NANGLE CONSULTING ASSOCIATES, INC

PERMANENT SOLUTION WITH NO CONDITIONS

269 Broadway and 2 Osgood Street
Methuen, Massachusetts
RTN 3-35427

Project No. 827.01
March 2019

Environmental Engineering and Land Use Planning

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1.0 INTRODUCTION

This report has been prepared by Nangle Consulting Associates, Inc. (NCA) on behalf of Abby Realty Trust to document the completion of assessment activities and a determination that a Permanent Solution with No Conditions (PSNC) has been achieved for a historic release of petroleum identified upon two (2) abutting parcels of land known as 269 Broadway and 2 Osgood Street (the "Project Site"), located in the City of Methuen, Massachusetts. The petroleum release condition that is the subject of this PSNC report involves the presence of gasoline residuals within subsurface soils and groundwater identified in central portions of the subject parcels, attributable to the historic use of the Project Site as a gasoline station. To assist in the review of the information presented within this submittal, a USGS Topographic Locus Map and a Sketch Plan of Site depicting the approximate boundaries of the site that is the subject of this report are provided as Figures 1 and 2, respectively.

This report also contains assessment information pertaining to background levels of several metals and Polynuclear Aromatic Hydrocarbons (PAHs) attributed to coal and ash that was identified in shallow soil at the Project Site that is exempt from notification pursuant to Section 40. 0317(9) of the Massachusetts Contingency Plan (MCP), as well as documentation pertaining to the successful completion of a Limited Removal Action (LRA) for a localized area of low levels of polychlorinated biphenyl's (PCBs) detected in shallow soil at one sampling location at a concentration above the applicable Reportable Concentration.

In September of 2018, NCA was engaged by Abby Realty Trust to conduct an environmental assessment of the Project Site. In general, the scope of work completed included a visual inspection of the subject property, a review of available land use history information, a review of available information pertaining to any documented releases of hazardous materials and/or oils within the study area, and an iterative sub-surface assessment program. NCA's visual inspection did not reveal any obvious indications of any releases of hazardous materials and/or oils on or in close proximity to the Project Site. The subject property is currently vacant with an approximate 3,000 square foot single story masonry structure located upon the 2 Osgood portion of the site.

A review of available site history information revealed that the property has been developed since at least the early 1880's. Early land uses included a multi-tenant (barber, parcel delivery, grocery) building that fronted on Broadway with several sheds located in eastern portions of the property. A Sanborn Fire Insurance Map from 1919 shows the property as vacant at that time, with subsequent maps from 1927 through 1962 depicting various land uses including a gasoline station and used auto sales in western portions of the parcel, and an electrical transformer house (power substation) in eastern portions. While the site building is currently vacant, the most recent use of the property was by a business known as New England Floor Covering/Abbey Granite.

Based upon the nature of historic land use activities, a subsurface assessment program was developed and subsequently implemented at the site. The iterative assessment program included the placement of eighteen (18) test borings, six (6) groundwater observation wells, one (1) soil gas probe and twelve (12) hand driven probes to facilitate the evaluation of soil and groundwater quality across the Project Site. The results of the subsurface assessment program revealed the following conditions, which are discussed in further detail within this report.

1) Background levels of metals and PAHs in shallow soils.

During test boring placement, various amounts of coal and ash were observed in the first 10 feet from surface grade at several locations. The presence of these materials is typical for a historically urban areas and is consistent with available records indicating that various prior structures had existed on the property dating back to the late 1880's.

The laboratory characterization of the shallow soils containing coal and ash at the Project Site revealed the presence of several metals and polynuclear aromatic hydrocarbons (PAH's) including benzo(a)pyrene and lead at concentrations at several locations that exceeded their applicable MDEP Reportable Concentration (RC) threshold values. However, as the PAH compound and lead concentrations detected were below the background values established by MDEP, it was concluded that pursuant to Section 40.0317 of the Massachusetts Contingency Plan (MCP) the following notification exemption would apply.

> *310 CMR40.0317 (9) releases of oil and/or hazardous material related to coal, coal ash, or wood ash, excluding wood ash resulting from the combustion of lumber or wood products that have been treated with chemical preservatives;*

Soil containing coal, coal ash, or wood ash is a prevalent condition within century old urban centers and MDEP has acknowledged that certain levels of PAHs and metals are present within this type of material as a consequence to past human activities as a background condition. Recognizing this, MDEP has established background levels for soil containing coal ash or wood ash. Pursuant to the MCP exclusion cited above, soil containing coal, coal ash, or wood ash is considered under the MCP to represent a background condition and as such notification is not required. This condition is likely prevalent throughout the general area of the Project Site.

While the presence of PAHs and metals identified in shallow soil are not a reportable condition as they are regarded as a background condition (not attributable to Historic Fill, as that term is defined within the MCP), it is recommended that best management practices for non-commercial gardening be implemented if that activity were to occur at the Project Site.

2) Low levels of PCBs in shallow soils at the rear of the on-site building.

A review of land use history records for the property revealed that the masonry building currently located in eastern portions of the Project Site was originally constructed for use as a transformer house. This building served as a location where high voltage power would be stepped down in transformers to a lower voltage for local usage. Given that dielectric fluids containing PCBs were likely present in transformers formerly located in the building, a series of shallow hand probes were placed within and around the building to facilitate the assessment of shallow soils for the presence of PCBs.

The results of site investigatory activities conducted at the site revealed PCBs in shallow soils located proximate to that portion of the site formerly utilized as a transformer house/yard at one (1) shallow soil location that exceeded the applicable regulatory threshold. The shallow soil PCB exceedance was removed under a Limited Removal Action (LRA) in January of 2019 which

generally involved the excavation and subsequent off-site disposal of approximately one 55-gallon drum of soils in and around the location of the RC exceedance and the sampling of boundary conditions. Based upon the results obtained from the analysis of samples collected at the boundary of the excavation, it is our professional opinion that the objectives of an LRA have been met and no notification or further assessment/response actions are required.

3) Gasoline residuals in soil/groundwater in area of former underground storage.

NCA's review of available site history information also revealed that western portions of the Project Site (269 Broadway) had been utilized as a gasoline station since at least the late 1940's up through the early to mid-1980's. According the site owner, all of the former underground storage tanks on the property were removed from the site in the mid 1980's by Zecco, Inc. To assess the potential for past releases of petroleum, an iterative assessment of soil and groundwater was completed that revealed indications of gasoline residuals in soil and groundwater within and downgradient of the area of former underground storage. The laboratory analysis of soils in the former underground storage tank area revealed levels of petroleum hydrocarbons at levels that exceeded the applicable MDEP Reportable Concentrations values. Accordingly, a Release Notification Form was filed by Abby Realty Trust with MDEP on 4 February 2019 and the release was subsequently assigned MDEP Release Tracking Number (RTN) 3-35427.

The comprehensive assessment of soil and groundwater at the site has revealed that relatively low levels of petroleum residuals are present in soil and groundwater in the area of former underground storage and in areas directly downgradient. Indications of petroleum residuals are present at a depth of approximately 10-27 feet from surface grade within the release area, the approximate boundaries of which are depicted on Figure 2. Utilizing the data and information obtained during assessment activities, a Method 3 Risk Characterization has been completed revealing that while petroleum residuals are present, they do not represent any Significant Risk to human health, public safety, welfare and the environment for both current and reasonably foreseeable land uses and activities. Further, it has been determined that while trace levels of petroleum residuals are present in soil, they are located below 3 feet from surface grade and it is therefore considered pursuant to MDEP guidance Policy #04-160 to be infeasible to conduct any additional response actions for degradable/non-persistent compounds.

Based upon the results obtained through the completion of assessment activities and the corresponding characterization of risk, as well as the determination that further response actions are not feasible, it is our professional opinion that the requirements of a Permanent Solution with No Conditions (PSNC) have been met. In accordance with the Public Participation requirements established within the MCP, the Chief Municipal Officer and Board of Health of the City of Methuen have been notified of the filing of the PSNC. Copies of correspondence to local officials may be referenced from Appendix A.

2.0 SITE DESCRIPTION AND CURRENT LAND USE ACTIVITIES

The Project Site for this Permanent Solution with No Conditions is identified as 269 Broadway and 2 Osgood Street in the City of Methuen, Massachusetts. According to the Methuen Assessors information, the Project Site is owned by Abby Realty Trust and consists of the following parcels of land:

Street Address	Parcel ID	Size (Acres)
269 Broadway	612-52-3	0.17268
2 Osgood Street	612-52-2	0.14789

As shown on Figure 2, the 2 Osgood Street parcel is improved with a single building, which was vacant during NCA's site visits and most recently occupied by a floor covering/granite business. The on-site building is a one (1) story 3,000± square foot concrete block structure that covers a majority of the 2 Osgood Street parcel, with land area to the north and west utilized for paved parking/access and narrow earthen areas to the south and east. The 269 Broadway portion of the Project Site is a vacant parcel, with surface cover consisting of a combination of earthen cover and broken asphalt. As discussed within Section 4.0, the 269 Broadway portion of the Project Site formerly contained underground gasoline storage since at least the late 1940's up through the early to mid-1980s. According the site owner, all of the former underground storage tanks on the property were removed from the site in the mid 1980's by Zecco, Inc. Utilities that service the 2 Osgood Street parcel include municipal water, sewer, natural gas and electric.

The Project Site is located in the central portions of the City of Methuen, within a mixed use commercial/residential area. As depicted on Figure 2, adjoining land uses include a lawyer's office (Anthony A. Copani) and associated parking area directly south of the Project Site, with the Methuen Public Schools Central Administration Building and playground located directly to the east of the 2 Osgood portion of the Project Site. Osgood Street and mixed use commercial/residential buildings are located to the north of the subject property, while Broadway (Route 28) and various commercial buildings are situated to the west of the subject property. While surface grades across the Project Site are relatively flat, grades rise significantly north of Osgood Street and decline to the south and west towards the Spickett River.

According to current MassGIS (Massachusetts Geographic Information System) information for the study area (Figure 3) and available local records, the Project Site is not located within an area that would be classified as a Current or Potential Drinking Water Resource Area. A review of the MDEP online Well Drilling database identified one (1) private well within 500 feet of the subject property. MDEP records identified this well as a "Domestic" well that was installed on 5/3/1969 at 290 Broadway "when Methuen was a Town, not a city" (*Methuen became a city in 1993*). 290 Broadway is located approximately 100 feet to the northwest and upgradient of the Project Site. Although total depth is listed unknown, MDEP records indicate it was a 6" diameter well drilled using air-rotary methods to a depth of 225 feet from surface grade. Granite was encountered at 10 feet from surface grade with granite from 17 to 225 feet. Given the nature of land use, it seemed unlikely that a potable water supply would exist at this location. NCA contacted the Methuen Board of Health (BOH) who indicated that they maintained records on all private water supply wells in the City, however, they had no record of a private well at 290 Broadway. The BOH also checked records for surrounding roadways within 500 feet of site, with no potable water supplies identified. The

Methuen Water Department was also contacted and they indicated that the property at 290 Broadway has a municipal water and sewer connection. To confirm the information obtained from the City, the owner of the 290 Broadway parcel (Mr. Arthur Broadhurst, Manager of BRIMART LLC), was contacted by NCA. Mr. Broadhurst indicated that the parcel did not have a private well and was in fact connected to city water. Based upon this information it was concluded that a private potable water supply does not exist at 290 Broadway.

A review of the MDEP Priority Resource Site Map generated from MassGIS online database indicates that the project site is not located within an Area of Critical Environmental Concern (ACEC), or an area designated as Estimated Habitat of Rare Wetlands Wildlife. A Federal Emergency Management Agency (FEMA) 100 year floodplain is located approximately 500 feet south and southwest of the Project Site. The nearest wetland resource area to the site is the Spickett River, located approximately 350 feet to the west of the property, which flows southerly and eventually discharges to the Merrimack River approximately 2.5 miles to the southeast.

3.0 RELEASE DESCRIPTION

In September of 2018, NCA was engaged by Abby Realty Trust to conduct an environmental assessment of the Project Site. Based upon the nature of historic land use activities that were identified through a records review and information provided by the site owner, an iterative subsurface investigation program was developed and subsequently implemented at the site, which generally included the placement of eighteen (18) test borings, six (6) groundwater observation wells, one (1) soil gas probe and twelve (12) hand driven soil probes to facilitate the evaluation of soil and groundwater quality across the Project Site. The results of the subsurface assessment program revealed the presence of gasoline residuals in soil in groundwater in central portions of the Project Site associated with historic use of the site as a gasoline station. Based upon the identification of exceedances of several applicable Reportable Concentration values in soil, a Release Notification Form was filed by Abby Realty Trust with MDEP on 4 February 2019 and the release was subsequently assigned MDEP Release Tracking Number (RTN) 3-35427. Details pertaining to the delineation of this release condition and the evaluation of risk are presented within Sections 6.0 and 8.0 respectively.

During site assessment activities, background levels of various metals and Polynuclear Aromatic Hydrocarbons (PAHs) attributed to coal and ash present in the subsurface were also identified in shallow soil at the Project Site. While concentrations of benzene (a) pyrene and lead were identified at concentrations slightly above their respective MCP Reportable Concentration values, as discussed in further detail within Section 6.0, it was concluded that this was a background condition that was exempt from notification pursuant to Section 40. 0317(9) of the MCP.

Assessment activities at the site have also include the analysis of shallow soils for PCB's beneath and proximate to the on-site building that had formerly be utilized as an electrical transformer station. This assessment revealed the presence of low levels of PCB's in shallow soil at one location slightly above the applicable Reportable Concentration. Following a delineation of the extent of this condition, a Limited Removal Action (LRA) was successfully implemented and a reportable condition no longer exists. Further details and documentation pertaining to the completion of the LRA are discussed within Section 6.0.

4.0 LAND USE HISTORY

Historical land use information for the Project Site and adjacent properties was obtained from the current property owner, local records and Environmental Data Resources, Inc. (EDR), which included a review of available aerial photographs and Sanborn Fire Insurance Map information for the study area. Details pertaining to available site land use history are presented in Section 4.1 through 4.4 below, while a review of available federal, state and local record information is presented within Section 5.0.

4.1 Owner/Operator and Operations History

The approximate boundary for the Project Site that is the subject of this report is shown on each of the included Sanborn Maps and aerial photographs referenced below. NCA reviewed available aerial photographs for the study area ranging from 1938 to 2016 (Appendix B). Due to the scale of the photographs the quality is poor, however, it is noted that the Project Site appears to contain various structures from 1938 - 1998. Review of the aerial photographs from 2006 – 2016, shows the Project Site in its current configuration, with the 276 Broadway portion vacant.

To supplement the aerial photographs, a review of available Sanborn Fire Insurance Map information obtained from EDR was also conducted to evaluate land use history. NCA's Sanborn Map search revealed available maps for the years 1885, 1892, 1895, 1911, 1919, 1927, 1949 and 1962, copies of which are included within Appendix B. The 1885 and 1892 Sanborn maps are similar with each depicting a multi-tenant building in the western portion of the site fronting on Broadway. Land uses identified in the building on the Sanborn Map included "Gro." (grocery), "Barber", "Expr. Office" (delivery service) and "Tenements". Several other buildings are located along the southern property line, with two (2) identified as "horse shed" and "shed". The 1895 Sanborn Map shows the same building in the western portion of the site, with the remainder of the site depicted as vacant. Two (2) structures are shown on the 1911 Sanborn Map, one located in the southwestern corner of the property labeled "Printing, Elec. Motor", and the second what appears to be a residential building in the eastern portion.

The 1919 Sanborn shows the entire Project Site as vacant, while the 1927 Map depicts a building labeled "Transformer Ho" in the eastern part of the site. Western portions of the property on the 1927 map are vacant and identified as "Auto Parking". The transformer building is also shown on the 1949 Sanborn, with what appears to be a fenced in area identified as a "transformer yard" depicted to the south of the building. Additionally, a filling station is depicted in what is now the 276 Broadway portion of the Project Site. There is a square structure along Osgood frontage labeled "conc.", with four (4) gasoline tanks depicted in the south central portion of the property. In addition to the above, there is an unidentified rectangular structure located between the filling station and the transformer house. The concrete structure is still shown along Osgood Street on the 1962 Sanborn Map, however the gasoline tanks shown on the 1949 map are no longer depicted, with the area identified as "used cars". The transformer house and yard remain on the 1962 map.

While the property is currently vacant, according to available records the most recent use of the property has included the use of the on-site building by New England Floor Covering/Abbey Granite.

4.2 Oil and/or Hazardous Material Use and Storage History

The visual inspection of site conditions revealed no indications to suggest an enhanced potential for the release of oil or hazardous materials. No significant quantities of hazardous materials or oils were observed during NCA's site inspections. As referenced previously, and consistent with information provided by the site owner, the 269 Broadway parcel was historically utilized as a gasoline station and maintained several underground storage tanks on the property. According to information provided by the site owner, all underground storage tanks were removed from the site in the mid 1980's by Zecco, Inc. A review of underground storage record information maintained by the City of Methuen is presented in Section 5.3.

4.3 Waste Management History

There are no current waste streams generated at the Project Site, as it is currently vacant. No information pertaining to historic waste streams generated at the site were identified.

4.4 Environmental Permit and Compliance History

As discussed in further detail within Section 5.3.2, NCA's review of available federal, state, local and tribal file information has revealed several local compliance issues associated with past underground storage maintained at the Project Site. As referenced above, the former underground storage tanks were removed from the site in the mid 1980's.

5.0 FEDERAL, STATE, TRIBAL AND LOCAL RECORDS REVIEW

As a part of this study, a review of various databases maintained by the U.S. Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (MDEP), the tribal land database and several municipal offices of the City of Methuen was performed, with particular focus upon any information pertaining to the release of hazardous materials and/or oils, on or in close proximity to the Project Site. Potential or confirmed federal, state or tribal hazardous materials and/or oil release locations situated within the study environs were identified through an online search of the environmental databases maintained by Environmental Data Resources Inc. (EDR). The results of this search are presented within the EDR Report contained within Appendix C. Those sites identified by EDR as being located in close proximity to the Project Site are discussed further in Sections 5.1 and 5.2, while the results of the municipal record review are included in Section 5.3.

5.1 USEPA and Tribal Land Public Records Information

The following table summarizes the environmental databases maintained by the USEPA and the tribal lands database that are included in the EDR report, the corresponding distances considered for this study and the number of sites mapped by EDR within those search distances. Sites listed as "non-geocoded" that were not mapped were also reviewed for any identifying information that would indicate any significance with respect to this study.

Database	Search Distance	No. of Sites Identified
National Priorities List (NPL)/Delisted NPL	1 mile	0
Comprehensive Environmental Response Compensation and Liability Act Information System (CERCLIS)	0.5 mile	0
CERCLIS – No Further Remedial Action Planned	0.5 mile	0
Resource Conservation and Recovery Act (RCRA) Corrective Actions (CORRACTS)	1 mile	0
RCRA Transport, Storage and Disposal (TSD)	0.5 mile	0
RCRA Generator	Project Site/Abutters	0
Emergency Response Notification System (ERNS)	Site only	0
Tribal lands	1 mile	0
Federal Institutional/Engineering Controls	Site Only	0

As summarized above, a review of the federal database information maintained by EDR revealed no federal sites within the applicable search distances.

5.2 State and Tribal Records

To supplement the federal and tribal lands database search, a review of several of the environmental databases maintained by MDEP was performed through EDR. The following summary table presents the number of sites identified within the search distance considered for this study. Sites listed as "non-geocoded" that were not mapped by EDR were also reviewed for any identifying information that would indicate any significance with respect to this study.

Database	Search Distance	No. of Sites Identified
State/Tribal CECRLIS Equivalent	1 mile	49
State/Tribal Solid Waste Landfill	0.5 mile	0
State/Tribal Brownfield's Sites	0.5 mile	0
State/Tribal Leaking ASTs/USTs	0.5 mile	8
State/Tribal USTs/ASTs	Property/Abutters	0
State/Tribal Institutional Controls	Property Only	0

As referenced above, 49 State listed release locations were identified within 1 mile of the Project Site and 8 leaking aboveground/underground storage tanks (ASTs/USTs) within 0.5 mile. Eight (8) leaking ASTs/USTs identified in the summary table above are also included within the State listed release database. It is noted that subsequent to the EDR search, a reportable condition attributable to former underground storage practices maintained at the Project Site, which is the subject of this document, was submitted to MDEP. While numerous off-site release locations were identified within the study area, only those releases to soil and/or groundwater that are adjacent or hydrologically up-gradient to the site would likely represent any potential for adverse impact(s) to the Project Site. Based upon a review of available information, local groundwater movement in the study area is expected to flow in a south/south westerly direction towards the Spickett River, however, as discussed in Section 6.5, groundwater contours developed at the Project Site through the performance of an instrument survey revealed a more south/southeasterly flow convention.

Several of the listings of off-site release conditions identified above were located within the immediate study area or up gradient of the site that is the subject of this report and are discussed in further detail below.

5.2.1 254 Broadway, Methuen (RTN 3-20237)

The 254 Broadway property is located approximately 398 feet to the south of the Project Site. According to available file information, RTN 3-20237 involved a petroleum release at the property which was formerly utilized as a gasoline station. Response actions conducted at the site included the removal of approximately 157 cubic yards of soil and a Class A-2 Response Action Outcome (RAO) was submitted for the release condition in June of 2006, indicating that a Permanent Solution had been reached. As this release is located downgradient of the Project Site and a Permanent Solution has been achieved, it does not appear to represent any significant potential for adverse impact to the Project Site.

5.2.2 47 – 59 Osgood Street, Methuen (RTN 3-18022)

This location is situated approximately 418 feet southwest of the Project Site. Conditions at this location involved a release of lead detected in soil within the basement of the 47 – 59 Osgood Street building. According to MDEP records, lead was detected in soil within a basement crawlspace and in February of 2000, Release Abatement Measures (RAM) were conducted by ENPRO Services, which involved the hand excavation and removal of approximately 6,000 pounds of soil/dust from the site. In March of 2000, an RAM Completion and Class A2 RAO Report was submitted for RTN 3-18022 indicating that a Permanent Solution had been reached. As groundwater was not impacted by this off-site release condition, it does not appear to represent any significant potential for adverse impact to the Project Site.

5.2.3 51 Osgood Street, Methuen (RTN 3-26229)

This off-site release location is identified in MDEP files as 51 Osgood Street, situated approximately 620 feet southwest of the Project Site and generally involved the sudden spill of an estimated 20 - 25 gallons of #2 fuel oil to a concrete pad and adjacent soil from a portable boiler. The portable boiler was staged inside a trailer and the released #2 fuel oil went outside of the trailer through the pipe access holes and onto the adjacent concrete pad and soil. The cause of the release was due to a defective gauge on the boiler unit. Immediate Response Action (IRA) activities involved the deployment of absorbent materials and the removal of approximately nine (9) tons of petroleum impacted soil from the site.

In May of 2007, a Class A-2 RAO was filed by Cyn Environmental, indicating that a Permanent Solution had been reached. According to Cyn, the extent of the release condition was contained within the property boundaries for 51 Osgood Street and based upon the distance, nature of the release condition and current regulatory status, it does not appear as though it represents any significant potential for adverse impacts to the Project Site.

5.3 City of Methuen Municipal File Review

In addition to the federal, tribal and state databases referenced above, a review of available records maintained by the City of Methuen Assessor's Office and Fire Department was performed as a part of this study.

5.3.1 City of Methuen Assessor's Office

According to the Methuen Assessors information, the Project Site consists of the following two (2) parcels of land:

Street Address	Parcel ID	Size (Acres)
269 Broadway	612-52-3	0.17268
2 Osgood Street	612-52-2	0.14789

The 2 Osgood Street parcel is improved with a one (1) story 3,000± square foot concrete block building, built around 1920. The 269 Broadway portion of the Project Site is a vacant parcel, classified as Parking Lot.

5.3.2 City of Methuen Fire Department

As a part of this study NCA contacted the City of Methuen Fire Department (MFD) to request copies of any available information pertaining to the storage, use or release of any hazardous materials and/or oils upon the 269 Broadway/2 Osgood Street Project Site. The MFD provided access to numerous files pertaining to the Project Site, copies of which are presented in Appendix C. Key documents include a 6/28/1963 Application for License to increase gasoline storage at 269 Broadway from the existing 5,000 gallons to a total of 15,000 gallons. An Application for Permit was issued on 10/19/1964 to remove one (1) 500 gallon UST (type not listed), one (1) 1,500 gallon and one (1) 1,000 gallon gasoline tanks.

On 10/1/1974, an Application for "Permit to Install – Alter Fuel Oil Burner Equipment" was received by the MFD that lists three (3) 4,000 gallon existing tanks and lists one (1) proposed "tank of 3,000 gallons for a total of 12,000 gallons". It is noted that adding 3,000 gallons to the existing 12,000 gallons would result in 15,000 rather than 12,000 as noted on the application. A hand drawn sketch with no scale (dated 10/1/1974) was included within the MFD files that showed the location of the proposed 3,000 gallon tank as well as the location of the three (3) existing 4,000 gallon tanks (Figure 4).

In September of 1984, the MFD issued the first of three (3) notices regarding removal of flammable liquid storage, as the tanks had not been used in excess of 6 months and there was no valid license for storage at 269 Broadway property. Second and Third notices were issued by the MFD on 3/29/1985 and 6/10/1985, respectively. No records are available that indicate any tanks were removed from the Project Site, however a Permit was issued to Zecco to remove gasoline tanks on 4/22/1985. According to the current site owner, these tanks were removed from the site by Zecco in the mid 1980's. Consistent with this information and as discussed in Section 6.0, numerous test borings were placed within the reported former tank area with no indications of any underground storage tanks identified.

6.0 SUBSURFACE INVESTIGATIONS

In September 2018, subsurface investigatory activities were initiated across the Project Site by NCA to evaluate for the presence of any release of hazardous materials and/or oils to the environment upon the Project Site. Initial assessment efforts revealed the presence soils containing gasoline residuals proximate to areas of former underground storage and levels of metals of Polynuclear Aromatic Hydrocarbons (PAH's) in shallow soils containing various fragments of coal, ash, red brick and concrete. In addition, shallow soil samples were collected proximate to that portion of the Project Site formerly utilized as a transformer house/yard revealing low levels of PCBs at one sample location. To further characterize these conditions an iterative assessment program was implemented over the period of October 2018 through January 2019 as described in further detail below.

As presented in Sections 6.1 through 6.5 below, the levels of PAHs and metals identified in the shallow soils at the site were identified at concentrations below MDEP established background conditions associated with coal and coal ash and determined not to represent a reportable condition. Further, the assessment of the PCBs detected in shallow soil at one sampling location was determined to be limited in extent and addressed through the successful completion of a Limited Removal Action. To evaluate the nature and extent of the gasoline release condition, an iterative assessment of soil and groundwater was completed over the period of October 2018 through January of 2019, the results of which provided a basis for the characterization of risk associated with this condition. As discussed with Section 8.0, while low levels of petroleum residuals are present within site soil and groundwater, it has been determined that they are not at levels they represent any significant risk of harm to human health, public welfare, safety or the environment.

6.1 Soil Assessment Program – September 2018

On 27 September 2018, initial characterization activities were conducted at the site through the placement nine (9) Geoprobes, one (1) of which was completed as 2-inch diameter PVC soil vapor probe (Figure 5). These Geoprobes were placed by Northern Drilling (Northern) through the use of a track mounted rig. In general, soils encountered during test boring placement consisted of material comprised of fine to coarse sands and gravel to a depth of five (5) feet from surface grade, with varying of amounts of coal, ash, red brick and concrete present within the shallow soil layer at a majority of the boring locations. A native layer consisting of dense sand and gravel (till) was encountered below the shallow soils. Due to the dense till layer, Geoprobe refusal was encountered at each location, with refusals ranging from 12.9 feet from surface grade (GP-6) to 19.0 feet from surface grade (GP-2), prior to reaching groundwater.

Possible fragmented bedrock was encountered at GP-1 and GP-2 at 18.4 feet and 19.0 feet, respectively. As discussed in further detail within Sections 6.2 and 6.3, the presence of bedrock was confirmed during subsequent drilling activities. It should be noted that due to the depth of groundwater at the site and the presence of the till layer and bedrock, no groundwater observation wells were installed during the September 2018 sampling event. Given historical use of the property as a gasoline station and the inability to reach ground water with a Geoprobe rig during the initial drilling event, one Geoprobe (GP-2) was completed as a soil gas vapor probe adjacent to the building located at 2 Osgood Street. General soil characteristics observed during boring

placement and soil vapor probe construction details may be referenced from the boring logs, contained within Appendix D.

To supplement visual and olfactory observations, soil samples were collected during Geoprobe placement and screened for total headspace concentrations of Volatile Organic Compounds (VOCs) as a possible indicator of hazardous materials and/or oils utilizing a MiniRAE 3000 Photoionization Detector (PID) equipped with a 10.6 eV lamp. The headspace analysis incorporates the evaluation of a known sample and headspace volume and is performed at a constant temperature. The results obtained from the headspace analyses reflect total concentrations of VOCs in air, released or volatized, into the headspace over the sample volume and are expressed as benzene units.

As summarized on Table 1.0, results obtained from the headspace screening program revealed no detectable VOC concentrations within a majority of the soil samples. An exception to this was encountered at GP-3, where elevated VOC levels were detected from 13.0 – 17.0 from surface grade. Concentrations of total VOCs from the 13.0 – 17.0 interval ranged from 73.2 ppm (15.0-16.0') to 127.8 ppm (16.0-17.0'), which corresponded to olfactory indications of weathered gasoline residuals in soil. GP-3 was placed within the approximate area of former underground storage, however, further advancement at this location was precluded due to refusal utilizing a Geoprobe rig atop probable dense till/bedrock.

To supplement the field screening program for total headspace concentrations of VOCs described above, selected samples were submitted for laboratory analyses of Volatile Petroleum Hydrocarbons (VPH), Polynuclear Aromatic Hydrocarbons (PAH's) and MCP total metals. As summarized on Table 2.0, consistent with field observations suggestive of gasoline residuals, the laboratory analysis of soils revealed levels of VPH fractions at GP-3/S3B (13-14') located within the former UST area. Due to the timeframe the former gasoline station was in operation at the Project Site (1940's-mid 1980's), it is most likely that leaded gasoline was utilized during former operations. As such, the soil sample with the highest VPH concentrations was also analyzed for total lead, with only trace levels encountered (Table 2.0).

To characterize the shallow soils encountered at the site containing coal, ash brick and concrete fragments, soil samples from GP-1 and GP-8B were submitted for laboratory analysis of PAHs, and total MCP total metals, with several PAH's and total metals detected within both soil samples (Table 2.0). As discussed in Section 4.1, historic records indicate this this site was developed with various buildings located upon the property since at least 1885. The presence of coal, ash, brick and concrete fragments in shallow soil are likely a consequence to historic land use and building structures that have been razed in the past and is a common condition in century old developed areas.

MDEP has promulgated Reportable Concentration (RC) categories for various compounds in both soil and groundwater based upon exposure potential and corresponding risk. The selection of the applicable category is determined through the evaluation of a number of factors pertaining to exposure potential. Based upon the proximity of the Project Site to existing residential properties (<500'), the appropriate category for soil at the project was determined to be RCS-1. As the Project

Site is not located within an area designated as current or potential drinking water resource area, the applicable groundwater category for the Project Site is RCGW-2.

As shown on Table 2.0, the only exceedance of applicable regulatory notification threshold values for VPH was detected at GP-3. At this location, elevated levels of all three (3) fractional ranges for were detected. Based upon the indications that a historic release of gasoline occurred, it was concluded that further assessment was warranted to define the nature and extent of the release and to enable the characterization of risk, the results of which are presented within Sections 6.2 through 6.4.

Although multiple PAH compounds and total metals were detected at GP-1/S1B (2.5-5') and GP-8B/S2 (5-10'), only one (1) RCS-1 PAH exceedance for benzo (a) pyrene, was detected at GP-8B/S2. Metals analysis of soil samples GP-1/S1B (2.5-5') and GP-8B/S2 (5-10') revealed trace levels of several metals, with RCS-1 exceedances of lead identified at both locations. However, there is a notification exemption in the Massachusetts Contingency Plan (MCP) that is applicable to site conditions. Specifically pursuant to Section 40. 0317(9) of the MCP; releases of oil and/or hazardous material related to coal, coal ash, or wood ash, excluding wood ash resulting from the combustion of lumber or wood products that have been treated with chemical preservatives, do not require notification.

Soil containing coal, coal ash, or wood ash is a prevalent condition within century old urban centers and MDEP has acknowledged that certain levels of PAHs and metals are present within this type of material as a consequence to past human activities as a background condition. Recognizing this, MDEP has established background levels for soil containing coal ash or wood ash associated with fill material. Although a RCS-1 exceedance for benzo (a) pyrene and several RCS-1 lead exceedances were identified at the Project Site, as shown on Table 2.0, the levels encountered are below their respective MDEP established background levels.

Based upon the data and information obtained pertaining to the Project Site and documented within this report, together with the results of the subsurface assessment program, it is our opinion that the soil containing coal, coal ash, or wood ash identified at the site containing levels of PAHs and lead is consistent with the notification exemption pursuant to Section 40. 0317(9) of the MCP.

6.2 Soil Assessment Program – October 2018

To further investigate the results of the initial site characterization, supplemental assessment activities were implemented at the Project Site on 24 October 2018. The scope of work conducted at that time included the placement of four (4) soil borings by Northern utilizing a truck mounted auger rig, in the approximate locations depicted on Figure 6. One (1) of these borings (NC-10A), encountered auger refusal atop what appeared to be concrete (possible building rubble) at 3.5 feet from surface grade, while two (2) of the borings were completed as 2-inch diameter monitoring wells. In general, soils encountered during boring placement were similar to those encountered previously. Due to the dense till layer, auger refusal was encountered at 17.8 feet from surface grade at NC-11. To advance to a deeper depth to reach groundwater, the drive and wash method was utilized. At borings NC-11 and NC-12, fractured bedrock was encountered at approximately

22 and 20.5 feet from surface grade, respectively. NC-11, was advanced to 27.5 feet from surface grade, with more competent rock encountered at 26 feet from surface grade.

Consistent with the prior sampling results, the headspace screening program conducted on 24 October 2018, revealed no detectable VOC concentrations within a majority of the soil samples, with the exception of NC-12, where elevated total VOCs were encountered within the 19.0 – 20.5 foot range (Table 3.0). NC-12 is located to the east of GP-3 and the former gasoline storage area (Figure 6). As shown on Table 3.0, the concentration levels were similar to those encountered at GP-3, although the depths where the VOCs were detected were several feet deeper at NC-12.

Further soil characterization was performed through the laboratory analyses of two (2) samples collected from NC-12 for VPH. As shown on Table 4.0, C5-C8 Aliphatic and C9-C10 Aromatic ranges, as well as Methyl tert butyl ether (MTBE) and Naphthalene were detected at NC-12/S2A (19.0-19.5'). Soil sample NC-12/S2A (19.0-19.5') contained the highest total VOC concentration in October 2018, (104.8ppm), which was similar to the VOC level detected at GP-3 (113.2 ppm) however the VPH concentrations at GP-3 were considerably higher than those encountered at NC-12, indicating poor correlation between field and laboratory analyses.

6.3 Soil Assessment Program – November - December 2018

On 1 November 2018, a series of hand driven probes were placed across the Project Site to assess shallow soils in the area of former pump islands for indications of gasoline residuals and shallow soils within and proximate to the 2 Osgood Street building for the presence of PCBs. A sketch plan of approximate sampling locations is presented as Figure 7. Soil samples were collected by hand utilizing a AMS slide hammer and discrete lined soil sampling probe. Holes were cored through the building floor to collect soil samples beneath the slab within the on-site building. As summarized on Table 5.0, the headspace screening of soil samples collected did not reveal any detectable levels of VOCs. As discussed in further detail within Section 6.5, soil samples collected from probe locations proximate to the on-site building were also submitted for laboratory analysis of PCBs, revealing low levels slightly above the reportable concentration standard at one location, which was subsequently addressed through the successful completion of a Limited Removal Action.

On 6 & 7 December 2018, four (4) additional soil borings were placed by Carr-Dee Corporation (Carr-Dee) to enable the further characterization of groundwater quality as well as the evaluation of site hydrology (Figure 7). Due to the dense soil conditions, drive and wash techniques were again utilized, with fractured bedrock ranging from 20.0 feet at NC-13 and NC-15 to 22.2 feet at NC-14. No bedrock was encountered at NC-16 to a depth of 25.5 feet from surface grade. The soil encountered at NC-16 contained more silt than the other Project Site locations.

The headspace screening program conducted on 6 & 7 December 2018, again revealed elevated VOC concentrations, consistent with those encountered previously, with depth at boring locations NC-14 and NC-16 (Table 6.0). These two (2) locations are within the southern portion of the Project Site, downgradient of the former gasoline storage area. Further discussion pertaining to groundwater flow direction may be referenced from Section 6.4.

As shown on Table 7.0, five (5) soil samples the 6 & 7 December 2018 scope of work were submitted for the laboratory analyses of VPH, with only NC-16/S4 (23.5-25.5') containing C5-C8 Aliphatic and C9-C10 Aromatic range hydrocarbons. Although total VOC levels were again within a similar range with those encountered previously, field VOCs and VPH concentrations again shown poor correlation. Specifically, NC-14/S4 had a VOC level of 120.5 ppm with no only low levels of VOCs, while at NC-16/S4 similar total VOC concentration of 137.4 ppm, with higher levels of the C5-C8 Aliphatic and C9-C10 Aromatic ranges.

Based upon the soil data obtained, it appears that the probable source of the release was the former underground storage area, with a relatively limited extent of impacted soil. An estimate of the approximate horizontal boundaries of the release is depicted on Figure 8. It is noted that based upon extrapolation from laboratory data, it appear that this release condition down at the 18- 20 foot depth could potentially extends onto the southerly abutting parcel. As it was concluded that release conditions upon the site do not represent any significant risk (Section 8.0) assuming unrestricted land uses and activities, and that release conditions likely continue to attenuate in a southerly direction, it was determined that no further assessment was required.

6.4 Groundwater Assessment

The field assessment of site conditions completed by NCA has also included a characterization of groundwater quality across the monitoring network depicted on Figure 9. Following well development and a period of stabilization, groundwater sampling was performed utilizing U. S. Environmental Protection Agency (US EPA) low flow techniques, which involve the pumping of groundwater from each well at a flow rate of <0.5 liter/minute through a YSI Flow Cell equipped with a YSI MP 556 Basic Water Quality Meter. The results obtained from the evaluation of basic water quality parameters conducted on 1 November 2018, 17 December 2018 and 17 January 2019 at the Project Site are provided on Table 8.0. As shown on Table 8.0, VOC levels ranged from 0.1 ppm at several locations to 5.0 ppm at NC-16 during the 17 December 2018 sampling event. Subsequent sampling at NC-16 on 17 January 2019 revealed a VOC concentration of 1.9 ppm.

Following the evaluation of basic water quality parameters, during several sampling events groundwater samples were also collected from selected well locations and submitted for laboratory analysis of VPH and dissolved lead. Reference to Table 9.0 reveals no detectable (<0.02 mg/l) levels of dissolved lead were identified at monitoring well NC-11. Also shown on Table 8.0 are the VPH concentrations detected during several sampling events at NC-12, NC-14 and NC-16. Consistent with field data, the highest VPH concentrations in groundwater were encountered at NC-16, with the levels declining following the initial December 2018 sampling event.

Utilizing the depth to groundwater measurements obtained and a control datum established through the performance of an instrument survey, corrected groundwater elevations were used to develop profiles for groundwater movement through the study area. Top of pipe elevations at each monitoring location were established relative to an assumed benchmark of 100.00 feet at NC-11. A summary of static water measurements and corrected elevations are presented on Table 10.0.

Plots of estimated groundwater contours determined by NCA for 17 December 2018 and 17 January 2019 are presented on Figure 10. As shown on Table 10.0 and Figure 10, local

groundwater flows in a south/southeasterly direction. Of particular note is the difference in groundwater elevation at the Project Site, with NC-13 groundwater approximately 8 feet higher than groundwater encountered at NC-16, although surface grades at the site only vary by a few feet. The groundwater flow direction was generally consistent with the distribution of gasoline residuals in soil and groundwater and the identification of the former tank area as the apparent source area.

In an effort to characterize potential soil vapor, Geoprobe GP-2 was placed approximately five (5) feet to the west of the 2 Osgood Street building. As shown on Table 11.0 this location was screened for total VOC concentrations on three (3) separate dates, utilizing MiniRAE 3000 PID, which revealed no detectable VOC levels.

6.5 PCB Assessment and Limited Removal Action – November 2018 – February 2019

NCA's review of available site history information for the study area indicated that the 2 Osgood Street building was formerly utilized as a "transformer house", with the area behind the building to the south also used as a "transformer yard". These structures were utilized to house transformers that served to step down higher voltages from distribution facilities and provide local power service. Based upon the information obtained from the records review and considering that electrical transformers can contain dielectric fluids containing PCBs, NCA developed and implemented an iterative evaluation for the presence of PCBs in soil within and proximate to the 2 Osgood Street building.

Initial activities conducted on 1 November 2018 involved the placement of four (4) hand driven probes utilizing a slide hammer probe. As shown on Figure 11, two (2) probes were placed within the interior of the building and two (2) on the outside. An approximate 12-inch thick slab was drilled through prior to placing the two (2) probes placed within the interior of the building. It should be noted that this portion of the building was the former transformer yard. Soil samples from each of the four (4) probe locations were submitted for laboratory analysis of polychlorinated biphenyl's (PCBs). As shown on Table 12.0, three (3) of the four (4) locations contained no detectable PCB concentrations, however sample P-4/S1 (0-2'), located outside to the rear of the building, contained a total PCB concentration of 2.83 mg/kg, which slightly exceeded the applicable regulatory threshold of 1 mg/kg for PCBs.

In an effort to expand the characterization of the extent of PCBs in shallow soils detected at P-4, additional soil hand probes (P-5 through P-9) were advanced in the approximate locations depicted on Figure 10 on 6 December 2018. Soil samples collected from each of the probe locations were submitted for laboratory analysis of PCBs. It should be noted that soil samples from probes P-5 and P-9 were collected from a depth of 2-4 feet from surface grade to characterize the vertical extents of the PCBs. As shown on Table 12.0, no detectable levels of PCBs were encountered at P-7 through P-9, with only trace concentrations detected at P-5 and P-6.

Based upon the results of site investigatory activities conducted at the site, a Limited Removal Action (LRA) was conducted by NCA on 17 January 2019, in the area of P-4, pursuant to 310 CMR 40.0318 in an effort to address the PCBs that were identified at this location. In general, the scope of work consisted of the hand excavation of shallow soils and the sampling of boundary

conditions. An approximate 2’ x 2’ hole was excavated, with soil consisting of fine to medium sand and gravel with organics as well as small pieces of rug remnants, plastic sheeting and plastic cleaner bottles from 0-1 foot from surface grade. Soil from 1-2.2 feet from surface grade consisted of fine to medium sand with trace gravel and organics.

Reference to Figure 12 shows the approximate location of soil samples collected as a part of LRA activities, while Table 12.0 summarizes the PCB results obtained from these samples. As shown, while several of the samples submitted for PCB analysis contained trace PCB levels, none of the concentrations were above the reportable threshold. Following the completion of LRA activities the excavated soil was placed within a dedicated 55-gallon drum. On 13 February, 2019 the 55-gallon drum was removed from the site by Cyn Environmental Services and transported to Cyn Oil Corporation in Stoughton, Massachusetts for recycling. Based upon the results obtained from the targeted assessment of subsurface conditions proximate to P-4, it is our professional opinion that the objectives of the LRA have been met. Copies of the disposal documentation are included within Appendix E.

7.0 DATA REPRESENTATIVENESS EVALUATION AND USABILITY ASSESSMENT

Pursuant to the requirements established within Section 40.1056(2)(k) of the MCP, a data usability assessment and representativeness evaluation were conducted in accordance with MDEP policy #WSC-07-350 for the data presented within this report associated with the release area of concern, which serves as the basis for the opinions rendered for release condition RTN 3-35427.

7.1 Representativeness Evaluation

7.1.1 Conceptual Site Model

The Project Site is located in the central portions of the City of Methuen, within a mixed use commercial/residential area. Assessment activities conducted upon the site have revealed the presence of gasoline residuals within subsurface soils and groundwater attributable to the historic use of the Project Site as a gasoline station. In general soils encountered during assessment activities consisted of material comprised of fine to coarse sands and gravel to a depth of five (5) feet from surface grade, with varying of amounts of coal, ash, red brick, concrete and slag present within the shallow soil layer at a majority of the boring locations. A native layer consisting of dense sand and gravel (till) was encountered below the shallow soils. Groundwater levels at the site range between 11 and 12 feet from surface grade in the northern portion of the site and 19 and 20 feet in the southern portion, although surface grades only vary be a few feet.

Groundwater samples were also collected from selected well locations and submitted for laboratory analysis of VPH and dissolved lead. No detectable levels of dissolved lead were identified at monitoring well NC-11. Several exceedances of the applicable regulatory thresholds for VPH were encountered at NC-12, NC-14 and NC-16. Consistent with field data, the highest VPH concentrations in groundwater were encountered at NC-16, with the levels declining following the initial December 2018 sampling event. Based upon the nature of current and reasonably foreseeable land uses and activities at the site, the only potential for contact or exposure to site contaminants would involve Excavation to a depth of ten feet from surface grade in central northern portions of the site or to a depth of 19 feet in southern central portions of the property. As such, the potential human receptors identified at the site that may be exposed to site contaminants include utility or construction workers during any future subsurface excavations. No significant environmental receptors have been identified or are likely to be present given the relative poor habitat quality within the boundaries of the Project Site.

