodplain, however the Flood Insurance Rate Map dated September 30, 1992, Community Panel Numbers 250306 0001-0006 determined the subject property to be outside the 500 year floodplain. Land surrounding the Quinsigamond River north and south of Lake Ripple is zoned as a medium or high yield potentially productive aquifer.

### **3.0 SITE HISTORY**

As part of this assessment, the Town of Grafton municipal offices, including the Assessor's Office, Building Department, Planning Board, Sewer Commission, Board of Health, Town Clerk, Water and Sewer Departments, Conservation Commission, and Historical Society were contacted to review and update the ownership and environmental history of the subject property and surrounding area. ADS also visited the Grafton Fire Department to review information on underground storage tanks (USTs) located in the vicinity of the subject property. In addition, ADS reviewed the Massachusetts Department of Environmental Protection (DEP) list of sites in the vicinity of the subject property through DEP's online data viewer, and reviewed files at the DEP's Central Regional office on November 10, 2009. ADS also conducted an environmental computer database search to review state and federal agency databases. The information gathered on site history of property use and environmental history is provided below.

#### **3.1 History of Site Ownership and Use**

ADS visited the Grafton Assessor's Office to review the ownership history of the subject property which is found on Map No. 64, Lot 12, and the northernmost portion of the property is shown on Map No. 55. The entire municipal parcel is shown as Lot 12, comprising 46.5 acres. The focus of this environmental site assessment was the high school property located in the central and northern region of the municipal lot.

The parcel listing at the Assessor's Office notes that the school was built in 1964. ADS reviewed a deed transferring the entire parcel (noted as 44.2 acres on the plan) from Mr. Jacob S. Cibrowski to the Town of Grafton on December 15, 1949, Book 164, Plan 15. The property had been conveyed to Mr. Cibrowski from Mr. A.J. Antoun on April 1, 1946. According to discussions with the Town Historian Ms. Linda Casey, the subject property was undeveloped prior to the municipal buildings, and was used extensively for

recreational purposes such as horse shows, and may have been used as an airport. She also stated that it was likely farmland in the past as was much of that area of town.

The Board of the Sewer Commission has a record of the high school connecting to municipal sewer in 1979 (that is when it was installed in the street). Prior to that date, the school had an on-site septic system. The Town Engineering office and Department of Public Works did not have plans of the school building or other historical information, but referred ADS to the school district office in the PA Building.

ADS reviewed six aerial photographs of the subject property dated 1938, 1952, 1970, 1985, 1995, and 2006. The aerial photos were provided by Environmental FirstSearch Technology and are included in Appendix B.

### **1938**

The photo dated 1938 shows that the subject property was grassed and undeveloped. A reworked area is shown adjacent to Providence Road. Details of this reworked area without vegetation are hard to discern in the photograph. Residential properties appear to exist along Providence Road and Brigham Hill Road. Surrounding properties appear to be residential and farmland.

### **1952**

In the 1952 photo the primary municipal building is present, although the PA annex is not shown. Portions of the subject property appear to be reworked, and dirt access roads are visible. Activity in the reworked area adjacent to Providence road that was visible in the 1938 photograph seem to have ceased, and the area appears vegetated. Surrounding properties appear to be residential and farmland.

### **1970**

The 1970 photo shows the municipal building, the PA Building, and the new High School building. Playing fields are visible as well. Surrounding properties are more developed than in prior photos, with more residential properties and less farmland.

### **1985, 1995, 2006**

The 1985 and 1995 photos appear similar and show the old police building. The 2006 photo shows the new police station constructed on the municipal property.

ADS also requested historic topographic maps of the area. Maps dated 1900, 1908, 1944, 1953 and 1969 revised to 1979 were provided by FirstSearch (copies provided in

Appendix B). In addition ADS reviewed historic maps in the Historic Society dating 1855 and 1887. On the maps dating into the early 1900s Lake Ripple was named Goddard Pond, and the subject property was reportedly owned by Charles Goddard (the subject property was referred to as Goddard Field according to Ms. Casey). The Lake appeared to be smaller and had a different shape on the earlier maps. Reportedly, a dam was constructed for the Hickey Leather factory located southeast of the subject property, at the southerly point of Lake Ripple where it flows into Quinsigamond River. Operations at Hickey Leather involved tanning leather and manufacturing shoes. Hickey Leather was located downgradient and across the river from the subject property, so process wastes are not expected to have migrated to the subject property. The property is reported to be currently operated by a company that makes steel doors. The Hickey Leather property is not a listed release site with the DEP.