7.1.2 Use of Field/Screening Data

Field screening data utilized during the assessment of the Project Site included a MiniRAE 3000 PID calibrated to a benzene standard, which was used to screen soil and groundwater samples for total volatile organic compound concentrations. All field data considered in this Permanent Solution was supplemented with laboratory analyses of selected soil and groundwater samples. In general, the field data results were consistent with the corresponding laboratory data and as such, the field screening data was regarded as a conservative and reliable screening tool and was utilized in the assessment program for

laboratory sample selection, particularly with respect to determining the absence of any indications of gasoline residuals in soil or groundwater. As noted in this report there was some discrepancy between field and laboratory data for samples containing gasoline residuals, however a sufficient number of laboratory samples were submitted to ensure that site conditions were adequately characterized.

7.1.3 Sampling Rationale

Sample location placement was based in part by reviewing site history information, abutting properties, conditions encountered in the field and physical impediments to sampling encountered in the field (i.e., structures, equipment/vehicles, utilities). The condition at the site that is the subject of this report generally consists of involves the presence of gasoline residuals within subsurface soils and groundwater attributable to the historic use of the Project Site as a gasoline station. A total of eighteen (18) test borings, six (6) monitoring wells, one (1) soil vapor well and twelve (12) hand driven probes were placed during the assessment of this release condition. Sample collection and corresponding laboratory analyses was biased towards the release conditions at the site. The data obtained during the completion of assessment activities was deemed sufficient to conservatively identify exposure pathways and receptors and to establish the general nature and extent of the release condition.

7.1.4 Temporal Distribution of Samples

Based upon the nature of the release, the corresponding assessment data obtained, it does not appear as though there is any potential for any significant temporal change in the distribution of site contaminants in soil, groundwater or indoor air. Further, it is anticipated that site conditions will continue to naturally degrade over time.

7.1.5 Completeness

No significant data gaps were identified pertaining to the objectives of the assessment program undertaken. All critical samples identified were collected and satisfactory field and laboratory data obtained. No sample results from NCA's sampling program were rejected or qualified for use in the evaluation of risk.

7.1.6 Inconsistency and Uncertainty

As noted in Section 6.0, soil samples with the highest total VOC concentrations were submitted for VPH analysis, however the VPH concentrations for several of these samples were considerably lower than those where low total VOC concentrations were encountered in the field, indicating poor correlation between field and laboratory analyses. A sufficient number of laboratory samples were obtained to adequately characterize site conditions to address this observed field data inconsistency.

7.1.7 Information Considered Unrepresentative

No data or information obtained was considered unrepresentative.

7.2 Data Usability Assessment

7.2.1 Analytical Data Usability Assessment

With regard to data quality, all data collected by NCA at the site was analyzed in accordance with MDEP's Compendium of Methods. The sensitivity of the majority of the data met project specific objectives such as detection limits lower than the applicable standards. NCA's review of the analytical soil data used to support the Permanent Solution found no major analytical deficiencies in the laboratory data. A comparison of the rejection criteria listed in Appendix IV of the MCP Representativeness Evaluations and Data Usability Assessments Policy #WSC-07-350 indicates that none of the data contained exceptions in excess of the rejection criteria listed. As none of the data contained exceptions in excess of the rejection criteria, all data was utilized for the Representativeness Evaluation.

7.2.2 Data Evaluation Criteria

As a part of the laboratory sample submittal process, the applicable standards are identified to ensure that to the extent feasible, the method quantitation limits are at or below the applicable standards.

7.2.3 Field Data Usability Assessment

All NCA sampling protocols were maintained in accordance with the provisions of the CAM and in accordance with applicable MDEP analytical methodologies. All NCA samples were submitted in the proper sample containers with the required preservatives and analyzed within the holding times established within the respective methods. All matrix spike and matrix spike duplicates were within acceptable limits. No significant indications of cross contamination were identified in any of the laboratory sample blanks.

7.2.4 Rejection of Analytical Data as the Result of Gross Failure

No analytical data was rejected as a result of gross failure

7.3 Data Representativeness Evaluation and Usability Assessment Summary and Conclusions

Based upon the data and information presented above, it is concluded that that data obtained and utilized in the development of the Permanent Solution opinion is scientifically valid and defensible, and of sufficient accuracy, precision and completeness and that the spatial and temporal sampling is representative of the site and the nature of the release condition.

8.0 RISK OF HARM TO HEALTH, SAFETY, PUBLIC WELFARE AND THE ENVIRONMENT

Pursuant to the provisions of Section 40.0902 of the MCP, a Method 3 characterization of risk to human health, safety, public welfare and the environment has been completed for the historic petroleum release condition identified at the site utilizing the environmental data and information obtained during the implementation of subsurface assessment activities.

8.1 Site Information

A detailed description of physical characteristics of the site, the extent of the release condition and the nature of site contaminants is included within previous sections of this document.

8.2 Identification of Human Receptors

While the single building located upon the project site is currently vacant, it is assumed for the purposes of this risk characterization that it could be occupied. Human receptors at the site under an occupied building scenario could include both adults and children. Other current site receptors at the site include visitors and trespassers, which could consist of adults or children. As discussed in further detail within Section 2.0 of this report, the project site is serviced by municipal water with no private potable water supply wells identified within 500 feet of the site. The subject property is not located within an area that would be classified as a current or potential drinking water resource area. Other utilities on-site include underground gas and electric and sewer, although no actual utilities have been identified within the release area. Given the presence of utilities, a utility worker is regarded as a current human receptor.

In the absence of any recorded land use restrictions (Activity and Use Limitations) it is assumed for the purposes of this risk characterization that future uses of the property could include residential land uses and that both adults and children could be exposed to petroleum residuals in soil. Further it is assumed that future construction could be completed at the site with construction workers exposed to soils in the release area.

8.3 Identification of Environmental Receptors

A review of the MDEP Priority Resource Site Map generated from MassGIS online database indicates that the project site is not located within an Area of Critical Environmental Concern (ACEC), or an area designated as Estimated Habitat of Rare Wetlands Wildlife. The nearest wetland resource area to the site is the Spickett River, located approximately 350 feet to the west of the property.

8.4 Identification of Current and Reasonably Foreseeable Site Activities and Uses

As indicated in Section 1.0, the release location that is the subject of this report occurred on a vacant developed commercial property located in a generally commercial/retail section of Methuen, Massachusetts. A single family residence and school are located to the east and southeast of the Project Site. For purposes of evaluating risk, in the absence of any land use restrictions, it is conservatively assumed that residential is a reasonably foreseeable land use.

While there are no current or planned uses/activities that involve any non-commercial gardening at the Project Site, given the identification of metals and PAHs associated with coal/ash observed in several site test borings as a background condition, site best management practices outlined in MDEPs policy entitled "Best Management Practices for Non-Commercial Gardening at Disposal Sites" (Policy WSC#14-910) are recommended for use and have been included in this Permanent Solution report within Appendix A. This recommendation is not based upon characterizing PAHs or metals as Historic Fill, as that term is defined within the MCP, and as such, this recommendation is not regarded as a condition for this Permanent Solution report.

8.5 Identification of Exposure Points

The release condition that is the subject of this report involves an historic release of petroleum residuals located at a depth of approximately ten (10) to twenty seven (27) feet from surface grade in central southern portions of the site. Petroleum residuals were encountered at a depth of approximately ten (10) feet from grade in the general area of former underground storage tanks (USTs) and at a depth of approximately nineteen (19) feet in southern portions of the parcel downgradient of the former UST area. For current land uses and activities, there are no exposures to soil containing petroleum residuals associated with surficial activity (0-3 feet), however it is conservatively assumed for the purposes if this risk characterization that exposure points would exist for surficial activities. Exposure points would also exist for, utility work and/or excavation under a potential redevelopment scenario.

While petroleum residuals have been identified in groundwater, the site is not located within an area designated as a current or potential drinking water resource area and as such, groundwater at the site is not regarded as a drinking water exposure point. The depth to groundwater at the site ranges from 11.62 in northern portions of the parcel (NC-13) to 20.46 feet in southern portions (NC-16). Trace levels of VPH and target compounds were identified within several wells located on the property proximate to and downgradient of the area of former underground storage. Based upon the levels detected in comparison to the Method 1 GW-2 Standards, which are considered to be protective of indoor vapor migration, petroleum residuals in groundwater are not a levels that are indicative of a significant potential for migration into indoor air. It is also noted that groundwater proximate to the 2 Osgood Street building and southerly abutting parcel has been identified at a depth of greater than 15 feet from surface grade, which is also indicative of limited potential to affect indoor air.

While total headspace VOC concentrations associated with the historic petroleum release were identified in site soils within six feet horizontally of structures, they were located approximately 19-23 feet below surface grade which corresponds to greater than 12 feet below basement floor slabs and 20 feet below slab on grade structures. As such, similar to groundwater, residual VOCs identified in site soils are not expected to result in any significant indoor air exposure point.

8.6 Identification of Exposure Pathways

As the petroleum release area that is the subject of this report is currently located at least ten (10) feet from surface grade, the only current means of direct exposure to soils is through excavation. While utilities are present at the property, there are no utilities present below grade within the

release area. As a potential future activity that could result in a complete exposure pathway would be any excavation activity, or relocation of deeper soils to a more shallow and accessible location, it is assumed for the purposes of this risk characterization that surficial exposure to adults and children under any land use scenario could exist in the future. As referenced in Section 6.5, petroleum residuals are present at the site in soil and groundwater, however based upon their depth relative to structures, as well as the concentrations observed, they do not represent any significant potential for an adverse impact to indoor air. As groundwater is not a current or potential drinking water resource, drinking water does not represent an exposure pathway of concern.

8.7 Identification of Exposure Point Concentrations

The exposure points for site soils were identified as the horizontal and vertical distribution of soils within the release area. The laboratory data obtained by NCA during the completion of assessment activities serves as the basis for the characterization of exposure potential considered in this risk assessment. The laboratory characterization of site soils was biased towards samples exhibiting indications of petroleum residuals and as such is expected to provide a conservative estimate of the overall exposure point concentrations at the site. As a further measure of conservativism, exposure point concentrations in soil were determined by utilizing the maximum concentration detected. A summary of EPCs in soil for the release area are presented on Table 11.0.

Polynuclear Aromatic Hydrocarbons (PAH's) and various metals were identified in shallow site soils containing ash at concentrations that were below MDEP established background concentrations for soil containing coal ash or wood ash. Accordingly pursuant to Section 40.0317(9) of the MCP, this was regarded as a background condition that is likely prevalent throughout the local area as a consequence to historic development dating back over a century and has been excluded in the determination of exposure point concentrations.

As presented in further detail within Section 6.5 of this report, low levels of PCBs were identified in shallow soils in southeastern portions of the parcel at the rear of the 2 Osgood building. This condition was addressed through the successful implementation of a Limited Removal Action involving the excavation and removal of approximately one 55 gallon drum of soil. While boundary samples revealed only trace levels of PCB’s well below the applicable Reportable Concentration standards, as this condition was not indicative of a background condition, the maximum value of the boundary data was included as an exposure point concentration as a conservative measure.

8.8 Identification of Site Soil and Groundwater Categories

Groundwater at the site is classified as GW-2/3. Groundwater within 30 feet of the occupied onsite building where groundwater is less than 15 feet from surface grade is classified as GW-2, while all of the groundwater at the property is classified as GW-3. Based upon the current land use and depth, the soil category within the release area is classified as is S-3. Considering unrestricted future land use, all soil from 0-15 feet from surface grade is regarded as S-1 soil for the purposes of this risk characterization.

8.9 Identification of Applicable or Suitably Analogous Health Standards

No promulgated suitably analogous public health standards have been identified for soils.

8.10 Characterization of Harm to Human Health

To evaluate the risk of harm to human health for each of the current and reasonably foreseeable site uses and activities, a Method 3 risk characterization was completed which quantifies the total risk associated with non-cancer risk through the determination of a cumulative Hazard Index and cancer related health effects through the determination of a cumulative Excess Lifetime Cancer Risk (ELCR). The risk of harm to human health was determined for the residential and construction worker soil exposure scenarios utilizing the most recent version (version 10-12, VLookup version V0315) of the MDEP Method 3 Risk Characterization short form Excel spreadsheets, copies of which are included within Appendix F.

As discussed in Section 8.7, as a conservative measure, maximum concentrations of contaminants detected in soil were utilized in the calculation of risk and as such, the resultant quantified risk is expected to represent a conservative over estimation of actual risk. While no current exposure to site soils exists, it is assumed for the purposes of this risk characterization that a potential future exposure for residential land use and potential construction scenarios exist. The following is a summary of the risk calculated for these potential site receptors.

RISK SUMMARY

Receptor	***Hazard Index (subchronic)***	***Hazard Index (chronic)***	***ECLR Estimate***
Potential Future Resident Exposures			
Dermal, inhalation, Ingestion Exposure to soil	**0.24**	**0.62**	***7.6 x 10^{-7}***
Potential Construction Worker Exposures			
Dermal, inhalation, Ingestion Exposure to soil	**0.057**	**N/A**	***1.8 x 10^{-8}***
MCP Risk Limits	***1***	***1***	***1 x 10^{-5}***

As noted from a review of the summary table above, the calculated cumulative Hazard Indexes and ELCR for the resident and construction worker scenarios do not exceed the applicable risk thresholds of 1 (Hazard Index) and 1 x 10^{-5} (ELCR) established within the MCP and such, it is concluded that a condition of no significant risk exists for both current and reasonably foreseeable land uses. It is anticipated that site conditions will continue to improve overtime through natural degradation and attenuation processes resulting in a further reduction in risk.

8.11 Method 3 Risk of Harm to Public Welfare

Pursuant to Section 40.0995 of the MCP, a level of no significant risk of harm to welfare exists or has been achieved if the following apply to the release location.

1. The breathing zones of ambient and indoor air are currently and will, in the reasonably foreseeable future, remain free from persistent, noxious odors;

2. There is accessible drinking water that is and will, in the reasonably foreseeable future, remain free from noxious tastes and odors;

3. Livestock is and will remain free from harmful effects associated with the site;

4. No community that is currently affected and/or community for which it is reasonably foreseeable to conclude that it could be affected by the release experiences significant adverse impacts as set forth as the factors to be considered in 40.0944(2); and

5. The requirements regarding Upper Concentration Limits identified within section 40.0996 of the MCP have been met.

With regard to item 5, a comparison of the site data to the UCLs is presented on Table 13.0 and as shown, no exceedances of the applicable UCLs have been identified at the site. Based upon the results obtained by NCA through the assessment of the release area that is the subject of this report, and the risk of harm to welfare criterion established within the MCP, it is concluded that a condition of no significant risk of harm to public welfare exists.

8.12 Method 3 Stage I Screening for the Risk of Harm to the Environment

There are currently no significant environmental receptors at the site and none are expected in the future. As referenced previously in this report, there are no Areas of Critical Environmental Concern (ACEC), Estimated Habitats of Rare Wildlife in Wetland Areas or Certified Vernal Pools within 500 feet of the site. Given the nature of site conditions, it is concluded that the habitat is of insufficient quality to warrant any further consideration with regard to the risk of harm to the environment. Based upon the results of the Stage I Environmental Screening for the release area that is the subject of this report, it is concluded that a condition of no significant risk of harm to the environment exists.

8.13 Risk of Harm to Safety

A review of existing conditions associated with the project site, as well as consideration of potential land use alternatives, has not revealed any indications to suggest that conditions at the site currently or in the foreseeable future pose a threat of physical harm or bodily injury to people. Specifically, no dangerous structures (i.e., open pits, lagoons or corroded containers) have been identified upon the site nor has any threat of fire or explosive or uncontained materials exhibiting characteristics of corrosivity, reactivity or flammability been observed. As such, it is concluded that no risk of harm to safety exists.

8.14 Risk Assessment Conclusion

Based upon the results obtained through the completion of a Method 3 Risk characterization, it is concluded that a condition of No Significant Risk to human health, public welfare, public safety and the environment has been achieved for both current and reasonable foreseeable land uses and activities and as such, remedial response actions are not warranted based on risk.

8.15 Uncertainty Analysis

Primary sources of uncertainty with respect to the Method 3 Risk Characterization include the accuracy and representativeness of 1) the release condition characterization, 2) the determination of exposure levels, 3) toxicity and dose–response information and 4) exposure assumptions. An assessment of the accuracy and representativeness of the characterization of the release condition is provided in Section 7.0 of this report. Exposure levels considered in the risk characterization were developed conservatively in large part by biasing the release area as the exposure point. Toxicity, dose-response and exposure assumptions from the most recent version of the MDEP ShortForms, which are by design intended to overestimate the actual risk. While quantified risk estimates should not be considered absolute, and there are a number of uncertainties with respect to the various assumptions, judgements and calculations that go into the risk characterization, it is our opinion that there have been sufficient measures incorporated into those areas of potential uncertainty to result in an over estimation of the actual risk to human health, safety, public welfare and the environment.

9.0 FEASIBILITY OF ACHIEVING BACKGROUND

Pursuant to Section 40.1020 of the MCP, beyond achieving a condition of no significant risk, response actions must be designed to achieve or approach Background to the extent feasible. An evaluation of the feasibility of achieving or approaching background for site release conditions has been conducted in accordance with the requirements established within the MCP. As described in further detail below, it is NCA's opinion that the effort associated within any response actions implemented would not be commensurate with any appreciable reduction in risk.

Background for the purposes of this disposal site would be defined as those levels of petroleum hydrocarbons that would exist in the absence of the historic release that are ubiquitous and consistently present in the environment at and in the vicinity of the project site. Pursuant to MDEP guidance Policy #04-160, it is considered to be categorically infeasible to achieve or approach background for degradable/non-persistent contaminants, except for small quantities of petroleum contaminated soil that meet all of the following requirements:

1) Less than 20 cubic yards in volume;
2) located less than 3 feet from surface grade;
3) not covered by pavement or a permanent structure;
4) not located within a sensitive environment (i.e. wetlands); and
5) not located in an area where remedial actions will interrupt public service or threaten public safety.

While trace levels of petroleum residuals are present in soil, they are located well below 3 feet from surface grade and it is therefore considered to be infeasible to conduct any additional response actions beyond those that have been taken to achieve a level of No Significant Risk to Human Health, public safety, welfare and the environment.

10.0 CONCLUSIONS

This report has been prepared by Nangle Consulting Associates, Inc. (NCA) on behalf of Abby Realty Trust to document the achievement of a Permanent Solution with No Conditions (PSNC) associated with a release of petroleum identified upon two (2) parcels of land identified 269 Broadway and abutting 2 Osgood Street, located in the City of Methuen, Massachusetts. The condition that is the subject of this report involves the presence of gasoline residuals within subsurface soils and groundwater attributable to the historic use of the Project Site as a gasoline station.

NCA's review of available site history information revealed that western portions of the Project Site (269 Broadway) had been utilized as a gasoline station since at least the late 1940's up through the early to mid-1980's. According the site owner, all of the former underground storage tanks on the property were removed from the site in the mid 1980's by Zecco, Inc. To assess the potential for past releases of petroleum, an iterative assessment of soil and groundwater was completed that revealed indications of gasoline residuals in soil and groundwater within and downgradient of the area of former underground storage. The laboratory analysis of soils in the former underground storage tank area revealed levels of petroleum hydrocarbons at levels that exceeded the applicable MDEP Reportable Concentrations values. Accordingly, a Release Notification Form was filed by Abby Realty Trust with MDEP on 4 February 2019 and the release was subsequently assigned MDEP Release Tracking Number (RTN) 3-35427.

The comprehensive assessment of soil and groundwater at the site has revealed that relatively low levels of petroleum residuals are present in soil and groundwater in the area of former underground storage and in areas directly downgradient. Indications of petroleum residuals are present at a depth of approximately 10-27 feet from surface grade within the release area, the approximate boundaries of which are depicted on Figure 2. Utilizing the data and information obtained during assessment activities, a Method 3 Risk Characterization has been completed revealing that while petroleum residuals are present, they do not represent any Significant Risk to human health, public safety, welfare and the environment for both current and reasonably foreseeable land uses and activities. Further, it has been determined that while trace levels of petroleum residuals are present in soil, they are located well below 3 feet from surface grade and it is therefore considered pursuant to MDEP guidance Policy #04-160 to be infeasible to conduct any additional response actions for degradable/non-persistent compounds.

Based upon the results obtained through the completion of assessment activities and the corresponding characterization of risk associated with the historic gasoline release condition, as well as the determination that further response actions are not feasible, it is our professional opinion that the requirements of a Permanent Solution with No Conditions (PSNC) have been met. In accordance with the Public Participation requirements established within the MCP, the Chief Municipal Officer and Board of Health of the City of Methuen have been notified of the filing of the PSNC. Copies of correspondence to local officials may be referenced from Appendix A.

This report also contains assessment information pertaining to background levels of various metals and Polynuclear Aromatic Hydrocarbons (PAHs) attributed to coal and ash that was identified in shallow soil at the Project Site that is exempt from notification pursuant to Section 40. 0317(9) of

the Massachusetts Contingency Plan (MCP), as well as documentation pertaining to the successful completion of a Limited Removal Action (LRA) for a localized area of low levels of polychlorinated biphenyl's (PCBs) detected in shallow soil at one sampling location at a concentration above the applicable Reportable Concentration.

While the presence of PAHs and metals identified in shallow soil are not a reportable condition as they are regarded as a background condition (not attributable to Historic Fill, as that term is defined within the MCP), it is recommended that best management practices for non-commercial gardening be implemented if that activity were to occur at the Project Site. A copy of MDEPs policy entitled "Best Management Practices for Non-Commercial Gardening at Disposal Sites (Policy WSC#14-910) has been included in this report within Appendix H.

NANGLE CONSULTING ASSOCIATES, INC

TABLES

Environmental Engineering and Land Use Planning

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Table 1.0 Headspace Analysis for Total Concentrations of Volatile Organic Compounds [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA
Sample Descriptions: Soils

Sampling Location		Approximate Depth	VOCs ppm
9/27/2018			
GP-1	S-1A	0.2' - 2.5'	ND
	S-1B	2.5' - 5.0'	ND
	S-2A	5.0' - 7.5'	ND
	S-2B	7.5' - 10.0'	ND
	S-3	10.0' - 14.0'	ND
	S-4A	14.0' - 16.0'	ND
	S-4B	16.0' - 18.4'	ND
GP-2	S-1A	0.2' - 2.5'	ND
	S-1B	2.5' - 5.0'	ND
	S-2A	5.0' - 7.5'	ND
	S-2B	7.5' - 10.0'	ND
	S-3A	10.0' - 12.5'	ND
	S-3B	12.5' - 15.0'	ND
	S-4A	15.0' - 17.0'	ND
	S-4B	17.0' - 19.0'	ND
GP-3	S-1A	0.0' - 2.5'	ND
	S-1B	2.5' - 5.0'	ND
	S-2A	5.0' - 7.5'	ND
	S-2B	7.5' - 10.0'	ND
	S-3A	10.0' - 12.5'	1.5
	S-3B	13.0' - 14.0'	113.2
	S-3C	12.5' - 15.0'	77.3
	S-4A	15.0' - 16.0'	73.2
	S-4B	16.0' - 17.0'	127.8
GP-4	S-1	0.0' - 5.0'	ND
	S-2	5.0' - 10.0'	ND
	S-3	10.0' - 15.0'	ND
GP-5	S-1	0.0' - 5.0'	ND
	S-2	5.0' - 10.0'	ND
	S-3A	10.0' - 12.0'	ND
	S-3B	12.0' - 14.8'	12.3

File No. 827.01

[1]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies MiniRAE 3000 PID with 10.6 eV lamp.

ND - None Detected

Table 1.0 Headspace Analysis for Total Concentrations of Volatile Organic Compounds [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

Sample Descriptions: Soils

Sampling Location		Approximate Depth	VOCs ppm
9/27/2018			
GP-6	S-1A	0.0' - 2.5'	ND
	S-1B	2.5' - 5.0'	ND
	S-2	5.0' - 10.0'	ND
	S-3	10.0' - 12.9'	ND
GP-7	S-1	0.2' - 5.0'	ND
	S-2	5.0' - 10.0'	ND
	S-3	10.0' - 14.7'	ND
GP-8A	Refusal at 4.8'- No samples collected		
GP-8B	S-1	0.0' - 5.0'	ND
	S-2	5.0' - 10.0'	ND
	S-3A	10.0' - 12.5'	ND
	S-3B	12.5' - 13.8'	ND
GP-9	S-1	0.2' - 5.0'	ND
	S-2	5.0' - 10.0'	ND
	S-3	10.0' - 14.7'	ND

File No. 827.01

[1]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies MiniRAE 3000 PID with 10.6 eV lamp.

ND - None Detected

Table 2.0 Summary of Laboratory Analyses in Soil (mg/kg)[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

LOCATION	GP1-S1B	GP3-S3B	GP3-S4B	GP8B-S2	RCS-1 2014	MA-BLCAS
SAMPLE DEPTH (ft.)	2.5' - 5.0'	13.0' - 14.0'	16.0' - 17.0'	5.0' - 10.0'		
SAMPLING DATE	9/27/2018					
MCP PAHs (mg/kg)						
Acenaphthene	ND(0.14)	-	-	ND(0.15)	4	-
Fluoranthene	0.14	-	-	7.1	1,000	-
Naphthalene	ND(0.17)	-	-	ND(0.19)	4	-
Benzo(a)anthracene	ND(0.1)	-	-	3.2	7	-
Benzo(a)pyrene	ND(0.14)	-	-	2.8	2	***7***
Benzo(b)fluoranthene	ND(0.1)	-	-	3.2	7	-
Benzo(k)fluoranthene	ND(0.1)	-	-	1.2	70	-
Chrysene	ND(0.1)	-	-	2.8	70	-
Acenaphthylene	ND(0.14)	-	-	0.31	1	-
Anthracene	ND(0.1)	-	-	1.0	1,000	-
Benzo(ghi)perylene	ND(0.14)	-	-	1.7	1,000	-
Fluorene	ND(0.17)	-	-	0.19	1,000	-
Phenanthrene	ND(0.1)	-	-	4.2	10	-
Dibenzo(a,h)anthracene	ND(0.1)	-	-	0.37	0.7	-
Indeno(1,2,3-cd)pyrene	ND(0.14)	-	-	1.8	7	-
Pyrene	0.13	-	-	6.8	1,000	-
2-Methylnaphthalene	ND(0.21)	-	-	ND(0.23)	0.7	-
SUM	*0.27*	-	-	*36.67*	NA	-
MCP Total Metals (mg/kg)						
Antimony, Total	ND(2.09)	-	-	ND(2.24)	20	-
Arsenic, Total	7.14	-	-	8.48	20	-
Barium, Total	61	-	-	78.4	1,000	-
Beryllium, Total	ND(0.209)	-	-	ND(0.224)	90	-
Cadmium, Total	ND(0.418)	-	-	ND(0.448)	70	-
Chromium, Total	31.1	-	-	16.3	100	-
Lead, Total	376	5.0	-	244	200	***600***
Mercury, Total	0.316	-	-	0.3	20	-
Nickel, Total	16	-	-	11	600	-
Selenium, Total	ND(2.09)	-	-	ND(2.24)	400	-
Silver, Total	ND(0.418)	-	-	ND(0.448)	100	-
Thallium, Total	ND(2.09)	-	-	ND(2.24)	8	-
Vanadium, Total	15.7	-	-	13.8	400	-
Zinc, Total	30.3	-	-	61.9	1,000	-
TCLP Metals (mg/l)						
Lead	3.05	-	-	-	NA	-
Volatile Petroleum Hydrocarbons (mg/kg)						
C5-C8 Aliphatics, Adjusted	-	1,550	6.79	-	100	-
C9-C12 Aliphatics, Adjusted	-	1,020	14.5	-	1,000	-
C9-C10 Aromatics	-	910	23.7	-	100	-
Benzene	-	**ND(7.92)**	ND(0.116)	-	2	-
Toluene	-	ND(7.92)	ND(0.116)	-	30	-
Ethylbenzene	-	ND(7.92)	ND(0.116)	-	40	-
p/m-Xylene	-	ND(7.92)	ND(0.116)	-	100	-
o-Xylene	-	18.9	0.16	-	100	-
Methyl tert butyl ether	-	**ND(3.96)**	ND(0.058)	-	0.1	-
Naphthalene	-	**ND(15.8)**	ND(0.231)	-	4	-

File No. 827.01

[1]Laboratory Certificates contained within attachments.

ND - None Detected above Reported Detection Limit (results in parentheses represent the detection limit)

RC criteria effective April 25 2014

NA: Not Applicable

Table 3.0 Headspace Analysis for Total Concentrations of Volatile Organic Compounds [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA
Sample Descriptions: Soils

Sampling Location		Approximate Depth	VOCs ppm
10/24/2018			
NC-10	AS-1	0.0' - 2.5'	ND
	AS-2	2.5' - 5.0'	ND
	AS-3	5.0' - 10.0'	ND
NC-10A	AS-1	0.0' - 3.5'	ND
NC-11	AS-1	0.0' - 5.0'	ND
	AS-2	5.0' - 10.0'	ND
	AS-3	10.0' - 15.0'	ND
	S-4	15.0' - 15.8'	ND
	AS-5	15.8' - 17.8'	ND
	S-6	24.0' - 24.5'	ND
NC-12	S-1A	13.0' - 14.0'	ND
	S-1B	14.0' - 15.0'	ND
	S-2A	19.0' - 19.5'	104.8
	S-2B	19.5' - 20.0'	88.1
	S-2C	20.0' - 20.5'	43.6

File No. 827.01

[1]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies utilizing a MiniRAE 3000 PID with 10.6 eV lamp.

ND - None Detected

AS - Auger Soil Sample

S - Split Spoon Soil Sample

Table 4.0 Summary of Laboratory Analyses in Soil (mg/kg)[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

LOCATION	GP1-S1B	GP3-S3B	GP3-S4B	GP8B-S2	NC12-S2A	NC12-S2C	RCS-1 2014
SAMPLE DEPTH (ft.)	2.5' - 5.0'	13.0' - 14.0'	16.0' - 17.0'	5.0' - 10.0'	19.0' - 19.5'	20.0' - 20.5'	
SAMPLING DATE	9/27/2018				10/24/2018		
MCP PAHs (mg/kg)							
Acenaphthene	ND(0.14)	-	-	ND(0.15)	-	-	4
Fluoranthene	0.14	-	-	7.1	-	-	1,000
Naphthalene	ND(0.17)	-	-	ND(0.19)	-	-	4
Benzo(a)anthracene	ND(0.1)	-	-	3.2	-	-	7
Benzo(a)pyrene	ND(0.14)	-	-	2.8	-	-	2
Benzo(b)fluoranthene	ND(0.1)	-	-	3.2	-	-	7
Benzo(k)fluoranthene	ND(0.1)	-	-	1.2	-	-	70
Chrysene	ND(0.1)	-	-	2.8	-	-	70
Acenaphthylene	ND(0.14)	-	-	0.31	-	-	1
Anthracene	ND(0.1)	-	-	1.0	-	-	1,000
Benzo(ghi)perylene	ND(0.14)	-	-	1.7	-	-	1,000
Fluorene	ND(0.17)	-	-	0.19	-	-	1,000
Phenanthrene	ND(0.1)	-	-	4.2	-	-	10
Dibenzo(a,h)anthracene	ND(0.1)	-	-	0.37	-	-	0.7
Indeno(1,2,3-cd)pyrene	ND(0.14)	-	-	1.8	-	-	7
Pyrene	0.13	-	-	6.8	-	-	1,000
2-Methylnaphthalene	ND(0.21)	-	-	ND(0.23)	-	-	0.7
SUM	*0.27*	-	-	*36.67*	-	-	NA
MCP Total Metals (mg/kg)							
Antimony, Total	ND(2.09)	-	-	ND(2.24)	-	-	20
Arsenic, Total	7.14	-	-	8.48	-	-	20
Barium, Total	61	-	-	78.4	-	-	1,000
Beryllium, Total	ND(0.209)	-	-	ND(0.224)	-	-	90
Cadmium, Total	ND(0.418)	-	-	ND(0.448)	-	-	70
Chromium, Total	31.1	-	-	16.3	-	-	100
Lead, Total	376	5.0	-	244	-	-	200
Mercury, Total	0.316	-	-	0.3	-	-	20
Nickel, Total	16	-	-	11	-	-	600
Selenium, Total	ND(2.09)	-	-	ND(2.24)	-	-	400
Silver, Total	ND(0.418)	-	-	ND(0.448)	-	-	100
Thallium, Total	ND(2.09)	-	-	ND(2.24)	-	-	8
Vanadium, Total	15.7	-	-	13.8	-	-	400
Zinc, Total	30.3	-	-	61.9	-	-	1,000
TCLP Metals (mg/l)							
Lead	3.05	-	-	-	-	-	NA
Volatile Petroleum Hydrocarbons (mg/kg)							
C5-C8 Aliphatics, Adjusted	-	1,550	6.79	-	301	17.5	100
C9-C12 Aliphatics, Adjusted	-	1,020	14.5	-	125	9.58	1,000
C9-C10 Aromatics	-	910	23.7	-	306	16.2	100
Benzene	-	**ND(7.92)**	ND(0.116)	-	0.825	ND(0.131)	2
Toluene	-	ND(7.92)	ND(0.116)	-	ND(0.535)	ND(0.131)	30
Ethylbenzene	-	ND(7.92)	ND(0.116)	-	1.3	ND(0.131)	40
p/m-Xylene	-	ND(7.92)	ND(0.116)	-	7.09	ND(0.131)	100
o-Xylene	-	18.9	0.16	-	3.33	0.253	100
Methyl tert butyl ether	-	**ND(3.96)**	ND(0.058)	-	0.379	ND(0.066)	0.1
Naphthalene	-	**ND(15.8)**	ND(0.231)	-	5.16	0.273	4

File No. 827.01

[1]Laboratory Certificates contained within attachments.

ND - None Detected above Reported Detection Limit (results in parentheses represent the detection limit)

RC criteria effective April 25 2014

NA: Not Applicable

Table 5.0 Headspace Analysis for Total Concentrations of Volatile Organic Compounds [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA
Sample Descriptions: Soils

Sampling Location		Approximate Depth	VOCs ppm
11/1/2018			
P-1	S-1	0.0' - 0.7'	ND
	S-2	0.7' - 2.7'	ND
	S-3	2.7' - 4.7'	ND
P-2	S-1	0.0' - 2.0'	ND
	S-2	2.0' - 4.0'	ND
P-3	S-1	0.0' - 2.0'	ND
P-4	S-1	0.0' - 2.0'	ND
P-5A	S-1	0.0' - 2.0'	ND
P-6A	S-1	0.0' - 2.0'	ND
P-7A	S-1	0.0' - 2.0'	ND

File No. 827.01

[1]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies utilizing a MiniRAE 3000 PID with 10.6 eV lamp.

ND - None Detected

S - Soil Sample

Table 6.0 Headspace Analysis for Total Concentrations of Volatile Organic Compounds [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA
Sample Descriptions: Soils

Sampling Location		Approximate Depth	VOCs ppm
12/6/2018			
NC-13	S-1	10.0' - 12.0'	ND
	S-2	12.0' - 13.7'	4.1
	S-3A	15.0' - 16.0'	35.8
	S-3B	16.0' - 16.5'	12.6
	S-4	17.0' - 17.6'	1.2
NC-14	S-1	15.0' - 17.0'	ND
	S-2	17.0' - 17.9'	ND
	S-3	19.0' - 21.0'	107.3
	S-4	21.0' - 21.8'	120.5
	S-5	22.0' - 22.2'	14.2
12/7/2018			
NC-15	S-1	15.0' - 15.2'	0.3
	S-2	18.0' - 18.4'	0.1
	S-3	20.0' - 20.2'	ND
NC-16	S-1	17.0' - 19.0'	ND
	S-2	19.0' - 21.0'	ND
	S-3	21.0' - 23.0'	0.3
	S-4	23.5' - 25.5'	137.4
	S-5A	25.5' - 25.9'	92.2
	S-5B	25.9' - 26.3'	104.2
	S-5C	26.3' - 26.7'	39.3

File No. 827.01

[1]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies utilizing a MiniRAE 3000 PID with 10.6 eV lamp.

ND - None Detected

AS - Auger Soil Sample

S - Split Spoon Soil Sample

Table 7.0 Summary of Laboratory Analyses in Soil (mg/kg)[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

LOCATION	GP1-S1B	GP3-S3B	GP3-S4B	GP8B-S2	NC12-S2A	NC12-S2C	NC-13/S3A	NC-14/S4	NC-14/S5	NC-16/S4	NC-16/S5C	RCS-1 2014
SAMPLE DEPTH (ft.)	2.5' - 5.0'	13.0' - 14.0'	16.0' - 17.0'	5.0' - 10.0'	19.0' - 19.5'	20.0' - 20.5'	15.0' - 16.0'	21.0' - 21.8'	22.0' - 22.2'	23.5' - 25.5'	26.3' - 26.7'	
SAMPLING DATE	9/27/2018				10/24/2018		12/6/2018			12/7/2018		
MCP PAHs (mg/kg)												
Acenaphthene	ND(0.14)	-	-	ND(0.15)	-	-	-	-	-	-	-	4
Fluoranthene	0.14	-	-	7.1	-	-	-	-	-	-	-	1,000
Naphthalene	ND(0.17)	-	-	ND(0.19)	-	-	-	-	-	-	-	4
Benzo(a)anthracene	ND(0.1)	-	-	3.2	-	-	-	-	-	-	-	7
Benzo(a)pyrene	ND(0.14)	-	-	2.8	-	-	-	-	-	-	-	2
Benzo(b)fluoranthene	ND(0.1)	-	-	3.2	-	-	-	-	-	-	-	7
Benzo(k)fluoranthene	ND(0.1)	-	-	1.2	-	-	-	-	-	-	-	70
Chrysene	ND(0.1)	-	-	2.8	-	-	-	-	-	-	-	70
Acenaphthylene	ND(0.14)	-	-	0.31	-	-	-	-	-	-	-	1
Anthracene	ND(0.1)	-	-	1.0	-	-	-	-	-	-	-	1,000
Benzo(ghi)perylene	ND(0.14)	-	-	1.7	-	-	-	-	-	-	-	1,000
Fluorene	ND(0.17)	-	-	0.19	-	-	-	-	-	-	-	1,000
Phenanthrene	ND(0.1)	-	-	4.2	-	-	-	-	-	-	-	10
Dibenzo(a,h)anthracene	ND(0.1)	-	-	0.37	-	-	-	-	-	-	-	0.7
Indeno(1,2,3-cd)pyrene	ND(0.14)	-	-	1.8	-	-	-	-	-	-	-	7
Pyrene	0.13	-	-	6.8	-	-	-	-	-	-	-	1,000
2-Methylnaphthalene	ND(0.21)	-	-	ND(0.23)	-	-	-	-	-	-	-	0.7
SUM	*0.27*	-	-	*36.67*	-	-	-	-	-	-	-	NA
MCP Total Metals (mg/kg)												
Antimony, Total	ND(2.09)	-	-	ND(2.24)	-	-	-	-	-	-	-	20
Arsenic, Total	7.14	-	-	8.48	-	-	-	-	-	-	-	20
Barium, Total	61	-	-	78.4	-	-	-	-	-	-	-	1,000
Beryllium, Total	ND(0.209)	-	-	ND(0.224)	-	-	-	-	-	-	-	90
Cadmium, Total	ND(0.418)	-	-	ND(0.448)	-	-	-	-	-	-	-	70
Chromium, Total	31.1	-	-	16.3	-	-	-	-	-	-	-	100
Lead, Total	376	5.0	-	244	-	-	-	-	-	6.61	-	200
Mercury, Total	0.316	-	-	0.3	-	-	-	-	-	-	-	20
Nickel, Total	16	-	-	11	-	-	-	-	-	-	-	600
Selenium, Total	ND(2.09)	-	-	ND(2.24)	-	-	-	-	-	-	-	400
Silver, Total	ND(0.418)	-	-	ND(0.448)	-	-	-	-	-	-	-	100
Thallium, Total	ND(2.09)	-	-	ND(2.24)	-	-	-	-	-	-	-	8
Vanadium, Total	15.7	-	-	13.8	-	-	-	-	-	-	-	400
Zinc, Total	30.3	-	-	61.9	-	-	-	-	-	-	-	1,000
TCLP Metals (mg/l)												
Lead	3.05	-	-	-	-	-	-	-	-	-	-	NA
Volatile Petroleum Hydrocarbons (mg/kg)												
C5-C8 Aliphatics, Adjusted	-	1,550	6.79	-	301	17.5	12	19.9	30.6	308	8.48	100
C9-C12 Aliphatics, Adjusted	-	1,020	14.5	-	125	9.58	48.6	18.1	41.6	133	11.5	1,000
C9-C10 Aromatics	-	910	23.7	-	306	16.2	63.6	25.8	46.5	132	ND(3.94)	100
Benzene	-	**ND(7.92)**	ND(0.116)	-	0.825	ND(0.131)	ND(0.134)	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	2
Toluene	-	ND(7.92)	ND(0.116)	-	ND(0.535)	ND(0.131)	ND(0.134)	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	30
Ethylbenzene	-	ND(7.92)	ND(0.116)	-	1.3	ND(0.131)	0.311	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	40
p/m-Xylene	-	ND(7.92)	ND(0.116)	-	7.09	ND(0.131)	ND(0.134)	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	100
o-Xylene	-	18.9	0.16	-	3.33	0.253	0.218	0.365	0.627	3.05	ND(0.158)	100
Methyl tert butyl ether	-	**ND(3.96)**	ND(0.058)	-	0.379	ND(0.066)	ND(0.067)	ND(0.073)	ND(0.077)	**ND(0.144)**	ND(0.079)	0.1
Naphthalene	-	**ND(15.8)**	ND(0.231)	-	5.16	0.273	ND(0.269)	0.3	0.341	0.73	ND(0.315)	4

File No. 827.01

[1]Laboratory Certificates contained within attachments.

ND - None Detected above Reported Detection Limit (results in parentheses represent the detection limit)

RC criteria effective April 25 2014

NA: Not Applicable

Table 8.0 Field Measurements of Groundwater Quality Characteristics[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

Location	Date	Depth to Groundwater (feet)	Temperature (°C)	Conductivity (@25°C)	Total Dissolved Solids (TDS)	Salinity (ppt)	Dissolved Oxygen (DO) (mg/l)	pH	Oxygen Reduction Potential (ORP)	VOCs (ppm)[2]
NC-11	1/17/2019	17.35	10.45	1,643	1.063	0.82	14.86	6.91	192.2	ND
	12/17/2018	16.98	12.88	1,336	0.868	0.67	8.10	6.35	7.8	ND
	11/1/2018	16.77	14.38	1,141	0.741	0.57	-	7.91	-77.0	ND
NC-12	1/17/2019	17.86	10.30	2,493	1.622	1.30	11.03	6.46	27.6	ND
	12/17/2018	17.26	13.62	2,486	1.616	1.29	5.11	6.24	154.8	0.1
	11/1/2018	17.33	17.11	749	0.487	0.57	-	7.83	52.2	0.3
NC-13	1/17/2019	12.06	13.00	3,070	1.995	1.61	6.29	6.54	-6.5	ND
	12/17/2018	11.62	13.95	2,942	1.911	1.54	6.13	6.76	-84.0	0.1
NC-14	1/17/2019	19.11	11.60	1,975	1.281	1.00	12.7	6.92	-64.1	0.5
	12/17/2018	18.27	13.16	656	0.425	0.32	4.98	6.55	41.3	1.0
NC-15	1/17/2019	12.18	12.78	2,988	1.943	1.57	3.76	6.18	-86.7	ND
	12/17/2018	11.73	13.85	2,710	1.761	1.41	3.39	6.13	-98.2	0.2
NC-16	1/17/2019	20.46	12.10	2,416	1.571	1.25	5.32	6.79	-110.2	1.9
	12/17/2018	19.25	13.88	3,056	1.985	1.60	2.15	6.49	-67.7	5.0

File No. 827.01

[1]YSI 556 MPS Multi Probe System.

[2]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies utilizing a MiniRAE 3000 PID with 10.6 eV lamp.

Table 9.0 Summary of Laboratory Analyses in Groundwater (mg/L) [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

LOCATION	NC11	NC12		NC-13	NC-14		NC-16		RCGW-2 2014
SAMPLING DATE	11/1/2018		12/17/2018	12/17/2018	12/17/2018	1/17/2019	12/17/2018	1/17/2019	
Volatile Petroleum Hydrocarbons (mg/L)									
C5-C8 Aliphatics, Adjusted	ND(0.05)	0.288	ND(0.05)	ND(0.05)	0.101	0.133	0.873	0.665	**3**
C9-C12 Aliphatics, Adjusted	ND(0.05)	0.117	ND(0.05)	ND(0.05)	ND(0.05)	0.0831	0.184	0.181	**5**
C9-C10 Aromatics	ND(0.05)	1.42	0.051	ND(0.05)	0.252	0.389	0.876	0.711	**4**
Benzene	ND(0.002)	ND(0.004)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	**1**
Toluene	ND(0.002)	ND(0.004)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	**40**
Ethylbenzene	ND(0.002)	ND(0.004)	ND(0.002)	ND(0.002)	ND(0.002)	0.00352	0.00463	0.00432	**5**
p/m-Xylene	ND(0.002)	0.074	ND(0.002)	ND(0.002)	0.00458	0.0051	0.007	0.00538	**3**
o-Xylene	ND(0.002)	0.00529	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	ND(0.002)	**3**
Methyl tert butyl ether	ND(0.003)	ND(0.006)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	ND(0.003)	**5**
Naphthalene	ND(0.004)	ND(0.008)	ND(0.004)	ND(0.004)	ND(0.004)	ND(0.004)	0.00496	0.00418	**0.7**
MCP Dissolved Metals (mg/L)									
Lead, Dissolved	**ND(0.02)**	-	-	-	-	-	-	-	**0.01**

File No. 827.01

[1]Laboratory Certificates contained within attachments.

ND - None Detected above Reported Detection Limit
(results in parentheses represent the detection limit)

RC criteria effective April 25 2014

NA: Not Applicable

Table 10.0 Instrument Survey and Groundwater Elevations[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

Benchmark: NC-11

Assumed Elevation: 100.00 feet

Survey Location	Top of Pipe Elevation	Depth to Groundwater (feet)			Groundwater Elevation (feet)		
		11/01/18	12/17/18	01/17/19	11/01/18	12/17/18	01/17/19
NC-11	100.00	16.77	16.98	17.35	83.23	83.02	82.65
NC-12	100.32	17.33	17.26	17.86	82.99	83.06	82.46
NC-13	101.08	-	11.62	12.06	-	89.46	89.02
NC-14	100.35	-	18.27	19.11	-	82.08	81.24
NC-15	101.10	-	11.73	12.18	-	89.37	88.92
NC-16	100.73	-	19.25	20.46	-	81.48	80.27

File No. 827.01

[1]Ground control survey performed by Nangle Consulting Associates, Inc.

Table 11.0 Headspace Analysis for Total Concentrations of Volatile Organic Compounds [1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA
Sample Descriptions: Soil Gas

Sample Location	Sample Date	VOCs ppm
GP-2	10/24/2018	ND
	11/1/2018	ND
	12/6/2018	ND

File No. 827.01

[1]Total VOC concentrations (ppm) in air expressed as units of benzene using headspace analytical methodologies MiniRAE 3000 PID with 10.6 eV lamp.

ND - None Detected

Table 12.0 Summary of Laboratory Analyses in Soil - PCBs (mg/kg)[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

LOCATION	P1/S1-S3	P2/S1&S2	P3/S1	P4/S1	P5/S1	P5/S2	P6/S1	P7/S1	P8/S1	P9/S2	COMP:S3&S5	S2	S4	S6	RCS-1 2014
SAMPLE DEPTH (ft.)	0.0' - 4.7'	0.0' - 4.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	2.0' - 4.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	2.0' - 4.0'	0.0' - 2.0'	2.2'	0.0' - 2.0'	0.0' - 2.0'	
SAMPLING DATE	11/1/2018				12/6/2018						1/17/2019				
MCP Polychlorinated Biphenyls (mg/kg)															
Aroclor 1016	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	ND(0.0363)	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
Aroclor 1221	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	ND(0.0363)	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
Aroclor 1232	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	ND(0.0363)	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
Aroclor 1242	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	ND(0.0363)	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
Aroclor 1248	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	ND(0.0363)	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
Aroclor 1254	ND(0.0369)	ND(0.0348)	ND(0.0472)	2.83	0.187	0.0893	0.117	ND(0.0389)	ND(0.041)	ND(0.0359)	0.0663	ND(0.0357)	0.0563	0.263	1
Aroclor 1260	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	0.0785	0.0956	0.0699	ND(0.0389)	ND(0.041)	ND(0.0359)	0.0391	ND(0.0357)	ND(0.0353)	0.0965	1
Aroclor 1262	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	ND(0.0363)	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
Aroclor 1268	ND(0.0369)	ND(0.0348)	ND(0.0472)	ND(0.486)	ND(0.039)	0.0545	ND(0.0409)	ND(0.0389)	ND(0.041)	ND(0.0359)	ND(0.0381)	ND(0.0357)	ND(0.0353)	ND(0.0397)	1
PCBs, Total	*ND(0.0369)*	*ND(0.0348)*	*ND(0.0472)*	*2.83*	*0.266*	*0.239*	*0.187*	*ND(0.0389)*	*ND(0.041)*	*ND(0.0359)*	*0.105*	*ND(0.0357)*	*0.0563*	*0.36*	1

File No. 827.01

[1]Laboratory Certificates contained within attachments.

ND - None Detected above Reported Detection Limit (results in parentheses represent the detection limit)

RC criteria effective April 25 2014

NA: Not Applicable

Table 13.0 Summary of Exposure Point Concentrations in Soil (mg/kg)[1]

Site Location: 269 Broadway & 2 Osgood Street - Methuen, MA

LOCATION	GP1-S1B	GP3-S3B	GP3-S4B	GP8B-S2	NC12-S2A	NC12-S2C	P1/S1-S3	P2/S1&S2	P3/S1	P4/S1[3]	P5/S1	P5/S2	P6/S1	P7/S1	P8/S1	P9/S2	NC-13/S3A	NC-14/S4	NC-14/S5	NC-16/S4	NC-16/S5C	EPC[2] mg/kg) Maximum Value	Upper Concentration Limit (mg/kg)
SAMPLE DEPTH (ft.)	2.5' - 5.0'	13.0' - 14.0'	16.0' - 17.0'	5.0' - 10.0'	19.0' - 19.5'	20.0' - 20.5'	0.0' - 4.7'	0.0' - 4.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	2.0' - 4.0'	0.0' - 2.0'	0.0' - 2.0'	0.0' - 2.0'	2.0' - 4.0'	15.0' - 16.0'	21.0' - 21.8'	22.0' - 22.2'	23.5' - 25.5'	26.3' - 26.7'		
SAMPLING DATE	9/27/2018				10/24/2018		11/1/2018				12/6/2018									12/7/2018			
MCP Polychlorinated Biphenyls (mg/kg)																							
PCBs, Total	-	-	-	-	-	-	ND(0.0369)	ND(0.0348)	ND(0.0472)	2.83	0.266	0.239	0.187	ND(0.0389)	ND(0.041)	ND(0.0359)	-	-	-	-	-	0.36[3]	100
MCP Total Metals (mg/kg)																							
Lead, Total[4]	376[4]	5.0	-	244[4]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.61	-	6.61	6,000
Volatile Petroleum Hydrocarbons (mg/kg)																							
C5-C8 Aliphatics, Adjusted	-	1550	6.79	-	301	17.5	-	-	-	-	-	-	-	-	-	-	12	19.9	30.6	308	8.48	1550	5,000
C9-C12 Aliphatics, Adjusted	-	1020	14.5	-	125	9.58	-	-	-	-	-	-	-	-	-	-	48.6	18.1	41.6	133	11.5	1020	20,000
C9-C10 Aromatics	-	910	23.7	-	306	16.2	-	-	-	-	-	-	-	-	-	-	63.6	25.8	46.5	132	ND(3.94)	910	5,000
Benzene	-	**ND(7.92)**	ND(0.116)	-	0.825	ND(0.131)	-	-	-	-	-	-	-	-	-	-	ND(0.134)	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	7.92[5]	3,000
Toluene	-	ND(7.92)	ND(0.116)	-	ND(0.535)	ND(0.131)	-	-	-	-	-	-	-	-	-	-	ND(0.134)	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	7.92[5]	10,000
Ethylbenzene	-	ND(7.92)	ND(0.116)	-	1.3	ND(0.131)	-	-	-	-	-	-	-	-	-	-	0.311	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	7.92[5]	10,000
p/m-Xylene	-	ND(7.92)	ND(0.116)	-	7.09	ND(0.131)	-	-	-	-	-	-	-	-	-	-	ND(0.134)	ND(0.147)	ND(0.154)	ND(0.288)	ND(0.158)	7.92[5]	10,000
o-Xylene	-	18.9	0.16	-	3.33	0.253	-	-	-	-	-	-	-	-	-	-	0.218	0.365	0.627	3.05	ND(0.158)	18.9	10,000
Methyl tert butyl ether	-	**ND(3.96)**	ND(0.058)	-	0.379	ND(0.066)	-	-	-	-	-	-	-	-	-	-	ND(0.067)	ND(0.073)	ND(0.077)	**ND(0.144)**	ND(0.079)	3.96[5]	5,000
Naphthalene	-	**ND(15.8)**	ND(0.231)	-	5.16	0.273	-	-	-	-	-	-	-	-	-	-	ND(0.269)	0.3	0.341	0.73	ND(0.315)	15.8[5]	1,000

File No. 827.01

[1]Laboratory Certificates contained within attachments.

[2]EPC - Exposure Point Calculation equivilent to maxium value detected except as noted

[3]Sample P4/S-1 removed during LRA Completed on 12/6/2018 and not included in EPC calulation

[4]Lead Data not included in EPC calcuation as lead levels detected in soil with ash are below MDEP published background values. No ash observed in Sample NC-16,S-4

[5]EPC value based on maximum quantitiation limit.

ND - None Detected above Reported Detection Limit (results in parentheses represent the detection limit)

MCP 2014 Method 1 Soil Standards Criteria effective June 20, 2014.

NA: Not Applicable

NANGLE CONSULTING ASSOCIATES, INC

FIGURES

Environmental Engineering and Land Use Planning

45 Dan Road - Suite 115 Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

U.S.G.S TOPOGRAPHIC LOCUS
269 BROADWAY & 2 OSGOOD
METHUEN, MASSACHUSETTS

0 0.5
KILOMETERS

0 0.5
MILES

U.S.G.S QUADRANGLE:
LAWRENCE

CONTOUR INTERVAL-3 METERS

NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering and Land Use Planning

LATITUDE: N 42°-43'-38"
LONGITUDE: W 71°-11'-12"

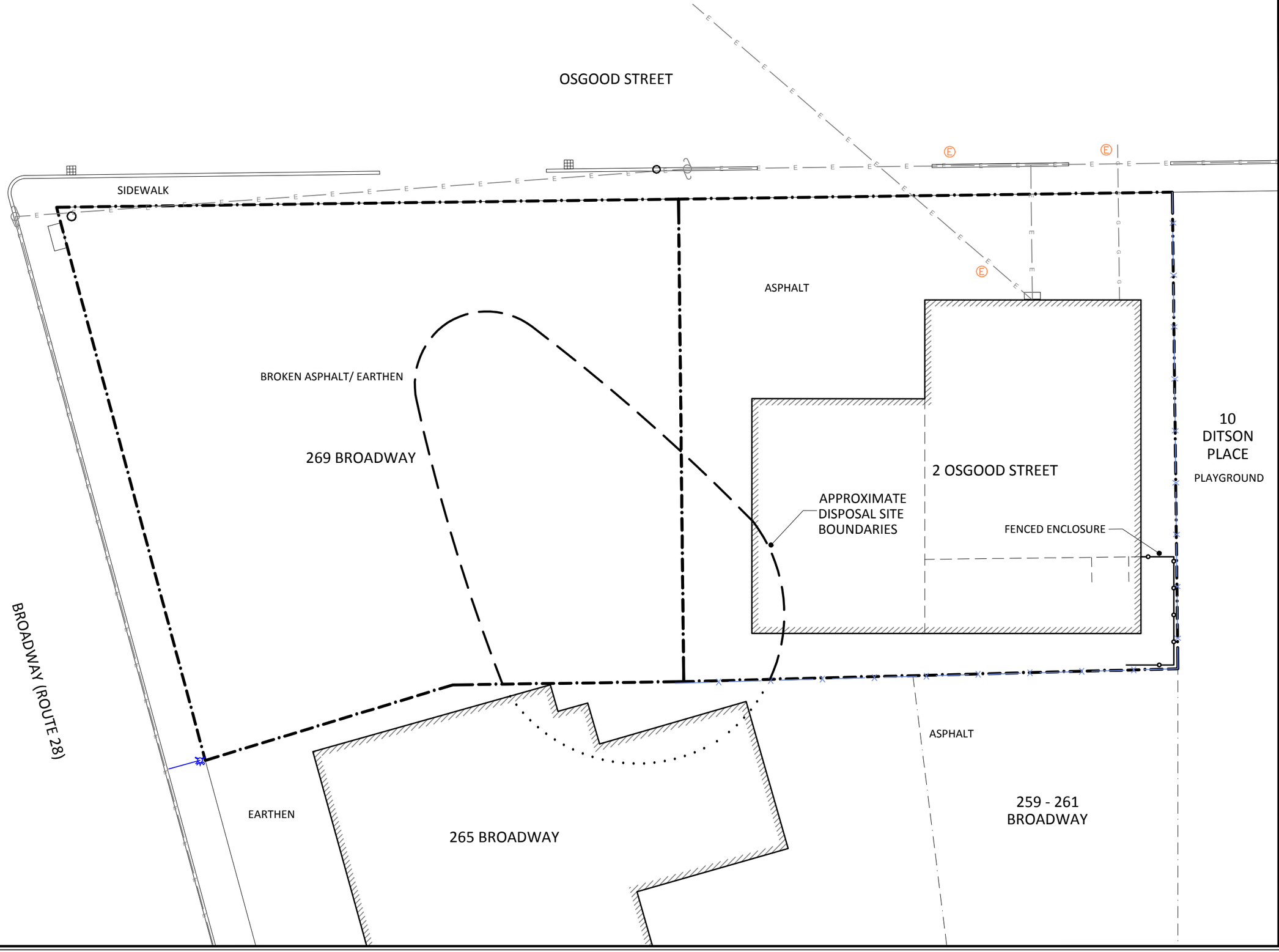
UTM: N 7732.857 KM
E 320.990 KM

Date: JAN 2019

Job No: 827.01

N

Figure
1



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LEGEND

- PROPERTY LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE
- FENCE LINE
- CATCH BASIN
- ELECTRIC MANHOLE

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

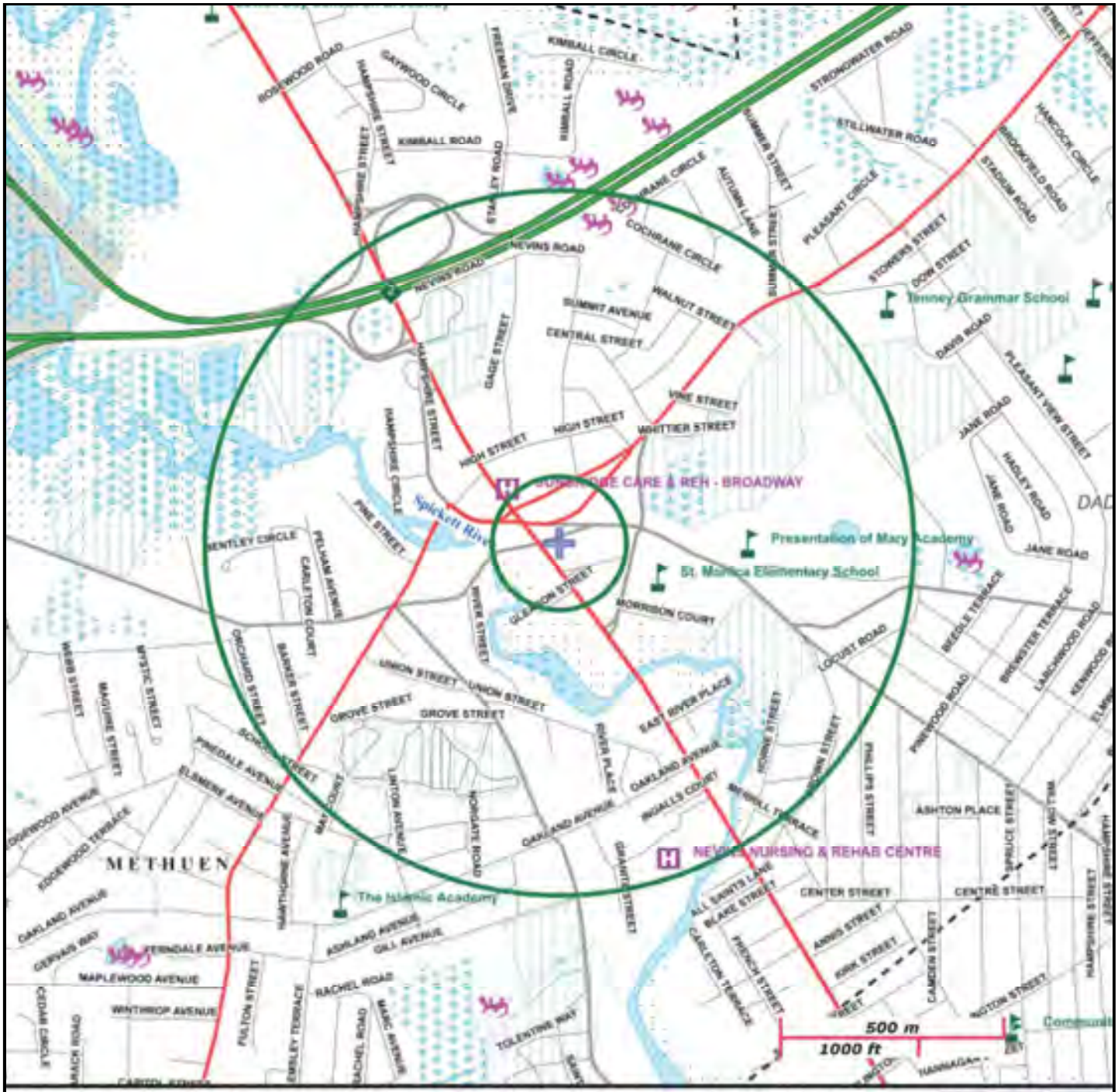
SKETCH PLAN OF SITE
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MASSACHUSETTS

0 15
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 2



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Environmental Engineering & Land Use Planning
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Canton • Massachusetts 02021

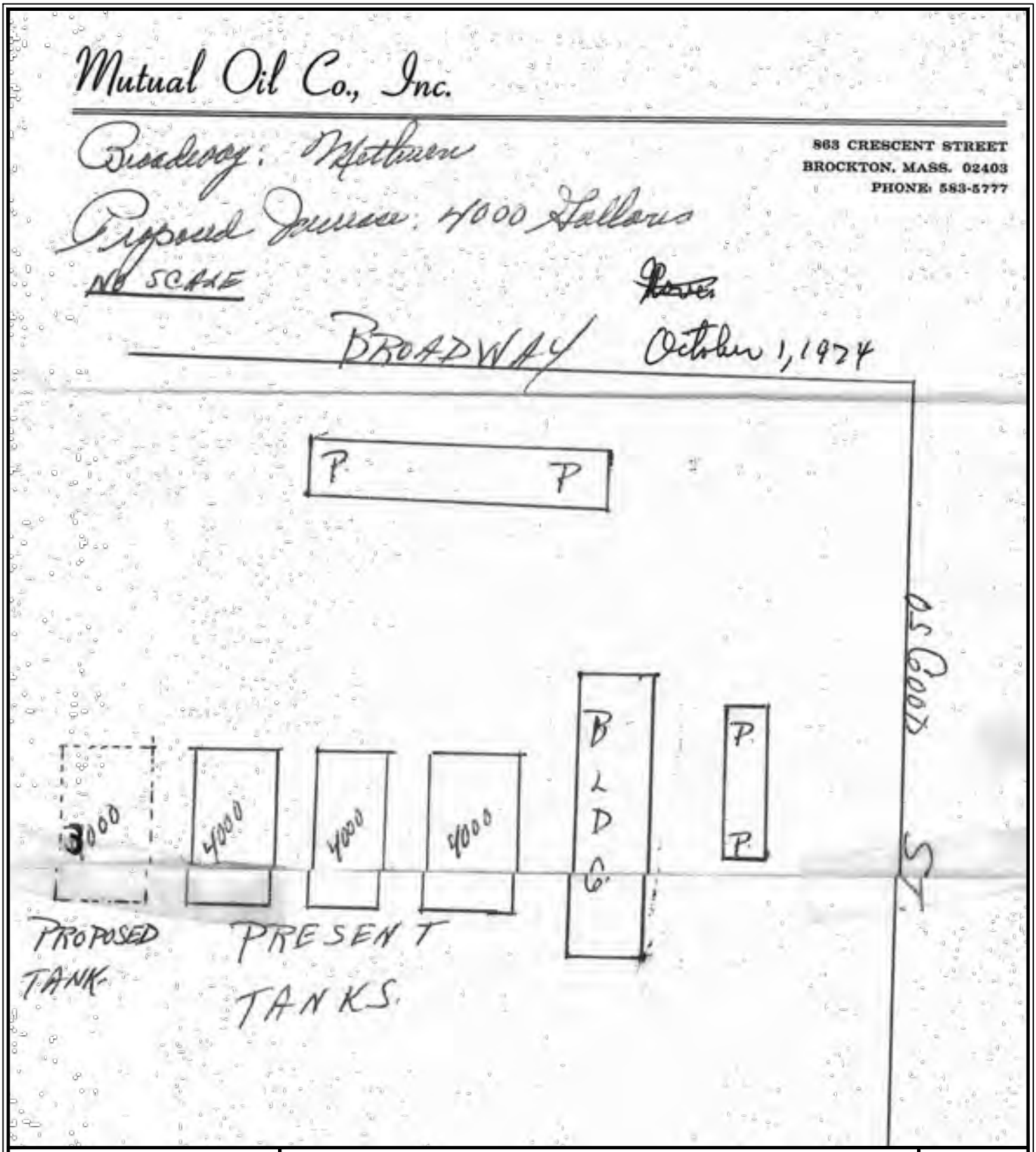
MDEP SITE SCORING MAP
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MASSACHUSETTS

REFERENCE: MDEP Bureau of Waste Site Cleanup MCP Numerical Ranking System Map: FEB 2019

Date: MAR 2019

Job No: 827.01

Figure 3



NANGLE CONSULTING ASSOCIATES, INC.
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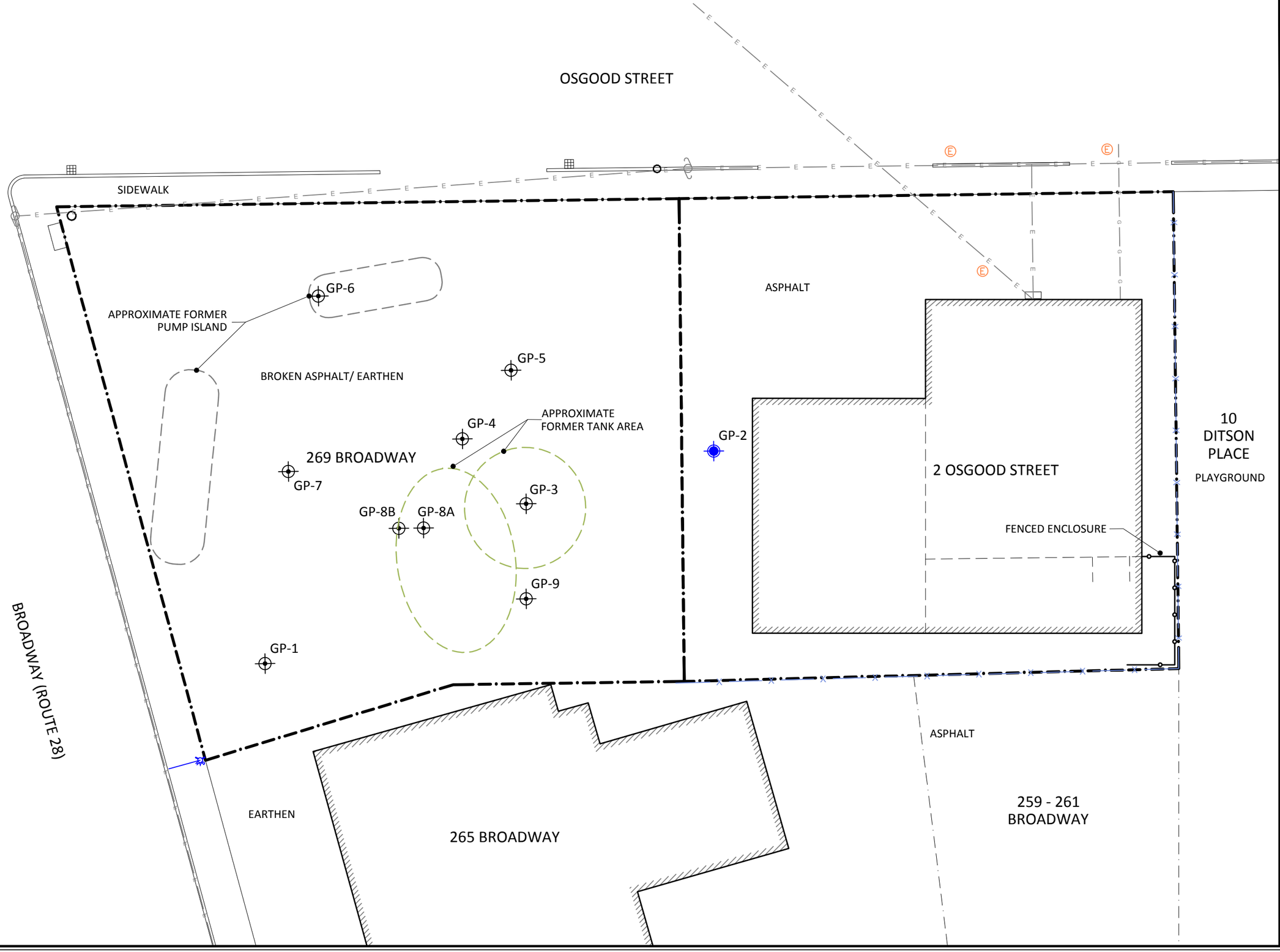
Canton • Massachusetts 02021

1974 SKETCH PLAN
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MASSACHUSETTS

APPROXIMATE
PROPOSED AND EXISTING UNDERGROUND
STORAGE TANKS

Date: MAR 2019
Job No: 827.01

Figure 4



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Environmental Engineering & Land Use Planning
45 Dan Road • Suite 115
Canton • Massachusetts 02021

LEGEND

GEOPROBE
NCA: SEPT 2018

GEOPROBE SOIL GAS PROBE
NCA: SEPT 2018

PROPERTY LINE
OVERHEAD ELECTRIC LINE
GAS LINE
FENCE LINE
CATCH BASIN
ELECTRIC MANHOLE

Former UST and pump island locations based upon available site history information.

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

SKETCH PLAN OF SITE
269 BROADWAY & 2 OSGOOD STREET METHUEN, MASSACHUSETTS

APPROXIMATE SAMPLE LOCATIONS SEPTEMBER 2018

0 15
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 5

OSGOOD STREET

SIDEWALK

GP-6

APPROXIMATE FORMER PUMP ISLAND

BROKEN ASPHALT/ EARTHEN

GP-5

GP-4

APPROXIMATE FORMER TANK AREA

269 BROADWAY

GP-7

GP-8B

GP-8A

GP-3

NC-12

NC-10A

NC-10

GP-9

NC-11

GP-1

BROADWAY (ROUTE 28)

ASPHALT

GP-2

2 OSGOOD STREET

FENCED ENCLOSURE

10 DITSON PLACE

PLAYGROUND

EARTHEN

265 BROADWAY

ASPHALT

259 - 261 BROADWAY

NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering & Land Use Planning
45 Dan Road • Suite 115
Canton • Massachusetts 02021

LEGEND

- GEOPROBE NCA: SEPT 2018
- GEOPROBE SOIL GAS PROBE NCA: SEPT 2018
- SOIL BORING NCA: OCT 2018
- MONITORING WELL NCA: OCT 2018
- PROPERTY LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE
- FENCE LINE
- CATCH BASIN
- ELECTRIC MANHOLE

Former UST and pump island locations based upon available site history information.

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

SKETCH PLAN OF SITE 269 BROADWAY & 2 OSGOOD STREET METHUEN, MASSACHUSETTS

APPROXIMATE SAMPLE LOCATIONS OCTOBER 2018

0 15
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 6

OSGOOD STREET

SIDEWALK

APPROXIMATE FORMER PUMP ISLAND

GP-6

P-5A

BROKEN ASPHALT/ EARTHEN

NC-13

GP-5

P-6A

NC-15

269 BROADWAY

GP-4

APPROXIMATE FORMER TANK AREA

GP-7

P-7A

GP-8B

GP-8A

GP-3

NC-12

NC-10A

NC-10

GP-9

NC-11

NC-14

NC-16

GP-1

ASPHALT

GP-2

2 OSGOOD STREET

P-3

10 DITSON PLACE

PLAYGROUND

FENCED ENCLOSURE

P-1

P-2

P-4

BROADWAY (ROUTE 28)

EARTHEN

265 BROADWAY

ASPHALT

259 - 261 BROADWAY

NANGLE CONSULTING ASSOCIATES, INC.
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Canton • Massachusetts 02021

LEGEND

- GEOPROBE NCA: SEPT 2018
- GEOPROBE SOIL GAS PROBE NCA: SEPT 2018
- SOIL BORING NCA: OCT 2018
- MONITORING WELL NCA: OCT 2018
- MONITORING WELL NCA: DEC 2018
- SOIL PROBE NCA: NOV 2018
- PROPERTY LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE
- FENCE LINE
- CATCH BASIN
- ELECTRIC MANHOLE

Former UST and pump island locations based upon available site history information.

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

SKETCH PLAN OF SITE 269 BROADWAY & 2 OSGOOD STREET METHUEN, MASSACHUSETTS

APPROXIMATE SAMPLE LOCATIONS NOVEMBER & DECEMBER 2018

0 15

Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 7

OSGOOD STREET

SIDEWALK

ASPHALT

APPROXIMATE FORMER PUMP ISLAND

GP-6

P-5A

BROKEN ASPHALT/ EARTHEN

NC-13

GP-5

P-6A

NC-15

GP-4

APPROXIMATE FORMER TANK AREA

269 BROADWAY

GP-7

P-7A

GP-3

GP-8B

GP-8A

NC-12

NC-10A

NC-10

GP-9

NC-11

NC-14

NC-16

GP-1

GP-2

2 OSGOOD STREET

APPROXIMATE DISPOSAL SITE BOUNDARIES

FENCED ENCLOSURE

P-1

P-2

P-3

P-4

10 DITSON PLACE

PLAYGROUND

BROADWAY (ROUTE 28)

EARTHEN

265 BROADWAY

ASPHALT

259 - 261 BROADWAY

NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering & Land Use Planning
45 Dan Road • Suite 115
Canton • Massachusetts 02021

LEGEND

- GEOPROBE NCA: SEPT 2018
- GEOPROBE SOIL GAS PROBE NCA: SEPT 2018
- SOIL BORING NCA: OCT 2018
- MONITORING WELL NCA: OCT 2018
- MONITORING WELL NCA: DEC 2018
- SOIL PROBE NCA: NOV 2018
- PROPERTY LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE
- FENCE LINE
- CATCH BASIN
- ELECTRIC MANHOLE

Former UST and pump island locations based upon available site history information.

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

SKETCH PLAN OF SITE
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MASSACHUSETTS

APPROXIMATE DISPOSAL SITE BOUNDARIES

0 15
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 8

OSGOOD STREET

SIDEWALK

APPROXIMATE FORMER PUMP ISLAND

BROKEN ASPHALT/ EARTHEN

NC-13

NC-15

269 BROADWAY

APPROXIMATE FORMER TANK AREA

NC-12

NC-11

NC-14

NC-16

ASPHALT

2 OSGOOD STREET

FENCED ENCLOSURE

10 DITSON PLACE

PLAYGROUND

BROADWAY (ROUTE 28)

EARTHEN

265 BROADWAY

ASPHALT

259 - 261 BROADWAY

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Environmental Engineering & Land Use Planning
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Canton • Massachusetts 02021

LEGEND

MONITORING WELL NCA: OCT 2018

MONITORING WELL NCA: DEC 2018

PROPERTY LINE

OVERHEAD ELECTRIC LINE

GAS LINE

FENCE LINE

CATCH BASIN

ELECTRIC MANHOLE

Former UST and pump island locations based upon available site history information.

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

SKETCH PLAN OF SITE 269 BROADWAY & 2 OSGOOD STREET METHUEN, MASSACHUSETTS

APPROXIMATE MONITORING WELL LOCATIONS

0 15

Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 9

OSGOOD STREET

SIDEWALK

APPROXIMATE FORMER PUMP ISLAND

BROKEN ASPHALT/ EARTHEN

NC-13

NC-15

269 BROADWAY

APPROXIMATE FORMER TANK AREA

NC-12

NC-11

NC-14

NC-16

89 88 88 87 87 86 86 85 85 84 84 83 83 82 82

ASPHALT

2 OSGOOD STREET

FENCED ENCLOSURE

10 DITSON PLACE

PLAYGROUND

BROADWAY (ROUTE 28)

EARTHEN

265 BROADWAY

ASPHALT

259 - 261 BROADWAY

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Environmental Engineering & Land Use Planning
45 Dan Road • Suite 115
Canton • Massachusetts 02021

LEGEND

- MONITORING WELL NCA: OCT 2018
- MONITORING WELL NCA: DEC 2018
- GROUNDWATER CONTOUR: 12/17/18
- GROUNDWATER CONTOUR: 01/17/19
- PROPERTY LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE
- FENCE LINE
- CATCH BASIN
- ELECTRIC MANHOLE

Former UST and pump island locations based upon available site history information.

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

SKETCH PLAN OF SITE
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MASSACHUSETTS

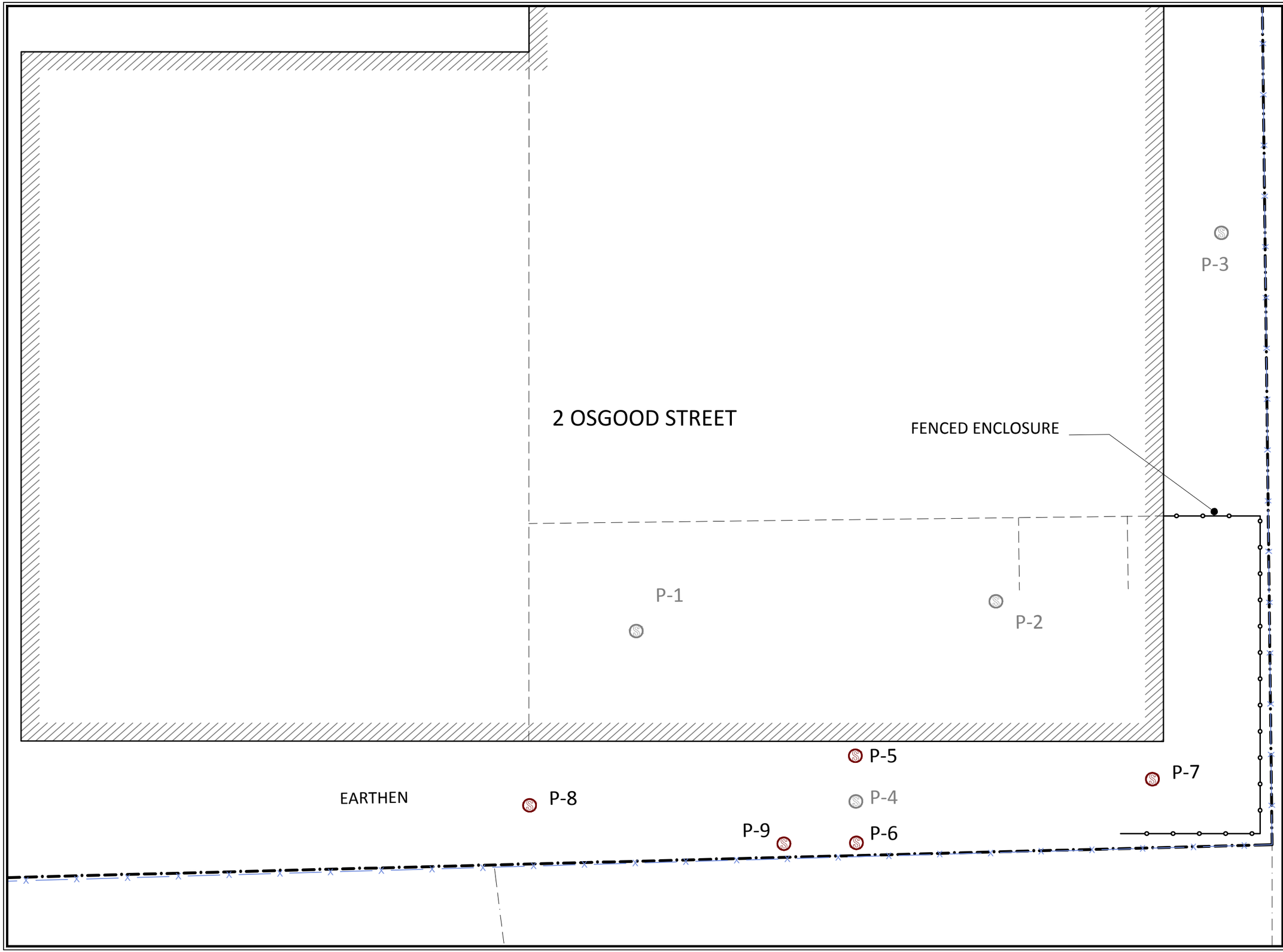
APPROXIMATE GROUNDWATER CONTOURS

0 15
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure 10



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CONSULTING
ASSOCIATES, INC.
Environmental Engineering
& Land Use Planning
45 Dan Road • Suite 115
Canton • Massachusetts 02021

LEGEND

SOIL PROBE
NCA: NOV 2018

SOIL PROBE
NCA: DEC 2018

PROPERTY LINE

OVERHEAD
ELECTRIC LINE

GAS LINE

FENCE LINE

CATCH BASIN

ELECTRIC MANHOLE

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

DETAIL SKETCH PLAN
269 BROADWAY &
2 OSGOOD STREET
METHUEN, MASSACHUSETTS

APPROXIMATE
SAMPLE LOCATIONS
DECEMBER 2018

0 5
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure
11

NANGLE
CONSULTING
ASSOCIATES, INC.
Environmental Engineering
& Land Use Planning
45 Dan Road • Suite 115
Canton • Massachusetts 02021

P-1

P-2

EXCAVTION
AREA

S3

S6

S1/S2

P-4

S4

EDGE OF
CONCRETE SLAB
FRAGMENT

S5

LEGEND

- SOIL SAMPLE NCA: JAN 2019
- SOIL PROBE NCA: NOV 2018
- PROPERTY LINE
- OVERHEAD ELECTRIC LINE
- GAS LINE
- FENCE LINE
- CATCH BASIN
- ELECTRIC MANHOLE

REFERENCE: Figure compiled from City of Methuen GIS, GoogleEarth, field observations and property deeds.

DETAIL SKETCH PLAN
269 BROADWAY &
2 OSGOOD STREET
METHUEN, MASSACHUSETTS

APPROXIMATE LRA
EXCAVATION AREA

0 2
Approximate Scale In Feet

Date: MAR 2019

Job No: 827.01

Figure
12

NANGLE CONSULTING ASSOCIATES, INC

APPENDIX A

Environmental Engineering and Land Use Planning

45 Dan Road - Suite 115 Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

NANGLE CONSULTING ASSOCIATES, INC

APPENDIX B

Environmental Engineering and Land Use Planning

45 Dan Road - Suite 115 Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182


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EDR


INQUIRY #: 5421517.5
YEAR: 2012
= 500'
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EDR


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YEAR: 2009
= 500'
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EDR


INQUIRY #: 5421517.5
YEAR: 2006
= 500'
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EDR


INQUIRY #: 5421517.5
YEAR: 1998
= 500'
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EDR


INQUIRY #: 5421517.5
YEAR: 1995
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EDR


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YEAR: 1986
= 500'
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EDR


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YEAR: 1977
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EDR


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YEAR: 1952
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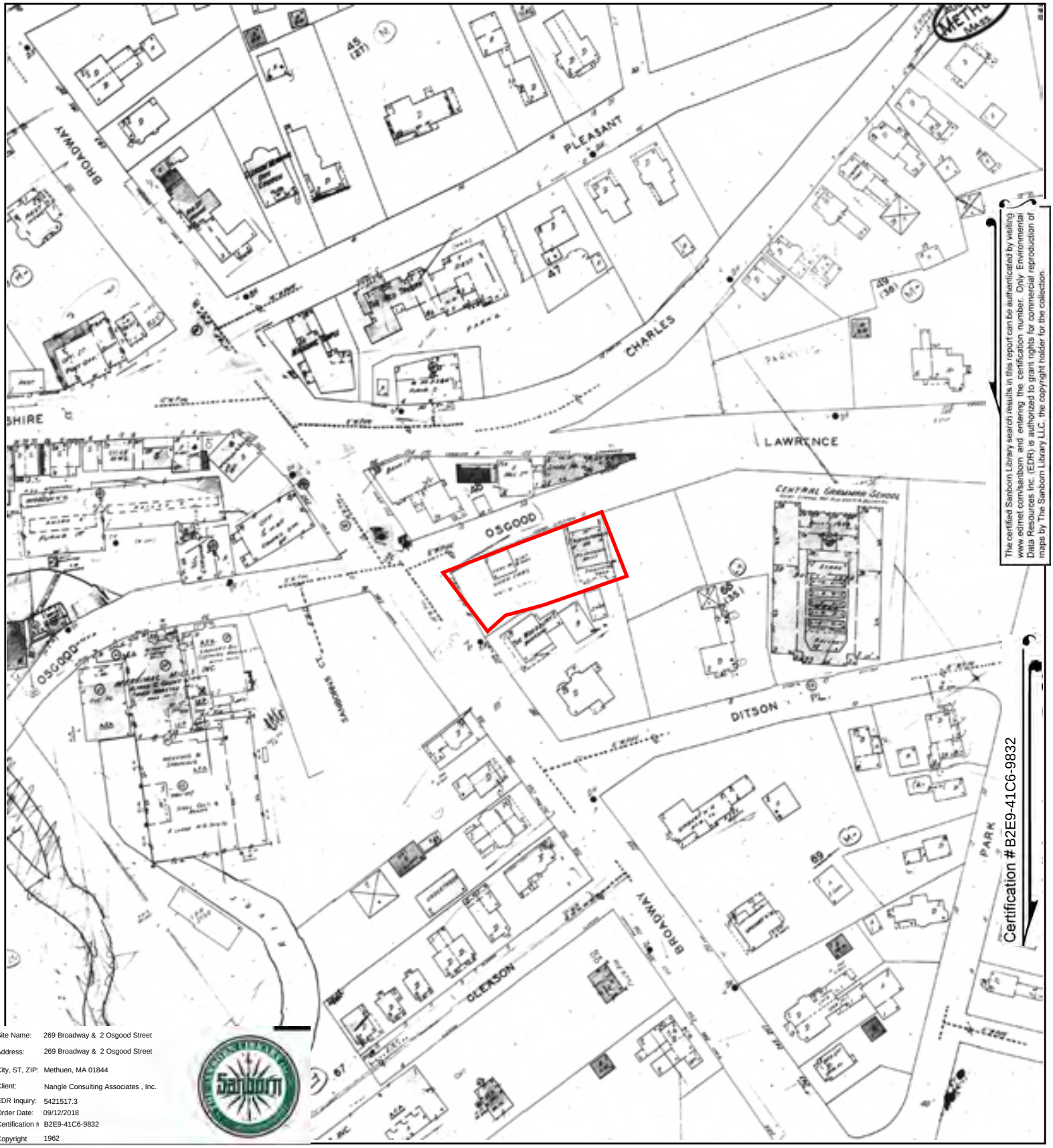
EDR



Certification # B2E9-41C6-9832

Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1962

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

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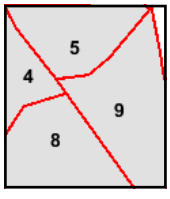
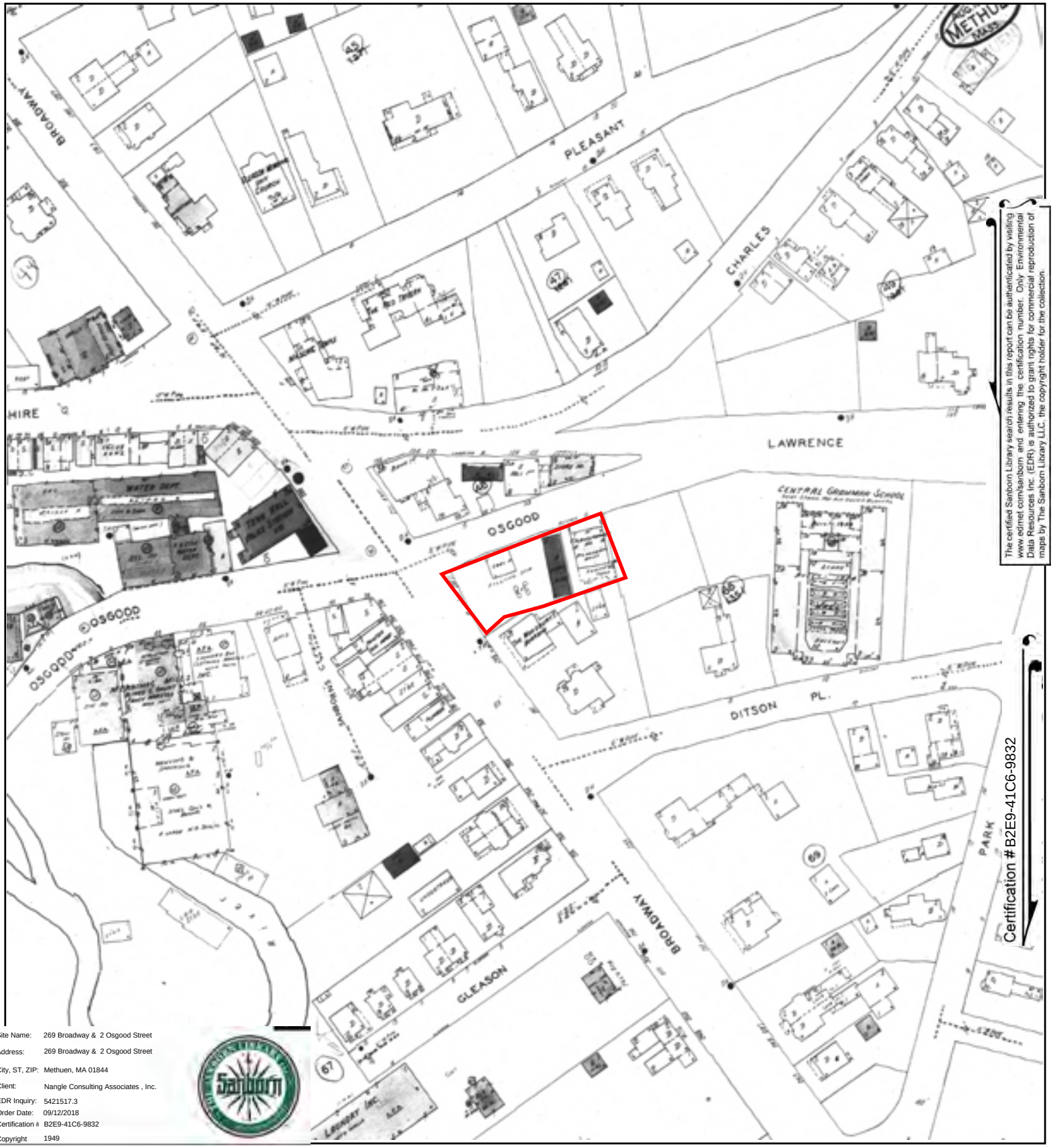