Historic topographic maps dated 1890 and 1908 were similar, showing the subject property unoccupied, and Lake Ripple has its smaller configuration, and it is referred to as Goddard Pond (this may be prior to the dam created at the lake's southern end). The building at the former Hickey Leather facility exists on these maps. The 1944 map shows the lake roughly in its current configuration, and the property is unoccupied except for a residence along Providence Road, and residences along Brigham Hill Road. The 1953 map shows the original junior high school building (now the Municipal Center), and on the 1979 map there is also the PA Building, the original police station building, and the High School building.

### **3.2 Environmental History**

ADS contacted the Clerk's office regarding files of storage of flammables, oils or hazardous materials, and was directed to the Fire Department for that information. ADS also contacted the Conservation Commission agent who stated that there was no specific information on the property, but that portions of the property lie within the 100 foot wetland buffer zone and the 200 foot riverfront protection area.

ADS contacted Mr. Matthew Pearson of the Grafton Water District Commission. Mr. Pearson stated that the water supply well located adjacent to Lake Ripple in the northwestern region of the subject property was installed for use as irrigation at the school. However there are currently plans to use this well as a public municipal water supply for the town. It is a gravel pack well, and the water quality is reportedly very good.

ADS reviewed files for the high school and nearby municipal properties at the Board of Health. The files for the school contained asbestos abatement notifications, and some complaints of odors in the building. Asbestos notification forms were also found in the file for the old police station building, 26 Providence Road. The Municipal Center building, 30 Providence Road, had files regarding assessments for mold, and documents related to a release of heating oil in the boiler room, that reached a floor drain that went to the municipal sewer system. Additional information regarding this release is provided

in the Fire Department discussion later in this section, and in the DEP File Review section (Section 3.4), however the release did not appear to have affected the environment at the municipal building; efforts to address the release at the wastewater treatment plan were on file.

Also there was a file at the Board of Health for a release of heating oil to a drain behind the PA Building, adjacent to the ball field. The drain reportedly originates at a catch basin in the municipal building parking lot. It appeared that the fill pit for the tanks at the municipal building was overfilled in the morning of July 29, 1991. It was theorized that an oil delivery truck was sent there by accident, and the tanks were full, so the driver let the excess oil in his line drain to the pit and catch basin. The spill amount appeared to be less than five gallons. The town cleaned up the contaminated soil at the discharge area, and stored the soil at the highway garage. DEP was notified, and authorized the off-site recycling of this soil once it was tested, however it appears that the soil was never tested or disposed of. Files for this release were not found at the DEP, however due to the small magnitude of the release, it is not anticipated to be a concern.

ADS visited the Grafton Fire Department who provided records on addresses 24, 26 and 30 Providence Road (the High School, Police Station, and Municipal Building/PA Building, respectively). Fire Department records show that the High School building had an underground 10,000 gallon fuel oil tank installed in 1964 (when the school was constructed). This tank was removed in 1994 when an addition to the building was constructed that would be in close proximity to the tank. A new 10,000 gallon tank was installed further west, which is a double walled fiberglass tank with an automatic tank gauging system, spill containment, and overfill prevention. Files reviewed by ADS did not indicate that a release of oil had occurred from the original tank at the time of its removal. The removed tank was disposed of at John C. Tombarello & Sons, Inc. in Lawrence, Massachusetts in August 1994. Tightness testing of the new tank was conducted in 1995, and the tank and lines were considered "tight".

The old police station building has registration for two underground storage tanks (USTs), one 1,000 gallon gasoline tank installed in 1976, and a 6,000 gallon gasoline tank also installed in 1976. The tanks were located parallel to each other to the east of the fuel pump. The 1,000 gallon tank was reportedly removed in 1993. Both tanks had passed a tightness test in 1991, and the 6,000 gallon tank was tightness tested in 1998 and passed. Fire Department records suggest that the remaining 6,000 gallon tank is a single walled unlined steel tank, however ADS was informed by the former Fire Chief Philip Gauthier (now retired), that the tank is fiberglass. The tank reportedly has overfill prevention, spill containment, and is reportedly gauged manually on a daily basis with reconciliation of records on a monthly basis. In July 2007, the State Department of Fire Services conducted an audit, and noted approximately nine violations including the need for a permit from the Grafton Fire Department, the need for daily inventory and monthly record reconciliation, an in tank monitor that is certified annually, verification that the overfill prevention is present and working, and other items. When the Fire Services returned to conduct a follow-up inspection, in August 2007, the violations had been corrected.