Volume 1, Sheet 9
Volume 1, Sheet 8
Volume 1, Sheet 5
Volume 1, Sheet 4

N



Certification # B2E9-41C6-9832

Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1949

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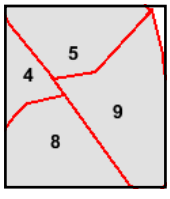
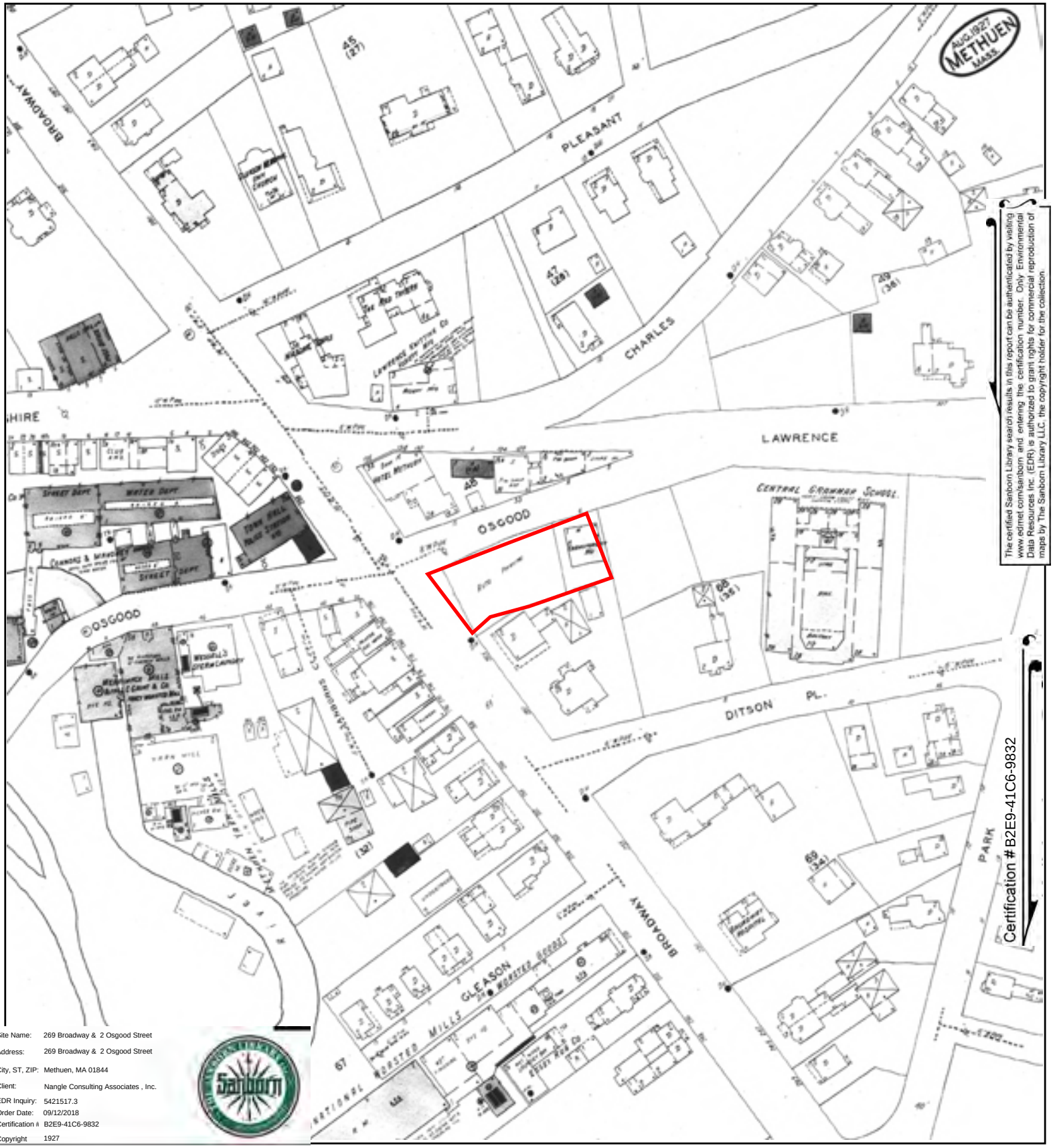


Volume 1, Sheet 9
Volume 1, Sheet 8
Volume 1, Sheet 5
Volume 1, Sheet 4

N



Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1927

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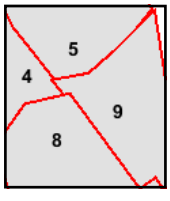

Volume 1, Sheet 9
Volume 1, Sheet 5
Volume 1, Sheet 4
Volume 1, Sheet 8

0 Feet 150 300 600

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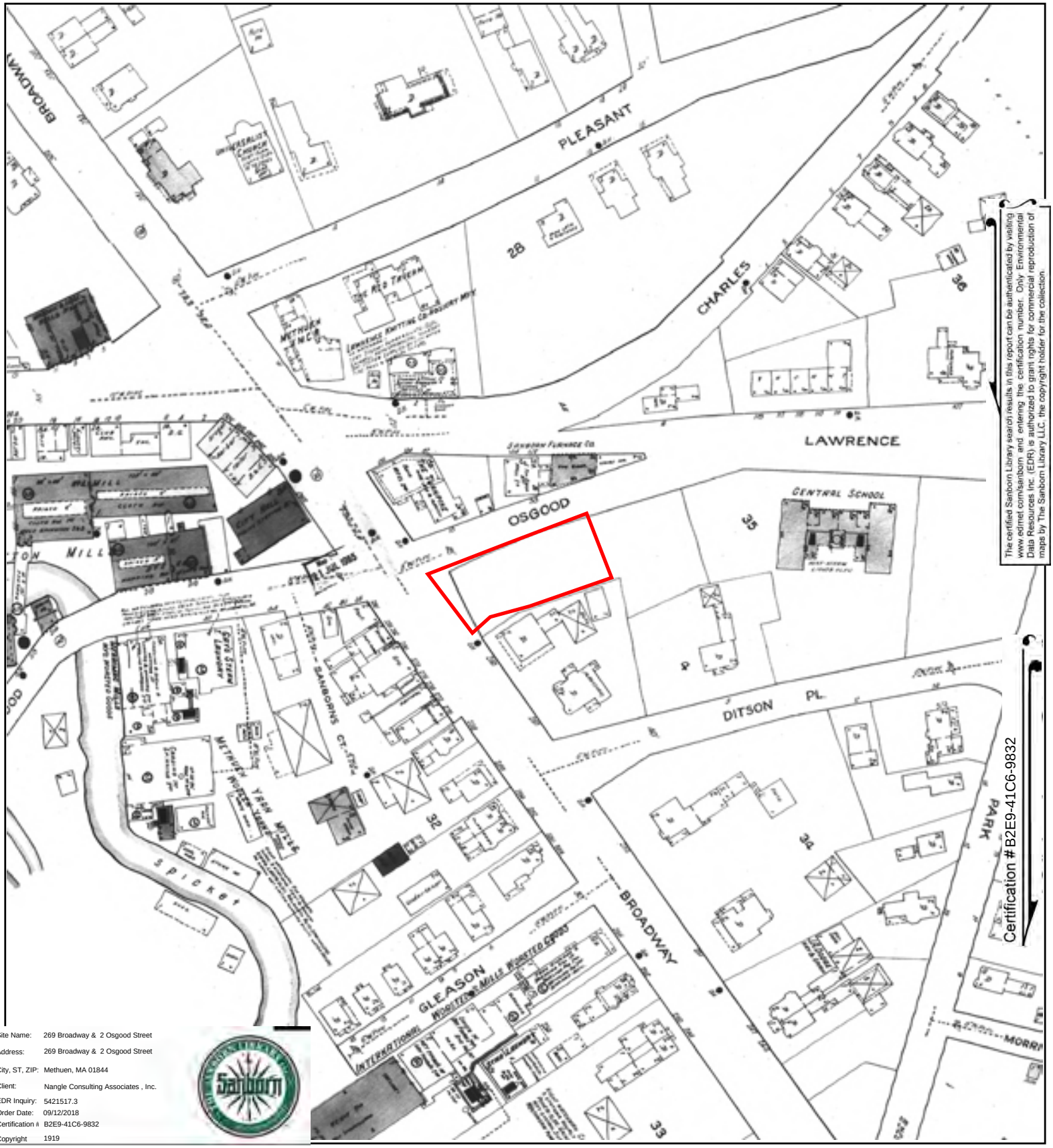
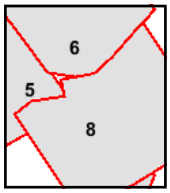


Site Name: 269 Broadway & 2 Osgood Street
Address: 269 Broadway & 2 Osgood Street
City, ST, ZIP: Methuen, MA 01844
Client: Nangle Consulting Associates , Inc.
EDR Inquiry: 5421517.3
Order Date: 09/12/2018
Certification #: B2E9-41C6-9832
Copyright: 1919

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 8
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

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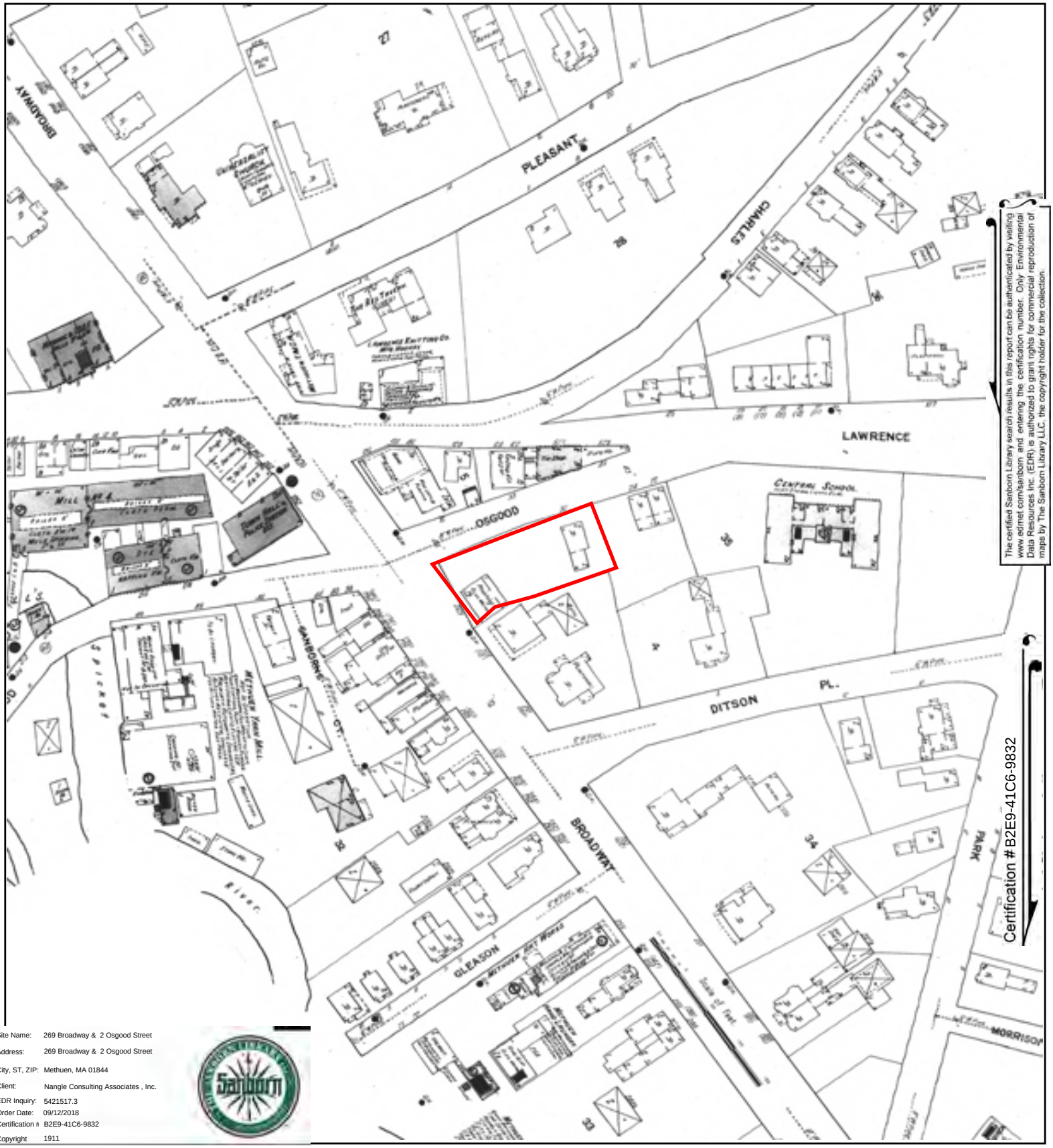

Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1911

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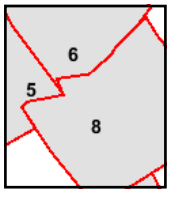
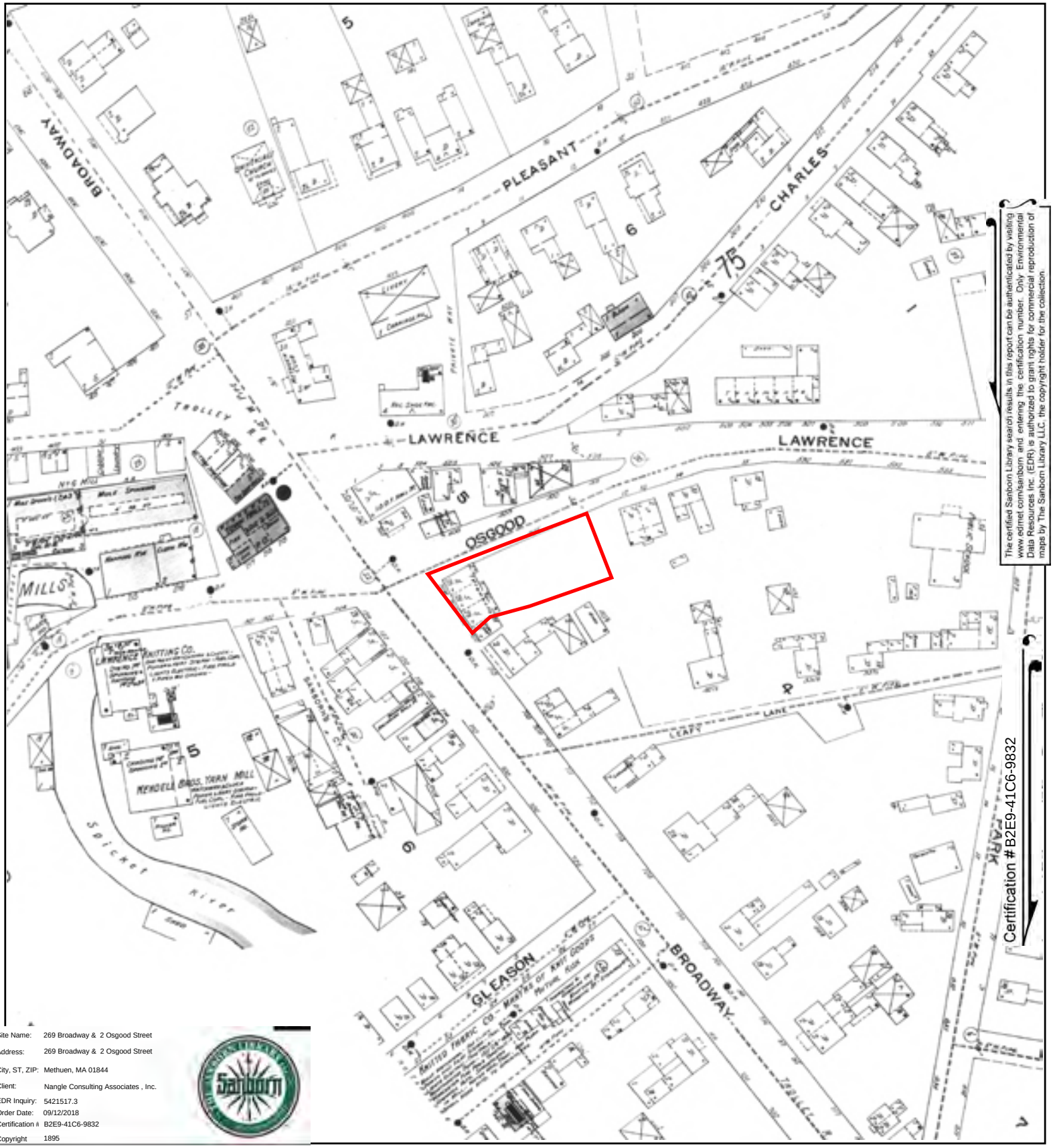


Volume 1, Sheet 8
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

N



Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1895

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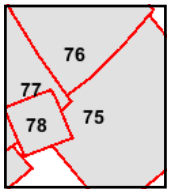

Volume 1, Sheet 78
Volume 1, Sheet 77
Volume 1, Sheet 76
Volume 1, Sheet 75

0 Feet 150 300 600

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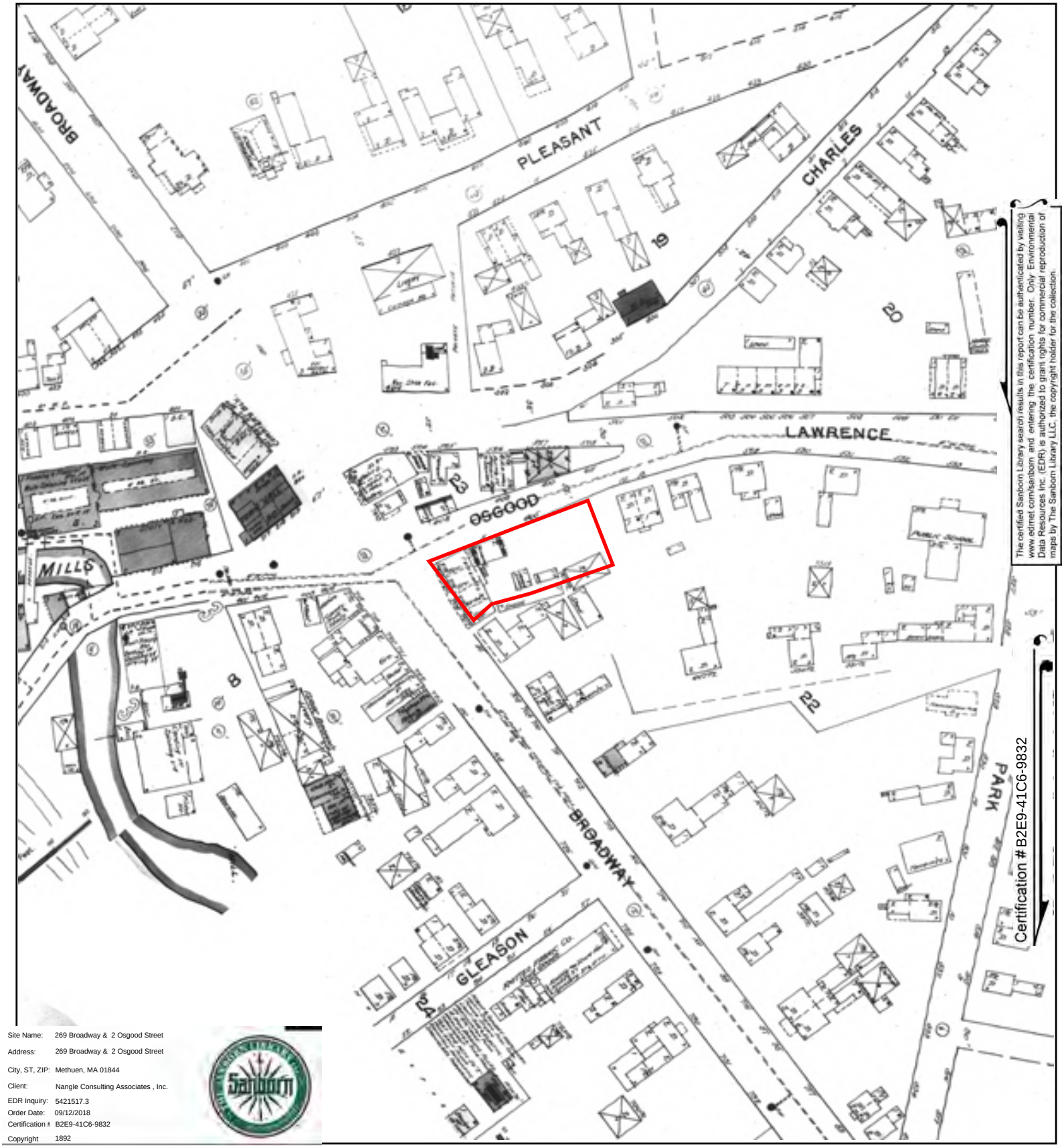
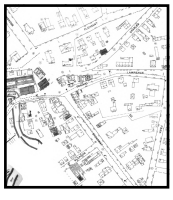


Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1892

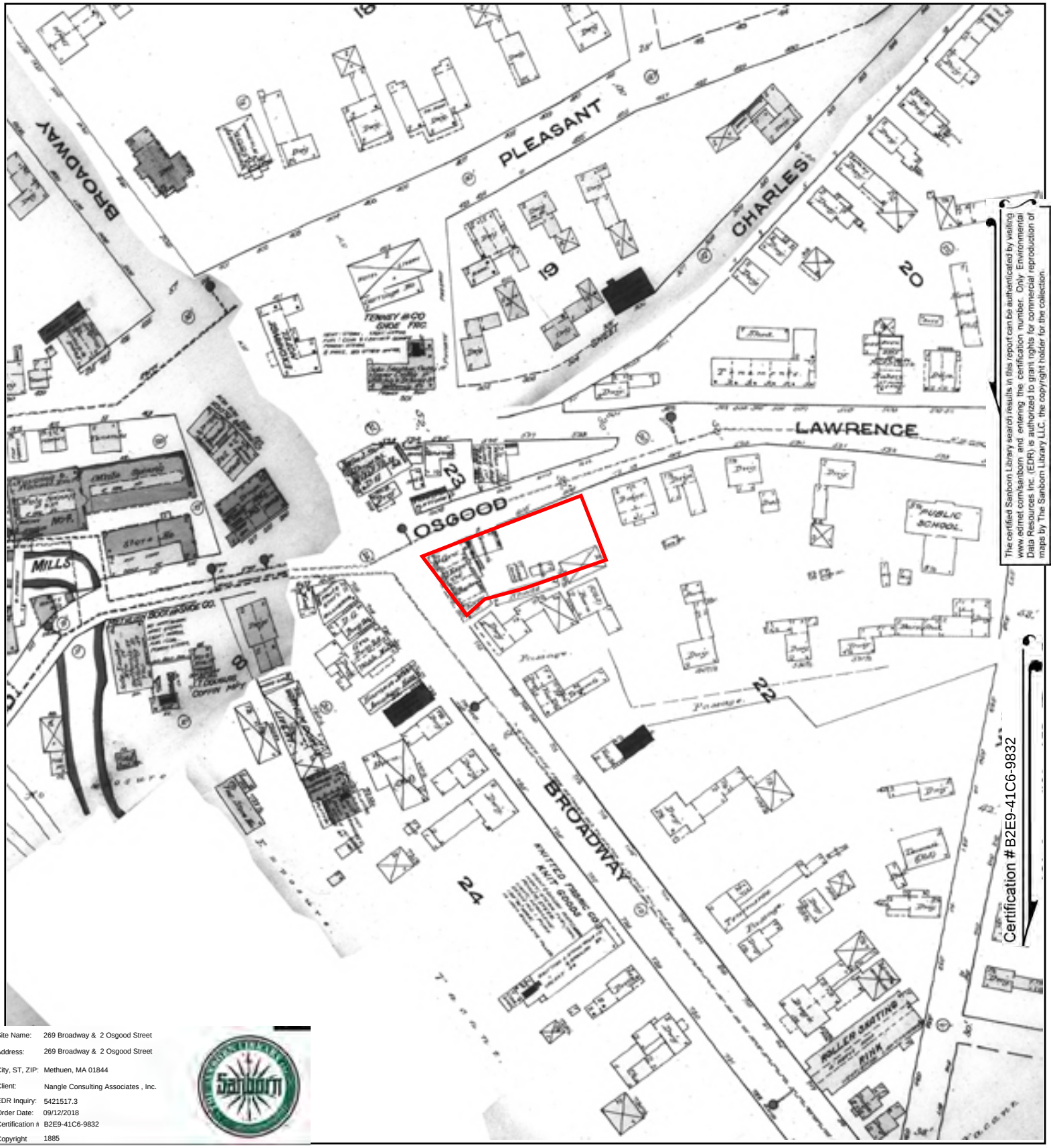
This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 2
Volume 1, Sheet 5
Volume 1, Sheet 3

0 Feet 150 300 600

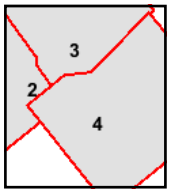
N



Certification # B2E9-41C6-9832

Site Name:	269 Broadway & 2 Osgood Street
Address:	269 Broadway & 2 Osgood Street
City, ST, ZIP:	Methuen, MA 01844
Client:	Nangle Consulting Associates , Inc.
EDR Inquiry:	5421517.3
Order Date:	09/12/2018
Certification #	B2E9-41C6-9832
Copyright	1885

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 1, Sheet 4
Volume 1, Sheet 3
Volume 1, Sheet 2

0 Feet 150 300 600

N

NANGLE CONSULTING ASSOCIATES, INC

APPENDIX C

Environmental Engineering and Land Use Planning

45 Dan Road - Suite 115 Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

269 Broadway & 2 Osgood Street
269 Broadway & 2 Osgood Street
Methuen, MA 01844

Inquiry Number: 5421517.2s
September 12, 2018

EDR Summary Radius Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

269 BROADWAY & 2 OSGOOD STREET
METHUEN, MA 01844

COORDINATES

Latitude (North):	42.7273690 - 42° 43' 38.52''
Longitude (West):	71.1867290 - 71° 11' 12.22''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	320968.8
UTM Y (Meters):	4732644.5
Elevation:	84 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	TP
Source:	U.S. Geological Survey

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140712
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MA 01844

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	SUPREME CLEANERS	271 BROADWAY 275	EDR Hist Cleaner	Higher	86, 0.016, NW
A2	ANTONS CLEANERS INC	290 BROADWAY	EDR Hist Cleaner	Higher	177, 0.034, WNW
B3	MUGGY & CHUCKS CITY	256 BROADWAY	EDR Hist Auto	Lower	270, 0.051, SSE
B4	CROSS ST - GLEASON S	254 BROADWAY	MA SHWS, MA RELEASE	Lower	398, 0.075, SSE
C5	MAGNETOMETRIC DEVICE	45 OSGOOD ST	MA HW GEN	Higher	403, 0.076, West
C6	MAGNETOMETRIC DEVICE	45 OSGOOD ST	RCRA-CESQG, FINDS, ECHO	Higher	403, 0.076, West
C7	NO LOCATION AID	47 TO 59 OSGOOD ST	MA SHWS, MA LUST, MA RELEASE	Lower	418, 0.079, WSW
C8	ANDREWS SERVICE STAT	19 HAMPSHIRE ST	EDR Hist Auto	Higher	488, 0.092, WNW
D9	FINISH TECH INC	50 OSGOOD ST	RCRA NonGen / NLR, FINDS, ECHO	Lower	560, 0.106, WSW
D10	LORRAINE CLEANING IN	50 OSGOOD ST	EDR Hist Cleaner	Lower	560, 0.106, WSW
D11	HELBICKS AUTO BODY S	28 OSGOOD ST	RCRA NonGen / NLR, FINDS, ECHO	Higher	602, 0.114, WSW
D12	THOMAS D DIORIO REAL	51 OSGOOD ST	MA SHWS, MA LAST, MA UST, MA RELEASE, MA Financial...	Higher	620, 0.117, WSW
13	SUN RITE CLEANERS &	246 BROADWAY	EDR Hist Cleaner	Lower	635, 0.120, SSE
E14	UNITRODE CORP	4 GLEASON ST	MA SHWS, MA LUST, MA RELEASE, RCRA NonGen / NLR,...	Lower	674, 0.128, SSW
E15	4 GLEASON STREET	4 GLEASON STREET	US BROWNFIELDS, FINDS	Lower	674, 0.128, SSW
F16	ANDREWS SERVICE STAT	2 LOWELL ST	MA LUST, MA RELEASE	Higher	733, 0.139, WNW
F17	METHUEN CAR CARE	2 LOWELL ST	RCRA NonGen / NLR, FINDS, ECHO	Higher	733, 0.139, WNW
F18	ANDREW'S SERVICE STA	2 LOWELL ST	MA UST, MA Financial Assurance	Higher	733, 0.139, WNW
19	NO LOCATION AID	30 HIGH ST	MA SHWS, MA RELEASE	Higher	803, 0.152, North
20	POLE MOUNTED TRANSFO	233 LAWRENCE STREET	MA SHWS, MA RELEASE	Lower	817, 0.155, East
G21	FMR PRECISE CIRCUIT	54 OSGOOD ST	MA SHWS, MA INST CONTROL, MA BROWNFIELDS, MA...	Higher	840, 0.159, WSW
G22	METHUEN MILL PROPERT	54 OSGOOD STREET	US BROWNFIELDS, RCRA NonGen / NLR, FINDS, ECHO, RI...	Higher	840, 0.159, WSW
G23	54 OSGOOD ST	54 OSGOOD ST	US BROWNFIELDS	Higher	840, 0.159, WSW
F24	RTE 113 BRIDGE OVER	6 LOWELL ST	MA SHWS, MA RELEASE	Higher	841, 0.159, West
F25	APPLEYARD TRUCKING	7 LOWELL ST	MA SHWS, MA LUST, MA RELEASE, MA ENF	Higher	844, 0.160, WNW
F26	APPLEYARD TRUCKING	7 LOWELL STREET	US BROWNFIELDS, FINDS	Higher	844, 0.160, WNW
F27	APPLEYARD MOTOR TRAN	7 LOWELL ST	MA UST, MA Financial Assurance	Higher	844, 0.160, WNW
F28	FREEMAN FUEL CO	50 HAMPSHIRE ST	MA UST, MA Financial Assurance	Higher	862, 0.163, WNW
F29	NO LOCATION AID	LOWELL STREET BRG	MA LUST, MA RELEASE	Higher	918, 0.174, West
H30	RIVERSIDE AUTO BODY	9 RIVER ST	RCRA-CESQG, FINDS, ECHO	Lower	991, 0.188, SSW
H31	RIVERSIDE AUTO BODY	9 RIVER ST	MA HW GEN	Lower	991, 0.188, SSW
32	TOWN OF METHUEN FIRE	24 LOWELL ST	MA UST	Higher	1019, 0.193, WSW
I33	CVS PHARMACY 0615	233 BROADWAY STREET	RCRA-SQG	Lower	1019, 0.193, SSE
I34	CVS PHARMACY 0615	233 BROADWAY ST	MA HW GEN	Lower	1019, 0.193, SSE
I35	ST MONICA CHURCH	231 BROADWAY	MA LUST, MA RELEASE	Lower	1152, 0.218, SE
36	NOTINI'S PROPERTY	41 PLEASANT STREET	US BROWNFIELDS	Higher	1167, 0.221, NE
J37	H & H ENGINEERING CO	6 PINE ST	MA HW GEN	Higher	1177, 0.223, West
J38	H & H ENGINEERING CO	6 PINE ST	RCRA-CESQG, FINDS, ECHO	Higher	1177, 0.223, West
J39	RICHS SHOP	9 PINE ST	RCRA NonGen / NLR, FINDS, ECHO	Higher	1202, 0.228, West

MAPPED SITES SUMMARY

Target Property Address:
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MA 01844

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
J40	TRA-JO CORP	12 PINE ST	MA UST, MA Financial Assurance	Higher	1274, 0.241, West
K41			MA AST	Higher	1305, 0.247, WSW
J42	PERFECTION AUTO BODY	16 PINE ST	RCRA-CESQG, FINDS, ECHO	Higher	1319, 0.250, West
J43	PERFECTION AUTO BODY	16 PINE ST	NJ MANIFEST	Higher	1319, 0.250, West
J44	PERFECTION AUTO BODY	16 PINE ST	MA HW GEN	Higher	1319, 0.250, West
45	LAIDLAW TRANSIT INC	56 UNION ST	MA SHWS, MA UST, MA RELEASE, MA HW GEN	Higher	1346, 0.255, South
K46	MA0033	30 LOWELL ST	MA LUST, MA UST, MA AST, MA RELEASE, MA HW GEN	Higher	1368, 0.259, WSW
47	ABANDONED UST AT REA	76 UNION ST	MA SHWS, MA RELEASE, MA ASBESTOS	Higher	1583, 0.300, SW
48	INTERNATIONAL MILLS	60 PINE ST	MA SHWS, MA RELEASE, MA HW GEN	Higher	1656, 0.314, WNW
49	ELECTRICAL SUBSTATIO	15 PELHAM AVE	MA SHWS, MA RELEASE, MA ASBESTOS, MA HW GEN, MA...	Higher	1664, 0.315, West
50	OAKLAND REALTY TRUST	BEHIND 39 OAKLAND AV	MA SHWS, MA RELEASE, MA ENF	Higher	2070, 0.392, South
L51	58 REALTY TRUST	62 BROADWAY	MA SHWS, MA LUST, MA INST CONTROL, MA RELEASE, MA...	Lower	3310, 0.627, SSE
52	PROPERTY	37-39 CHASE ST 3-5 C	MA SHWS, MA RELEASE	Lower	3360, 0.636, SSE
53	BATISTA, RAPHAEL	20 TUDOR STREET	MA SHWS, MA LAST, MA RELEASE, MA ENF	Higher	3386, 0.641, ESE
54	ARCADIA MILLS	55 CHASE ST	MA SHWS, MA LAST, MA RELEASE, MA HW GEN	Lower	3411, 0.646, SSE
L55	MALDEN MILLS	CHASE ST	MA SHWS, MA RELEASE	Lower	3517, 0.666, SSE
56	CONLINS PHARMACY	30 LAWRENCE ST	MA SHWS, MA RELEASE	Higher	3579, 0.678, ESE
57	THE LAWRENCE SAVINGS	148 LOWELL ST	MA SHWS, MA RELEASE	Higher	3715, 0.704, SW
58	D&D TRANSMISSION	27 CENTER ST	MA SHWS, MA RELEASE	Lower	3739, 0.708, SE
59	RECREATIONAL FIELD U	45-55 PLEASANT VIEW	MA SHWS, MA LUST, MA RELEASE	Higher	3769, 0.714, ENE
M60	PELHAM ST EXIT RAMP	RTE 93	MA SHWS, MA RELEASE, MA SPILLS	Higher	3821, 0.724, West
N61	BETWEEN CHELMSFORD &	26 SPRUCE ST	MA SHWS, MA RELEASE, MA ENF	Lower	3857, 0.730, ESE
M62	SUN REFINING & MARKE	150 PELHAM ST	MA SHWS, MA LUST, MA INST CONTROL, MA RELEASE, MA...	Higher	3932, 0.745, West
N63	PROPERTY	16 LAWRENCE	MA SHWS, MA RELEASE	Higher	3976, 0.753, ESE
N64	RESIDENTIAL PROPERTY	20 SPRUCE STREET	MA SHWS, MA RELEASE	Lower	3986, 0.755, SE
65	RESIDENTIAL PROPERTY	14-16 SPRUCE STREET	MA SHWS, MA RELEASE, MA ENF	Lower	4001, 0.758, SE
66	GASOLINE STATION FMR	145-147 PELHAM ST	MA SHWS, MA RELEASE	Higher	4121, 0.780, West
67	POLARTEC; LLC	46 STAFFORD STREET	MA SHWS, MA LAST, MA LUST, MA AST, MA RELEASE, MA...	Lower	4131, 0.782, SSE
68	GASOLINE STATION	450 BROADWAY	MA SHWS, MA LUST, MA RELEASE, MA SPILLS	Higher	4203, 0.796, NNW
69	SPEEDWAY 2499	615 BROADWAY	MA SHWS, MA LUST, MA AST, MA RELEASE, MA SPILLS,...	Lower	4443, 0.841, SSE
O70	HOLY FAMILY HOSPITAL	70 EAST ST	RCRA-SQG, MA SHWS, MA LUST, MA RELEASE, MA ENF, NJ...	Higher	4624, 0.876, East
O71	HOLY FAMILY HOSPITAL	70 EAST STREET	MA SHWS, MA LUST, MA UST, MA RELEASE, MLTS, MA...	Higher	4624, 0.876, East
O72	NO LOCATION AID	70 EAST ST	MA SHWS, MA RELEASE	Higher	4624, 0.876, East
73	METHUEN DPW GARAGE	61 LINDBERG AVE	MA SHWS, MA LUST, MA UST, MA RELEASE, MA ENF	Higher	4656, 0.882, WSW
74	COTTONE PROPERTY	477 BROADWAY	MA SHWS, MA LAST, MA RELEASE	Higher	4675, 0.885, NNW
P75	FORMER VAN BRODIE BU	580 BROADWAY	MA SHWS, MA RELEASE	Lower	4702, 0.891, SSE
P76	NEAR STEVENS POND DA	570 BROADWAY	MA SHWS, MA RELEASE	Lower	4747, 0.899, SSE
P77	BUILDING 25	566 BROADWAY	MA SHWS, MA RELEASE, MA HW GEN	Lower	4765, 0.902, SSE
P78	BUILDINGS 29 AND 30	550 BROADWAY	MA SHWS, MA INST CONTROL, MA RELEASE	Lower	4871, 0.923, SSE

MAPPED SITES SUMMARY

Target Property Address:
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MA 01844

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
79	NO LOCATION AID	85 MANCHESTER ST	MA SHWS, MA SWF/LF, MA INST CONTROL, MA...	Lower	4964, 0.940, SSE
80	VACANT LOT	147A EDGEWOOD AVENUE	MA SHWS, MA RELEASE	Higher	5094, 0.965, WSW
81	MA0014	484 BROADWAY	MA SHWS, MA LUST, MA UST, MA AST, MA RELEASE	Higher	5154, 0.976, NNW
82	NO LOCATION AID	516 BROADWAY	MA SHWS, MA RELEASE	Lower	5198, 0.984, SSE
Q83	LAWRENCE TEXTILES	530 BROADWAY	MA SHWS, MA LAST, MA INST CONTROL, MA RELEASE	Lower	5207, 0.986, SSE
Q84	BLDG 29	520-610 BROADWAY	MA SHWS, MA RELEASE	Lower	5250, 0.994, SSE
Q85	BLDG 24	520 BROADWAY	MA SHWS, MA RELEASE	Lower	5250, 0.994, SSE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: A review of the RCRA-SQG list, as provided by EDR, and dated 03/01/2018 has revealed that there is 1 RCRA-SQG site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
CVS PHARMACY 0615 EPA ID:: MAC300015898	233 BROADWAY STREET	SSE 1/8 - 1/4 (0.193 mi.)	I33	17

RCRA-CESQG: A review of the RCRA-CESQG list, as provided by EDR, and dated 03/01/2018 has revealed that there are 4 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MAGNETOMETRIC DEVICE EPA ID:: MAD980668529	***45 OSGOOD ST***	***W 0 - 1/8 (0.076 mi.)***	***C6***	***9***
H & H ENGINEERING CO EPA ID:: MAD091498741	***6 PINE ST***	***W 1/8 - 1/4 (0.223 mi.)***	***J38***	***19***
PERFECTION AUTO BODY EPA ID:: MAD981068422	***16 PINE ST***	***W 1/8 - 1/4 (0.250 mi.)***	***J42***	***20***

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE AUTO BODY EPA ID:: MAD071703946	***9 RIVER ST***	***SSW 1/8 - 1/4 (0.188 mi.)***	***H30***	***17***

EXECUTIVE SUMMARY

State- and tribal - equivalent CERCLIS

MA SHWS: A review of the MA SHWS list, as provided by EDR, and dated 04/18/2018 has revealed that there are 49 MA SHWS sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THOMAS D DIORIO REAL	***51 OSGOOD ST***	***WSW 0 - 1/8 (0.117 mi.)***	***D12***	***10***
Release Tracking Number / Current Status: 3-0026229 / RAO				
NO LOCATION AID	***30 HIGH ST***	***N 1/8 - 1/4 (0.152 mi.)***	***19***	***13***
Release Tracking Number / Current Status: 3-0011163 / RAO				
FMR PRECISE CIRCUIT	***54 OSGOOD ST***	***WSW 1/8 - 1/4 (0.159 mi.)***	***G21***	***14***
Release Tracking Number / Current Status: 3-0010447 / PSC				
RTE 113 BRIDGE OVER	***6 LOWELL ST***	***W 1/8 - 1/4 (0.159 mi.)***	***F24***	***15***
Release Tracking Number / Current Status: 3-0019040 / RAO				
APPLEYARD TRUCKING	***7 LOWELL ST***	***WNW 1/8 - 1/4 (0.160 mi.)***	***F25***	***15***
Release Tracking Number / Current Status: 3-0003382 / RAO				
LAIDLAW TRANSIT INC	***56 UNION ST***	***S 1/4 - 1/2 (0.255 mi.)***	***45***	***20***
Release Tracking Number / Current Status: 3-0032070 / PSNC				
ABANDONED UST AT REA	***76 UNION ST***	***SW 1/4 - 1/2 (0.300 mi.)***	***47***	***21***
Release Tracking Number / Current Status: 3-0026558 / RAO				
INTERNATIONAL MILLS	***60 PINE ST***	***WNW 1/4 - 1/2 (0.314 mi.)***	***48***	***22***
Release Tracking Number / Current Status: 3-0003935 / LSPNFA				
ELECTRICAL SUBSTATIO	***15 PELHAM AVE***	***W 1/4 - 1/2 (0.315 mi.)***	***49***	***22***
Release Tracking Number / Current Status: 3-0032846 / PSNC				
Release Tracking Number / Current Status: 3-0027755 / RAO				
OAKLAND REALTY TRUST	***BEHIND 39 OAKLAND AV***	***S 1/4 - 1/2 (0.392 mi.)***	***50***	***23***
Release Tracking Number / Current Status: 3-0004482 / TIERII				
BATISTA, RAPHAEL	***20 TUDOR STREET***	***ESE 1/2 - 1 (0.641 mi.)***	***53***	***24***
Release Tracking Number / Current Status: 3-0033448 / TIER1D				
CONLINS PHARMACY	***30 LAWRENCE ST***	***ESE 1/2 - 1 (0.678 mi.)***	***56***	***25***
Release Tracking Number / Current Status: 3-0021052 / DPS				
THE LAWRENCE SAVINGS	***148 LOWELL ST***	***SW 1/2 - 1 (0.704 mi.)***	***57***	***26***
Release Tracking Number / Current Status: 3-0025979 / RAO				
RECREATIONAL FIELD U	***45-55 PLEASANT VIEW***	***ENE 1/2 - 1 (0.714 mi.)***	***59***	***26***
Release Tracking Number / Current Status: 3-0032851 / PSNC				
PELHAM ST EXIT RAMP	***RTE 93***	***W 1/2 - 1 (0.724 mi.)***	***M60***	***27***
Release Tracking Number / Current Status: 3-0015420 / URAM				
SUN REFINING & MARKE	***150 PELHAM ST***	***W 1/2 - 1 (0.745 mi.)***	***M62***	***28***
Release Tracking Number / Current Status: 3-0021625 / RAONR				
Release Tracking Number / Current Status: 3-0018335 / RAO				
PROPERTY	***16 LAWRENCE***	***ESE 1/2 - 1 (0.753 mi.)***	***N63***	***29***
Release Tracking Number / Current Status: 3-0001968 / PENNFA				
GASOLINE STATION FMR	***145-147 PELHAM ST***	***W 1/2 - 1 (0.780 mi.)***	***66***	***30***
Release Tracking Number / Current Status: 3-0002096 / PENNFA				
GASOLINE STATION	***450 BROADWAY***	***NNW 1/2 - 1 (0.796 mi.)***	***68***	***31***
Release Tracking Number / Current Status: 3-0004500 / WCSPRM				
HOLY FAMILY HOSPITAL	***70 EAST ST***	***E 1/2 - 1 (0.876 mi.)***	***O70***	***32***

Release Tracking Number / Current Status: 3-0029319 / RAO

HOLY FAMILY HOSPITAL	***70 EAST STREET***	***E 1/2 - 1 (0.876 mi.)***	***O71***	***33***
Release Tracking Number / Current Status: 3-0014962 / RAO				
NO LOCATION AID	***70 EAST ST***	***E 1/2 - 1 (0.876 mi.)***	***O72***	***34***
Release Tracking Number / Current Status: 3-0019378 / RAONR				
METHUEN DPW GARAGE	***61 LINDBERG AVE***	***WSW 1/2 - 1 (0.882 mi.)***	***73***	***34***
Release Tracking Number / Current Status: 3-0027212 / TIERII				
COTTONE PROPERTY	***477 BROADWAY***	***NNW 1/2 - 1 (0.885 mi.)***	***74***	***35***
Release Tracking Number / Current Status: 3-0031941 / RAO				
VACANT LOT	***147A EDGEWOOD AVENUE***	***WSW 1/2 - 1 (0.965 mi.)***	***80***	***37***
Release Tracking Number / Current Status: 3-0033579 / TIER1D				
MA0014	***484 BROADWAY***	***NNW 1/2 - 1 (0.976 mi.)***	***81***	***38***
Release Tracking Number / Current Status: 3-0003817 / RAO				