The Municipal Building at 26 Providence Road has record of two 10,000 gallon fuel oil USTs to heat the building, and the adjacent PA building has record of a 5,000 gallon fuel oil UST. The municipal building tanks were noted as installed in 1958, and the permit notes that the tanks have spill containment buckets, and overfill protection. The PA building tank was installed in 1958, and has overfill protection and spill containment according to the permit. The tanks were reportedly tightness tested in 1988, and leaks were detected in the manway flanges at the tops of the Municipal building tanks, and in a pipe of the PA building tank. The tanks were reportedly repaired, and DEP (then DEQE) was notified of the releases, which they considered a “minor incident” and no further action was required. Three 55-gallon drums of oil contaminated soil from exposing the top of the PA building tank were generated; the disposition of this soil was not found in the files.

As discussed above in the Board of Health information summary, documentation of a release of fuel oil to the floor of the boiler room in the municipal building was found in the Fire Department files. On May 8, 2005, the Grafton Fire Department notified the DEP of a sudden release of approximately 300 gallons of oil. The oil entered a floor drain, and traveled to the municipal sewer treatment plant. Clean Harbors was called to respond to the spill and conducted IRA Response Actions including deployment of absorbent materials to the floor of the boiler room, cleanup of the boiler room, vacuum and dispose of free product, and maintain booms in the wastewater treatment plant outfall, and monitor microbial activity at the treatment plant. DEP later issued an Administrative Consent Order, effective October 18, 2005, with penalty (ACOP-CE-05-1N007), with requirements for response actions within 30 days at the wastewater treatment plan, and preparation of a Spill Containment Control and Countermeasure Plan (SCCC Plan), and emergency notification plan, among other items. Additional information was found for this release at the DEP, however an impact to the environment (subsurface soil or groundwater) was not found. This release is summarized in the DEP File Review section of this report, Section 3.4.

The Grafton Fire Department also provided ADS with an Underground Storage Tank Compliance Audit dated April 29, 2008 conducted by Parker Environmental Corporation. This document summarized the findings of their audit of all the municipal tanks. Findings relative to the tanks discussed herein were that the steel tanks at the Police Station (although this tank was reported by the retired Fire Chief to now be fiberglass), PA Building and Municipal Building all should have cathodic protection installed to inhibit corrosion. Other items were out of compliance for some of the tanks including painting of fill covers, vent pipes that should be raised to a minimum of 12 feet above the ground surface, and other items.

As mentioned earlier in this report, ADS viewed The Natural Heritage and Endangered Species Program (NHESP) program’s 2008 map obtained through MassGIS. The map designates the southwestern leg of Lake Ripple and the area to the south surrounding the Quinsigamond River as a Massachusetts Priority Habitat of a Rare Species. This includes the western portion of the school grounds and football field/track area.

### **3.3 Computer Database Search**

ADS utilized the Environmental FirstSearch database offered through the DataMap Technology Corporation to search information published by state and federal agencies. In total, twenty databases were searched. A copy of the FirstSearch Report is attached as Appendix C.

In addition, ADS requested Fire Insurance Maps, aerial photographs, and historical topographic maps, for the search area. FirstSearch informed ADS that Fire Insurance Maps were not available. Aerial photographs (1938, 1952, 1970, 1995 and 2006) and historical topographic maps (1890, 1908, 1900, 1944, 1953, and 1969 revised to 1979) were provided by FirstSearch and are discussed in Section 3.1 and attached in Appendix B.

In summary, the database information for the subject High School includes one 10,000 gallon underground fuel oil tank currently in use, and a former 10,000 gallon tank was removed during building renovations circa 1994. The database search also noted the presence of an unconfirmed, inactive solid waste landfill in the eastern region of the subject property (see the map on page 65 of the database in Appendix C). In addition, consistent with records at the Fire Department, adjacent properties including the Grafton Police Department at 26 Providence Road and the Municipal Center and PA Building at 30 Providence Road (the school administration building) contain underground gasoline and fuel oil storage tanks, respectively. This and other information is summarized below.

The Environmental Protection Agency (EPA) National Priorities List (NPL) of the nation's confirmed or proposed Superfund sites was searched for a one-mile radius around the subject property. According to the FirstSearch Report, there are no NPL sites within one mile of the subject property.

The Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) list of known or suspected hazardous waste sites was searched within ½ mile of the subject property. No active CERCLIS sites were identified by the database search.

The Resource Conservation and Recovery Information System (RCRIS) was searched for information on corrective and non-corrective actions taken at facilities that treat, store or dispose of EPA regulated waste. The RCRIS database did not identify RCRA Generators within one-quarter mile of the subject property, nor did it identify Treatment, Storage or Disposal facilities within ½ mile, nor RCRA Corrective Action sites within one mile of the property.

The database search identified five State Site within ½ mile of the subject property, and an additional six Sites within a mile of the subject property. The five release sites within ½ mile included: the Massachusetts Police Barracks at 44 Worcester Road; XTRA Mart at 87 Worcester Street; North Grafton Mobil at 90 Worcester Street; a residence at 10 Bernard Street; and, the Charter Station at 94 Worcester Street. In addition, a former

Shell Gasoline Station at 72 Worcester Street was a listed release Site. These release sites are summarized in the DEP File Review section of this report, Section 3.4, and in attached Appendix B. These releases are located 1,000 feet to 2,000 feet east to northwest of the subject property. Based on the response actions conducted at these sites and the findings of published reports for these release sites, and based on their distance from the subject property and local hydrogeology, these documented releases are not anticipated to affect the subject property.

The FirstSearch database was utilized to search for properties located within a ¼ mile radius of the subject property with past or current underground storage tanks (USTs) and within ½ mile with Leaking Underground Storage Tanks (LUST). One LUST location was identified within ¼ mile of the subject property, and four LUST sites were identified within ½ mile of the subject property. The leaking tank within ¼ mile was from the former Shell Station at 72 Worcester Street, which has DEP Release Tracking Number (RTN) 2-0226. The database and files at the DEP state that a release of gasoline from an underground storage tank was discovered in 1989, and the tank was removed in 1992. Response actions were conducted, and a Class A-2 Response Action Outcome (RAO) Submittal to close out this site with a Permanent Solution was filed in 1998. This release is located roughly 800 feet northeast of the subject property, and as discussed further in Appendix B, is not expected to affect the subject property. The other LUST sites within ½ mile of the subject property are gasoline stations that became State Sites discussed above, where response actions have been and/or are being conducted, and they are not anticipated to significantly affect the subject property.

In addition, four properties within ¼ mile of the High School were noted to contain registered or removed USTs, including: Grafton High School (Subject Property); the Grafton Police Department (now the Massachusetts Chiefs of Police Association at 26 Providence Road; the Municipal Center/PA Building at 30 Providence Road; and the former Shell Station at 72 Worcester Street. Two tanks were noted for the High School: a 10,000 gallon fuel oil tank that is “permanently out of use” (it was removed), and a 10,000 gallon double walled tank that is currently in use. No releases have been recorded in association with the tanks at the municipal property; the Shell Station at 72 Worcester Street is a listed release site and discussed in the DEP File Review section of this report.

The Grafton Police Department (now the Massachusetts Chiefs of Police Association) has a 6,000 gallon tank that is noted to be reinforced steel, single walled gasoline tank, although the former Fire Chief, Mr. Philip Gauthier reported that the tank is, in fact, fiberglass, and a second tank that was a 1,000 gallon gasoline tank was removed in the past. The Municipal Center has three underground fuel oil tanks all listed as currently in use – two 10,000 gallon fuel oil tanks (adjacent to the Municipal Building), and one 5,000 gallon tank (adjacent to the PA Building). These tanks are not documented to have leaked.

The Shell Service Station is listed as having four removed tanks including three 12,000 gallon gasoline tanks, and one 550 gallon waste oil tank. No tanks were noted as currently registered for this property which is no longer used as a service station. This property is discussed further in the DEP File Review section, 3.4.

The FirstSearch summary report notes an area in the eastern region of the subject property that is an unconfirmed inactive Solid Waste Landfill. DEP representatives in the Central Regional Office of DEP and Mr. Brian Holderidge in DEP's Boston Office could not find any information on this landfill. Ms. Linda Casey, a long time Grafton Resident and member of the historical society did not recall a landfill or dumping at this property, although some representatives of the Building Department recalled some dumping, but could not recall specifically what was dumped there. Test borings were conducted by ADS in the vicinity of where the landfill was noted to be, and no indications of anthropogenic debris were noted in the soils as discussed in Section 4.0 of this report. Federal Engineering and Institutional Controls (Federal IC/EC) database, including Superfund sites that have either an engineering or an institutional control were searched. There were no listings within a one half mile radius.

The Emergency Response Notification System (ERNS) database was searched for emergency actions conducted by the EPA. No ERNS sites were identified during this search.

The computer database search also provided information on hazardous material spills that occurred in the 1990s within 1/8 mile of the subject site. No sites were listed.