Lower Elevation	Address	Direction / Distance	Map ID	Page
CROSS ST - GLEASON S	***254 BROADWAY***	***SSE 0 - 1/8 (0.075 mi.)***	***B4***	***8***
Release Tracking Number / Current Status: 3-0020237 / RAO				
NO LOCATION AID	***47 TO 59 OSGOOD ST***	***WSW 0 - 1/8 (0.079 mi.)***	***C7***	***9***
Release Tracking Number / Current Status: 3-0018022 / RAO				
UNITRODE CORP	***4 GLEASON ST***	***SSW 1/8 - 1/4 (0.128 mi.)***	***E14***	***11***
Release Tracking Number / Current Status: 3-0003661 / WCSPRM				
Release Tracking Number / Current Status: 3-0024029 / RAO				
POLE MOUNTED TRANSFO	***233 LAWRENCE STREET***	***E 1/8 - 1/4 (0.155 mi.)***	***20***	***13***
Release Tracking Number / Current Status: 3-0033964 / PSNC				
58 REALTY TRUST	***62 BROADWAY***	***SSE 1/2 - 1 (0.627 mi.)***	***L51***	***23***
Release Tracking Number / Current Status: 3-0000803 / RAO				
Release Tracking Number / Current Status: 3-0011075 / RAONR				
PROPERTY	***37-39 CHASE ST 3-5 C***	***SSE 1/2 - 1 (0.636 mi.)***	***52***	***24***
Release Tracking Number / Current Status: 3-0002457 / RAO				
ARCADIA MILLS	***55 CHASE ST***	***SSE 1/2 - 1 (0.646 mi.)***	***54***	***24***
Release Tracking Number / Current Status: 3-0013651 / RAO				
MALDEN MILLS	***CHASE ST***	***SSE 1/2 - 1 (0.666 mi.)***	***L55***	***25***
Release Tracking Number / Current Status: 3-0013331 / RAO				
D&D TRANSMISSION	***27 CENTER ST***	***SE 1/2 - 1 (0.708 mi.)***	***58***	***26***
Release Tracking Number / Current Status: 3-0004130 / DEPNDS				
BETWEEN CHELMSFORD &	***26 SPRUCE ST***	***ESE 1/2 - 1 (0.730 mi.)***	***N61***	***27***
Release Tracking Number / Current Status: 3-0012229 / RAO				
Release Tracking Number / Current Status: 3-0015217 / TIERI				
RESIDENTIAL PROPERTY	***20 SPRUCE STREET***	***SE 1/2 - 1 (0.755 mi.)***	***N64***	***29***
Release Tracking Number / Current Status: 3-0029902 / RAONR				
RESIDENTIAL PROPERTY	***14-16 SPRUCE STREET***	***SE 1/2 - 1 (0.758 mi.)***	***65***	***29***
Release Tracking Number / Current Status: 3-0030739 / RAONR				
POLARTEC; LLC	***46 STAFFORD STREET***	***SSE 1/2 - 1 (0.782 mi.)***	***67***	***30***
Release Tracking Number / Current Status: 3-0015482 / RAO				
Release Tracking Number / Current Status: 3-0000728 / RAO				
Release Tracking Number / Current Status: 3-0013254 / RAO				
SPEEDWAY 2499	***615 BROADWAY***	***SSE 1/2 - 1 (0.841 mi.)***	***69***	***31***

Release Tracking Number / Current Status: 3-0022755 / RAONR
Release Tracking Number / Current Status: 3-0020787 / RAONR

FORMER VAN BRODIE BU ***580 BROADWAY*** ***SSE 1/2 - 1 (0.891 mi.)*** ***P75*** ***35***
Release Tracking Number / Current Status: 3-0033667 / TIERII

NEAR STEVENS POND DA ***570 BROADWAY*** ***SSE 1/2 - 1 (0.899 mi.)*** ***P76*** ***36***
Release Tracking Number / Current Status: 3-0013405 / URAM

BUILDING 25 ***566 BROADWAY*** ***SSE 1/2 - 1 (0.902 mi.)*** ***P77*** ***36***
Release Tracking Number / Current Status: 3-0011604 / RAONR

BUILDINGS 29 AND 30 ***550 BROADWAY*** ***SSE 1/2 - 1 (0.923 mi.)*** ***P78*** ***36***
Release Tracking Number / Current Status: 3-0030137 / PSC

NO LOCATION AID ***85 MANCHESTER ST*** ***SSE 1/2 - 1 (0.940 mi.)*** ***79*** ***37***
Release Tracking Number / Current Status: 3-0014146 / RAO
Release Tracking Number / Current Status: 3-0014333 / RAO
Release Tracking Number / Current Status: 3-0019158 / RAO

NO LOCATION AID ***516 BROADWAY*** ***SSE 1/2 - 1 (0.984 mi.)*** ***82*** ***38***
Release Tracking Number / Current Status: 3-0013824 / RAO

LAWRENCE TEXTILES ***530 BROADWAY*** ***SSE 1/2 - 1 (0.986 mi.)*** ***Q83*** ***39***
Release Tracking Number / Current Status: 3-0004272 / PSC
Release Tracking Number / Current Status: 3-0015992 / RAO

BLDG 29 ***520-610 BROADWAY*** ***SSE 1/2 - 1 (0.994 mi.)*** ***Q84*** ***39***
Release Tracking Number / Current Status: 3-0026835 / RAO

BLDG 24 ***520 BROADWAY*** ***SSE 1/2 - 1 (0.994 mi.)*** ***Q85*** ***40***
Release Tracking Number / Current Status: 3-0015807 / RAO
Release Tracking Number / Current Status: 3-0010728 / RAO

State and tribal leaking storage tank lists

MA LUST: A review of the MA LUST list, as provided by EDR, and dated 04/18/2018 has revealed that there are 7 MA LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ANDREWS SERVICE STAT	***2 LOWELL ST***	***WNW 1/8 - 1/4 (0.139 mi.)***	***F16***	***12***
Release Tracking Number / Current Status: 3-0003825 / DEPNDS				
APPLEYARD TRUCKING	***7 LOWELL ST***	***WNW 1/8 - 1/4 (0.160 mi.)***	***F25***	***15***
Release Tracking Number / Current Status: 3-0010894 / RAONR				
Release Tracking Number / Current Status: 3-0003382 / RAO				
NO LOCATION AID	***LOWELL STREET BRG***	***W 1/8 - 1/4 (0.174 mi.)***	***F29***	***16***
Release Tracking Number / Current Status: 3-0021766 / RAO				
MA0033	***30 LOWELL ST***	***WSW 1/4 - 1/2 (0.259 mi.)***	***K46***	***21***
Release Tracking Number / Current Status: 3-0003643 / RAO				

Lower Elevation	Address	Direction / Distance	Map ID	Page
NO LOCATION AID	***47 TO 59 OSGOOD ST***	***WSW 0 - 1/8 (0.079 mi.)***	***C7***	***9***
Release Tracking Number / Current Status: 3-0018022 / RAO				
UNITRODE CORP	***4 GLEASON ST***	***SSW 1/8 - 1/4 (0.128 mi.)***	***E14***	***11***

Release Tracking Number / Current Status: 3-0025262 / RAO

ST MONICA CHURCH	***231 BROADWAY***	***SE 1/8 - 1/4 (0.218 mi.)***	***I35***	***18***

Release Tracking Number / Current Status: 3-0003975 / DEPNFA

MA LAST: A review of the MA LAST list, as provided by EDR, and dated 04/18/2018 has revealed that there is 1 MA LAST site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THOMAS D DIORIO REAL	***51 OSGOOD ST***	***WSW 0 - 1/8 (0.117 mi.)***	***D12***	***10***

Release Tracking Number / Current Status: 3-0026229 / RAO

State and tribal registered storage tank lists

MA UST: A review of the MA UST list, as provided by EDR, and dated 04/18/2018 has revealed that there are 6 MA UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
THOMAS D DIORIO REAL	***51 OSGOOD ST***	***WSW 0 - 1/8 (0.117 mi.)***	***D12***	***10***
Tank Status: Tank Removed				
Facility Id: 5555				
ANDREW'S SERVICE STA	***2 LOWELL ST***	***WNW 1/8 - 1/4 (0.139 mi.)***	***F18***	***13***
Tank Status: Tank Removed				
Facility Id: 5589				
APPLEYARD MOTOR TRAN	***7 LOWELL ST***	***WNW 1/8 - 1/4 (0.160 mi.)***	***F27***	***16***
Tank Status: Tank Removed				
Facility Id: 5565				
FREEMAN FUEL CO	***50 HAMPSHIRE ST***	***WNW 1/8 - 1/4 (0.163 mi.)***	***F28***	***16***
Tank Status: Tank Removed				
Facility Id: 5529				
TOWN OF METHUEN FIRE	24 LOWELL ST	WSW 1/8 - 1/4 (0.193 mi.)	32	17
Tank Status: Tank Removed				
Facility Id: 5550				
TRA-JO CORP	***12 PINE ST***	***W 1/8 - 1/4 (0.241 mi.)***	***J40***	***19***
Tank Status: Tank Removed				
Facility Id: 5538				

MA AST: A review of the MA AST list, as provided by EDR, has revealed that there is 1 MA AST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
Not reported		WSW 1/8 - 1/4 (0.247 mi.)	K41	19

Database: AST, Date of Government Version: 07/13/2018

EXECUTIVE SUMMARY

Release Tracking Number: 526

State and tribal institutional control / engineering control registries

MA INST CONTROL: A review of the MA INST CONTROL list, as provided by EDR, and dated 04/18/2018 has revealed that there is 1 MA INST CONTROL site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FMR PRECISE CIRCUIT	***54 OSGOOD ST***	***WSW 1/8 - 1/4 (0.159 mi.)***	***G21***	***14***
Release Tracking Number: 3-0010447				

State and tribal Brownfields sites

MA BROWNFIELDS: A review of the MA BROWNFIELDS list, as provided by EDR, has revealed that there is 1 MA BROWNFIELDS site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FMR PRECISE CIRCUIT	***54 OSGOOD ST***	***WSW 1/8 - 1/4 (0.159 mi.)***	***G21***	***14***
Database: BROWNFIELDS 2, Date of Government Version: 05/22/2017 MCP Status: PSC RTN: 3-0010447				

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A review of the US BROWNFIELDS list, as provided by EDR, and dated 03/19/2018 has revealed that there are 5 US BROWNFIELDS sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
METHUEN MILL PROPERT ACRES property ID: 11536	***54 OSGOOD STREET***	***WSW 1/8 - 1/4 (0.159 mi.)***	***G22***	***14***
54 OSGOOD ST ACRES property ID: 74861	54 OSGOOD ST	WSW 1/8 - 1/4 (0.159 mi.)	G23	15
APPLEYARD TRUCKING ACRES property ID: 11537	***7 LOWELL STREET***	***WNW 1/8 - 1/4 (0.160 mi.)***	***F26***	***16***
NOTINI'S PROPERTY ACRES property ID: 11539	41 PLEASANT STREET	NE 1/8 - 1/4 (0.221 mi.)	36	18

Lower Elevation	Address	Direction / Distance	Map ID	Page
4 GLEASON STREET	***4 GLEASON STREET***	***SSW 1/8 - 1/4 (0.128 mi.)***	***E15***	***12***

EXECUTIVE SUMMARY

ACRES property ID: 11538

Other Ascertainable Records

RCRA NonGen / NLR: A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/01/2018 has revealed that there are 6 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
HELBICKS AUTO BODY S EPA ID:: MAD019487677	***28 OSGOOD ST***	***WSW 0 - 1/8 (0.114 mi.)***	***D11***	***10***
METHUEN CAR CARE EPA ID:: MAD019486562	***2 LOWELL ST***	***WNW 1/8 - 1/4 (0.139 mi.)***	***F17***	***12***
METHUEN MILL PROPERT EPA ID:: MAD980913248	***54 OSGOOD STREET***	***WSW 1/8 - 1/4 (0.159 mi.)***	***G22***	***14***
RICHS SHOP EPA ID:: MAD981888738	***9 PINE ST***	***W 1/8 - 1/4 (0.228 mi.)***	***J39***	***19***

Lower Elevation	Address	Direction / Distance	Map ID	Page
FINISH TECH INC EPA ID:: MAD981062623	***50 OSGOOD ST***	***WSW 0 - 1/8 (0.106 mi.)***	***D9***	***10***
UNITRODE CORP EPA ID:: MAD056004062	***4 GLEASON ST***	***SSW 1/8 - 1/4 (0.128 mi.)***	***E14***	***11***

MA HW GEN: A review of the MA HW GEN list, as provided by EDR, and dated 06/04/2018 has revealed that there are 5 MA HW GEN sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
MAGNETOMETRIC DEVICE EPA Id: MAD980668529	45 OSGOOD ST	W 0 - 1/8 (0.076 mi.)	C5	8
H & H ENGINEERING CO EPA Id: MAD091498741	6 PINE ST	W 1/8 - 1/4 (0.223 mi.)	J37	18
PERFECTION AUTO BODY State Generator Status: VQG-MA EPA Id: MAD981068422	16 PINE ST	W 1/8 - 1/4 (0.250 mi.)	J44	20

Lower Elevation	Address	Direction / Distance	Map ID	Page
RIVERSIDE AUTO BODY EPA Id: MAD071703946	9 RIVER ST	SSW 1/8 - 1/4 (0.188 mi.)	H31	17
CVS PHARMACY 0615 EPA Id: MAC300015898	233 BROADWAY ST	SSE 1/8 - 1/4 (0.193 mi.)	I34	18

NJ MANIFEST: A review of the NJ MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there is 1 NJ MANIFEST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
PERFECTION AUTO BODY EPA Id: MAD981068422	16 PINE ST	W 1/8 - 1/4 (0.250 mi.)	J43	20

RI MANIFEST: A review of the RI MANIFEST list, as provided by EDR, and dated 12/31/2017 has revealed that there is 1 RI MANIFEST site within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
METHUEN MILL PROPERT EPA Id: MAD980913248 Manifest Document Number: MAG085365	***54 OSGOOD STREET***	***WSW 1/8 - 1/4 (0.159 mi.)***	***G22***	***14***

NY MANIFEST: A review of the NY MANIFEST list, as provided by EDR, and dated 07/01/2018 has revealed that there is 1 NY MANIFEST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
UNITRODE CORP EPA ID: MAD056004062	***4 GLEASON ST***	***SSW 1/8 - 1/4 (0.128 mi.)***	***E14***	***11***

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: A review of the EDR Hist Auto list, as provided by EDR, has revealed that there are 2 EDR Hist Auto sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ANDREWS SERVICE STAT	19 HAMPSHIRE ST	WNW 0 - 1/8 (0.092 mi.)	C8	9

Lower Elevation	Address	Direction / Distance	Map ID	Page
MUGGY & CHUCKS CITY	256 BROADWAY	SSE 0 - 1/8 (0.051 mi.)	B3	8

EDR Hist Cleaner: A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 4 EDR Hist Cleaner sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SUPREME CLEANERS	271 BROADWAY 275	NW 0 - 1/8 (0.016 mi.)	A1	8
ANTONS CLEANERS INC	290 BROADWAY	WNW 0 - 1/8 (0.034 mi.)	A2	8

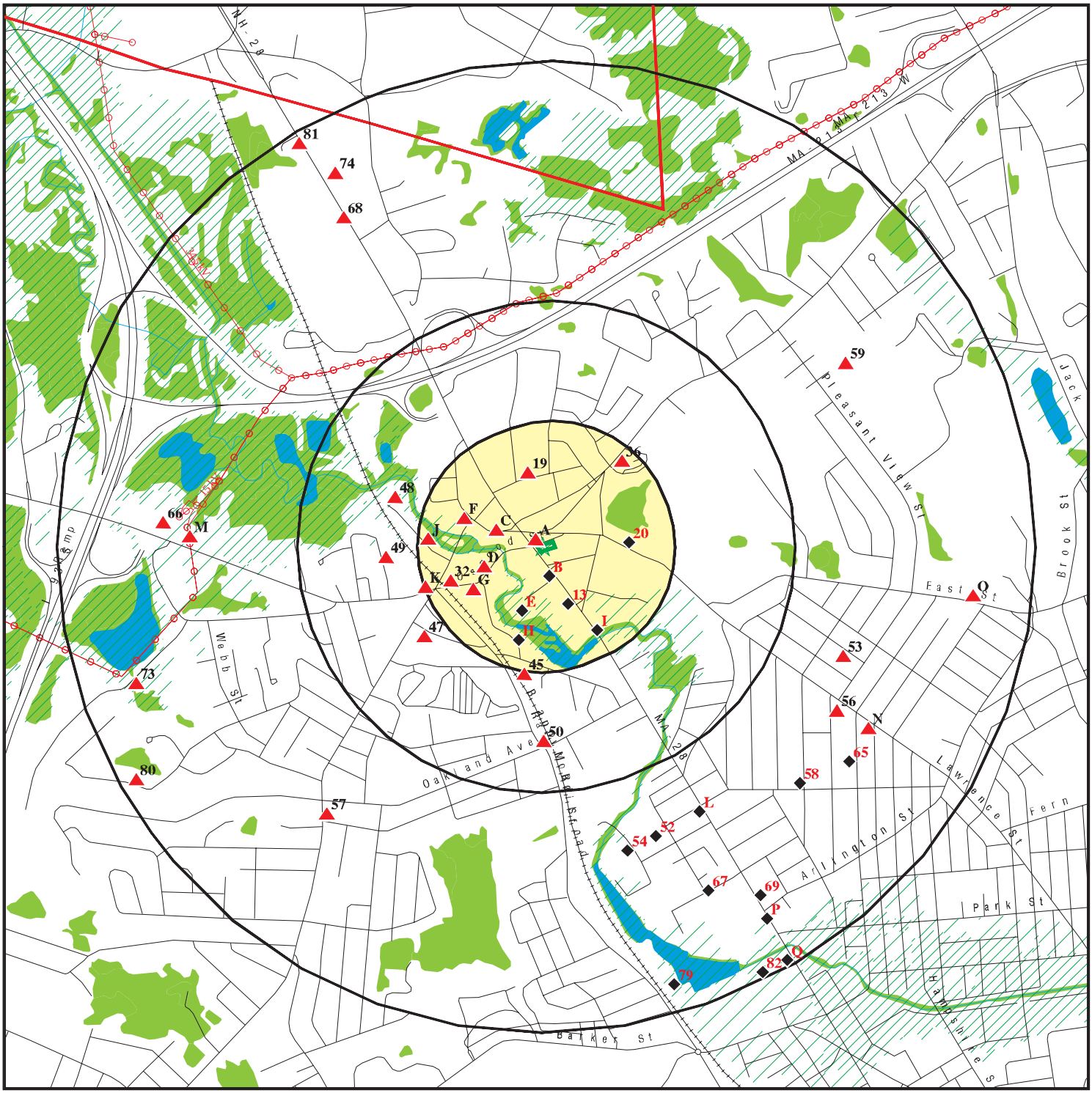
EXECUTIVE SUMMARY

Lower Elevation	Address	Direction / Distance	Map ID	Page
LORRAINE CLEANING IN	50 OSGOOD ST	WSW 0 - 1/8 (0.106 mi.)	D10	10
SUN RITE CLEANERS &	246 BROADWAY	SSE 0 - 1/8 (0.120 mi.)	13	11

Count: 12 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
LAWRENCE	S116687245	NO LOCATION AID	WASHINGTON ST AT MANCHESTER ST	01841	MA SHWS, MA RELEASE
METHUEN	S106954079	NEAR 211-215 NORTH LOWELL ST	RTE 113 WEST (NORTH LOWELL ST)	01844	MA SHWS, MA RELEASE
METHUEN	S110684408	MULTI-FAMILY RESIDENTIAL PROPERTY	130 - 132 OAKSIDE AVENUE	01844	MA SHWS, MA LAST, MA RELEASE
METHUEN	S118643374	EXIT 47	RTE 213 EAST @ I-495 ON RAMP		MA SHWS, MA RELEASE
METHUEN	S120630294	ROUTE 213 EAST AT EXIT 2	ROUTE 213 EAST	01844	MA SHWS, MA RELEASE
METHUEN	S108348163	POLE NUMBER 1751	HAMPSHIRE RD	01844	MA SHWS, MA RELEASE
METHUEN	S112146203	METHUEN ROTARY INTERCHANGE	I-93/RTE 110/RTE 113	01844	MA SHWS, MA RELEASE
METHUEN	S104179959	NO LOCATION AID	LAWRENCE ST	01844	MA SHWS, MA RELEASE
METHUEN	S121394360	POLE MOUNTED TRANSFORMER ADJ 77 LO	LOWELL STREET	01844	MA SHWS, MA RELEASE
METHUEN	S120630358	ADJACENT TO 158 OAKSIDE AVNUE	OAKSIDE AVENUE		MA SHWS, MA RELEASE
METHUEN	S101032140	NR TOWN HALL	PLEASANT ST	01844	MA SHWS, MA RELEASE
SALEM	S118643375	WASHINGTON ST @ DODGE ST	WASHINGTON ST @ DODGE ST		MA SHWS, MA LUST, MA RELEASE

OVERVIEW MAP - 5421517.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

County Boundary

Power transmission lines

100-year flood zone

500-year flood zone

National Wetland Inventory

State Wetlands

Upgradient Area

Areas of Critical Environmental Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	269 Broadway & 2 Osgood Street	CLIENT:	Nangle Consulting Associates , Inc.
ADDRESS:	269 Broadway & 2 Osgood Street Methuen MA 01844	CONTACT:	Jim Parker
LAT/LONG:	42.727369 / 71.186729	INQUIRY #:	5421517.2s
		DATE:	September 12, 2018 11:52 am

DETAIL MAP - 5421517.2S

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands
- Areas of Critical Environmental Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: 269 Broadway & 2 Osgood Street	CLIENT: Nangle Consulting Associates , Inc.
ADDRESS: 269 Broadway & 2 Osgood Street Methuen MA 01844	CONTACT: Jim Parker
LAT/LONG: 42.727369 / 71.186729	INQUIRY #: 5421517.2s DATE: September 12, 2018 11:55 am

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	1	NR	NR	NR	1
RCRA-CESQG	0.250		1	3	NR	NR	NR	4
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
MA SHWS	1.000		3	6	5	35	NR	49
NH SHWS	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
MA SWF/LF	0.500		0	0	0	NR	NR	0
NH SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
MA LUST	0.500		1	5	1	NR	NR	7
MA LAST	0.500		1	0	0	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NH LUST	0.500		0	0	0	NR	NR	0
NH LAST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
MA UST	0.250		1	5	NR	NR	NR	6
NH UST	0.250		0	0	NR	NR	NR	0
MA AST	0.250		0	1	NR	NR	NR	1
NH AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
MA INST CONTROL	0.500		0	1	0	NR	NR	1
NH INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
MA BROWNFIELDS	0.500		0	1	0	NR	NR	1
NH BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	5	0	NR	NR	5
Local Lists of Landfill / Solid Waste Disposal Sites								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
MA LIENS	TP		NR	NR	NR	NR	NR	0
NH LIENS	TP		NR	NR	NR	NR	NR	0
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
MA SPILLS	TP		NR	NR	NR	NR	NR	0
MA RELEASE	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NH SPILLS	TP		NR	NR	NR	NR	NR	0
MA SPILLS 90	TP		NR	NR	NR	NR	NR	0
NH SPILLS 90	TP		NR	NR	NR	NR	NR	0
MA SPILLS 80	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		2	4	NR	NR	NR	6
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
MA AIRS	TP		NR	NR	NR	NR	NR	0
NH AIRS	TP		NR	NR	NR	NR	NR	0
MA ASBESTOS	TP		NR	NR	NR	NR	NR	0
NH ASBESTOS	TP		NR	NR	NR	NR	NR	0
MA DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NH DRYCLEANERS	0.250		0	0	NR	NR	NR	0
MA ENF	TP		NR	NR	NR	NR	NR	0
MA Financial Assurance	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NH Financial Assurance	TP		NR	NR	NR	NR	NR	0
MA GWDP	TP		NR	NR	NR	NR	NR	0
MA HW GEN	0.250		1	4	NR	NR	NR	5
NJ MANIFEST	0.250		0	1	NR	NR	NR	1
RI MANIFEST	0.250		0	1	NR	NR	NR	1
NY MANIFEST	0.250		0	1	NR	NR	NR	1
MA MERCURY	0.500		0	0	0	NR	NR	0
MA NPDES	TP		NR	NR	NR	NR	NR	0
NH NPDES	TP		NR	NR	NR	NR	NR	0
MA TIER 2	TP		NR	NR	NR	NR	NR	0
MA TSD	0.500		0	0	0	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		2	NR	NR	NR	NR	2
EDR Hist Cleaner	0.125		4	NR	NR	NR	NR	4
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
MA RGA HWS	TP		NR	NR	NR	NR	NR	0
NH RGA HWS	TP		NR	NR	NR	NR	NR	0
MA RGA LUST	TP		NR	NR	NR	NR	NR	0
NH RGA LUST	TP		NR	NR	NR	NR	NR	0
- Totals --		0	16	39	6	35	0	96

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
NW
< 1/8
0.016 mi.
86 ft.

Relative:
Higher

SUPREME CLEANERS
271 BROADWAY 275
METHUEN, MA 01844

EDR Hist Cleaner

1020100074
N/A

Click here for full text details

A2
WNW
< 1/8
0.034 mi.
177 ft.

Relative:
Higher

ANTONS CLEANERS INC
290 BROADWAY
METHUEN, MA 01844

EDR Hist Cleaner

1018565348
N/A

Click here for full text details

B3
SSE
< 1/8
0.051 mi.
270 ft.

Relative:
Lower

MUGGY & CHUCKS CITY SV STN
256 BROADWAY
METHUEN, MA 01844

EDR Hist Auto

1021699205
N/A

Click here for full text details

B4
SSE
< 1/8
0.075 mi.
398 ft.

Relative:
Lower

CROSS ST - GLEASON ST
254 BROADWAY
METHUEN, MA 01844

MA SHWS
MA RELEASE

S104847569
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0020237 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0020237 / RAO

Click here to access the MA DEP site for this facility

C5
West
< 1/8
0.076 mi.
403 ft.

Relative:
Higher

MAGNETOMETRIC DEVICES INC
45 OSGOOD ST
METHUEN, MA 01844

MA HW GEN

S112552058
N/A

Click here for full text details

MA HW GEN
EPA Id: MAD980668529

C6
West
< 1/8
0.076 mi.
403 ft.

Relative:
Higher

MAGNETOMETRIC DEVICES INC
45 OSGOOD ST
METHUEN, MA 01844

RCRA-CESQG
FINDS
ECHO

1004716388
MAD980668529

Click here for full text details

RCRA-CESQG
EPA Id: MAD980668529

FINDS
Registry ID:: 110003454529

ECHO
Registry ID: 110003454529

C7
WSW
< 1/8
0.079 mi.
418 ft.

Relative:
Lower

NO LOCATION AID
47 TO 59 OSGOOD ST
METHUEN, MA 01844

MA SHWS
MA LUST
MA RELEASE

S104000372
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0018022 / RAO

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0018022 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0018022 / RAO

Click here to access the MA DEP site for this facility

C8
WNW
< 1/8
0.092 mi.
488 ft.

Relative:
Higher

ANDREWS SERVICE STATION
19 HAMPSHIRE ST
METHUEN, MA 01844

EDR Hist Auto

1021454218
N/A

Click here for full text details

D9
WSW
< 1/8
0.106 mi.
560 ft.

Relative:
Lower

FINISH TECH INC
50 OSGOOD ST
METHUEN, MA 01844

RCRA NonGen / NLR
FINDS
ECHO

1000262707
MAD981062623

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD981062623

FINDS
Registry ID:: 110003459980

ECHO
Registry ID: 110003459980

D10
WSW
< 1/8
0.106 mi.
560 ft.

Relative:
Lower

LORRAINE CLEANING INC
50 OSGOOD ST
METHUEN, MA 01844

EDR Hist Cleaner

1020029907
N/A

Click here for full text details

D11
WSW
< 1/8
0.114 mi.
602 ft.

Relative:
Higher

HELBICKS AUTO BODY SHOP INC
28 OSGOOD ST
METHUEN, MA 01844

RCRA NonGen / NLR
FINDS
ECHO

1000163350
MAD019487677

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD019487677

FINDS
Registry ID:: 110003427266

ECHO
Registry ID: 110003427266

D12
WSW
< 1/8
0.117 mi.
620 ft.

Relative:
Higher

THOMAS D DIORIO REALTY CO
51 OSGOOD ST
METHUEN, MA 01844

MA SHWS
MA LAST
MA UST
MA RELEASE
MA Financial Assurance

U003001159
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0026229 / RAO

Click here to access the MA DEP site for this facility

MA LAST

THOMAS D DIORIO REALTY CO (Continued) **U003001159**

Release Tracking Number / Current Status: 3-0026229 / RAO

MA UST
Facility Id: 5555
Tank Status: Tank Removed

MA RELEASE
Release Tracking Number / Current Status: 3-0026229 / RAO

Click here to access the MA DEP site for this facility

13
SSE
< 1/8
0.120 mi.
635 ft.

Relative: Lower

SUN RITE CLEANERS & TAYLORS
246 BROADWAY
METHUEN, MA 01844

EDR Hist Cleaner

1020097810
N/A

Click here for full text details

E14
SSW
1/8-1/4
0.128 mi.
674 ft.

Relative: Lower

UNITRODE CORP
4 GLEASON ST
METHUEN, MA 01844

MA SHWS
MA LUST
MA RELEASE
RCRA NonGen / NLR
FINDS
ECHO
NY MANIFEST

1000419904
MAD056004062

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0003661 / WCSPRM
Release Tracking Number / Current Status: 3-0024029 / RAO

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0025262 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0003661 / WCSPRM
Release Tracking Number / Current Status: 3-0024029 / RAO
Release Tracking Number / Current Status: 3-0025262 / RAO

Click here to access the MA DEP site for this facility

RCRA NonGen / NLR
EPA Id: MAD056004062

FINDS

UNITRODE CORP (Continued) **1000419904**

Registry ID:: 110001959701

ECHO
Registry ID: 110001959701

NY MANIFEST
EPA ID: MAD056004062

E15
SSW
1/8-1/4
0.128 mi.
674 ft.

Relative:
Lower

4 GLEASON STREET **US BROWNFIELDS** **1016456452**
4 GLEASON STREET **FINDS** **N/A**
METHUEN, MA 01844

Click here for full text details

US BROWNFIELDS
ACRES property ID: 11538

FINDS
Registry ID:: 110039536240

F16
WNW
1/8-1/4
0.139 mi.
733 ft.

Relative:
Higher

ANDREWS SERVICE STATION **MA LUST** **S105199699**
2 LOWELL ST **MA RELEASE** **N/A**
METHUEN, MA 01844

Click here for full text details

MA LUST
Release Tracking Number / Current Status: 3-0003825 / DEPNDS

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0003825 / DEPNDS

Click here to access the MA DEP site for this facility

F17
WNW
1/8-1/4
0.139 mi.
733 ft.

Relative:
Higher

METHUEN CAR CARE **RCRA NonGen / NLR** **1000356860**
2 LOWELL ST **FINDS** **MAD019486562**
METHUEN, MA 01844 **ECHO**

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD019486562

FINDS
Registry ID:: 110003427248

METHUEN CAR CARE (Continued) **1000356860**

ECHO
Registry ID: 110003427248

F18
WNW
1/8-1/4
0.139 mi.
733 ft.

Relative:
Higher

ANDREW'S SERVICE STATION INC **MA UST** **U003001264**
2 LOWELL ST **MA Financial Assurance** **N/A**
METHUEN, MA 01844

Click here for full text details

MA UST
Facility Id: 5589
Tank Status: Tank Removed

19
North
1/8-1/4
0.152 mi.
803 ft.

Relative:
Higher

NO LOCATION AID **MA SHWS** **S102085693**
30 HIGH ST **MA RELEASE** **N/A**
METHUEN, MA 01844

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0011163 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0011163 / RAO

Click here to access the MA DEP site for this facility

20
East
1/8-1/4
0.155 mi.
817 ft.

Relative:
Lower

POLE MOUNTED TRANSFORMER 78-56 **MA SHWS** **S120630206**
233 LAWRENCE STREET **MA RELEASE** **N/A**
METHUEN, MA 01844

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0033964 / PSNC

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0033964 / PSNC

Click here to access the MA DEP site for this facility

G21
WSW
1/8-1/4
0.159 mi.
840 ft.

Relative:
Higher

FMR PRECISE CIRCUIT TECH NOW BULLSEYE
54 OSGOOD ST
METHUEN, MA 01844

MA SHWS
MA INST CONTROL
MA BROWNFIELDS
MA LIENS
MA RELEASE

S103545686
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0010447 / PSC

Click here to access the MA DEP site for this facility

MA INST CONTROL
Release Tracking Number: 3-0010447

MA BROWNFIELDS
MCP Status: PSC
RTN: 3-0010447

MA RELEASE
Release Tracking Number / Current Status: 3-0010447 / PSC

Click here to access the MA DEP site for this facility

G22
WSW
1/8-1/4
0.159 mi.
840 ft.

Relative:
Higher

METHUEN MILL PROPERTY
54 OSGOOD STREET
METHUEN, MA 01844

US BROWNFIELDS
RCRA NonGen / NLR
FINDS
ECHO
RI MANIFEST

1000171803
MAD980913248

Click here for full text details

US BROWNFIELDS
ACRES property ID: 11536

RCRA NonGen / NLR
EPA Id: MAD980913248

FINDS
Registry ID:: 110039529604
Registry ID:: 110003458062

ECHO
Registry ID: 110003458062

RI MANIFEST
EPA Id: MAD980913248
Manifest Document Number: MAG085365

G23
WSW
1/8-1/4
0.159 mi.
840 ft.

Relative:
Higher

54 OSGOOD ST
54 OSGOOD ST
METHEUN, MA 01844

US BROWNFIELDS **1011813022**
N/A

Click here for full text details

US BROWNFIELDS
ACRES property ID: 74861

F24
West
1/8-1/4
0.159 mi.
841 ft.

Relative:
Higher

RTE 113 BRIDGE OVER SPICKET RIVER
6 LOWELL ST
METHUEN, MA 01844

MA SHWS **S104482422**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0019040 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0019040 / RAO

Click here to access the MA DEP site for this facility

F25
WNW
1/8-1/4
0.160 mi.
844 ft.

Relative:
Higher

APPLEYARD TRUCKING
7 LOWELL ST
METHUEN, MA 01844

MA SHWS **S100829177**
MA LUST **N/A**
MA RELEASE
MA ENF

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0003382 / RAO

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0010894 / RAONR
Release Tracking Number / Current Status: 3-0003382 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0003382 / RAO
Release Tracking Number / Current Status: 3-0010894 / RAONR

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0003382

F26
WNW
1/8-1/4
0.160 mi.
844 ft.

Relative:
Higher

APPLEYARD TRUCKING
7 LOWELL STREET
METHUEN, MA 01844

US BROWNFIELDS
FINDS

1016351430
N/A

Click here for full text details

US BROWNFIELDS
ACRES property ID: 11537

FINDS
Registry ID:: 110039536213

F27
WNW
1/8-1/4
0.160 mi.
844 ft.

Relative:
Higher

APPLEYARD MOTOR TRANSPORTATION
7 LOWELL ST
METHUEN, MA 01844

MA UST
MA Financial Assurance

U000226864
N/A

Click here for full text details

MA UST
Facility Id: 5565
Tank Status: Tank Removed

F28
WNW
1/8-1/4
0.163 mi.
862 ft.

Relative:
Higher

FREEMAN FUEL CO
50 HAMPSHIRE ST
METHUEN, MA 01844

MA UST
MA Financial Assurance

U001005248
N/A

Click here for full text details

MA UST
Facility Id: 5529
Tank Status: Tank Removed

F29
West
1/8-1/4
0.174 mi.
918 ft.

Relative:
Higher

NO LOCATION AID
LOWELL STREET BRG
METHUEN, MA 01844

MA LUST
MA RELEASE

S105809955
N/A

Click here for full text details

MA LUST
Release Tracking Number / Current Status: 3-0021766 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0021766 / RAO

Click here to access the MA DEP site for this facility

H30
SSW
1/8-1/4
0.188 mi.
991 ft.

Relative:
Lower

RIVERSIDE AUTO BODY INC
9 RIVER ST
METHUEN, MA 01844

RCRA-CESQG
FINDS
ECHO

1004715976
MAD071703946

Click here for full text details

RCRA-CESQG
EPA Id: MAD071703946

FINDS
Registry ID:: 110003442515

ECHO
Registry ID: 110003442515

H31
SSW
1/8-1/4
0.188 mi.
991 ft.

Relative:
Lower

RIVERSIDE AUTO BODY INC
9 RIVER ST
METHUEN, MA 01844

MA HW GEN

S112551571
N/A

Click here for full text details

MA HW GEN
EPA Id: MAD071703946

32
WSW
1/8-1/4
0.193 mi.
1019 ft.

Relative:
Higher

TOWN OF METHUEN FIRE DEPT
24 LOWELL ST
METHUEN, MA 01844

MA UST

U004217583
N/A

Click here for full text details

MA UST
Facility Id: 5550
Tank Status: Tank Removed

I33
SSE
1/8-1/4
0.193 mi.
1019 ft.

Relative:
Lower

CVS PHARMACY 0615
233 BROADWAY STREET
METHUEN, MA 01844

RCRA-SQG

1014916976
MAC300015898

Click here for full text details

RCRA-SQG
EPA Id: MAC300015898

I34
SSE
1/8-1/4
0.193 mi.
1019 ft.

Relative:
Lower

CVS PHARMACY 0615
233 BROADWAY ST
METHUEN, MA 01844

MA HW GEN **S113409138**
N/A

Click here for full text details

MA HW GEN
EPA Id: MAC300015898

I35
SE
1/8-1/4
0.218 mi.
1152 ft.

Relative:
Lower

ST MONICA CHURCH
231 BROADWAY
METHUEN, MA 01844

MA LUST **S100829190**
MA RELEASE **N/A**

Click here for full text details

MA LUST
Release Tracking Number / Current Status: 3-0003975 / DEPNFA

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0003975 / DEPNFA

Click here to access the MA DEP site for this facility

36
NE
1/8-1/4
0.221 mi.
1167 ft.

Relative:
Higher

NOTINI'S PROPERTY
41 PLEASANT STREET
METHUEN, MA 01884

US BROWNFIELDS **1023620318**
N/A

Click here for full text details

US BROWNFIELDS
ACRES property ID: 11539

J37
West
1/8-1/4
0.223 mi.
1177 ft.

Relative:
Higher

H & H ENGINEERING CO INC
6 PINE ST
METHUEN, MA 01844

MA HW GEN **S112551773**
N/A

Click here for full text details

MA HW GEN
EPA Id: MAD091498741

J38
West
1/8-1/4
0.223 mi.
1177 ft.

Relative:
Higher

H & H ENGINEERING CO INC
6 PINE ST
METHUEN, MA 01844

RCRA-CESQG
FINDS
ECHO

1004716135
MAD091498741

Click here for full text details

RCRA-CESQG
EPA Id: MAD091498741

FINDS
Registry ID:: 110003447538

ECHO
Registry ID: 110003447538

J39
West
1/8-1/4
0.228 mi.
1202 ft.

Relative:
Higher

RICHS SHOP
9 PINE ST
METHUEN, MA 01844

RCRA NonGen / NLR
FINDS
ECHO

1000244128
MAD981888738

Click here for full text details

RCRA NonGen / NLR
EPA Id: MAD981888738

FINDS
Registry ID:: 110003470958

ECHO
Registry ID: 110003470958

J40
West
1/8-1/4
0.241 mi.
1274 ft.

Relative:
Higher

TRA-JO CORP
12 PINE ST
METHUEN, MA 01844

MA UST
MA Financial Assurance

U000226935
N/A

Click here for full text details

MA UST
Facility Id: 5538
Tank Status: Tank Removed

K41
WSW
1/8-1/4
0.247 mi.
1305 ft.

Relative:
Higher

, MA

MA AST

S108480669
N/A

Click here for full text details

MA AST
Release Tracking Number: 526

J42
West
1/8-1/4
0.250 mi.
1319 ft.

Relative:
Higher

PERFECTION AUTO BODY
16 PINE ST
METHUEN, MA 01844

RCRA-CESQG
FINDS
ECHO

1000228014
MAD981068422

Click here for full text details

RCRA-CESQG
EPA Id: MAD981068422

FINDS
Registry ID:: 110003461389

ECHO
Registry ID: 110003461389

J43
West
1/8-1/4
0.250 mi.
1319 ft.

Relative:
Higher

PERFECTION AUTO BODY
16 PINE ST
METHUEN, MA 01844

NJ MANIFEST

S120664310
N/A

Click here for full text details

NJ MANIFEST
EPA Id: MAD981068422

J44
West
1/8-1/4
0.250 mi.
1319 ft.

Relative:
Higher

PERFECTION AUTO BODY
16 PINE ST
METHUEN, MA 01844

MA HW GEN

S112552344
N/A

Click here for full text details

MA HW GEN
State Generator Status: VQG-MA
EPA Id: MAD981068422

45
South
1/4-1/2
0.255 mi.
1346 ft.

Relative:
Higher

LAIDLAW TRANSIT INC
56 UNION ST
METHUEN, MA 01844

MA SHWS
MA UST
MA RELEASE
MA HW GEN

U003001201
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0032070 / PSNC

Click here to access the MA DEP site for this facility

MA UST
Facility Id: 5570
Tank Status: Tank Removed

MA RELEASE

LAIDLAW TRANSIT INC (Continued) **U003001201**

Release Tracking Number / Current Status: 3-0032070 / PSNC

Click here to access the MA DEP site for this facility

MA HW GEN
EPA Id: MAD981895055

K46
WSW
1/4-1/2
0.259 mi.
1368 ft.

Relative:
Higher

MA0033 **MA LUST** **U003001184**
30 LOWELL ST **MA UST** **N/A**
METHUEN, MA 01844 **MA AST**
MA RELEASE
MA HW GEN

Click here for full text details

MA LUST
Release Tracking Number / Current Status: 3-0003643 / RAO

Click here to access the MA DEP site for this facility

MA UST
Facility Id: 5563
Tank Status: Tank Removed
Tank Status: In Use

MA AST
Release Tracking Number: 5563

MA RELEASE
Release Tracking Number / Current Status: 3-0003643 / RAO

Click here to access the MA DEP site for this facility

MA HW GEN
State Generator Status: LQG-MA
EPA Id: MAC300004272

47
SW
1/4-1/2
0.300 mi.
1583 ft.

Relative:
Higher

ABANDONED UST AT REAR OF RECTORY BLDG **MA SHWS** **S108476867**
76 UNION ST **MA RELEASE** **N/A**
METHUEN, MA 01844 **MA ASBESTOS**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0026558 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0026558 / RAO

ABANDONED UST AT REAR OF RECTORY BLDG (Continued) **S108476867**

Click here to access the MA DEP site for this facility

48
WNW
1/4-1/2
0.314 mi.
1656 ft.

Relative:
Higher

INTERNATIONAL MILLS
60 PINE ST
METHUEN, MA 01844

MA SHWS **S100829182**
MA RELEASE **N/A**
MA HW GEN

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0003935 / LSPNFA

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0003935 / LSPNFA

Click here to access the MA DEP site for this facility

MA HW GEN
State Generator Status: SQG-MA
EPA Id: MV9786879010

49
West
1/4-1/2
0.315 mi.
1664 ft.

Relative:
Higher

ELECTRICAL SUBSTATION
15 PELHAM AVE
METHUEN, MA 01844

MA SHWS **S109489515**
MA RELEASE **N/A**
MA ASBESTOS
MA HW GEN
MA TIER 2

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0032846 / PSNC
Release Tracking Number / Current Status: 3-0027755 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0027755 / RAO
Release Tracking Number / Current Status: 3-0032846 / PSNC

Click here to access the MA DEP site for this facility

MA HW GEN
State Generator Status: LQG-MA
EPA Id: MAD980731772

MA TIER 2
Facility Id: FATR2015000000001969
Facility Id: FATR2017000000033085
Facility Id: FATR2016000000028860

50
South
1/4-1/2
0.392 mi.
2070 ft.

Relative:
Higher

OAKLAND REALTY TRUST
BEHIND 39 OAKLAND AVE
METHUEN, MA 01844

MA SHWS
MA RELEASE
MA ENF

S100537066
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0004482 / TIERII

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0004482 / TIERII

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0004482

L51
SSE
1/2-1
0.627 mi.
3310 ft.

Relative:
Lower

58 REALTY TRUST
62 BROADWAY
METHUEN, MA 01844

MA SHWS
MA LUST
MA INST CONTROL
MA RELEASE
MA ENF

S105199294
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0000803 / RAO
Release Tracking Number / Current Status: 3-0011075 / RAONR

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0011075 / RAONR

Click here to access the MA DEP site for this facility

MA INST CONTROL
Release Tracking Number: 3-0000803

MA RELEASE
Release Tracking Number / Current Status: 3-0000803 / RAO
Release Tracking Number / Current Status: 3-0011075 / RAONR

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0000803

52
SSE
1/2-1
0.636 mi.
3360 ft.

Relative:
Lower

PROPERTY
37-39 CHASE ST 3-5 CARLETON
METHUEN, MA 01844

MA SHWS
MA RELEASE

S100829188
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0002457 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0002457 / RAO

Click here to access the MA DEP site for this facility

53
ESE
1/2-1
0.641 mi.
3386 ft.

Relative:
Higher

BATISTA, RAPHAEL
20 TUDOR STREET
METHUEN, MA 01844

MA SHWS
MA LAST
MA RELEASE
MA ENF

S118562873
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0033448 / TIER1D

Click here to access the MA DEP site for this facility

MA LAST
Release Tracking Number / Current Status: 3-0033448 / TIER1D

MA RELEASE
Release Tracking Number / Current Status: 3-0033448 / TIER1D

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0033448

54
SSE
1/2-1
0.646 mi.
3411 ft.

Relative:
Lower

ARCADIA MILLS
55 CHASE ST
METHUEN, MA 01844

MA SHWS
MA LAST
MA RELEASE
MA HW GEN

S102087470
N/A

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0013651 / RAO

Click here to access the MA DEP site for this facility

MA LAST

ARCADIA MILLS (Continued) **S102087470**

Release Tracking Number / Current Status: 3-0013651 / RAO

MA RELEASE
Release Tracking Number / Current Status: 3-0013651 / RAO

Click here to access the MA DEP site for this facility

MA HW GEN
EPA Id: MAD982710584
EPA Id: MV9786832600

L55
SSE
1/2-1
0.666 mi.
3517 ft.