ADS reviewed readily available information in the vicinity of the subject property at the DEP and on the DEP online database. Based on the readily available information at the DEP, the sites reviewed by ADS are not anticipated to affect the subject property. This is discussed below.

### **3.4 DEP File Review**

On November 10, 2009, ADS visited the Central Regional office of DEP in Worcester, Massachusetts to review files on releases of oil or hazardous materials in the vicinity of the subject property. ADS did not review information which indicated that a release of oil and/or hazardous materials has occurred at the subject property.

Files for three release sites were available for review at the DEP. These included: the release to the floor drain of the boiler room at the Grafton Municipal Center; the Lake Ripple Xtramart gasoline station, at 87 Worcester Street; and, the former Shell Station at 72 Worcester Street. These releases are discussed briefly below, and are not anticipated to affect the subject High School property based on response actions conducted at these sites, distances from the subject property, and other factors.

The file for the Massachusetts State Police Barracks at 44 Worcester Street, Release Tracking Number 2-11953, was not available at the DEP for review at the time of ADS' file review. Given the distance from this property to the subject property (the release site is approximately 1,000 feet east), and the findings from subsurface explorations by ADS on the subject property, this release site is not anticipated to significantly affect the subject property. Furthermore, the 44 Worcester Street release was closed out with a Permanent Solution, therefore it was deemed to not present a significant risk to human health, welfare, or the environment.

**30 Providence Road (Municipal Building)****Grafton, MA****Release Tracking Number 2-15740**

On May 8, 2005, a release of an estimated 300 gallons for fuel oil was discovered in the boiler room of the municipal building. The release impacted the concrete floor of the boiler room, and the oil also flowed into a floor drain that discharges to a sump in the basement, which pumps to the Town of Grafton Wastewater Treatment Facility (the Town Sewer system). The WWTF is located approximately 2.5 miles from the municipal building. Absorbent pads and Speedi-Dri and citric based degreaser were used to clean the boiler room floor. The floor drain and sump were vacuumed out and power washed. The sump was found to be solid. A significant release to the environment at the municipal building was not found, however a light sheen of petroleum was found at the outfall of the WWTF where it discharges to the Blackstone River. Absorbent boom and pads were deployed in the river at the outfall. Subsequent to the remedial actions, no oil sheen was reported at the outfall. A Risk Characterization was conducted, and the release was found to have been adequately addressed through the response actions. A Class A-1 Response Action Outcome (RAO), prepared by Clean Harbors, not dated, was filed for the release site, since a Permanent Solution had been achieved, and conditions were deemed to have been returned to background conditions.

Based on response actions conducted, this release is not anticipated to affect the subject High School property.

**Former Shell Services Station****72 Worcester Street****DEP RTN 2-0226**

ADS reviewed a Class A-2 Response Action Outcome (RAO) Statement for this release site dated October 1997 prepared by Handex of New England. The report summarized groundwater quality data collected over time, and response actions conducted at the site including removal of underground storage tanks, removal of contaminated soil, and additional assessment activities. Gasoline constituents had been identified in soil and groundwater at the site. It was determined by Handex that the site was not located within

a Zone II water supply area, and a risk assessment was conducted that demonstrated that the site did not pose a risk to human health, public safety or the environment.

Based on residual concentrations of gasoline described in the report, the distance from the subject property to this release site, and the presence of the Lake Ripple and the Quinsigamond River in between the subject property and the former Shell Station, this site is not anticipated to significantly affect the subject property. The underground tanks have been removed from this property, and it is no longer used as a service station. This release site is located approximately 1,000 feet to the northeast of the subject property.

**Lake Ripple Xtramart  
87 Worcester Road  
DEP RTN 2-0759**

ADS reviewed a Class C Response Action Outcome submittal (a Temporary Solution) for this release site dated March 31, 2006. As a result of gasoline contamination in soil and groundwater at the release site, remedial response actions have been taken at the site including free product removal, a groundwater extraction and treatment system, removal of contaminated soils, and later bioremediation. Based on data presented in a Post Class C RAO status report dated February 19, 2008, the site data are approaching the cleanup standards for this site but have not yet achieved a Permanent Solution; the site was determined to be within a Potentially Productive Medium Yield Aquifer and therefore must meet GW-1 groundwater standards in order to achieve a Permanent Solution.

Based on remedial response activities conducted and residual concentrations of contamination at the site, this site is not anticipated to affect the subject property. This site is situated approximately 1,800 feet north of the subject property.

#### **4.0 SUBSURFACE INVESTIGATION AND CHEMICAL TESTING**

A Subsurface exploration program consisting of three days of test borings was conducted from November 2 through November 4, 2009 at the subject property. The first day of test borings was conducted within the proposed new school building footprint primarily for geotechnical engineering design purposes. The subsequent two days were completed within specific areas of concern identified by ADS during the environmental site history research.

Five test borings (MGA-1 through MGA-5) were conducted within the new building footprint. Four borings (ADS-1 through ADS-4) were conducted within the area of the maintenance shed including: outside the vehicle entrance bay (ADS-1); further east where a proposed infiltration basin is located and near where reports of odd smelling soil were reported (ADS-2); near the above ground fuel oil storage tank's fill pipe and near the waste oil storage shed (ADS-3); and, north of the shed, potentially downgradient from the activities within the shed (ADS-4). Monitoring wells were installed in borings ADS-1 and ADS-4. Test boring logs are attached in Appendix E.

Two test borings, both completed as monitoring wells, were conducted adjacent to the 5,000 gallon underground fuel oil storage tank located northeast of the PA Building. This tank will likely be removed as part of the site redevelopment. ADS-5 was conducted east of the tank, and ADS-6 was completed west of the tank.

Five test borings were completed in the northeastern region of the property in an effort to assess an area where the computer database search identified a potential solid waste landfill. ADS-7, ADS-8, and ADS-13 were completed in the existing paved parking lot, and ADS-9 and ADS-10 were completed in the grassed area to the east.

Two borings were conducted adjacent to the underground gasoline storage tank northeast of the old police station, now occupied by the Massachusetts Chiefs of Police Association. ADS-11 was completed as a monitoring well and is located east of the tank, and ADS-12 was conducted north of the tank.

#### **4.1 Subsurface Conditions**

Subsurface conditions generally consisted of sand and gravel, grading down to sand encountered at between 5 to 20 feet deep, and then silty fine sand below 13 to 20 feet. In general, very little fill (less than a foot to a few feet) was encountered at the property, except in explorations around the underground storage tanks.

In the upper portions of the site, groundwater was encountered between 20 to 24 feet. Near the Massachusetts Chiefs of Police Association building located in the eastern, lower region of the property, groundwater was encountered at approximately 12.5 feet below ground surface.

#### **4.2 Preliminary Field Screening**

Soil samples from the test borings and test pits were screened in the field for VOCs using a Perkin Elmer Photovac 2020 Photo-Ionization Air Monitor (PID), equipped with a 10.6 eV lamp. The PID was calibrated with a benzene equivalent prior to screening the samples. Field screening results from the samples that were screened by ADS all exhibited readings of 0.0 which is not indicative of significant VOCs in the samples. The PID field screening data are included on the test boring logs attached in Appendix D.

#### **4.3 Analytical Testing**

Analytical testing was conducted on soil samples from the subject property to provide general site soils characterization for construction, and to assess specific areas of potential environmental concern. Analytical laboratory reports are attached in Appendix E. The analytical testing program is summarized as follows:

A composite of topsoil from within the proposed new building area was submitted for off-site disposal characterization testing (0-1 Comp);

A composite of the soils from 1 to 4 feet within the proposed new building area was submitted for off-site disposal characterization testing (1-4 Comp);

Samples from around the maintenance shed that were submitted for analytical testing included:

ADS-1,S-1, from 0 to 2 feet, soil from the bottom of the entrance bay ramp leading into the shed, analyzed for Extractable Petroleum Hydrocarbons (EPH) fractions and target PAH analytes;

ADS-2 Comp, a composite sample from 0 to 7 feet in the proposed infiltration basin area, analyzed for EPH fractions and target PAH analytes;

ADS-3,S-1, a sample from 0 to 2 feet adjacent to the fill port for the above ground storage tank, and adjacent to the waste oil storage shed, analyzed for EPH fractions and target PAH analytes;

ADS-4,S-6, from the interface of the saturated soils/groundwater table, downgradient from the maintenance shed operations, analyzed for Volatile Organic Compounds (VOCs), and EPH fractions and target PAH analytes;

Samples from near the UST at the PA Building that were analyzed included:

ADS-5,S-7 and ADS-6,S-7, located adjacent to the PA building underground storage tank, collected at the interface of the saturated soils/groundwater table, at roughly 25 to 27 feet below the ground surface.