Relative: Lower

MALDEN MILLS **MA SHWS** **S102087288**
CHASE ST **MA RELEASE** **N/A**
METHUEN, MA 01844

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0013331 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0013331 / RAO

Click here to access the MA DEP site for this facility

56
ESE
1/2-1
0.678 mi.
3579 ft.

Relative: Higher

CONLINS PHARMACY **MA SHWS** **S105200007**
30 LAWRENCE ST **MA RELEASE** **N/A**
METHUEN, MA 01844

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0021052 / DPS

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0021052 / DPS

Click here to access the MA DEP site for this facility

57
SW
1/2-1
0.704 mi.
3715 ft.

Relative:
Higher

THE LAWRENCE SAVINGS BANK
148 LOWELL ST
METHUEN, MA 01844

MA SHWS **S108034625**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0025979 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0025979 / RAO

Click here to access the MA DEP site for this facility

58
SE
1/2-1
0.708 mi.
3739 ft.

Relative:
Lower

D&D TRANSMISSION
27 CENTER ST
METHUEN, MA 01844

MA SHWS **S100829179**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0004130 / DEPNDS

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0004130 / DEPNDS

Click here to access the MA DEP site for this facility

59
ENE
1/2-1
0.714 mi.
3769 ft.

Relative:
Higher

RECREATIONAL FIELD UST
45-55 PLEASANT VIEW STREET
METHUEN, MA

MA SHWS **S117964749**
MA LUST **N/A**
MA RELEASE

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0032851 / PSNC

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0032851 / PSNC

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0032851 / PSNC

RECREATIONAL FIELD UST (Continued) **S117964749**

Click here to access the MA DEP site for this facility

M60
West
1/2-1
0.724 mi.
3821 ft.

Relative:
Higher

PELHAM ST EXIT RAMP **MA SHWS** **S101033993**
RTE 93 **MA RELEASE** **N/A**
METHUEN, MA 01844 **MA SPILLS**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0015420 / URAM

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0015420 / URAM

Click here to access the MA DEP site for this facility

MA SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N90-1127

N61
ESE
1/2-1
0.730 mi.
3857 ft.

Relative:
Lower

BETWEEN CHELMSFORD & SPRUCE STS **MA SHWS** **S102086489**
26 SPRUCE ST **MA RELEASE** **N/A**
METHUEN, MA 01844 **MA ENF**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0012229 / RAO
Release Tracking Number / Current Status: 3-0015217 / TIERI

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0012229 / RAO
Release Tracking Number / Current Status: 3-0015217 / TIERI

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0015217

M62
West
1/2-1
0.745 mi.
3932 ft.

Relative:
Higher

SUN REFINING & MARKETING CO
150 PELHAM ST
METHUEN, MA 01844

Click here for full text details

Database(s): MA SHWS, MA LUST, MA INST CONTROL, MA RELEASE, MA SPILLS, RCRA NonGen / NLR, MA ENF, MA HW GEN

EDR ID Number: 1000690296
EPA ID Number: MAD985297258

MA SHWS
Release Tracking Number / Current Status: 3-0021625 / RAONR
Release Tracking Number / Current Status: 3-0018335 / RAO

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0003754 / RAO

Click here to access the MA DEP site for this facility

MA INST CONTROL
Release Tracking Number: 3-0003754

MA RELEASE
Release Tracking Number / Current Status: 3-0003754 / RAO
Release Tracking Number / Current Status: 3-0018335 / RAO
Release Tracking Number / Current Status: 3-0021625 / RAONR

Click here to access the MA DEP site for this facility

MA SPILLS
Facility Id: 3-3754
Case Closed: YES
Spill ID: N91-1015

RCRA NonGen / NLR
EPA Id: MAD985297258

MA ENF
Program Id: 3-0003754

MA HW GEN
EPA Id: MAD985297258

N63
ESE
1/2-1
0.753 mi.
3976 ft.

Relative:
Higher

PROPERTY
16 LAWRENCE
METHUEN, MA 01844

MA SHWS **S100829186**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0001968 / PENNFA

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0001968 / PENNFA

Click here to access the MA DEP site for this facility

N64
SE
1/2-1
0.755 mi.
3986 ft.

Relative:
Lower

RESIDENTIAL PROPERTY
20 SPRUCE STREET
METHUEN, MA 01841

MA SHWS **S108712011**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0029902 / RAONR

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0029902 / RAONR

Click here to access the MA DEP site for this facility

65
SE
1/2-1
0.758 mi.
4001 ft.

Relative:
Lower

RESIDENTIAL PROPERTY
14-16 SPRUCE STREET
METHUEN, MA 01844

MA SHWS **S111989440**
MA RELEASE **N/A**
MA ENF

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0030739 / RAONR

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0030739 / RAONR

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0030739

66
West
1/2-1
0.780 mi.
4121 ft.

Relative:
Higher

GASOLINE STATION FMR
145-147 PELHAM ST
METHUEN, MA 01844

MA SHWS **S105199474**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0002096 / PENNFA

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0002096 / PENNFA

Click here to access the MA DEP site for this facility

67
SSE
1/2-1
0.782 mi.
4131 ft.

Relative:
Lower

POLARTEC; LLC
46 STAFFORD STREET
LAWRENCE, MA 01841

MA SHWS **S100829183**
MA LAST **N/A**
MA LUST
MA AST
MA RELEASE
MA AIRS
MA ASBESTOS
MA TIER 2

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0015482 / RAO
Release Tracking Number / Current Status: 3-0000728 / RAO
Release Tracking Number / Current Status: 3-0013254 / RAO

Click here to access the MA DEP site for this facility

MA LAST
Release Tracking Number / Current Status: 3-0011609 / RAO
Release Tracking Number / Current Status: 3-0013254 / RAO
Release Tracking Number / Current Status: 3-0015482 / RAO

MA LUST
Release Tracking Number / Current Status: 3-0000728 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0000728 / RAO
Release Tracking Number / Current Status: 3-0011609 / RAO
Release Tracking Number / Current Status: 3-0013254 / RAO
Release Tracking Number / Current Status: 3-0015482 / RAO

Click here to access the MA DEP site for this facility

MA AIRS
Facility Status: APPROV

POLARTEC; LLC (Continued) **S100829183**

Facility Status: WITHD
Date Closed: 03/11/2003
Date Closed: 11/26/1997
Date Closed: 12/12/2005
Date Closed: 10/18/2005
Date Closed: 01/29/2018
Date Closed: 03/23/2007
Date Closed: 06/29/2018
Date Closed: 03/03/2010
Date Closed: 12/08/2004

MA TIER 2
Facility Id: FATR2015000000002578
Facility Id: FATR2016000000026685

68
NNW
1/2-1
0.796 mi.
4203 ft.

Relative:
Higher

GASOLINE STATION
450 BROADWAY
METHUEN, MA 01844

MA SHWS **S101028424**
MA LUST **N/A**
MA RELEASE
MA SPILLS

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0004500 / WCSPRM

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0004500 / WCSPRM

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0004500 / WCSPRM

Click here to access the MA DEP site for this facility

MA SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N84-0515

69
SSE
1/2-1
0.841 mi.
4443 ft.

Relative:
Lower

SPEEDWAY 2499
615 BROADWAY
LAWRENCE, MA 01841

MA SHWS **S101031554**
MA LUST **N/A**
MA AST
MA RELEASE
MA SPILLS
MA HW GEN
MA TIER 2

Click here for full text details

MA SHWS

SPEEDWAY 2499 (Continued) **S101031554**

Release Tracking Number / Current Status: 3-0022755 / RAONR
Release Tracking Number / Current Status: 3-0020787 / RAONR

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0022147 / RAONR
Release Tracking Number / Current Status: 3-0003387 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0003387 / RAO
Release Tracking Number / Current Status: 3-0020787 / RAONR
Release Tracking Number / Current Status: 3-0022147 / RAONR
Release Tracking Number / Current Status: 3-0022755 / RAONR

Click here to access the MA DEP site for this facility

MA SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N87-0669
Spill ID: N90-0074

MA HW GEN
State Generator Status: SQG-MA
EPA Id: MAD982197535

MA TIER 2
Facility Id: FATR2015000000008876
Facility Id: FATR2017000000031699
Facility Id: FATR2016000000026484

O70 **HOLY FAMILY HOSPITAL A STEWARD FAMILY HO** **RCRA-SQG** **1006808116**
East **70 EAST ST** **MA SHWS** **MAR000505610**
1/2-1 **METHUEN, MA 01844** **MA LUST**
0.876 mi. **MA RELEASE**
4624 ft. **MA ENF**
NJ MANIFEST
Relative: Higher **Click here for full text details** **NY MANIFEST**

RCRA-SQG
EPA Id: MAR000505610

MA SHWS
Release Tracking Number / Current Status: 3-0029319 / RAO

Click here to access the MA DEP site for this facility

MA LUST

HOLY FAMILY HOSPITAL A STEWARD FAMILY HO (Continued) **1006808116**

Release Tracking Number / Current Status: 3-0029319 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0029319 / RAO

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0029319

NJ MANIFEST
EPA Id: MAR000505610

NY MANIFEST
EPA ID: MAR000505610

O71 **HOLY FAMILY HOSPITAL & MEDICAL CTR.** **MA SHWS** **1000488613**
East **70 EAST STREET** **MA LUST** **N/A**
1/2-1 **METHUEN, MA 1844** **MA UST**
0.876 mi. **MA RELEASE**
4624 ft. **MLTS**
MA AIRS
Relative: Higher Click here for full text details **MA ASBESTOS**
MA Financial Assurance

MA SHWS
Release Tracking Number / Current Status: 3-0014962 / RAO

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0015251 / RAO
Release Tracking Number / Current Status: 3-0018186 / RAO

Click here to access the MA DEP site for this facility

MA UST
Facility Id: 5561
Tank Status: Tank Removed
Tank Status: Tank Closure In-Plac
Tank Status: In Use

MA RELEASE
Release Tracking Number / Current Status: 3-0014962 / RAO
Release Tracking Number / Current Status: 3-0015251 / RAO
Release Tracking Number / Current Status: 3-0018186 / RAO

HOLY FAMILY HOSPITAL & MEDICAL CTR. (Continued) **1000488613**

Click here to access the MA DEP site for this facility

MLTS
License Number:: 20-13916-02

MA AIRS
Facility Status: APPROV
Date Closed: 12/10/2003

O72
East
1/2-1
0.876 mi.
4624 ft.

Relative:
Higher

NO LOCATION AID **MA SHWS** **S104562447**
70 EAST ST **MA RELEASE** **N/A**
METHUEN, MA 01844

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0019378 / RAONR

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0019378 / RAONR

Click here to access the MA DEP site for this facility

73
WSW
1/2-1
0.882 mi.
4656 ft.

Relative:
Higher

METHUEN DPW GARAGE **MA SHWS** **U004156868**
61 LINDBERG AVE **MA LUST** **N/A**
METHUEN, MA 01844 **MA UST**
MA RELEASE
MA ENF

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0027212 / TIERII

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0027212 / TIERII

Click here to access the MA DEP site for this facility

MA UST
Facility Id: 5602
Tank Status: Tank Removed
Tank Status: In Use

MA RELEASE

METHUEN DPW GARAGE (Continued) **U004156868**

Release Tracking Number / Current Status: 3-0027212 / TIERII

Click here to access the MA DEP site for this facility

MA ENF
Program Id: 3-0027212

74
NNW
1/2-1
0.885 mi.
4675 ft.

Relative:
Higher

COTTONE PROPERTY **MA SHWS** **S116358003**
477 BROADWAY **MA LAST** **N/A**
METHUEN, MA 01844 **MA RELEASE**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0031941 / RAO

Click here to access the MA DEP site for this facility

MA LAST
Release Tracking Number / Current Status: 3-0031941 / RAO

MA RELEASE
Release Tracking Number / Current Status: 3-0031941 / RAO

Click here to access the MA DEP site for this facility

P75
SSE
1/2-1
0.891 mi.
4702 ft.

Relative:
Lower

FORMER VAN BRODIE BUILDING **MA SHWS** **S118947406**
580 BROADWAY **MA RELEASE** **N/A**
LAWRENCE, MA 01840

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0033667 / TIERII

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0033667 / TIERII

Click here to access the MA DEP site for this facility

P76
SSE
1/2-1
0.899 mi.
4747 ft.

Relative:
Lower

NEAR STEVENS POND DAM
570 BROADWAY
LAWRENCE, MA

MA SHWS **S103811657**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0013405 / URAM

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0013405 / URAM

Click here to access the MA DEP site for this facility

P77
SSE
1/2-1
0.902 mi.
4765 ft.

Relative:
Lower

BUILDING 25
566 BROADWAY
LAWRENCE, MA 01841

MA SHWS **S103811517**
MA RELEASE **N/A**
MA HW GEN

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0011604 / RAONR

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0011604 / RAONR

Click here to access the MA DEP site for this facility

MA HW GEN
EPA Id: MAD981888332

P78
SSE
1/2-1
0.923 mi.
4871 ft.

Relative:
Lower

BUILDINGS 29 AND 30
550 BROADWAY
LAWRENCE, MA

MA SHWS **S111277264**
MA INST CONTROL **N/A**
MA RELEASE

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0030137 / PSC

Click here to access the MA DEP site for this facility

MA INST CONTROL
Release Tracking Number: 3-0030137

MA RELEASE

BUILDINGS 29 AND 30 (Continued) **S111277264**

Release Tracking Number / Current Status: 3-0030137 / PSC

Click here to access the MA DEP site for this facility

79
SSE
1/2-1
0.940 mi.
4964 ft.

Relative: Lower

NO LOCATION AID
85 MANCHESTER ST
LAWRENCE, MA 01841

Click here for full text details

MA SHWS **S101017540**
MA SWF/LF **N/A**
MA INST CONTROL
MA BROWNFIELDS
MA RELEASE
MA SPILLS
MA ASBESTOS

MA SHWS
Release Tracking Number / Current Status: 3-0014146 / RAO
Release Tracking Number / Current Status: 3-0014333 / RAO
Release Tracking Number / Current Status: 3-0019158 / RAO

Click here to access the MA DEP site for this facility

MA SWF/LF
Current Operational Status: Closed

MA INST CONTROL
Release Tracking Number: 3-0019158

MA BROWNFIELDS
MCP Status: RAO
RTN: 3-0019158

MA RELEASE
Release Tracking Number / Current Status: 3-0014146 / RAO
Release Tracking Number / Current Status: 3-0014333 / RAO
Release Tracking Number / Current Status: 3-0019158 / RAO

Click here to access the MA DEP site for this facility

MA SPILLS
Facility Id: 0000
Case Closed: YES
Spill ID: N87-1350

80
WSW
1/2-1
0.965 mi.
5094 ft.

Relative: Higher

VACANT LOT
147A EDGEWOOD AVENUE
METHUEN, MA 01844

Click here for full text details

MA SHWS **S118643381**
MA RELEASE **N/A**

MA SHWS
Release Tracking Number / Current Status: 3-0033579 / TIER1D

VACANT LOT (Continued) **S118643381**

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0033579 / TIER1D

Click here to access the MA DEP site for this facility

81
NNW
1/2-1
0.976 mi.
5154 ft.

Relative: Higher

MA0014
484 BROADWAY
METHUEN, MA 01844

MA SHWS **U002006924**
MA LUST **N/A**
MA UST
MA AST
MA RELEASE

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0003817 / RAO

Click here to access the MA DEP site for this facility

MA LUST
Release Tracking Number / Current Status: 3-0003817 / RAO

Click here to access the MA DEP site for this facility

MA UST
Facility Id: 5604
Tank Status: In Use
Tank Status: Tank Removed

MA AST
Release Tracking Number: 5604

MA RELEASE
Release Tracking Number / Current Status: 3-0003817 / RAO

Click here to access the MA DEP site for this facility

82
SSE
1/2-1
0.984 mi.
5198 ft.

Relative: Lower

NO LOCATION AID
516 BROADWAY
LAWRENCE, MA 01841

MA SHWS **S103811682**
MA RELEASE **N/A**

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0013824 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE

NO LOCATION AID (Continued) **S103811682**

Release Tracking Number / Current Status: 3-0013824 / RAO

Click here to access the MA DEP site for this facility

Q83
SSE
1/2-1
0.986 mi.
5207 ft.

Relative:
Lower

LAWRENCE TEXTILES **MA SHWS** **S100537030**
530 BROADWAY **MA LAST** **N/A**
LAWRENCE, MA 01840 **MA INST CONTROL**
MA RELEASE

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0004272 / PSC
Release Tracking Number / Current Status: 3-0015992 / RAO

Click here to access the MA DEP site for this facility

MA LAST
Release Tracking Number / Current Status: 3-0015992 / RAO

MA INST CONTROL
Release Tracking Number: 3-0004272

MA RELEASE
Release Tracking Number / Current Status: 3-0004272 / PSC
Release Tracking Number / Current Status: 3-0015992 / RAO

Click here to access the MA DEP site for this facility

Q84
SSE
1/2-1
0.994 mi.
5250 ft.

Relative:
Lower

BLDG 29 **MA SHWS** **S108640612**
520-610 BROADWAY **MA RELEASE** **N/A**
LAWRENCE, MA 01841

Click here for full text details

MA SHWS
Release Tracking Number / Current Status: 3-0026835 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE
Release Tracking Number / Current Status: 3-0026835 / RAO

Click here to access the MA DEP site for this facility

Q85
SSE
1/2-1
0.994 mi.
5250 ft.

Relative:
Lower

BLDG 24
520 BROADWAY
LAWRENCE, MA 01841

MA SHWS
MA RELEASE

S103811832
N/A

Click here for full text details

MA SHWS

Release Tracking Number / Current Status: 3-0015807 / RAO
Release Tracking Number / Current Status: 3-0010728 / RAO

Click here to access the MA DEP site for this facility

MA RELEASE

Release Tracking Number / Current Status: 3-0010728 / RAO
Release Tracking Number / Current Status: 3-0015807 / RAO

Click here to access the MA DEP site for this facility

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
MA	AIRS	Permitted Facilities Listing	Department of Environmental Protection	07/18/2018	07/24/2018	08/17/2018
MA	ASBESTOS	Asbestos Notification Listing	Department of Environmental Protection	06/11/2018	06/15/2018	06/29/2018
MA	AST	Aboveground Storage Tank Database	Department of Public Safety	07/13/2018	07/17/2018	08/23/2018
MA	AST 2	Aboveground Storage Tanks	Department of Fire Services	07/18/2018	07/24/2018	08/14/2018
MA	BROWNFIELDS	Completed Brownfields Covenants Listing	Office of the Attorney General	04/05/2017	08/03/2017	10/10/2017
MA	BROWNFIELDS 2	Potential Brownfields Listing	Department of Environmental Protection	05/22/2017	08/03/2017	09/22/2017
MA	DRYCLEANERS	Regulated Drycleaning Facilities	Department of Environmental Protection	04/18/2018	05/04/2018	05/23/2018
MA	ENFORCEMENT	Enforcement Action Cases	Department of Environmental Quality	07/25/2018	07/27/2018	08/14/2018
MA	Financial Assurance 1	Financial Assurance Information Listing	Department of Environmental Protection	12/01/2010	12/23/2010	02/03/2011
MA	Financial Assurance 2	Financial Assurance Information Listing	Office of State Fire Marshal	07/11/2018	07/17/2018	09/05/2018
MA	Financial Assurance 3	Financial Assurance Information listing	Department of Environmental Protection	01/16/2018	04/17/2018	06/15/2018
MA	GWDP	Ground Water Discharge Permits	MassGIS	01/18/2018	05/04/2018	05/23/2018
MA	HW GEN	List of Massachusetts Hazardous Waste Generators	Department of Environmental Protection	06/04/2018	06/27/2018	08/14/2018
MA	INST CONTROL	Sites With Activity and Use Limitation	Department of Environmental Protection	04/18/2018	07/11/2018	08/14/2018
MA	LAST	Leaking Aboveground Storage Tank Sites	Department of Environmental Protection	04/18/2018	07/11/2018	08/14/2018
MA	LF PROFILES	Landfill Profiles Listing	Department of Environmental Protection	07/01/2015	10/27/2015	12/14/2015
MA	LIENS	Liens Information Listing	Department of Environmental Protection	03/07/2018	03/09/2018	06/21/2018
MA	LUST	Leaking Underground Storage Tank Listing	Department of Environmental Protection	04/18/2018	07/11/2018	08/14/2018
MA	MA SPILLS	Historical Spill List	Department of Environmental Protection	09/30/1993	12/03/2003	12/31/2003
MA	MERCURY	Mercury Product Recyling Drop-Off Locations Listing	Department of Environmental Protection	05/07/2018	05/25/2018	06/25/2018
MA	NPDES	NPDES Permit Listing	Department of Environmental Protection	05/31/2018	08/16/2018	09/05/2018
MA	RELEASE	Reportable Releases	Department of Environmental Protection	04/18/2018	07/11/2018	08/14/2018
MA	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Environmental Protection		07/01/2013	12/24/2013
MA	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Environmental Protection		07/01/2013	12/24/2013
MA	SHWS	Site Transition List	Department of Environmental Protection	04/18/2018	07/11/2018	08/14/2018
MA	SPILLS 80	SPILLS80 data from FirstSearch	FirstSearch	03/10/1998	01/03/2013	03/05/2013
MA	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	12/11/2012	01/03/2013	02/08/2013
MA	SWF/LF	Solid Waste Facility Database/Transfer Stations	Department of Environmental Protection	05/01/2018	07/05/2018	08/14/2018
MA	TIER 2	Tier 2 Information Listing	Massachusetts Emergency Management Agency	12/31/2017	05/17/2018	06/29/2018
MA	TSD	TSD Facility	Department of Environmental Protection	06/04/2018	06/29/2018	08/14/2018
MA	UST	Summary Listing of all the Tanks Registered in the State of	Department of Fire Services, Office of the Pu	04/18/2018	05/02/2018	05/23/2018
US	2020 COR ACTION	2020 Corrective Action Program List	Environmental Protection Agency	09/30/2017	05/08/2018	07/20/2018
US	ABANDONED MINES	Abandoned Mines	Department of Interior	03/08/2018	03/13/2018	06/08/2018
NH	AIRS	Permitted Airs Facility Listing	Department of Environmental Services	12/31/2017	01/05/2018	02/07/2018
NH	ASBESTOS	Asbestos Notification Listing	Department of Environmental Services	06/05/2018	06/08/2018	06/27/2018
NH	AST	Registered Aboveground Petroleum Storage Tank Database	Department of Environmental Services	08/06/2018	08/07/2018	08/29/2018
NH	BROWNFIELDS	Brownfields Sites	Department of Environmental Services	07/23/2018	07/26/2018	08/14/2018
US	BRS	Biennial Reporting System	EPA/NTIS	12/31/2015	02/22/2017	09/28/2017
US	COAL ASH DOE	Steam-Electric Plant Operation Data	Department of Energy	12/31/2005	08/07/2009	10/22/2009
US	COAL ASH EPA	Coal Combustion Residues Surface Impoundments List	Environmental Protection Agency	07/01/2014	09/10/2014	10/20/2014
US	CONSENT	Superfund (CERCLA) Consent Decrees	Department of Justice, Consent Decree Library	03/31/2018	04/16/2018	06/29/2018
US	CORRACTS	Corrective Action Report	EPA	03/01/2018	03/28/2018	06/22/2018
US	DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations	EPA, Region 9	01/12/2009	05/07/2009	09/21/2009
US	DOCKET HWC	Hazardous Waste Compliance Docket Listing	Environmental Protection Agency	01/04/2018	01/19/2018	04/13/2018
US	DOD	Department of Defense Sites	USGS	12/31/2005	11/10/2006	01/11/2007
US	DOT OPS	Incident and Accident Data	Department of Transporation, Office of Pipeli	07/31/2012	08/07/2012	09/18/2012
NH	DRYCLEANERS	Listing of Drycleaners	Department of Environmental Services	06/18/2018	06/20/2018	08/14/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	Delisted NPL	National Priority List Deletions	EPA	07/17/2018	08/09/2018	09/07/2018
US	ECHO	Enforcement & Compliance History Information	Environmental Protection Agency	02/25/2018	03/17/2018	06/08/2018
US	EDR Hist Auto	EDR Exclusive Historical Auto Stations	EDR, Inc.			
US	EDR Hist Cleaner	EDR Exclusive Historical Cleaners	EDR, Inc.			
US	EDR MGP	EDR Proprietary Manufactured Gas Plants	EDR, Inc.			
US	EPA WATCH LIST	EPA WATCH LIST	Environmental Protection Agency	08/30/2013	03/21/2014	06/17/2014
US	ERNS	Emergency Response Notification System	National Response Center, United States Coast	03/19/2018	03/27/2018	06/08/2018
US	FEDERAL FACILITY	Federal Facility Site Information listing	Environmental Protection Agency	11/07/2016	01/05/2017	04/07/2017
US	FEDLAND	Federal and Indian Lands	U.S. Geological Survey	12/31/2005	02/06/2006	01/11/2007
US	FEMA UST	Underground Storage Tank Listing	FEMA	05/15/2017	05/30/2017	10/13/2017
US	FINDS	Facility Index System/Facility Registry System	EPA	02/21/2018	02/23/2018	03/23/2018
US	FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA/Office of Prevention, Pesticides and Toxi	04/09/2009	04/16/2009	05/11/2009
US	FTTS INSP	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fu	EPA	04/09/2009	04/16/2009	05/11/2009
US	FUDS	Formerly Used Defense Sites	U.S. Army Corps of Engineers	01/31/2015	07/08/2015	10/13/2015
US	FUELS PROGRAM	EPA Fuels Program Registered Listing	EPA	05/21/2018	05/23/2018	09/07/2018
US	FUSRAP	Formerly Utilized Sites Remedial Action Program	Department of Energy	12/23/2016	12/27/2016	02/17/2017
NH	Financial Assurance 1	Financial Assurance Information Listing	Department of Environmental Services	07/25/2018	07/27/2018	08/14/2018
NH	Financial Assurance 2	Financial Assurance Information listing	Department of Environmental Services	07/12/2018	07/27/2018	08/14/2018
US	HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HIST FTTS INSP	FIFRA/TSCA Tracking System Inspection & Enforcement Case Lis	Environmental Protection Agency	10/19/2006	03/01/2007	04/10/2007
US	HMIRS	Hazardous Materials Information Reporting System	U.S. Department of Transportation	03/26/2018	03/27/2018	06/08/2018
US	ICIS	Integrated Compliance Information System	Environmental Protection Agency	11/18/2016	11/23/2016	02/10/2017
US	IHS OPEN DUMPS	Open Dumps on Indian Land	Department of Health & Human Serivces, Indian	04/01/2014	08/06/2014	01/29/2015
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	EPA Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	EPA, Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	Environmental Protection Agency	04/10/2018	05/18/2018	07/20/2018
US	INDIAN ODI	Report on the Status of Open Dumps on Indian Lands	Environmental Protection Agency	12/31/1998	12/03/2007	01/24/2008
US	INDIAN RESERV	Indian Reservations	USGS	12/31/2014	07/14/2015	01/10/2017
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	EPA, Region 1	04/13/2018	05/18/2018	07/20/2018
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	EPA Region 10	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	EPA Region 4	05/08/2018	05/18/2018	07/20/2018
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	EPA Region 5	04/12/2018	05/18/2018	07/20/2018
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	EPA Region 6	04/01/2018	05/18/2018	07/20/2018
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	EPA Region 7	04/24/2018	05/18/2018	07/20/2018
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	EPA Region 8	04/25/2018	05/18/2018	07/20/2018
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	EPA Region 9	04/10/2018	05/18/2018	07/20/2018
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	EPA, Region 1	07/27/2015	09/29/2015	02/18/2016
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	EPA, Region 7	03/20/2008	04/22/2008	05/19/2008
NH	Inst Control	Activity and Use Restrictions	Department of Environmental Services	06/18/2018	06/20/2018	08/14/2018
NH	LAST	Listing of All Sites	Department of Environmental Services	08/06/2018	08/07/2018	08/29/2018
US	LEAD SMELTER 1	Lead Smelter Sites	Environmental Protection Agency	05/13/2018	05/30/2018	06/29/2018
US	LEAD SMELTER 2	Lead Smelter Sites	American Journal of Public Health	04/05/2001	10/27/2010	12/02/2010

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
NH	LIENS	Environmental Liens Information Listing	Department of Environmental Services	12/03/2017	01/26/2018	03/01/2018
US	LIENS 2	CERCLA Lien Information	Environmental Protection Agency	05/13/2018	05/30/2018	06/29/2018
US	LUCIS	Land Use Control Information System	Department of the Navy	05/14/2018	05/18/2018	07/20/2018
NH	LUST	Listing of All Sites	Department of Environmental Services	08/06/2018	08/07/2018	08/29/2018
US	MLTS	Material Licensing Tracking System	Nuclear Regulatory Commission	08/30/2016	09/08/2016	10/21/2016
NH	NH SPILLS	Listing of All Sites	Department of Environmental Services	08/06/2018	08/07/2018	08/29/2018
NH	NPDES	NPDES Permit Listing	Department of Environmental Services	07/19/2018	07/25/2018	08/14/2018
US	NPL	National Priority List	EPA	07/17/2018	08/09/2018	09/07/2018
US	NPL LIENS	Federal Superfund Liens	EPA	10/15/1991	02/02/1994	03/30/1994
US	ODI	Open Dump Inventory	Environmental Protection Agency	06/30/1985	08/09/2004	09/17/2004
US	PADS	PCB Activity Database System	EPA	06/01/2017	06/09/2017	10/13/2017
US	PCB TRANSFORMER	PCB Transformer Registration Database	Environmental Protection Agency	05/24/2017	11/30/2017	12/15/2017
US	PRP	Potentially Responsible Parties	EPA	10/25/2013	10/17/2014	10/20/2014
US	Proposed NPL	Proposed National Priority List Sites	EPA	07/17/2018	08/09/2018	09/07/2018
US	RAATS	RCRA Administrative Action Tracking System	EPA	04/17/1995	07/03/1995	08/07/1995
US	RADINFO	Radiation Information Database	Environmental Protection Agency	04/03/2018	04/05/2018	06/29/2018
US	RCRA NonGen / NLR	RCRA - Non Generators / No Longer Regulated	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-LQG	RCRA - Large Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-SQG	RCRA - Small Quantity Generators	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	Environmental Protection Agency	03/01/2018	03/28/2018	06/22/2018
NH	RGA HWS	Recovered Government Archive State Hazardous Waste Facilitie	Department of Environmental Services		07/01/2013	01/08/2014
NH	RGA LUST	Recovered Government Archive Leaking Underground Storage Tan	Department of Environmental Services		07/01/2013	01/03/2014
US	RMP	Risk Management Plans	Environmental Protection Agency	05/01/2018	05/17/2018	09/07/2018
US	ROD	Records Of Decision	EPA	05/13/2018	05/30/2018	06/29/2018
US	SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing	Environmental Protection Agency	01/01/2017	02/03/2017	04/07/2017
US	SEMS	Superfund Enterprise Management System	EPA	07/17/2018	08/09/2018	09/07/2018
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	EPA	07/17/2018	08/09/2018	09/07/2018
NH	SHWS	Listing of All Sites	Department of Environmental Services	08/06/2018	08/07/2018	08/29/2018
NH	SPILLS 90	SPILLS90 data from FirstSearch	FirstSearch	12/18/2012	01/03/2013	02/28/2013
US	SSTS	Section 7 Tracking Systems	EPA	12/31/2009	12/10/2010	02/25/2011
NH	SWF/LF	Solid Waste Facility Information	Department of Environmental Services	07/25/2018	07/27/2018	08/14/2018
US	TRIS	Toxic Chemical Release Inventory System	EPA	12/31/2016	01/10/2018	01/12/2018
US	TSCA	Toxic Substances Control Act	EPA	12/31/2016	06/21/2017	01/05/2018
US	UMTRA	Uranium Mill Tailings Sites	Department of Energy	06/23/2017	10/11/2017	11/03/2017
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	EPA	10/12/2016	10/26/2016	02/03/2017
US	US AIRS MINOR	Air Facility System Data	EPA	10/12/2016	10/26/2016	02/03/2017
US	US BROWNFIELDS	A Listing of Brownfields Sites	Environmental Protection Agency	03/19/2018	03/21/2018	06/08/2018
US	US CDL	Clandestine Drug Labs	Drug Enforcement Administration	02/22/2018	03/01/2018	05/11/2018
US	US ENG CONTROLS	Engineering Controls Sites List	Environmental Protection Agency	02/13/2018	02/27/2018	05/11/2018
US	US FIN ASSUR	Financial Assurance Information	Environmental Protection Agency	03/01/2018	03/27/2018	06/22/2018
US	US HIST CDL	National Clandestine Laboratory Register	Drug Enforcement Administration	02/22/2018	03/01/2018	05/11/2018
US	US INST CONTROL	Sites with Institutional Controls	Environmental Protection Agency	02/13/2018	02/27/2018	05/11/2018
US	US MINES	Mines Master Index File	Department of Labor, Mine Safety and Health A	05/03/2018	05/31/2018	06/29/2018
US	US MINES 2	Ferrous and Nonferrous Metal Mines Database Listing	USGS	12/05/2005	02/29/2008	04/18/2008
US	US MINES 3	Active Mines & Mineral Plants Database Listing	USGS	04/14/2011	06/08/2011	09/13/2011
NH	UST	Underground Storage Tank Registration Data	Department of Environmental Services	08/06/2018	08/07/2018	08/29/2018

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Government Agency	Gov Date	Arvl. Date	Active Date
US	UXO	Unexploded Ordnance Sites	Department of Defense	09/30/2016	10/31/2017	01/12/2018
CT	CT MANIFEST	Hazardous Waste Manifest Data	Department of Energy & Environmental Protecti	08/10/2018	08/10/2018	09/10/2018
NJ	NJ MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2017	07/13/2018	08/01/2018
NY	NY MANIFEST	Facility and Manifest Data	Department of Environmental Conservation	07/01/2018	08/01/2018	08/31/2018
PA	PA MANIFEST	Manifest Information	Department of Environmental Protection	12/31/2016	07/25/2017	09/25/2017
RI	RI MANIFEST	Manifest information	Department of Environmental Management	12/31/2017	02/23/2018	04/09/2018
VT	VT MANIFEST	Hazardous Waste Manifest Data	Department of Environmental Conservation	05/16/2018	05/23/2018	07/03/2018
WI	WI MANIFEST	Manifest Information	Department of Natural Resources	12/31/2017	06/15/2018	07/09/2018
US	AHA Hospitals	Sensitive Receptor: AHA Hospitals	American Hospital Association, Inc.			
US	Medical Centers	Sensitive Receptor: Medical Centers	Centers for Medicare & Medicaid Services			
US	Nursing Homes	Sensitive Receptor: Nursing Homes	National Institutes of Health			
US	Public Schools	Sensitive Receptor: Public Schools	National Center for Education Statistics			
US	Private Schools	Sensitive Receptor: Private Schools	National Center for Education Statistics			
US	Flood Zones	100-year and 500-year flood zones	Emergency Management Agency (FEMA)			
US	NWI	National Wetlands Inventory	U.S. Fish and Wildlife Service			
MA	State Wetlands	Wetland Inventory	MassDEP			
US	Topographic Map		U.S. Geological Survey			
US	Oil/Gas Pipelines		PennWell Corporation			
US	Electric Power Transmission Line Data		PennWell Corporation			

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

269 BROADWAY & 2 OSGOOD STREET
269 BROADWAY & 2 OSGOOD STREET
METHUEN, MA 01844

TARGET PROPERTY COORDINATES

Latitude (North):	42.727369 - 42° 43' 38.53''
Longitude (West):	71.186729 - 71° 11' 12.22''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	320968.8
UTM Y (Meters):	4732644.5
Elevation:	84 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5644816 LAWRENCE, MA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

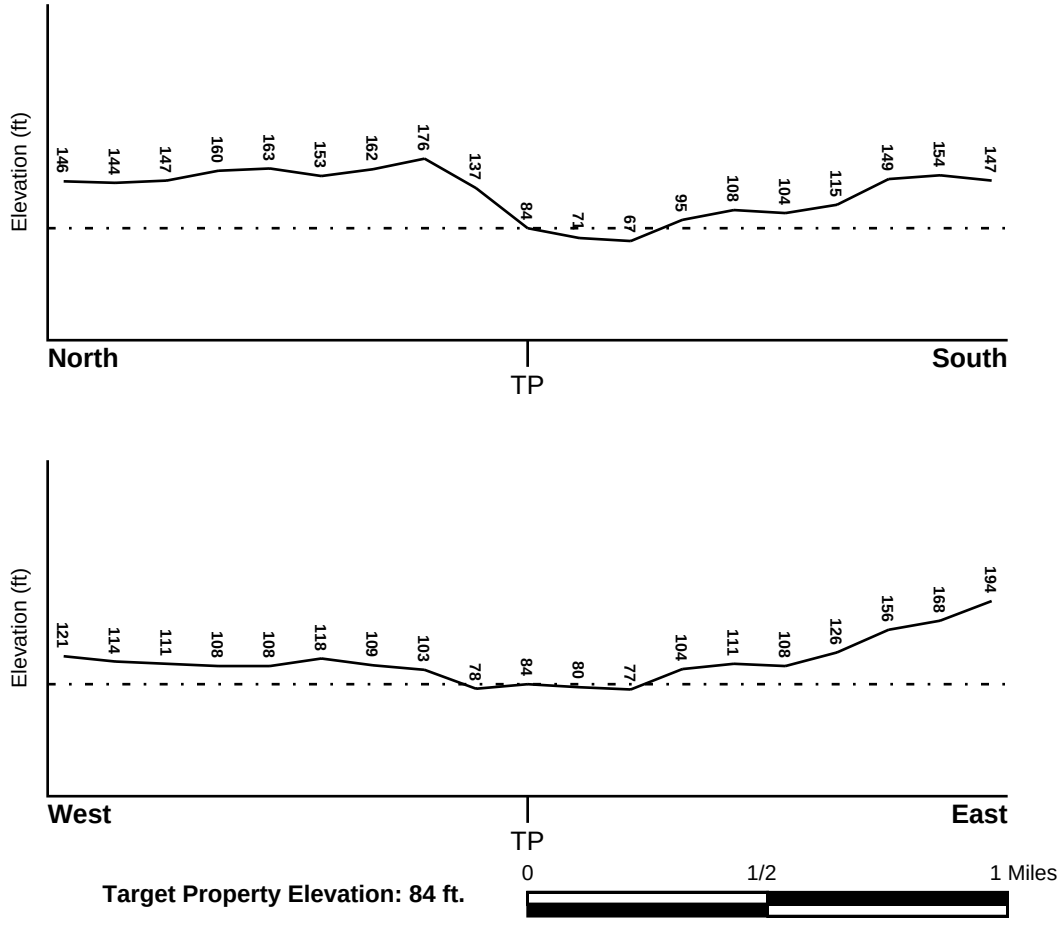
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 84 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
33015C0681E	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
33015C0677E	FEMA FIRM Flood data
25009C0204F	FEMA FIRM Flood data
25009C0208F	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
LAWRENCE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
6	1/2 - 1 Mile NNW	N
10	1/2 - 1 Mile West	SW
12	1/2 - 1 Mile SSE	VARIES
1G	1/2 - 1 Mile NNW	N
2G	1/2 - 1 Mile West	SW
3G	1/2 - 1 Mile SSE	VARIES

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

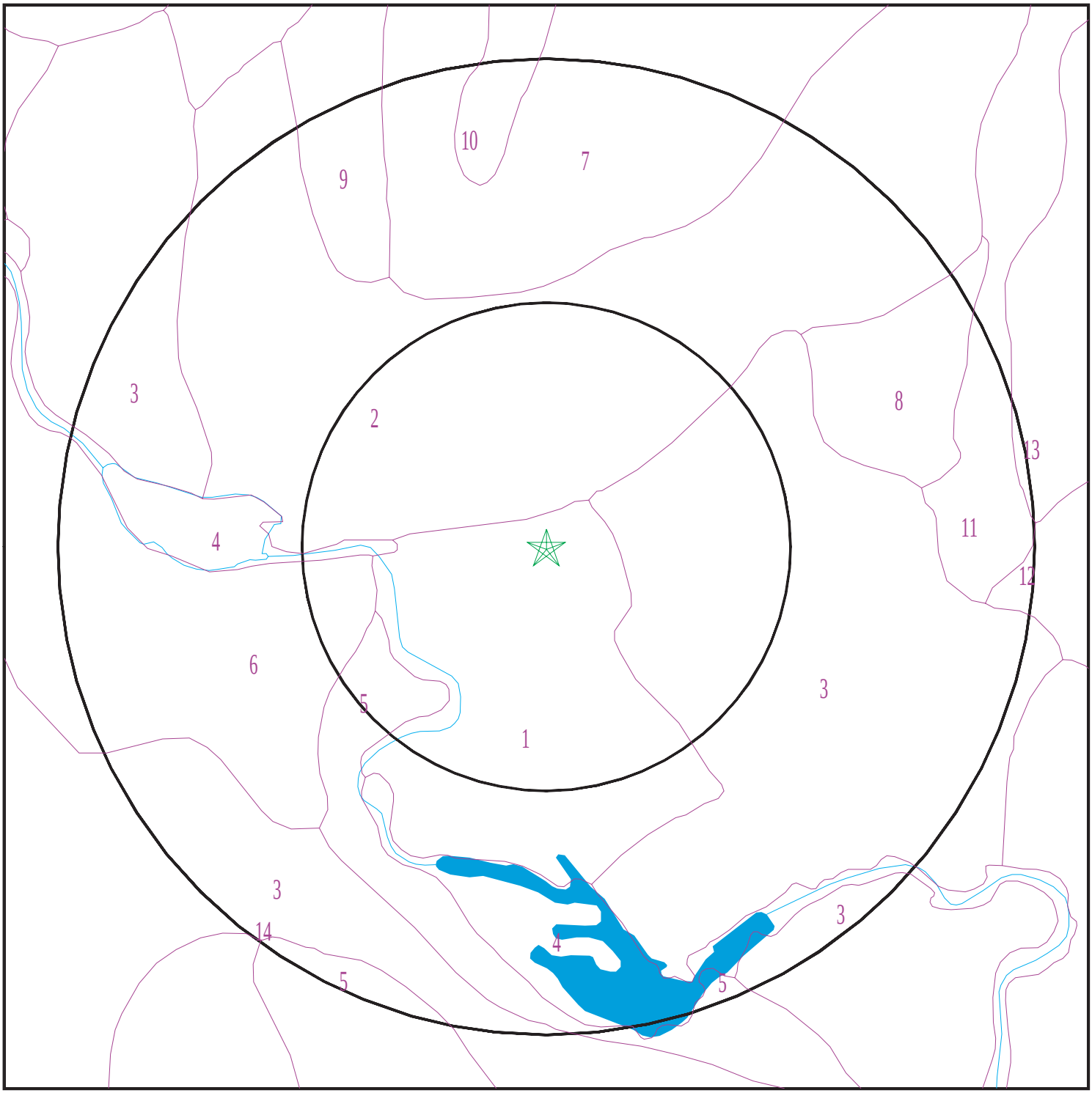
Era:	Paleozoic
System:	Silurian
Series:	Silurian
Code:	Se *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposit

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 5421517.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME:	269 Broadway & 2 Osgood Street	CLIENT:	Nangle Consulting Associates , Inc.
ADDRESS:	269 Broadway & 2 Osgood Street Methuen MA 01844	CONTACT:	Jim Parker
LAT/LONG:	42.727369 / 71.186729	INQUIRY #:	5421517.2s
		DATE:	September 12, 2018 11:56 am

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Udorthents

Soil Surface Texture: variable

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	variable	Not reported	Not reported	Max: 141.14 Min: 0.42	Max: Min:
2	5 inches	59 inches	variable	Not reported	Not reported	Max: 141.14 Min: 0.42	Max: Min:

Soil Map ID: 2

Soil Component Name: Charlton

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
2	3 inches	27 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
3	27 inches	59 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5

Soil Map ID: 3

Soil Component Name: Hinckley

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	loamy sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6
2	7 inches	18 inches	very gravelly loamy sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	18 inches	59 inches	stratified cobbly coarse sand to very gravelly loamy fine sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6

Soil Map ID: 4

Soil Component Name: Water

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 5

Soil Component Name: Hinckley

Soil Surface Texture: gravelly loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	gravelly loamy sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6
2	7 inches	18 inches	very gravelly loamy sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6
3	18 inches	59 inches	stratified cobbly coarse sand to very gravelly loamy fine sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6

Soil Map ID: 6

Soil Component Name: Urban land

Soil Surface Texture: gravelly loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 7

Soil Component Name: Charlton

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
2	3 inches	27 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
3	27 inches	59 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5

Soil Map ID: 8

Soil Component Name: Scarboro

Soil Surface Texture: mucky fine sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Very poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 15 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	mucky fine sandy loam	Not reported	Not reported	Max: 141.14 Min: 42.34	Max: 6 Min: 4.5
2	5 inches	16 inches	loamy sand	Not reported	Not reported	Max: 141.14 Min: 42.34	Max: 6 Min: 4.5

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	16 inches	59 inches	stratified sand to fine sand to loamy sand	Not reported	Not reported	Max: 141.14 Min: 42.34	Max: 6 Min: 4.5

Soil Map ID: 9

Soil Component Name: Charlton

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
2	3 inches	27 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
3	27 inches	59 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5

Soil Map ID: 10

Soil Component Name: Scituate

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 23 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	fine sandy loam	Not reported	Not reported	Max: 1.41 Min: 0.42	Max: 6 Min: 4.5
2	9 inches	27 inches	fine sandy loam	Not reported	Not reported	Max: 1.41 Min: 0.42	Max: 6 Min: 4.5
3	27 inches	59 inches	loamy sand	Not reported	Not reported	Max: 1.41 Min: 0.42	Max: 6 Min: 4.5

Soil Map ID: 11

Soil Component Name: Leicester

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Poorly drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 23 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	fine sandy loam	Not reported	Not reported	Max: 141.14 Min: 4.23	Max: 5.5 Min: 4.5
2	5 inches	27 inches	fine sandy loam	Not reported	Not reported	Max: 141.14 Min: 4.23	Max: 5.5 Min: 4.5

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	27 inches	59 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 141.14 Min: 4.23	Max: 5.5 Min: 4.5

Soil Map ID: 12

Soil Component Name: Sutton

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 75 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
2	9 inches	25 inches	fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5
3	25 inches	59 inches	gravelly fine sandy loam	Not reported	Not reported	Max: 42.34 Min: 4.23	Max: 6 Min: 4.5

Soil Map ID: 13

Soil Component Name: Canton

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	fine sandy loam	Not reported	Not reported	Max: 141.14 Min: 42.34	Max: 6 Min: 3.6
2	5 inches	33 inches	fine sandy loam	Not reported	Not reported	Max: 141.14 Min: 42.34	Max: 6 Min: 3.6
3	33 inches	59 inches	gravelly loamy sand	Not reported	Not reported	Max: 141.14 Min: 42.34	Max: 6 Min: 3.6

Soil Map ID: 14

Soil Component Name: Hinckley

Soil Surface Texture: loamy sand

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Excessively drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	loamy sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6
2	7 inches	18 inches	very gravelly loamy sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	18 inches	59 inches	stratified cobbly coarse sand to very gravelly loamy fine sand	Not reported	Not reported	Max: 705 Min: 141.14	Max: 6 Min: 3.6

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
3	USGS40000480354	1/4 - 1/2 Mile NNW
4	USGS40000480348	1/4 - 1/2 Mile NW
7	USGS40000480345	1/2 - 1 Mile WNW
8	USGS40000480261	1/2 - 1 Mile SW
11	USGS40000480361	1/2 - 1 Mile WNW
13	USGS40000480250	1/2 - 1 Mile SSE
14	USGS40000480349	1/2 - 1 Mile WNW
15	USGS40000480322	1/2 - 1 Mile West

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	MA3181004	1/8 - 1/4 Mile WSW

Note: PWS System location is not always the same as well location.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
2	MA9000000004663	1/4 - 1/2 Mile West
5	MA9000000005765	1/2 - 1 Mile SSE
9	MA9000000005414	1/2 - 1 Mile SSE

PHYSICAL SETTING SOURCE MAP - 5421517.2s

- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

- Potentially Productive Aquifers
- Not Potentially Productive Aquifers
- DEP Approved Zone IIs
- EPA Designated Sole Src. Aq.