Also, six additional soil samples to assess background arsenic data were submitted for arsenic analysis including:

ADS-2,S-2; ADS-6,S-3; ADS-12,S-2; ADS- 13,S-2; MGA-3,S-2; and, MGA-5,S-1A. These were collected from typically 2 to 4 feet below ground surface (ADS-6,S-3 was collected from 5 to 7 feet, and MGA-3,S-2 was from 2 to 3.5 feet);

Analytical test results from the above testing program were primarily below the laboratory detection limits. The results did not identify concentrations of contaminants above Reportable Concentrations of the MCP with the exception of naturally occurring arsenic in the grey-brown sand and gravel soils at the site collected from below one foot below the ground surface. Attached Table 1 presents a summary of the collected arsenic data at the property. The data are quite consistent, and most of the data are below the MCP Reportable Concentration and Method 1 Risk Based Standard for arsenic, both of which are 20 mg/Kg for soil category S-1 (residential and school properties). The

arithmetic average of the arsenic data is 16.9 mg/Kg, and the arithmetic average of the data from within the proposed new school building area is 18.8 mg/Kg. It should be noted, however, that the presence of arsenic that is attributed to naturally occurring geologic conditions is exempt from requiring reporting to the Massachusetts DEP. In accordance with 310 CMR 40.0317(22), the presence of naturally occurring arsenic does not require reporting as summarized below.

The presence of arsenic in an area that is documented by the U.S. Geological Survey or in other scientific literature as an area of elevated arsenic measured in soil or groundwater that

- (a) is consistently present in the environment at and in the vicinity of the sampling location;
- (b) is solely attributable to natural geologic or ecologic conditions; and
- (c) has not been mobilized or transferred to another environmental medium or increased in concentration in an environmental medium as a result of anthropogenic activities.

ADS believes that all of these conditions are met at the subject property. The soils that exhibited relatively higher arsenic concentrations at the property are natural, undisturbed, glacial till soils. Also, the existence of naturally occurring elevated arsenic levels has been well documented in soil and groundwater for Central Massachusetts, and Worcester County in particular. The environmental history of the property does not suggest that such consistent and widespread presence of arsenic would be related to anthropogenic activities.

With regard to the other laboratory data for the subject property, very low levels of some petroleum related compounds were identified in sample ADS-2,Comp, the composite sample from the proposed detention basin area west of the maintenance shed, and very low levels of C19-C36 aliphatic hydrocarbons were identified in sample ADS-3,S-1, collected from soil near the above ground oil tank fill port near the maintenance shed. These data are several orders of magnitude below their respective Reportable Concentrations as identified in the Massachusetts Contingency Plan (MCP), 310 CMR 40.1400, for the most conservative soil reporting category for school and residential properties, RCS-1.

## **6.0 CONCLUSIONS**

This report presents the results of an environmental site assessment of 24 Providence Road in Grafton, Massachusetts, which is occupied by Grafton Memorial High School. This report was prepared by ADS Environmental Engineering, LLC (ADS) in accordance with our proposal dated October 13, 2009, and the Limitations contained in Appendix A. The objective of this study is to render a professional opinion as to the potential presence of oil or hazardous material in the environment of the site with respect to Massachusetts General Laws, Chapter 21E and the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.

Studies conducted specifically for this site assessment included a site reconnaissance to visually assess conditions at the property, a review of readily available town and state regulatory agency files, and an environmental computer database search. A subsurface exploration program consisting of three days of test borings for geotechnical and environmental assessment purposes was also conducted and observed by ADS in order to view subsurface conditions and collect soil samples for preliminary screening and analytical laboratory testing.

In summary, several areas of potential concern were identified during ADS' tour of the maintenance shed. Subsurface sampling and analytical laboratory testing did not suggest that a significant release of oil or hazardous materials has occurred in these areas. However, several recommendations are made for the property as summarized below:

#### **A. Maintenance Shed Area**

The concrete block maintenance shed was toured by ADS. A floor drain that had received a small spill of oil in the past according to Mr. LeMay, had been filled with grout. The outlet of the floor drain was not known, but it is believed to be a drywell. The sink in the maintenance shed also appeared to drain to an open pit directly below it that is also a drywell. Standing water was observed in the hole beneath the sink; there was no indication of an oil sheen on this water at the time of ADS' site visit.

**RECOMMENDATION: The floor drain has been previously sealed, but the sink drain in the maintenance shed may be considered an unregistered injection point. A drywell in an automotive repair shop would not be permissible under the DEP's Underground Injection Control Program, particularly in light of the anticipated use of the water supply well adjacent to Lake Ripple as a municipal water supply. This water supply well is located approximately 650 feet west of the maintenance shed. The sink should be connected to the municipal sewer system, and the injection point should be closed out under the Underground Injection Control program of the DEP's Drinking Water Program.**

The shed stores miscellaneous oils, batteries, old paint, and an old self contained Safety Kleen solvent parts washer system that is no longer used.

**RECOMMENDATION: The miscellaneous spent liquids, oils, old batteries and chemicals that are not in use, and the Safety-Kleen® solvent parts washer, should be removed and properly disposed of by a licensed hazardous waste transporter. General housekeeping in and around the maintenance shed should be improved.**

Oil changes are reportedly conducted in this building. Adjacent to the maintenance shed was a small room with a concrete floor, which housed 5-gallon pails of waste oil from oil changes on school equipment. The waste oil is reportedly periodically transported to a storage tank at the Grafton Sewer Department.

**RECOMMENDATION:** The waste oil storage and disposal practices should be improved to reduce the potential for spills of used oil. Either the 5-gallon pails of oil should all be secured with a lid and labeled with their contents, or the oil can be collected in a larger container (55-gallon drum, tank or other container) that is labeled with its contents (waste oil), and the hazard associated with waste oil (toxic). If maintenance on school equipment and vehicles, and transport of waste oil is intended to continue, the facility should be registered as a Very Small Quantity Generator. Forms for doing so can be found on the Department of Environmental Protection website.

If the maintenance shed is removed as part of the property redevelopment, some quantity of oily or otherwise contaminated soils may be identified beneath the building, particularly in the area beneath the former floor drain and the current sink.

**RECOMMENDATION:** A budget to properly classify, manage, and dispose of contaminated soils beneath the maintenance building should be included as a contingency as part of the construction costs.

## **B. Underground Storage Tanks**

Some of the underground fuel oil storage tanks at the property are quite old, and are not fully in compliance. The tank for the PA Building, as well as the two tanks for the Municipal building (not part of the current study) are believed to have been installed circa 1958, which is well beyond the life expectancy for a steel tank in New England. These tanks reportedly do not have cathodic protection.

The tank to the northeast of the old Police Station building was noted to be the original steel tank from 1976, however ADS was informed by the former Fire Chief Philip Gauthier (now retired), that the tank is fiberglass.

**RECOMMENDATION:** Although assessment activities in the vicinity of the PA building tank and the old Police Station tank did not indicate the presence of contamination, it is recommended that a budget to manage some petroleum contaminated soils around and under the tanks should be included as a contingency as part of the construction costs. (The Municipal Building tanks were not assessed as part of this study, so the presence of contamination from them is not known).

## **C. Naturally Occurring Arsenic**

Some soil at the property, primarily natural, undisturbed sand and gravel soils, exhibited concentrations of arsenic slightly above the Reportable Concentrations of the MCP. The data are quite consistent, and most of the data are below the MCP Reportable Concentration and Method 1 Risk Based Standard for arsenic, both of which are 20

mg/Kg for soil category S-1 (residential and school properties). The arithmetic average of the arsenic data is 16.9 mg/Kg, and the arithmetic average of the data from within the proposed new school building area is 18.8 mg/Kg. It should be noted that the presence of arsenic that is attributed to naturally occurring geologic conditions is exempt from requiring reporting to the Massachusetts DEP. In accordance with 310 CMR 40.0317(22), the subject property is documented in literature to be in an area of naturally occurring arsenic, and the arsenic:

- (a) is consistently present in the environment at and in the vicinity of the sampling location;
- (b) is solely attributable to natural geologic or ecologic conditions; and
- (c) has not been mobilized or transferred to another environmental medium or increased in concentration in an environmental medium as a result of anthropogenic activities.

ADS believes that all of these conditions are met at the subject property (discussed further in Section 4.3 of this report), and conditions do not require reporting to the DEP.

**RECOMMENDATION: As a prudent measure, it is recommended that future areas of intensive use of the school grounds such as athletic playing fields, parks, playgrounds, etc. be covered with a buffer of clean topsoil, turf, or other ground covering in order to mitigate intensive direct contact with the soils below that may contain arsenic. ADS can provide further guidance on this barrier design for future site redevelopment.**

**In accordance with the anti-degradation provisions of the MCP, 310 CMR 40.0030, during construction, soil containing contaminants, even at low levels, cannot be delivered to another location where concentrations of contaminants are significantly lower. This soil does not require off-site disposal. However, if during construction this soil must be removed due to limited space, this soil should be reused at a location which exhibits similar concentrations of arsenic (much of Worcester County).**