SITE NAME:	269 Broadway & 2 Osgood Street	CLIENT:	Nangle Consulting Associates , Inc.
ADDRESS:	269 Broadway & 2 Osgood Street Methuen MA 01844	CONTACT:	Jim Parker
LAT/LONG:	42.727369 / 71.186729	INQUIRY #:	5421517.2s
		DATE:	September 12, 2018 11:55 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
1 **WSW** **1/8 - 1/4 Mile** **Higher**	Click here for full text details	**FRDS PWS**	**MA3181004**
2 **West** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**MA WELLS**	**MA9000000004663**
3 **NNW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480354**
4 **NW** **1/4 - 1/2 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480348**
5 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA9000000005765**
6 **NNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**AQUIFLOW**	**2579**
7 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480345**
8 **SW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480261**
9 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**MA WELLS**	**MA9000000005414**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation		Database	EDR ID Number
10 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**AQUIFLOW**	**2583**
11 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480361**
12 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**2558**
13 **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**FED USGS**	**USGS40000480250**
14 **WNW** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480349**
15 **West** **1/2 - 1 Mile** **Higher**	Click here for full text details	**FED USGS**	**USGS40000480322**
1G **NNW** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**2579**
2G **West** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**2583**
3G **SSE** **1/2 - 1 Mile** **Lower**	Click here for full text details	**AQUIFLOW**	**2558**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: MA Radon

Radon Test Results

County	% of sites>4 pCi/L	Median
ESSEX	36	2.8

Federal EPA Radon Zone for ESSEX County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 01844

Number of sites tested: 9

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	3.089 pCi/L	89%	11%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: MassDEP
Telephone: 617-292-5907

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Massachusetts Geographic Information System (MassGIS) Datalayers
Source: Executive Office of Environmental Affairs

Public Water Supply Database: The Public Water Supply datalayer contains the locations of public community surface and groundwater supply sources and public non-community supply sources as defined in 310 CMR 22.00.

OTHER STATE DATABASE INFORMATION

Areas of Critical Environmental Concern Datalayer: The Areas of Critical Environmental Concern (ACEC) datalayer shows the location of areas that have been designated ACECs by the Secretary of Environmental Affairs. ACEC designation requires greater environmental review of certain kinds of proposed development under state jurisdiction within the ACEC boundaries. The ACEC Program is administered by the Department of Environmental Management (DEM) on behalf of the Secretary of Environmental Affairs. The Massachusetts Coastal Zone Management (MCZM) Office managed the original Coastal ACEC Program from 1978 to 1993, and continues to play a key role in monitoring coastal ACECs. Procedures for ACEC designation and the general policies governing the effects of designation are contained in the ACEC regulations (301 CMR 12.00). The ACEC datalayer has been compiled by MCZM and DEM and includes both coastal and inland areas.

EPA Designated Sole Source Aquifers Datalayer: The Sole Source Aquifer datalayer was compiled by the Department of Environmental Protection (DEP) Division of Water Supply (DWS). Seven Sole Source Aquifers have been designated by the US Environmental Protection Agency (EPA) for Massachusetts. A Sole Source Aquifer (SSA) is an aquifer designated by US EPA as the sole or principal source of drinking water for a given aquifer service area; that is, an aquifer which is needed to supply 50% or more of the drinking water for that area and for which there are no reasonably available alternative sources should that aquifer become contaminated. The aquifers were defined by a EPA hydrogeologist.

Aquifers Datalayer: MassGIS produced an aquifer datalayer composed of 20 individual panels, generally based on the boundaries of the major drainage basins. Areas of high and medium yield were mapped. This datalayer includes polygon attribute coding to help in the identification of areas in which cleanup of hazardous waste sites must meet drinking water standards, as defined in the Massachusetts Contingency Plan (MCP) (310 CMR 40.00000).

Non-Potential Drinking Water Source Areas: Non-Potential Drinking Water Source Areas (NPDWSA) are regulatory in nature, representing one of many considerations used in determining the standards to which ground water must be cleaned in the event of a release of oil or hazardous material. NPDWSAs are not based on existing water quality and do not indicate poor ambient conditions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

DEP Approved Zone IIs Datalayer: The Department of Environmental Protection (DEP) approved Zone IIs datalayer was compiled by the DEP Division of Water Supply (DWS). The database contains 281 approved Zone IIs statewide. As stated in 310 CMR 22.02, a Zone II is "that area of an aquifer which contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at safe yield, with no recharge from precipitation.) It is bounded by the groundwater divides which result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone IIs shall extend up gradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary)." These data are used in association with the Public Water Supplies datalayer. The following describes certain unique features of this association.

- Any proposed new well which will pump at least 100,000 gallons per day must have a Zone II delineation completed and approved by DEP prior to the well coming on line.
- Additionally, a new source may not be on-line yet, but other, older wells may fall within its Zone II boundary.
- Further, existing wells must have a Zone II delineated as a condition of receiving a water withdrawal permit under the Water Management Act.

RADON

State Database: MA Radon
Source: Department of Health
Telephone: 413-586-7525
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

STREET AND ADDRESS INFORMATION

Methuen Fire Department

24 LOWELL STREET
METHUEN, MASSACHUSETTS 01844

JOSEPH J. NICOLOSI
CHIEF

TELEPHONE
685-3535

September 4, 1984

New England Rug Cleaners
2 Osgood Street
Methuen, Ma. 01844

RE: REMOVAL OF FLAMMABLE LIQUID STORAGE TANKS AT
269 BROADWAY, METHUEN, MA.

Gentlemen:

A recent inspection of your property located at 269 Broadway, Methuen, Ma. a vacant retail gasoline station, found storage tanks that have not been in use in excess of six months. There is also no valid license for storage on this property.

This is in violation of Massachusetts General Law, 52D, CMR10:12 Sec. 2 - Permanent cessation shall require the removal of all tanks.

Removal shall be accomplished in accordance with Massachusetts Law, Chapter 148, Sec. 38A. A competant person shall obtain a permit from the local Fire Chief. Your immediate attention to this matter is necessary.

This letter shall serve as First Notice of Violation.

Very truly yours,

James W. Clarke

James W. Clarke, Captain
Fire Prevention Officer

JWC:mtb

Methuen Fire Department

24 LOWELL STREET
METHUEN, MASSACHUSETTS 01844

TELEPHONE
685-3535

STATUTORY NOTICE

SECOND NOTICE - FINAL NOTICE

Date.....March 29 1985.

Name ERNEST ABISALIH

Address 2 Osgood Street, Methuen, Ma.

You are hereby notified that on inspection of your premises located at

269 Broadway, Methuen, Ma.

and used as a Gasolene Service Station

the following conditions were found to exist in violation of Chap. 148, Sec. 13; Chap. ~~148~~ CMR 10:12 Sec. 2 of the General Laws, Commonwealth of Massachusetts; - City of Methuen Ordinance

Permanent cessation of licensed gasolene service station calls for the removal of the tanks.

As this condition is a fire hazard and would be a serious hinderance to the proper handling of a fire by this department, should one occur, and is contrary to the law, you are herewith notified to have this condition corrected within 30 days on receipt of this notice.

This notice is returnable to the Methuen Fire Department, 24 Lowell Street with a written statement that the proper corrections have been completed and the date of completion.

Failure to comply with the foregoing order and to execute the same within 30 days as above stated, will render you liable to the penalties of said Section.

James N. Clarke
Captain
Fire Prevention Bureau

Accepted by Philip Abisalih 3-29-85

TELEPHONE
685-3535

9 Broadway, Methuen, Ma.
nks that have not been in
id license for storage on

52D, CMR10:12 Sec. 2 -
ll tanks.

Massachusetts Law, Chapter
permit from the local Fire
necessary.

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ptain
ficer

Methuen Fire Department

24 LOWELL STREET
METHUEN, MASSACHUSETTS 01844

TELEPHONE
685-3535

STATUTORY NOTICE 3rd NOTICE

Date ..... June 10 19 85

Name ... ERNEST ABISALIH .....

Address ..... 2 OSGOOD STREET
METHUEN, MA. .....

You are hereby notified that on inspection of your premises located at .....
269 BROADWAY, METHUEN, MA.
.....

and used as a .. Gasoline Station .....
the following conditions were found to exist in violation of Chap. 148, Sec. 13 .....;
Chap. 527-CMR .10:12 Sec. 2 ..... of the General Laws, Commonwealth of Massachusetts; - City of Methuen Ordinance .....

..... Permanant cessation of licensed gasoline .....
... station mandates the removal of the storage
... tanks. .....
.....
.....
.....
.....
.....
.....

As this condition is a fire hazard and would be a serious hinderance to the proper handling of a fire by this department, should one occur, and is contrary to the law, you are herewith notified to have this condition corrected within ..... 14 ..... days on receipt of this notice.

This notice is returnable to the Methuen Fire Department, 24 Lowell Street with a written statement that the proper corrections have been completed and the date of completion.

Failure to comply with the foregoing order and to execute the same within .. 14 ..... days as above stated, will render you liable to the penalties of said Section.

Captain
.....
Fire Prevention Bureau

Accepted by Evelyn Abisalih

Mutual Oil Co., Inc.

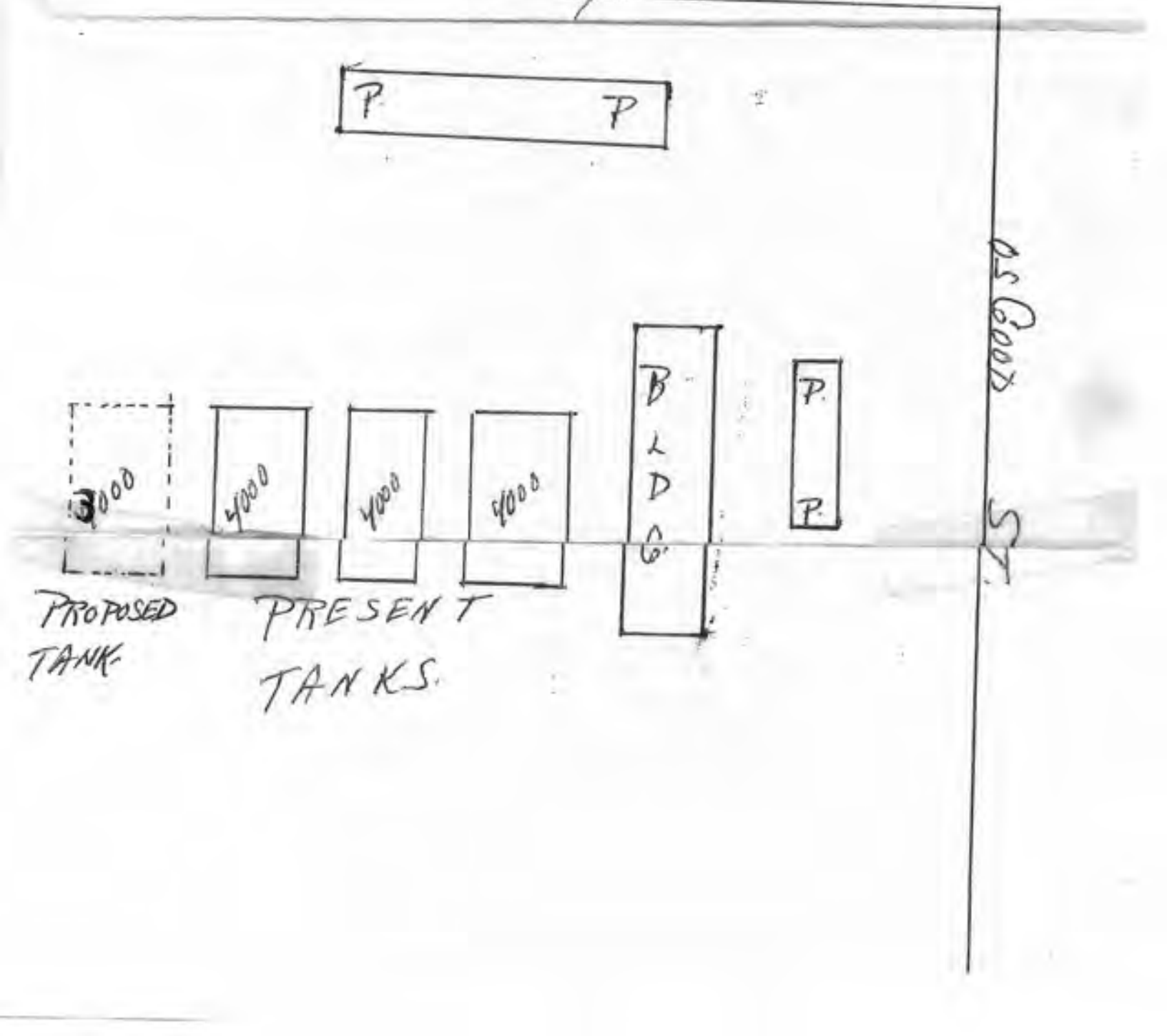
863 CRESCENT STREET
BROCKTON, MASS. 02403
PHONE: 583-5777

Broadway: Matteson

Proposed Increase: 4000 Gallons

NO SCALE

October 1, 1974



NOTICE — This Application Must be Filed Not Later Than 24 Hours Previous to Commencement of Work

Methuen, Mass.

APPLICATION FOR PERMIT TO INSTALL — ALTER FUEL OIL BURNER EQUIPMENT

To the Head of the Fire Department:

Application is hereby made in accordance with the provisions of Chapter 148, G. L., and Regulations made under authority thereof by the undersigned for permit to install — alter, for the person or persons, and at the location named herein, certain equipment for the keeping, storage or use of fuel oil or other inflammable liquid products used for fuel as described below.

Name Mary A Keyes
(Owner or Occupant)

Address 65 Hampshire St- Methuen Mass.

Description —

BURNER: Name ...... Manufacturer ......

GASOLINE STORAGE TANK: Type STEEL Model or Size ROUND
Location UNDERGROUND Mass. Approval No. MASS SEAL
Type ...... Capacity 3,000 gals. (or) Size ......
Location ......

Amount of fuel required for testing purposes ...... gals.

NOTE: If this application involves alterations to existing equipment, describe fully on reverse side.

This application is made with full knowledge of the current requirements of the regulations governing such installation, which will be made in compliance therewith.

Name of Electrical Contractor ......

Name of Plumbing Contractor ......

Appl. Rec'd Oct. 1, 1974
Permit Issued ......
Permit No. ......

Mutual Oil Co. Inc.
By William H. Currie
Address 863 Crescent St. Brockton Mass
Certificate of Competency No. ......

THIS SPACE FOR INCREASED STORAGE ONLY

Present Storage of 12,000 gallons in 3- 4,000 gal Tanks

Proposed Storage 1 tank of 3000 gals. for a total of 15,000 gals

Form F. P. S. [illegible]

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY — DIVISION OF FIRE PREVENTION
1010 COMMONWEALTH AVENUE, BOSTON

9/23 1980
(Date)

APPLICATION FOR PERMIT

To: HEAD OF FIRE DEPARTMENT

____
City or Town

In accordance with the provisions of Chapter 148, G. L. as provided in Sec. CMR-5 application is hereby made

for permission to Install 4 new gas pumps.

State clearly purpose for which permit is requested

Restrictions:

at 269 Broadway St. at
(Give location by street and no., or describe in such a manner as to provide adequate identification of location)

Date issued—rejected ________ 19 By Mutual Oil Co.
(Signature of Applicant)

Date of expiration ________ 19 Fee $ Paid—Due Michael Guilbeault
(Address)

269 Broadway — Hearing July 21

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION
1010 COMMONWEALTH AVENUE, BOSTON

Methuen, June 28, 1963
(City or Town) (Date)

APPLICATION FOR LICENSE

For the lawful use of the herein described building or other structure , application is hereby made in accordance with the provisions of Chapter 148 of the General Laws, for a license to use the land on which such building or other structure is/are or is/are to be situated, and only to such extent as shown on plot plan which is filed with and made a part of this application.

Location of land 269 Broadway street (Street & Number) Nearest cross street Osgood Street

Owner of land Keyes Estate Address 65 Hampshire Street

Number of buildings or other structures to which this application applies One

Occupancy or use of such buildings Filling Station

Total capacity of tanks in gallons:—Aboveground

Kind of fluid to be stored in tanks Gasoline Underground Present Storage 5000 Increase 10000 Total 15,000

Approved XXXXXXXX June, 28, 1963 Bernard W. Keyes
(Signature of Applicant)

Benjamin M. [illegible]
Chief, Methuen Fire Dept.

59 Davis Rd
(Address)

F.P.6 REV

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION
1010 COMMONWEALTH AVENUE, BOSTON

APPLICATION FOR PERMIT 4-22 1985

(Date)

To: HEAD OF FIRE DEPARTMENT
Methuen
City or Town

Sec. CHR. 9 In accordance with the provisions of Chapter 148, G.L. as provided in application is hereby made By

Name Mcvay Const. Co. Inc.
(Full name of person, firm or corporation)

Address 21 Morrison Ct. Meth. MA
(Street or P.O. Box) (City or Town)

State clearly purpose for which permit is requested: for permission to To Remove Gasoline Tanks

at 262 Broadway Methuen

Name of competent operator (If applicable) Kevin Mcvay (Zeller) Cert. No.

Date issued—~~rejected~~ 4.22 1985 By [signature]
(Signature of applicant)

Date of expiration ______ 19 Fee $ 100 Paid—Due

Form F.P. 6.

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY — DIVISION OF FIRE PREVENTION
1010 COMMONWEALTH AVENUE, BOSTON

October 19, 1964
(Date)

APPLICATION FOR PERMIT

To: HEAD OF FIRE DEPARTMENT (Cancelled)
Methuen, Mass.
City or Town

In accordance with the provisions of Chapter 148, G. L. as provided in Sec. 10 & 23, application is hereby made

State clearly purpose for which permit is requested: for permission to Remove - 1 - 500 Gallon and 1 - 1500 Gallon 1 - 1000 Gallon Gasolene Tanks from corner Osgood Street and Broadway to Cyr Oil Company

Restrictions: Water will be put in tanks and properly capped for transportation to 100 Water Street, Lawrence.

at Osgood and Broadway or
(Give location by street and no., or describe in such a manner as to provide adequate identification of location)

Date issued—~~rejected~~ 10/19/ 19 64 By [signature]
(Signature of applicant)

Date of expiration 10/20/ 1964 Fee $1.00 Paid—Due 100 Water St. Law.
(Address)

Form F.P. 6. 10M-12-63-95433

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY — DIVISION OF FIRE PREVENTION
1010 COMMONWEALTH AVENUE, BOSTON

October 19, 1964
(Date)

APPLICATION FOR PERMIT

To: HEAD OF FIRE DEPARTMENT (Methuen Fire Dept.)
Methuen, Mass.
City or Town

In accordance with the provisions of Chapter 148, G. L. as provided in Sec. 10 & 23 application is hereby made

for permission to Remove - 1 - 500 Gallon and 1 - 1500 Gallon, 1 - 1000 Gallon Gasolene Tanks from corner Osgood Street and Broadway to Cyr Oil Company

State clearly purpose for which permit is requested

Restrictions: Water will be put in tanks and properly capped for transportation to 100 Water Street, Lawrence.

at Osgood and Broadway
(Give location by street and no., or describe in such a manner as to provide adequate identification of location)

Date issued—~~rejected~~ 10/19/ 19 64 By Leander J. Cyr
(Signature of applicant)

Date of expiration 10/20/ 1964 Fee $1.00 Paid—Due 100 Water St Lawr
(Address)

F.P.6 REV

The Commonwealth of Massachusetts

DEPARTMENT OF PUBLIC SAFETY—DIVISION OF FIRE PREVENTION
1010 COMMONWEALTH AVENUE, BOSTON

APPLICATION FOR PERMIT

4-20 1985
(Date)

To: HEAD OF FIRE DEPARTMENT
Methuen
City or Town

In accordance with the provisions of Chapter 148, G.L. as provided in Sec. CHR. 9 application is hereby made By

Name Merry Cyr Oil Inc.
(Full name of person, firm or corporation)

Address 21 Merrimack St Meth Mass
(Street or P.O. Box) (City or Town)

for permission to To Remove Gasoline Tanks

State clearly purpose for which permit is requested

at 217 Broadway Methuen

Name of competent operator Kevin Merry (Owner) Cert. No.
(If applicable)

Date issued—~~rejected~~ 4-22 1985 By Kevin D Merry
(Signature of applicant)

Date of expiration _____ 19 Fee $ 00 Paid—Due

Methuen Fire Department

24 LOWELL STREET
METHUEN, MASSACHUSETTS 01844

JOSEPH J. NICOLOSI
CHIEF

TELEPHONE
685-3535

September 4, 1984

New England Rug Cleaners
2 Osgood Street
Methuen, Ma. 01844

RE: REMOVAL OF FLAMMABLE LIQUID STORAGE TANKS AT
269 BROADWAY, METHUEN, MA.

Gentlemen:

A recent inspection of your property located at 269 Broadway, Methuen, Ma. a vacant retail gasoline station, found storage tanks that have not been in use in excess of six months. There is also no valid license for storage on this property.

This is in violation of Massachusetts General Law, 52D, CMR10:12 Sec. 2 - Permanent cessation shall require the removal of all tanks.

Removal shall be accomplished in accordance with Massachusetts Law, Chapter 148, Sec. 38A. A competant person shall obtain a permit from the local Fire Chief. Your immediate attention to this matter is necessary.

This letter shall serve as First Notice of Violation.

Very truly yours,

James M. Clarke

James M. Clarke, Captain
Fire Prevention Officer

JMC:mtb

NANGLE CONSULTING ASSOCIATES, INC

APPENDIX D

Environmental Engineering and Land Use Planning

45 Dan Road - Suite 115 Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-1

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 18.4'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
						ASPHALT
1	S1A: 0.2-2.5	ND			D	Dark brown, Well Graded, fine to medium SAND WITH GRAVEL: trace ash
2						
3	S1B: 2.5-5.0				D	Brown, Well Graded, fine to medium SAND WITH GRAVEL: trace red brick
4		ND				
5	S2A: 5.0-7.5				M	Brown, Well Graded, fine to medium SAND WITH GRAVEL: trace silt
6		ND				
7						
8	S2B: 7.5-10				D	Brown, Well Graded, fine to coarse SAND WITH SILT: trace rock fragments
9		ND				
10	S3: 10.0-14.0				D	Brown, Well Graded, fine to coarse SAND WITH GRAVEL: trace rock fragments
11						
12		ND				
13						
14	S4A: 14.0-16.0				D	Brown, Well Graded, fine to coarse SAND WITH GRAVEL: trace silt
15		ND				
16	S4B: 16.0-18.4				D	Brown, Well Graded, fine to medium SAND, trace gravel
17		ND				
18						
						Boring Termination: 18.4' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

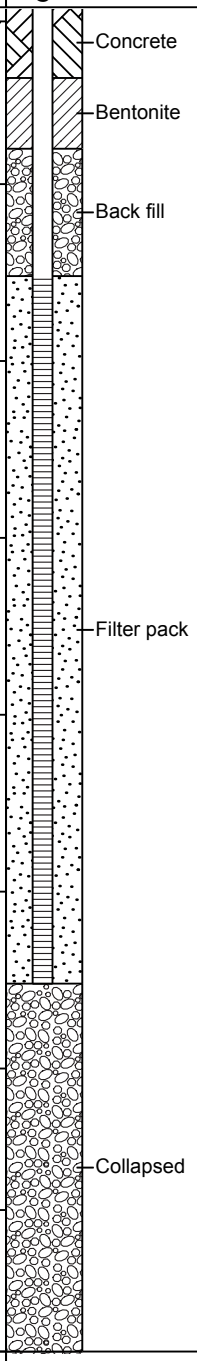
BORING LOG GP-2

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 19.0'
WELL DEPTH NA

WELL COVER: Road Box
RISER: 3.8 ft: 2" dia PVC
SCREEN: 10.0 ft: 2" dia PVC
SEAL MATERIAL Bentonite
FILTER PACK Well Sand

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
0						ASPHALT
1	S1A: 0.2-2.5	ND			D	Dark brown, Well Graded, fine to medium SAND WITH GRAVEL: trace ash
2						
3	S1B: 2.5-5.0	ND			D	Brown, Well Graded, fine to medium SAND WITH GRAVEL: trace red brick
4						
5	S2A: 5.0-7.5	ND			M	Brown, Well Graded, fine to medium SAND WITH GRAVEL: trace silt
6						
7						
8	S2B: 7.5-10	ND			D	Brown, Well Graded fine to coarse SAND WITH SILT: trace rock fragments
9						
10	S3A: 10.0-12.5	ND			D	Brown, Well Graded, fine to coarse SAND WITH GRAVEL: trace rock fragments
11						
12						
13	S3B: 12.5-15.0	ND			D	Brown, Well Graded, fine to coarse SAND WITH GRAVEL: trace silt
14						
15	S4A: 15.0-17.0	ND			D	Brown, Well Graded, fine to medium SAND, trace gravel
16						
17	S4B: 17.0-19.0	ND			D	Brown, Well Graded, fine to coarse SAND WITH SILT: trace rock fragments
18						
19						Boring Termination: 19.0' (Refusal)



NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-3

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 17.0'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
						ASPHALT
1	S1A: 0.2-2.5	ND			D	Brown, Well Graded, fine to medium SAND: trace gravel
2						
3	S1B: 2.5-5.0				D	Brown, Well Graded, fine to medium SAND: trace ash, coal
4		ND				
5	S2A: 5.0-7.5				D	Brown, Well Graded, fine to medium SAND: trace gravel
6		0.2				
7						
8	S2B: 7.5-10				D	Brown, Well Graded, fine to medium SAND: trace gravel
9		ND				
10	S3A: 10.0-12.5				D	Light brown, Poorly Graded, fine to medium SAND
11		1.5				
12						
13	S3B: 13.0-14.0	113.2			D	Grey, SILT
14	S3C: 12.5-15.0	77.3			D	Brown, fine to medium SAND, trace gravel
15	S4A: 15.0-16.0	73.2			D	Light brown, Well Graded, fine to medium SAND: trace gravel
16	S4B: 16.0-17.0	127.8			D	Light brown, Well Graded, fine to medium SAND: trace gravel
17						Boring Termination: 17.0' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-4

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 15.0'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
1 2 3 4 5	S1: 0.0-5.0	ND			D	Dark brown, Well Graded, fine to medium SAND : trace gravel
6 7 8 9 10	S2: 5.0-10.0	ND			D	Light brown, Poorly Graded, fine to medium SAND
11 12 13 14 15	S3A: 10.0-15.0	ND			D	Brown, fine to medium SAND WITH GRAVEL
						Boring Termination: 15.0' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-5

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 14.8'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
1	S1: 0.0-5.0	ND			D	Black, Well Graded, fine to medium SAND WITH GRAVEL: trace ash, coal, slag
5	S2: 5.0-10.0	ND			D	Brown, Well Graded, fine to medium SAND WITH GRAVEL: trace ash
10	S3A: 10.0-12.0	ND			D	Brown, Well Graded, fine to medium SAND WITH GRAVEL
12	S3B: 12.0-14.8	12.3			D	Brown, Poorly Graded, fine SAND WITH SILT & GRAVEL, trace rock fragments
15						Boring Termination: 14.8' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-6

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 12.9'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
1	S1A: 0.0-2.5	ND			D	Brown, Well Graded, fine to medium SAND WITH GRAVEL: trace ash
2						
3	S1B: 2.5-5.0				D	Brown, Well Graded fine to medium SAND WITH GRAVEL: trace ash, coal, concrete
4		ND				
5	S2: 5.0-10.0				D	Light brown, Well Graded, fine to medium SAND WITH SILT AND GRAVEL
6						
7						
8		ND				
9						
10	S3A: 10.0-12.9				D	Light brown, Well Graded, fine to medium SAND WITH SILT AND GRAVEL
11						
12		ND				
13						Boring Termination: 12.9' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-7

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 14.7'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
0					D	ASPHALT
	S1: 0.2-5.0					Dark brown, ORGANIC SOIL WITH SAND
1						
						Brown, Poorly Graded, fine to medium SAND
2		ND				
3						
4						
5	S2: 5.0-10.0				D	Brown, Well Graded, fine to medium SAND WITH GRAVEL
6						
7		ND				
8						
9						
10	S3A: 10.0-14.7				D	Brown, Well Graded, fine to medium SAND WITH SILT & GRAVEL
11						
12		ND				
13						
14						
						Boring Termination: 14.7' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-8A

PROJECT NUMBER 827.01	**SUB-CONTRACTOR** Northern Drill Service, Inc	**WELL COVER:** NA
CLIENT Abby Realty Trust	**DRILL METHOD** Geoprobe	**RISER:** NA
ADDRESS 269 Broadway & 2 Osgood Street	**SAMPLE METHOD** Vibratory	**SCREEN:** NA
DATE STARTED:2018/09/27	**TOTAL DEPTH** 4.8'	**SEAL MATERIAL** NA
DATE COMPLETED: 2018/09/27	**WELL DEPTH** NA	**FILTER PACK** NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
0						NO SAMPLES COLLECTED
0.2						
0.4						
0.6						
0.8						
1						
1.2						
1.4						
1.6						
1.8						
2						
2.2						
2.4						
2.6						
2.8						
3						
3.2						
3.4						
3.6						
3.8						
4						
4.2						
4.4						
4.6						
4.8						Boring Termination: 4.8' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-8B

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 13.8'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
0	S1: 0.0-5.0	ND			D	Dark brown, ORGANIC SOIL WITH SAND
1						Light brown, Poorly Graded, fine to medium SAND
2						
3						
4						
5	S2: 5.0-10.0				D	Brown, fine to medium SAND WITH GRAVEL: trace red brick
6						
7						
8		ND				
9						
10	S3A: 10.0-12.5				D	Brown, Poorly Graded, fine to medium SANDS: trace silt
11		ND				
12						
13	S3B: 12.5-13.8	ND			M	Brown, SILT WITH SAND
14						Boring Termination: 13.8' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG GP-9

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/09/27
DATE COMPLETED: 2018/09/27

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Geoprobe
SAMPLE METHOD Vibratory
TOTAL DEPTH 14.8'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	% Recovery	Graphic Log	Moisture	Material Description
0	S1: 0.0-5.0	ND			D	Dark brown, ORGANIC SOIL WITH SAND
2						Dark brown, Well Graded, fine to medium SANDS WITH GRAVEL: trace ash
5	S2: 5.0-10.0	ND			D	Brown, Well Graded, fine to medium SANDS WITH GRAVEL
10	S3A: 10.0-14.8	ND			D	Brown, SILT WITH SAND
15						Boring Termination: 14.8' (Refusal)

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG NC-10

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/10/24
DATE COMPLETED: 2018/10/24

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Hollow Stem Auger
SAMPLE METHOD Split Spoon
TOTAL DEPTH 10'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	Blow Counts	% Recovery	Graphic Log	Moisture	Material Description
0.5	AS1: 0.0-2.5	ND				D	Dark brown, Well Graded, fine to medium SAND: trace gravel, organics
1							
1.5							
2							
2.5	AS2: 2.5-5.0					D	Brown, Well Graded, fine to medium SAND: trace gravel
3							
3.5		ND					
4							
4.5							
5	AS3: 5.0-10.0						Brown, Well Graded, fine to medium SAND: trace gravel
5.5							
6							
6.5							
7							
7.5		ND					
8							
8.5							
9							
9.5							
10						D	Boring Termination: 10.0' (Auger Refusal)

produced by ESlog.ESdat.net on 25 Oct 2018

NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG NC-10A

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/10/24
DATE COMPLETED: 2018/10/24

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Hollow Stem Auger
SAMPLE METHOD Split Spoon
TOTAL DEPTH 3.5'
WELL DEPTH NA

WELL COVER: NA
RISER: NA
SCREEN: NA
SEAL MATERIAL NA
FILTER PACK NA

Depth (ft)	Samples	PID	Blow Counts	% Recovery	Graphic Log	Moisture	Material Description
0.5 1 1.5 2 2.5 3 3.5	AS2: 0.0-3.5	ND				D	Brown, Well Graded, fine to medium SAND: trace gravel, organics
4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5							Boring Termination: 3.5' (Auger Refusal)

produced by ESlog.ESdat.net on 25 Oct 2018

NANGLE CONSULTING ASSOCIATES, INC.

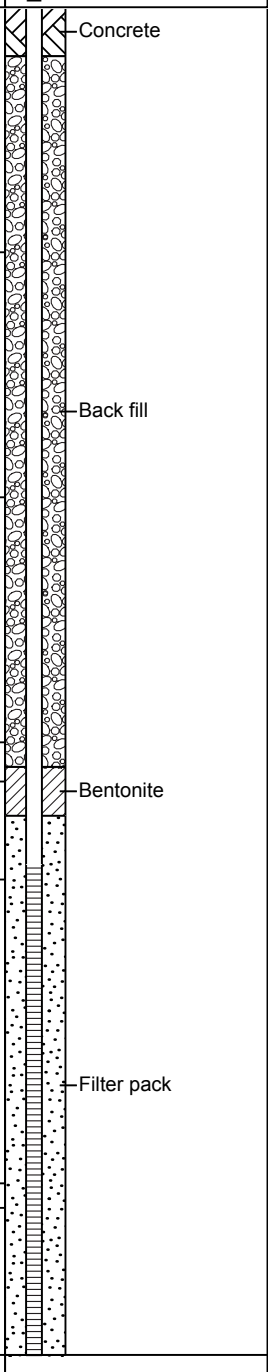
BORING LOG NC-11

PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/10/24
DATE COMPLETED: 2018/10/24

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Hollow Stem Auger/Spin&Wash
SAMPLE METHOD Split Spoon
TOTAL DEPTH 27.5'
WELL DEPTH 27.5'

WELL COVER: Road Box
RISER: 17.5 ft: 2-in Dia PVC
SCREEN: 10.0 ft: 2-in Dia PVC
SEAL MATERIAL Bentonite
FILTER PACK Well Sand

Depth (ft)	Samples	PID	Blow Counts	% Recovery	Graphic Log	Moisture	Material Description
	AS1: 0.0-5.0	ND				D	Dark brown, Well Graded, fine to medium SAND: trace gravel
2							
4							
	AS2: 5.0-10.0	ND				D	Brown, Well Graded, fine to medium SAND: trace gravel
6							
8							
10	AS3: 10.0-15.0	ND				D	Brown, Poorly Graded, medium SAND: trace gravel
12							
14							
	S4: 15.0-15.8	ND	50/100 (3")			D	Brown, Poorly Graded, medium SAND: trace silt
16	AS5: 15.8-17.8	ND				D	Brown, Poorly Graded, medium SAND WITH GRAVEL
18							
20							
22							
24	S6: 24.0-24.5	ND	90/40 (0")			NA	Grey-Brown, Poorly Graded, fine SAND WITH SILT
26							
28							(Switched to Spin& Wash @ 17.8') Boring Termination: 27.5'



NANGLE CONSULTING ASSOCIATES, INC.

BORING LOG NC-12

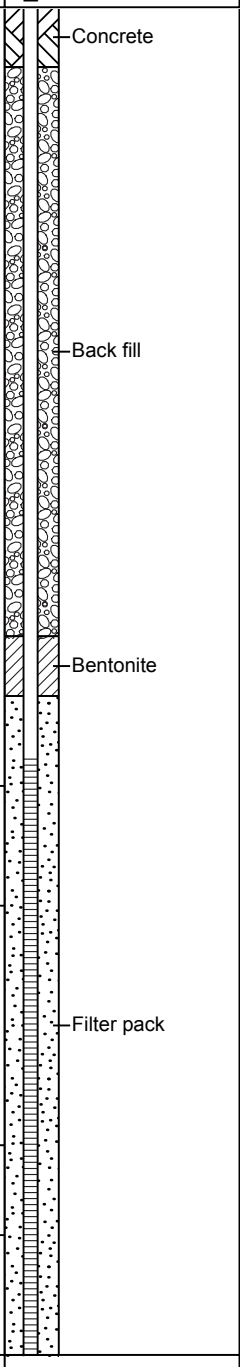
PROJECT NUMBER 827.01
CLIENT Abby Realty Trust
ADDRESS 269 Broadway & 2 Osgood Street
DATE STARTED:2018/10/24
DATE COMPLETED: 2018/10/24

SUB-CONTRACTOR Northern Drill Service, Inc
DRILL METHOD Spin&Wash
SAMPLE METHOD Split Spoon
TOTAL DEPTH 22.5'
WELL DEPTH 22.5'

WELL COVER: Road Box
RISER: 12.5 ft: 2-in Dia PVC
SCREEN: 10.0 ft: 2-in Dia PVC
SEAL MATERIAL Bentonite
FILTER PACK Well Sand

Depth (ft)	Samples	PID	Blow Counts	% Recovery	Graphic Log	Moisture	Material Description
13	S1A: 13.0-14.0	ND	8/25			NA	Brown, Well Graded, fine to coarse SAND: trace gravel, rock fragments
14	S1B: 14.0-15.0	ND	25/22			NA	
19	S2A: 19.0-19.5	104.8	28			NA	Grey-brown, Well Graded, fine to medium SAND: trace silt, rock fragment
20	S2B: 19.5-20.0	88.1	63			NA	
	S3C: 20.0-20.5	43.6	100			NA	
23							Boring Termination: 22.5'

Well Diagram — NC-12



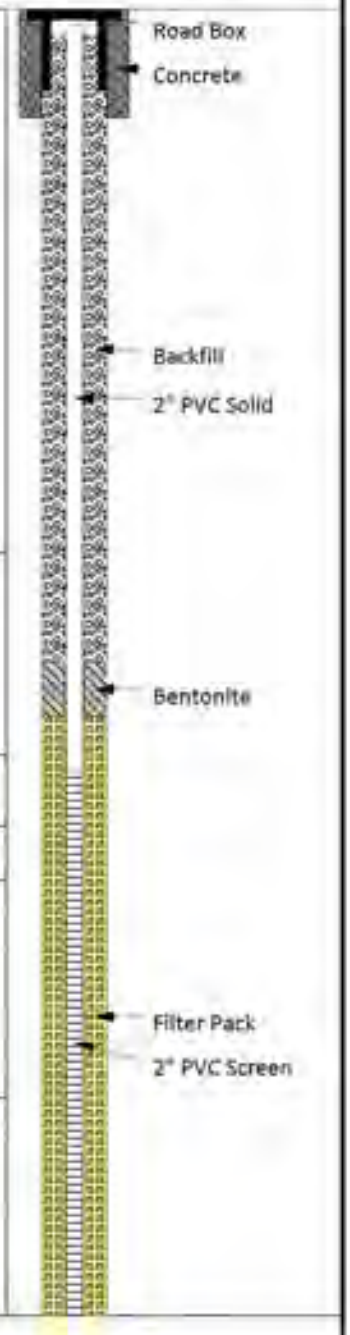
NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering and Land Use Planning
45 Dan Road • Suite 115 • Canton • Massachusetts 02021

PROJECT NO.	827.01
CLIENT	Abby Realty Trust
LOCATION	269 Broadway and 2 Osgood Street

BORING LOG: NC-13

DATE STARTED	12/6/2018	SAMPLE METHOD	Split Spoon	RISER	14.0 ft; 2" dia PVC
DATE COMPLETED	12/6/2018	TOTAL DEPTH	24 ft	SCREEN	10.0 ft; 2" dia PVC
CONTRACTOR	Carr-Dee Corp.	WELL DEPTH	24 ft	SEAL MATERIAL	Bentonite
DRILL METHOD	Drive & Wash	WELL COVER	Road Box	FILTER PACK	Well Sand

Depth (Ft)	Samples	PID	Blow Counts	Recovery (in.)	Graphic Log	Material Description
0						NO SAMPLES COLLECTED
10	S-1	ND	22 19 21 22	14		Brown, poorly graded, SAND WITH SILT & GRAVEL:
12	S-2	4.1	30 41 49 100/4"	16		
14						
15	S-3A	35.8	28-65-83	12		Gray, poorly graded, SILTY SAND:
16	S-3B	12.6				Brown, Well Graded, SAND WITH SILT:
17	S-4	1.2	86-100/1"	7		
20						FRACTURED ROCK
24						



NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering and Land Use Planning
45 Dan Road • Suite 115 • Canton • Massachusetts 02021

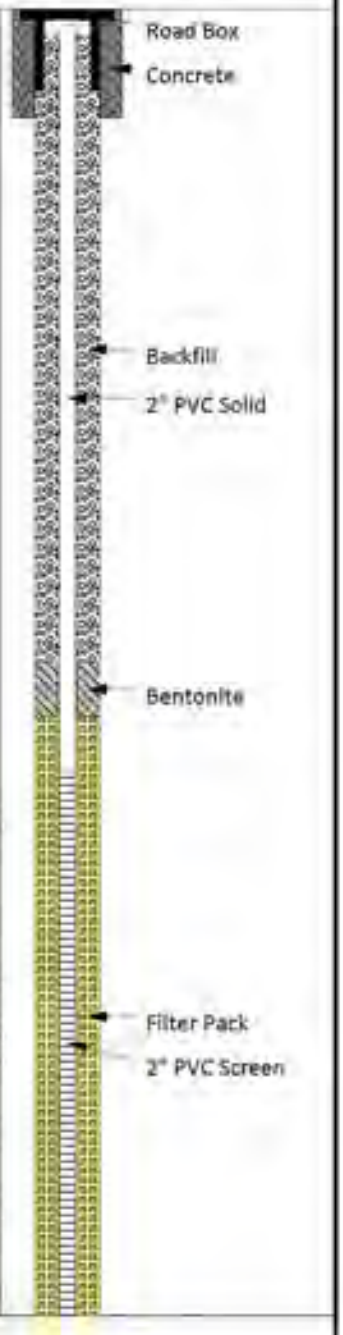
PROJECT NO.	827.01
CLIENT	Abby Realty Trust
LOCATION	269 Broadway and 2 Osgood Street

BORING LOG: NC-14

DATE STARTED	12/6/2018	SAMPLE METHOD	Split Spoon	RISER	14.0 ft; 2" dia PVC
DATE COMPLETED	12/6/2018	TOTAL DEPTH	24 ft	SCREEN	10.0 ft; 2" dia PVC
CONTRACTOR	Carr-Dee Corp.	WELL DEPTH	24 ft	SEAL MATERIAL	Bentonite
DRILL METHOD	Drive & Wash	WELL COVER	Road Box	FILTER PACK	Well Sand

Depth (Ft)	Samples	PID	Blow Counts	Recovery (in.)	Graphic Log	Material Description
0						NO SAMPLES COLLECTED
15	S-1	ND	15-17-16-16	8		Brown, well graded, SAND WITH SILT & GRAVEL:
17	S-2	ND	14-18-100/5"	6		
19	S-3	107.3	21-21-27-29	14		Gray, poorly graded, SAND WITH SILT:
21	S-4	120.5	42-100/4"	7		
22	S-5	14.2	100/3"	3		FRACTURED ROCK

Well Diagram



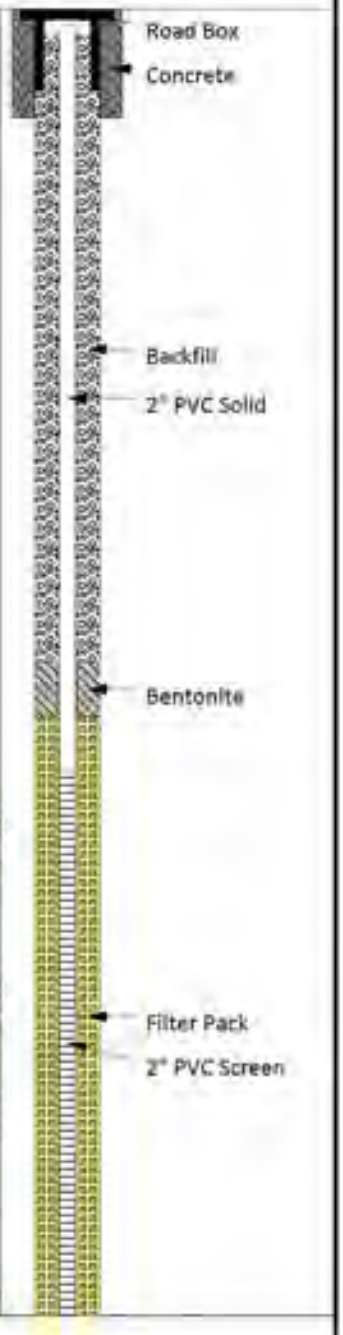
NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering and Land Use Planning
45 Dan Road • Suite 11a • Canton • Massachusetts 02021

PROJECT NO.	827.01
CLIENT	Abby Realty Trust
LOCATION	269 Broadway and 2 Osgood Street

BORING LOG: NC-15

DATE STARTED	12/7/2018	SAMPLE METHOD	Split Spoon	RISER	14.0 ft; 2" dia PVC
DATE COMPLETED	12/7/2018	TOTAL DEPTH	24 ft	SCREEN	10.0 ft; 2" dia PVC
CONTRACTOR	Carr-Dee Corp.	WELL DEPTH	24 ft	SEAL MATERIAL	Bentonite
DRILL METHOD	Drive & Wash	WELL COVER	Road Box	FILTER PACK	Well Sand

Depth (Ft)	Samples	PID	Blow Counts	Recovery (in.)	Graphic Log	Material Description
0						NO SAMPLES COLLECTED.
15	S-1	0.3	100/3"	2		Brown-gray, well graded, SAND WITH SILT;
18	S-2	0.1	100/5"	5		Brown-gray, well graded, SAND WITH SILT; trace fractured rock
20	S-3	ND	100/3"	3		FRACTURED ROCK



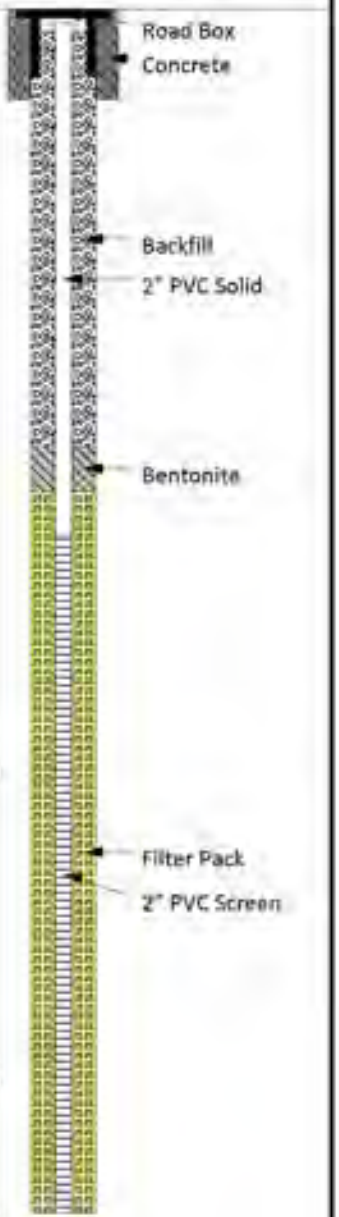
NANGLE CONSULTING ASSOCIATES, INC.
Environmental Engineering and Land Use Planning
45 Dan Road • Suite 115 • Canton • Massachusetts 02021

PROJECT NO.	827.01
CLIENT	Abby Realty Trust
LOCATION	269 Broadway and 2 Osgood Street

BORING LOG: NC-16

DATE STARTED	12/7/2018	SAMPLE METHOD	Split Spoon	RISER	11.7 ft; 2" dia PVC
DATE COMPLETED	12/7/2018	TOTAL DEPTH	26.7 ft	SCREEN	15.0 ft; 2" dia PVC
CONTRACTOR	Carr-Dee Corp.	WELL DEPTH	26.7 ft	SEAL MATERIAL	Bentonite
DRILL METHOD	Drive & Wash	WELL COVER	Road Box	FILTER PACK	Well Sand

Depth (Ft)	Samples	PID	Blow Counts	Recovery (in.)	Graphic Log	Material Description
0–17						NO SAMPLES COLLECTED
17–24	S-1	ND	7-9-9-11	7		Brown-gray, well graded,SAND WITH SILT & GRAVEL:
	S-2	ND	7-9-9-7	13		
	S-3	0.3	16-10-8-12	3		
24–26	S-4	137.4	100/6"	4		Gray, poorly graded, SAND WITH SILT:
26–27	SSA	92.2	20-23-100/3"	12		
27–28	SSB	104.2				FRACTURED ROCK
28–29	SSC	39.3				



NANGLE CONSULTING ASSOCIATES, INC

APPENDIX E

Environmental Engineering and Land Use Planning

960 Turnpike Street, Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) EST 1900624888-002 SC PPW 7/12/2018

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number: PENDING	2. Page 1 of: 1	3. Emergency Response Phone: (800) 483-3718	4. Waste Tracking Number: NON HAZ 13

5. Generator's Name and Mailing Address
Abby Realty Trust
269 Broadway
Methuen, MA 01844
Generator's Phone: (978) 729-6469

Generator's Site Address (if different than mailing address): SAME

6. Transporter 1 Company Name: Cyn Oil Corporation — U.S. EPA ID Number: MAD082303777

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Cyn Oil Corporation, 1771 Washington St, Stoughton, MA 02072 — U.S. EPA ID Number: MAD082303777
Facility's Phone: (781) 341-5108

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	
	1. NON DOT REGULATED MATERIAL, (NON HAZARDOUS SOILS)	001	DM	EST 0600	P	MA99
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information
1.CH1751073-SUP
CNHSD

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: Sean McCafferty on behalf of Abby Realty Trust — Signature: [signature] — Month 12 Day 13 Year 19

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Sean McCafferty — Signature: [signature] — Month 12 Day 13 Year 19
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

H141

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Ricky Henriques — Signature: [signature] — Month 12 Day 20 Year 19

6-NHM-C-C-11

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping. DESIGNATED FACILITY TO DESTINATION

NANGLE CONSULTING ASSOCIATES, INC

APPENDIX F

Environmental Engineering and Land Use Planning

960 Turnpike Street, Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

Method 3 Risk Assessment for Chemicals in Soil - Construction Worker Shortform 2012 (sf12cw)

Index

Tab	
EPCs	Table CW-1: Select chemicals and enter Exposure Point Concentrations (EPCs). Estimated risks are shown to the right.
C Eq	Table CW-2: Equations to calculate cancer risks
NC Eq	Table CW-3: Equations to calculate noncancer risks
Exp	Table CW-4: Definitions and exposure factors
Chem	Table CW-5: Chemical-specific data
Cyanide	Table CW-6: Cyanide Calculations

Spreadsheets designed by Andrew Friedmann, MassDEP
Questions and Comments may be addressed to:
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Massachusetts Department of Environmental Protection
Office of Research and Standards
One Winter Street
Boston, MA 02108 USA
Telephone: (617) 556-1165
Fax: (617) 556-1006
Email: Lydia.Thompson@state.ma.us

Construction Worker - Soil: Table CW-1
Exposure Point Concentration (EPC) and Risk
Based on Construction Worker 18-25 years of age

ShortForm Version 10-12
Vlookup Version v0315

ELCR (all chemicals) = 1.8E-08
HI (all chemicals) = 5.7E-02

****Do not insert or delete any rows****
Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material (OHM)	EPC (mg/kg)	ELCR ingestion	ELCR dermal	ELCR inhalation GI	ELCR inhalation pulmonary	$ELCR_{total}$	Subchronic HQ_{ing}	Subchronic HQ_{derm}	Subchronic HQ_{inh-GI}	Subchronic HQ_{inh}	HQ_{total}
POLYCHLORINATED BIPHENYLS (PCBs)	3.6E-01	6.3E-09	6.4E-09	1.6E-10	9.6E-12	1.3E-08	8.9E-03	8.9E-03	2.3E-04	6.7E-04	1.9E-02
ALIPHATICS C5 to C8	1.6E+03						4.8E-03	9.6E-03	1.2E-04	2.9E-04	1.5E-02
ALIPHATICS C9 to C12	1.0E+03						1.3E-03	2.5E-03	3.3E-05	6.3E-05	3.9E-03
AROMATICS C9 to C10	9.1E+02						3.7E-03	7.5E-03	9.7E-05	6.8E-05	1.1E-02
BENZENE	7.9E+00	3.8E-09	1.2E-09	9.9E-11	1.6E-11	5.1E-09	9.8E-04	2.9E-04	2.5E-05	2.9E-05	1.3E-03
TOLUENE	7.9E+00						1.2E-05	3.7E-06	3.2E-07	5.9E-08	1.6E-05
ETHYLBENZENE	7.5E+00						1.9E-04	5.6E-05	4.8E-06	3.1E-08	2.5E-04
XYLENES (Mixed Isomers)	1.9E+01						5.8E-05	1.8E-05	1.5E-06	1.8E-06	7.9E-05
METHYL TERT BUTYL ETHER	4.0E+00						4.9E-06	1.5E-06	1.3E-07	4.9E-08	6.5E-06
NAPHTHALENE	1.6E+01						2.9E-05	9.8E-05	7.6E-07	2.0E-04	3.2E-04
LEAD	6.6E+00						5.4E-03	6.6E-04	1.4E-04	2.5E-04	6.5E-03

MassDEP ORS
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Construction Worker - Soil: Table CW-2

Equations to Calculate Cancer Risk for Construction Worker

Vlookup Version v0315

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing} * CSF_{oral}$$

$$LADD_{ing} = \frac{EPC * IR * RAF_{c\text{-}ing} * EF * ED_{ing} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF_{oral}$$

$$LADD_{derm} = \frac{EPC * SA * AF * RAF_{c\text{-}derm} * EF * ED_{derm} * EP * C1}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$ELCR_{inh\text{-}GI} = LADD_{inh\text{-}GI} * CSF_{oral}$$

$$LADD_{inh\text{-}GI} = \frac{EPC * RCAF_{inh\text{-}gi} * PM_{10} * VR_{work} * RAF_{c\text{-}ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Cancer Risk from Particulate Inhalation - Pulmonary Absorption

$$ELCR_{inh} = LADD_{inh} * CSF_{inhalation}$$

$$LADD = \frac{EPC * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{c\text{-}inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{lifetime}}$$

Parameter	Value	Units
CSF	OHM-specific	$(mg/kg\text{-}day)^{-1}$
LADD	age/OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
$RAF_{c\text{-}ing}$	OHM-specific	dimensionless
$RAF_{c\text{-}derm}$	OHM-specific	dimensionless
$RAF_{c\text{-}inh}$	OHM-specific	dimensionless
EF	0.714	event/day
$ED_{ing\ \&\ derm}$	1	day/event
ED_{inh}	0.333	day/event
EP	182	days
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/µg
C3	1440	min/days
C4	1.0E-03	m^3/L
BW	58.0	kg
$AP_{(lifetime)}$	25,550	days
VR_{work}	60	L/min
AF	0.29	mg/cm^2
SA	3473	cm^2/day
$RCAF_{inh\text{-}gi}$	1.5	dimensionless
$RCAF_{inh}$	0.5	dimensionless
PM_{10}	60	$\mu g/m^3$

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Construction Worker - Soil: Table CW-3

Equations to Calculate Noncancer Risk for Construction Worker

Vlookup Version v0315

Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{ing} = \frac{EPC * IR * RAF_{nc\text{-}ing} * EF * ED_{ing} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{dermal} = \frac{EPC * SA * AF * RAF_{nc\text{-}derm} * EF * ED_{dermal} * EP * C1}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Gastrointestinal Absorption

$$HQ_{inh\text{-}GI} = \frac{ADD_{inh\text{-}GI}}{RfD_{oral\text{-}subchronic}}$$

$$ADD_{inh\text{-}GI} = \frac{EPC * RCAF_{inh\text{-}gi} * PM_{10} * VR_{work} * RAF_{nc\text{-}ing} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Noncancer Risk from Particulate Inhalation - Pulmonary Absorption

$$HQ_{inh} = \frac{ADD}{RfD_{inhalation\text{-}subchronic}}$$

$$ADD_{inh} = \frac{EPC_{soil} * RCAF_{inh} * PM_{10} * VR_{work} * RAF_{nc\text{-}inh} * EF * ED_{inh} * EP * C2 * C3 * C4}{BW * AP_{noncancer}}$$

Parameter	Value	Units
RfD	OHM-specific	mg/kg-day
ADD	OHM-specific	mg/kg-day
EPC	OHM-specific	mg/kg
IR	100	mg/day
$RAF_{nc\text{-}ing}$	OHM-specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM-specific	dimensionless
$RAF_{nc\text{-}inh}$	OHM-specific	dimensionless
EF	0.714	event/day
$ED_{ing\ \&\ derm}$	1	day/event
ED_{inh}	0.333	day/event
EP	182	days
C1	1.0E-06	kg/mg
C2	1.0E-09	kg/µg
C3	1440	min/days
C4	1.0E-03	m^3/L
BW	58.0	kg
$AP_{noncancer}$	182	days
VR_{work}	60	L/min
AF	0.29	mg/cm^2
SA	3473	cm^2/day
$RCAF_{inh\text{-}gi}$	1.5	dimensionless
$RCAF_{inh}$	0.5	dimensionless
PM10	60	$\mu g/m^3$

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Construction Worker - Soil: Table CW-4
Definitions and Exposure Factors

Vlookup Version v0315

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
HI - Hazard Index	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table CW-5.
RfD - Reference Dose	chemical specific	mg/kg-day	see Table CW-5.
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table CW-2.
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific. See Table CW-3.
EPC - Exposure Point Concentration	chemical specific	mg/kg	see Table CW-1.
IR - Soil Ingestion Rate	100	mg/day	MADEP. 2002. Technical Update: Calculation of an Enhanced Soil Ingestion Rate. (http://www.mass.gov/dep/ors/orspubs.htm).
RAF_c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5.
RAF_{nc} - Relative Absorption Factor for Noncancer Effects	chemical specific	dimensionless	Pathway specific - see Table CW-5.
EF - Exposure Frequency	0.714	event/day	5 events (days) / 7 events (days) in a week; MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-38.
$ED_{ing,derm}$ - Exposure Duration for ingestion or dermal exposure	1	day/event	
ED_{inh} - Exposure Duration for inhalation exposure	0.333	day/event	Represents 8 hours / event.
EP - Exposure Period	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization.
BW - Body Weight	58.0	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, Females, ages 18 - 25.
$AP_{(lifetime)}$ - Averaging Period for lifetime	25,550	days	Represents 70 years
$AP_{(noncancer)}$ - Averaging Period for noncancer	182	days	6 months; MADEP 1995 Guidance for Disposal Site Risk Characterization.
AF - Adherence Factor	0.29	mg/cm^2	MA DEP. 2002 Technical Update: Weighted Skin-Soil Adherence Factors. (http://www.mass.gov/dep/ors/orspubs.htm)
VR_{work} - Ventilation Rate during work (heavy exertion)	60	L/min	Table B-4 MADEP 1995 Guidance for Disposal Site Risk Characterization.
SA - Surface Area	3473	cm^2/day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. 50th percentile for females. Appendix Table B-2.
$IFAF_{inh\text{-}gi}$ - Ingestion Fraction Adjustment Factor, gastrointestinal	1.5	dimensionless	MADEP 2007. Characterization of Risks Due to Inhalation of Particulates by Construction Workers
$IFAF_{inh}$ - Inhalation Fraction Adjustment Factor, inhalation	0.5	dimensionless	MADEP 2002. Characterization of Risks Due to Inhalation of Particulates by Construction Workers
PM10 - Concentration of PM_{10}	60	µg/m˘	MADEP 1995 Guidance for Disposal Site Risk Characterization pg B-11

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Construction Worker - Soil: Table CW-5
Chemical-Specific Data

Vlookup Version v0315

Oil or Hazardous Material	Oral CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}inh}$	Inhalation CSF $(mg/kg\text{-}day)^{-1}$	Subchronic Oral RfD mg/kg-day	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}inh}$	Subchronic Inhalation RfD
POLYCHLORINATED BIPHENYLS (PCBs)	2.0E+00	1	0.1	1	3.5E-01	5.0E-05	1	0.1	1	5.7E-06
ALIPHATICS C5 to C8						4.0E-01	1	0.2	1	5.7E-02
ALIPHATICS C9 to C12						1.0E+00	1	0.2	1	1.7E-01
AROMATICS C9 to C10						3.0E-01	1	0.2	1	1.4E-01
BENZENE	5.5E-02	1	0.03	1	2.7E-02	1.0E-02	1	0.03	1	2.9E-03
TOLUENE						8.0E-01	1	0.03	1	1.4E+00
ETHYLBENZENE						5.0E-02	1	0.03	1	2.6E+00
XYLENES (Mixed Isomers)						4.0E-01	1	0.03	1	1.1E-01
METHYL TERT BUTYL ETHER						1.0E+00	1	0.03	1	8.6E-01
NAPHTHALENE						2.0E-01	0.3	0.1	1	8.6E-04
LEAD						7.5E-04	0.5	0.006	1	2.9E-04

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Construction Worker - Soil: Table CW-6
Cyanide Calculations

The soil cyanide concentration limit set to protect a construction worker against an acute, potentially lethal one-time dose of cyanide from incidental ingestion of contaminated soil is 12,000 mg/kg_{soil}. This is the concentration of available cyanide in soil below which acute human health effects would not be expected following a one-time exposure. This soil concentration is calculated using the equation below with a one-time soil ingestion estimate of 50 mg_{soil} and an available cyanide dose limit of 0.01 $mg/kg_{body\ weight}$.

MassDEP's guidance on evaluating the risk from a one-time cyanide dose considers cyanide's potentially lethal effects as well as information on cyanide metabolism:

> Cyanides are detoxified rapidly by the body, and a large acute dose which overwhelms the detoxification mechanism is potentially more toxic than the same dose distributed over a period of hours. (MassDEP *Background Documentation for the Development of an Available Cyanide Benchmark Concentration,* originally dated October 1992, Modified August 1998)

Assessment of a potential one-time dose requires an estimate of the maximum soil concentration the trespasser could contact at any one time. The average soil concentration within a typical exposure area will underestimate the potential one-time dose. Therefore, to assess the acute risk of a one-time potentially lethal dose, the EPC for cyanide should be a conservative estimate of the maximum concentration.

The construction worker soil concentration limit to protect against adverse effects from an acute (one-time) exposure to cyanide is 12,000 mg/kg.

Acute Concentration Calculation for Cyanide

$$\text{Concentration} = \frac{\text{HQ x Acute Dose Limit x BW}}{\text{IR x RAF x Conversion Factor}}$$

Parameter	Value	Units
HQ (Hazard Quotient)	1	(unitless)
Acute Dose Limit	0.01	mg avail. CN/ kg BW
BW (Body Weight) $_{11\text{-}12}$	58	kg
IR $_{(1\text{-time reasonable max})}$	50	mg
Conversion Factor	1.0E-06	kg soil / mg soil
RAF	1	(unitless)

The toxicological basis for estimating an allowable one-time dose is documented in MassDEP's 1992 *Background Documentation for the Development of an "Available Cyanide" Benchmark Concentration,* which is published at: http://www.mass.gov/eea/docs/dep/toxics/stypes/dscyanide.pdf

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Method 3 Risk Assessment for Resident Exposed to Chemicals in Soil - Shortform 2012 (sf12rs)

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Resident - Soil: Table RS-1
Exposure Point Concentration (EPC)
Based on Resident Ages 1-31 (Cancer), 1-8 (Chronic Noncancer), and 1-2 (Subchronic Noncancer)

ShortForm Version 10-12
Vlookup Versionv0315

ELCR (all chemicals) = 7.6E-07
Chronic HI (all chemicals) = 6.2E-01
Subchronic HI (all chemicals) = 2.3E-01

Do not insert or delete any rows
Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material	EPC (mg/kg)	$ELCR_{ingestion}$	$ELCR_{dermal}$	Derm & Ing $ELCR_{total}$	Chronic HQ_{ing}	Chronic HQ_{derm}	Derm & Ing HQ_{total}	Subchronic HQ_{ing}	Subchronic HQ_{derm}	Derm & Ing HQ_{total}	
POLYCHLORINATED BIPHENYLS (PCBs)	3.6E-01	2.7E-07	2.8E-07	5.5E-07	4.4E-02	3.7E-02	8.1E-02	4.8E-02	2.8E-02	7.6E-02	
ALIPHATICS C5 to C8	1.6E+03				9.4E-02	1.6E-01	2.5E-01	2.6E-02	3.0E-02	5.6E-02	
ALIPHATICS C9 to C12	1.0E+03				2.5E-02	4.2E-02	6.7E-02	6.8E-03	8.0E-03	1.5E-02	
AROMATICS C9 to C10	9.1E+02				7.4E-02	1.3E-01	2.0E-01	2.0E-02	2.4E-02	4.4E-02	
BENZENE	7.9E+00	1.6E-07	5.1E-08	2.1E-07	4.8E-03	1.2E-03	6.0E-03	5.3E-03	9.3E-04	6.2E-03	
TOLUENE	7.9E+00				2.4E-04	6.1E-05	3.0E-04	6.6E-05	1.2E-05	7.8E-05	
ETHYLBENZENE	7.5E+00				3.6E-04	9.3E-05	4.6E-04	1.0E-03	1.8E-04	1.2E-03	
XYLENES (Mixed Isomers)	1.9E+01				2.3E-04	5.8E-05	2.9E-04	3.2E-04	5.5E-05	3.7E-04	
METHYL TERT BUTYL ETHER	4.0E+00				9.6E-05	2.4E-05	1.2E-04	2.6E-05	4.6E-06	3.1E-05	
NAPHTHALENE	1.6E+01				5.7E-04	1.6E-03	2.2E-03	1.6E-04	3.1E-04	4.7E-04	
LEAD	6.6E+00				1.1E-02	1.1E-03	1.2E-02	2.9E-02	2.1E-03	3.1E-02	**Note! Lead IH HQ limit is 1, not 10.**

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Resident - Soil: Table RS-2
Exposure Point Concentration (EPC)
Based on Resident Ages 1-31 (Cancer), 1-8 (Chronic Noncancer), and 1-2 (Subchronic Noncancer)

ELCR (all chemicals) =
Chronic HI (all chemicals) =
Subchronic HI (all chemicals) =

*Vegetable uptake is informational only and NOT included in totals on EPC tab.

Do not insert or delete any rows

Click on empty cell below and select OHM using arrow.

Oil or Hazardous Material	EPC (mg/kg)	Chronic		Subchronic
		$ELCR_{vegetable*}$	$HQ_{vegetable*}$	$HQ_{vegetable*}$

Resident - Soil: Table RS-3
Equations to Calculate Cancer Risk for Resident (Age 1-31 years)

Cancer Risk from Ingestion

$$ELCR_{ing} = LADD_{ing(1\text{-}31)} * CSF$$

$$LADD_{ing\ (1\text{-}31)} = LADD_{ing\ (1\text{-}8)} + LADD_{ing\ (8\text{-}15)} + LADD_{ing\ (15\text{-}31)}$$

$$LADD_{ing\ (age\ group\ x)} = \frac{[OHM]_{soil} * IR_x * RAF_{c\text{-}ing} * EF_{ing} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Dermal Absorption

$$ELCR_{derm} = LADD_{derm} * CSF$$

$$LADD_{derm\ (1\text{-}31)} = LADD_{derm\ (1\text{-}8)} + LADD_{derm\ (8\text{-}15)} + LADD_{derm\ (15\text{-}31)}$$

$$LADD_{derm(age\ group\ x)} = \frac{[OHM]_{soil} * SA_x * RAF_{c\text{-}derm} * SAF_x * EF_{derm} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Cancer Risk from Homegrown Produce

$$ELCR_{produce} = LADD_{produce(1\text{-}31)} * CSF$$

$$LADD_{produce(1\text{-}31)} = LADD_{produce(1\text{-}8)} + LADD_{produce(8\text{-}15)} + LADD_{produce(15\text{-}31)}$$

$$LADD_{produce(age\ x)} = \frac{[OHM_{soil}] * PUF * PIR_x * RAF_{produce} * EF_{produce} * ED * EP_x * C}{BW_x * AP_{lifetime}}$$

Vlookup Versionv0315

Parameter	Value	Units
CSF	OHM specific	$(mg/kg\text{-}day)^{-1}$
LADD	age/OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
$IR_{(1\text{-}8)}$	100	mg/day
$IR_{(8\text{-}15)}$	50	mg/day
$IR_{(15\text{-}31)}$	50	mg/day
$PIR_{(1\text{-}8)}$	12,099	mg/day
$PIR_{(8\text{-}15)}$	17,809	mg/day
$PIR_{(15\text{-}31)}$	24,420	mg/day
$RAF_{c\text{-}ing}$	OHM specific	dimensionless
$RAF_{c\text{-}derm}$	OHM specific	dimensionless
$RAF_{c\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.412	event/day
$EF_{produce}$	1.00	event/day
ED	1	day/event
$EP_{(1\text{-}8)}$	7	years
$EP_{(8\text{-}15)}$	7	years
$EP_{(15\text{-}31)}$	16	years
C	0.000001	kg/mg
$BW_{(1\text{-}8)}$	17.0	kg
$BW_{(8\text{-}15)}$	39.9	kg
$BW_{(15\text{-}31)}$	58.7	kg
$AP_{(lifetime)}$	70	years
$SA_{(1\text{-}8)}$	2431	cm^2 / day
$SA_{(8\text{-}15)}$	4427	cm^2 / day
$SA_{(15\text{-}31)}$	5653	cm^2 / day
$SAF_{(1\text{-}8)}$	0.35	mg/cm^2
$SAF_{(8\text{-}15)}$	0.14	mg/cm^2
$SAF_{(15\text{-}31)}$	0.13	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

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Resident - Soil: Table RS-4
Equations to Calculate Chronic Noncancer Risk for Resident Child (Age 1-8 years)

Vlookup Versionv0315

Chronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc\text{-}ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{ing,derm}}{RfD}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc\text{-}derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Chronic Noncancer Risk from Homegrown Produce

$$HQ_{produce} = \frac{ADD_{produce}}{RfD}$$

$$ADD_{produce} = \frac{[OHM_{soil}] * PUF * PIR * RAF_{produce} * EF_{produce} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
IR	100	mg/day
PIR	12,099	mg/day
$RAF_{nc\text{-}ing}$	OHM specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM specific	dimensionless
$RAF_{nc\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.412	event/day
$EF_{produce}$	1.00	event/day
ED	1	day/event
EP	7	years
C	0.000001	kg/mg
BW	17.0	kg
AP	7	year
SA	2431	cm^2 / day
SAF	0.35	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

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Resident - Soil: Table RS-5

Equations to Calculate Subchronic Noncancer Risk for Resident Child (Age 1-2 years)

Vlookup Versionv0315

Subchronic Noncancer Risk from Ingestion

$$HQ_{ing} = \frac{ADD_{ing}}{RfD_{subchronic}}$$

$$ADD_{ing} = \frac{[OHM]_{soil} * IR * RAF_{nc\text{-}ing} * EF_{ing} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Dermal Absorption

$$HQ_{derm} = \frac{ADD_{derm}}{RfD_{subchronic}}$$

$$ADD_{derm} = \frac{[OHM]_{soil} * SA * RAF_{nc\text{-}derm} * SAF * EF_{derm} * ED * EP * C}{BW * AP}$$

Subchronic Noncancer Risk from Homegrown Produce

$$HQ_{produce} = \frac{ADD_{produce}}{RfD_{subchronic}}$$

$$ADD_{produce} = \frac{[OHM_{soil}] * PUF * PIR * RAF_{produce} * EF_{produce} * ED * EP * C}{BW * AP}$$

Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
$[OHM]_{soil}$	OHM specific	mg/kg
IR	100	mg/day
PIR	10,900	mg/day
$RAF_{nc\text{-}ing}$	OHM specific	dimensionless
$RAF_{nc\text{-}derm}$	OHM specific	dimensionless
$RAF_{nc\text{-}produce}$	OHM specific	dimensionless
$EF_{ing,derm}$	0.714	event/day
$EF_{produce}$	1.00	event/day
ED	1	day/event
EP	0.577	years
C	0.000001	kg/mg
BW	10.7	kg
AP	0.577	year
SA	1670	cm^2 / day
SAF	0.35	mg/cm^2
PUF	OHM specific	$(mg/mg)(mg/mg)^{-1}$

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Resident - Soil: Table RS-6
Definitions and Exposure Factors

Vlookup Versionv0315

Parameter	Value	Units	Notes
ELCR - Excess Lifetime Cancer Risk	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
CSF - Cancer Slope Factor	chemical specific	$(mg/kg\text{-}day)^{-1}$	see Table RS-7
LADD - Lifetime Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
LADE - Lifetime Average Daily Exposure	chemical specific	$\mu g/m^3$	
HQ - Hazard Quotient	chemical specific	dimensionless	Pathway specific (ing =ingestion, derm=dermal, inh=inhalation)
RfD - Reference Dose	chemical specific	mg/kg-day	see Table RS-7
ADD - Average Daily Dose	chemical specific	mg/kg-day	Pathway specific
ADE - Average Daily Exposure	chemical specific	mg/m^3	
EPC - Exposure Point Concentration	chemical specific	mg/kg	
PUF - Plant Uptake Factor	chemical specific	$(mg/mg)(mg/mg)^{-1}$	See Table RS-7; $(mg_{OHM}/mg_{plant})/(mg_{OHM}/mg_{soil})^{-1}$
$IR_{(1-2)}$ - Soil Ingestion Rate for age group 1-2	100	mg/day	MADEP. 2002. Technical Update: Calculation of an Enhanced Soil Ingestion Rate. (http://www.mass.gov/dep/ors/orspubs.htm)
$IR_{(1-8)}$ - Soil Ingestion Rate for age group 1-8	100	mg/day	Ibid
$IR_{(8-15)}$ - Soil Ingestion Rate for age group 8-15	50	mg/day	Ibid
$IR_{(15-31)}$ - Soil Ingestion Rate for age group 15-31	50	mg/day	Ibid
$PIR_{(1-2)}$ = Produce Ingestion Rate for age group 1-2	10,900	mg/day	see Table RS-6
$PIR_{(1-8)}$ = Produce Ingestion Rate for age group 1-8	12,099	mg/day	see Table RS-6
$PIR_{(8-15)}$ = Produce Ingestion Rate for age group 8-15	17,809	mg/day	Ibid
$PIR_{(15-31)}$ = Produce Ingestion Rate for age group 15-31	24,420	mg/day	Ibid
RAF_c - Relative Absorption Factor for Cancer Effects	chemical specific	dimensionless	
$EF_{subchronic}$ - Exposure Frequency for subchronic ingestion or dermal exposure	0.714	event/day	5 days/week
$EF_{chronic}$ - Exposure Frequency for chronic ingestion or dermal exposure	0.412	event/day	5 days/week, 30 weeks/year
EF_{cancer} - Exposure Frequency for cancer, ingestion or dermal exposure	0.412	event/day	5 days/week, 30 weeks/year
$EF_{produce}$ - Exposure Frequency for produce ingestion, cancer and noncancer	1.00	event/day	
ED - Exposure Duration	1	day/event	
$EP_{(1-2)}$ - Exposure Period for age group 1-2	0.577	years	30 weeks
$EP_{(1-8)}$ - Exposure Period for age group 1-8	7	years	
$EP_{(8-15)}$ - Exposure Period for age group 8-15	7	years	
$EP_{(15-31)}$ - Exposure Period for age group 15-31	16	years	
$BW_{(1-2)}$ - Body Weight for age group 1-2	10.7	kg	U.S. EPA. 1997. Exposure Factors Handbook. Table 7-7, females.
$BW_{(1-8)}$ - Body Weight for age group 1-8	17.0	kg	Ibid
$BW_{(8-15)}$ - Body Weight for age group 8-15	39.9	kg	Ibid
$BW_{(15-31)}$ - Body Weight for age group 15-31	58.7	kg	Ibid
$AP_{subchronic}$ - Averaging Period for subchronic noncancer	0.577	years	30 weeks
$AP_{chronic}$ - Averaging Period for chronic noncancer	7	years	
AP_{cancer} - Averaging Period for lifetime	70	years	
$SA_{(1-2)}$ - Surface Area for age group 1-2	1670	cm^2 / day	50th percentile of face (1/3 head), forearms, hands, lower legs, and feet for females
$SA_{(1-8)}$ - Surface Area for age group 1-8	2431	cm^2 / day	MADEP. 1995. Guidance for Disposal Site Risk Characterization. Appendix Table B-2. Ibid
$SA_{(8-15)}$ - Surface Area for age group 8-15	4427	cm^2 / day	Ibid
$SA_{(15-31)}$ - Surface Area for age group 15-31	5653	cm^2 / day	Ibid
$SAF_{(1-2)}$ - Surface Adherence Factor for age group 1-2	0.35	mg/cm^2	All SAFs developed for ShortForm according to procedure outlined in MA DEP Technical
$SAF_{(1-8)}$ - Surface Adherence Factor for age group 1-8	0.35	mg/cm^2	Update:Weighted Skin-Soil Adherence Factors, April 2002
$SAF_{(8-15)}$ - Surface Adherence Factor for age group 8-15	0.14	mg/cm^2	
$SAF_{(15-31)}$ - Surface Adherence Factor for age group 15-31	0.13	mg/cm^2	

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Resident - Soil: Table RS-7
Homegrown Produce Ingestion Rate

Vlookup Versionv0315

Data on mean produce ingestion rates (wet weight, ww) in the Northeast was obtained from the 1994-1996 Continuing Survey of Food Intakes by Individuals (USDA). Data for both genders were used for children under 6, while data for males was used for individuals 6 and older. The mean ingestion rates presented in the survey represent the arithmetic average of all individuals surveyed, regardless of whether or not they had consumed the produce item (e.g., an individual that did not consume the produce item was assigned a rate of 0 g/day). To determine the mean ingestion rate for individuals who ate each produce item, the ingestion rate for all individuals (consumers and nonconsumers) was divided by the percentage of individuals who ate the item (Table RS-7A). These mean ingestion rates for the produce consumers were summed to determine the total produce ingestion rate for each age-group and converted to dry weight assuming the produce items were all 90% water.

To convert mean ingestion rates for the age-groups studied in the survey to age-groups used in risk calculations, each age-group ingestion rate from the survey (i.e., 1 - 2 year olds, 3 - 5 year olds, 6 - 11 year olds, 12 - 19 year olds, and 20 - 39 year olds) was weighted according to the number of years spent in the risk calculation age group (i.e., 1 - 8 year olds, 8 - 15 year olds, and 15 - 31 year olds) (Table RS-7B). It was assumed that 25% of produce ingested was home-grown (Table RS-7C).

Table RS-7

	White Potatoes			Dark-green vegetables			Deep-yellow vegetables		
Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)
1-2	28	40.3	69.5	6	10.1	59.4	5	12.7	39.4
3-5	30	37.1	80.9	5	6.5	76.9	7	12.7	55.1
6-11	47	44.2	106.3	6	9.1	65.9	2	8.5	23.5
12-19	59	40.3	146.4	2	2.3	87.0	11	15.8	69.6
20-39	76	45.1	168.5	25	14.7	170.1	4	5.7	70.2

	Tomatoes			Lettuce			Green Beans		
Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)
1-2	10	27.9	35.8	1	6	16.7	7	12.1	57.9
3-5	10	37.1	27.0	4	14	28.6	3	5.7	52.6
6-11	20	42	47.6	8	14.9	53.7	1	2	50.0
12-19	29	45.2	64.2	19	28.7	66.2	2	2.4	83.3
20-39	48	50.9	94.3	18	29.6	60.8	4	3.7	108.1

Table RS-7a (continued)

Corn, Green peas, Lima beans	Melons, berries	Totals	Totals

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Age-groups studied in survey	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Ingestion Rate for All g/d (ww)	% of individuals that consumed item.	Ingestion Rate for Consumers g/d (ww)	Wet Weight WWI g/day	Dry Weight DWI g/day
1-2	12	15	80.0	7	9	77.8	436.4	43.6
3-5	14	21.7	64.5	14	11.6	120.7	506.3	50.6
6-11	9	13.6	66.2	5	5.9	84.7	498.0	49.8
12-19	14	9.9	141.4	17	5	340.0	998.1	99.8
20-39	12	7.3	164.4	6	4.5	133.3	969.7	97.0

Table RS-7B

Age-groups studied in survey	Years spent in age-group 1-8 year old	Years spent in age-group 8-15 year old	Years spent in age-group 15-31 year old
1-2	2		
3-5	3		
6-11	2	4	
12-19		3	4
20-39			12
	7	7	16

Table RS-7C

	Produce Intake, dry weight			
	Child 1-2 years g/day	Child 1-8 years g/day	Child 8-15 years g/day	Adult 15-31 g/day
All Produce:	43.6	48.4	71.2	97.7
Homegrown:	10.9	12.1	17.8	24.4

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Resident - Soil: Table RS-8
Chemical-Specific Data

Vlookup Versionv0315

Oil or Hazardous Material	CSF $(mg/kg\text{-}day)^{-1}$	$RAF_{c\text{-}ing}$	$RAF_{c\text{-}derm}$	$RAF_{c\text{-}prod}$	Chronic RfD mg/kg-day	Subchronic RfD mg/kg-day	Chronic $RAF_{nc\text{-}ing}$	Chronic $RAF_{nc\text{-}derm}$	Subchronic $RAF_{nc\text{-}ing}$	Subchronic $RAF_{nc\text{-}derm}$	$RAF_{nc\text{-}prod}$	PUF
POLYCHLORINATED B	2.0E+00	1.00	0.10	1.00	2.0E-05	5.0E-05	1	0.1	1	0.1	1	0.84
ALIPHATICS C5 to					4.0E-02	4.0E-01	1	0.2	1	0.2		
ALIPHATICS C9 to					1.0E-01	1.0E+00	1	0.2	1	0.2		
AROMATICS C9 to					3.0E-02	3.0E-01	1	0.2	1	0.2		
BENZENE	5.5E-02	1.00	0.03		4.0E-03	1.0E-02	1	0.03	1	0.03		
TOLUENE					8.0E-02	8.0E-01	1	0.03	1	0.03		
ETHYLBENZENE					5.0E-02	5.0E-02	1	0.03	1	0.03		
XYLENES (Mixed Isome					2.0E-01	4.0E-01	1	0.03	1	0.03		
METHYL TERT BUTYL I					1.0E-01	1.0E+00	1	0.03	1	0.03		
NAPHTHALENE					2.0E-02	2.0E-01	0.3	0.1	0.3	0.1		
LEAD					7.5E-04	7.5E-04	0.5	0.006	0.5	0.006	0.5	0.15

Resident - Soil: Table RS-9
Cyanide Calculations

The soil cyanide concentration limit set to protect a child resident against an acute, potentially lethal one-time dose of cyanide from incidental ingestion of contaminated soil is 100 mg/kg soil. This is the concentration of available cyanide in soil below which acute human health effects would not be expected following a one-time exposure. This soil concentration is calculated using the equation below with a pica-type soil ingestion of 1000 mg_{soil} and an available cyanide dose limit of 0.01 $mg/kg_{body\ weight}$.

MassDEP's guidance on evaluating the risk from a one-time cyanide dose considers cyanide's potentially lethal effects as well as information on cyanide metabolism:

> Cyanides are detoxified rapidly by the body, and a large acute dose which overwhelms the detoxification mechanism is potentially more toxic than the same dose distributed over a period of hours. (MassDEP *Background Documentation for the Development of an Available Cyanide Benchmark Concentration*, originally dated October 1992, Modified August 1998)

Assessment of a potential one-time dose requires an estimate of the maximum soil concentration the receptor could contact at any one time. The average soil concentration within a typical exposure area will underestimate the potential one-time dose. Therefore, to assess the acute risk of a one-time potentially lethal dose, the EPC for cyanide should be a conservative estimate of the maximum soil concentration.

The residential soil concentration limit to protect against adverse effects from an acute (one-time) exposure to cyanide is 100 mg/kg.

Concentration Calculation for Cyanide

$$\text{Concentration} = \frac{\text{HQ x Acute Dose Limit x BW}}{\text{IR x RAF x Conversion Factor}}$$

Parameter	Value	Units
HQ (Hazard Quotient)	1	(unitless)
Acute Dose Limit	0.01	mg avail. CN/ kg BW
BW (Body Weight) 1-2	10.7	kg
IR (1-time reasonable max)	1000	mg
Conversion Factor	1.0E-06	kg soil / mg soil
RAF	1	(unitless)

The toxicological basis for estimating an allowable one-time dose is documented in MassDEP's 1992 *Background Documentation for the Development of an "Available Cyanide" Benchmark Concentration,* which is published at: http://www.mass.gov/eea/docs/dep/toxics/stypes/dscyanide.pdf

MassDEP ORS
Contact: Lydia Thompson
Lydia.Thompson@state.ma.us
617-556-1165

ANALYTICAL REPORT

Lab Number:	L1839176
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	10/09/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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NANGLE CONSULTING ASSOCIATES, INC

APPENDIX G

Environmental Engineering and Land Use Planning

960 Turnpike Street, Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1839176
Report Date: 10/09/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1839176-01	GP1/S1B	SOIL	BROADWAY & OSGOOD ST.-METHEUN	09/27/18 07:30	09/28/18
L1839176-02	GP3/S3B	SOIL	BROADWAY & OSGOOD ST.-METHEUN	09/27/18 11:30	09/28/18
L1839176-03	GP3/S4B	SOIL	BROADWAY & OSGOOD ST.-METHEUN	09/27/18 11:45	09/28/18
L1839176-04	GP8B/S2	SOIL	BROADWAY & OSGOOD ST.-METHEUN	09/27/18 14:15	09/28/18

Project Name: ABBY REALTY TRUST **Lab Number:** L1839176

Project Number: 827.01 **Report Date:** 10/09/18

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)?	NO
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: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1839176
Report Date: 10/09/18

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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: ABBY REALTY TRUST **Lab Number:** L1839176
Project Number: 827.01 **Report Date:** 10/09/18

Case Narrative (continued)

MCP Related Narratives

Sample Receipt

In reference to question H:

A Matrix Spike was not submitted for the analysis of Total Metals.

Semivolatile Organics

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

VPH

In reference to question G:

L1839176-02: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1839176-02: The surrogate recoveries are below the acceptance criteria for 2,5-dibromotoluene-pid (0%) and 2,5-dibromotoluene-fid (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

L1839176-03: The surrogate recovery is outside the acceptance criteria for 2,5-dibromotoluene-fid (141%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.

Total Metals

In reference to question I:

L1839176-02 was analyzed for a subset of MCP analytes per client request.

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: Michelle M. Morris

Title: Technical Director/Representative Date: 10/09/18

ORGANICS

SEMIVOLATILES

Project Name: ABBY REALTY TRUST
Lab Number: L1839176
Project Number: 827.01
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-01
Client ID: GP1/S1B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN

Date Collected: 09/27/18 07:30
Date Received: 09/28/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8270D
Analytical Date: 10/05/18 13:29
Analyst: EK
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 10/04/18 07:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP PAHs - Westborough Lab						
Acenaphthene	ND		ug/kg	140	--	1
Fluoranthene	140		ug/kg	100	--	1
Naphthalene	ND		ug/kg	170	--	1
Benzo(a)anthracene	ND		ug/kg	100	--	1
Benzo(a)pyrene	ND		ug/kg	140	--	1
Benzo(b)fluoranthene	ND		ug/kg	100	--	1
Benzo(k)fluoranthene	ND		ug/kg	100	--	1
Chrysene	ND		ug/kg	100	--	1
Acenaphthylene	ND		ug/kg	140	--	1
Anthracene	ND		ug/kg	100	--	1
Benzo(ghi)perylene	ND		ug/kg	140	--	1
Fluorene	ND		ug/kg	170	--	1
Phenanthrene	ND		ug/kg	100	--	1
Dibenzo(a,h)anthracene	ND		ug/kg	100	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	140	--	1
Pyrene	130		ug/kg	100	--	1
2-Methylnaphthalene	ND		ug/kg	210	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		30-130
2-Fluorobiphenyl	85		30-130
4-Terphenyl-d14	68		30-130

Project Name: ABBY REALTY TRUST
Lab Number: L1839176
Project Number: 827.01
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-04
Client ID: GP8B/S2
Sample Location: BROADWAY & OSGOOD ST.- METHEUN

Date Collected: 09/27/18 14:15
Date Received: 09/28/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8270D
Analytical Date: 10/05/18 13:54
Analyst: EK
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 10/04/18 07:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP PAHs - Westborough Lab						
Acenaphthene	ND		ug/kg	150	--	1
Fluoranthene	8700	E	ug/kg	110	--	1
Naphthalene	ND		ug/kg	190	--	1
Benzo(a)anthracene	3200		ug/kg	110	--	1
Benzo(a)pyrene	2800		ug/kg	150	--	1
Benzo(b)fluoranthene	3200		ug/kg	110	--	1
Benzo(k)fluoranthene	1200		ug/kg	110	--	1
Chrysene	2800		ug/kg	110	--	1
Acenaphthylene	310		ug/kg	150	--	1
Anthracene	1000		ug/kg	110	--	1
Benzo(ghi)perylene	1700		ug/kg	150	--	1
Fluorene	190		ug/kg	190	--	1
Phenanthrene	4200		ug/kg	110	--	1
Dibenzo(a,h)anthracene	370		ug/kg	110	--	1
Indeno(1,2,3-cd)pyrene	1800		ug/kg	150	--	1
Pyrene	8300	E	ug/kg	110	--	1
2-Methylnaphthalene	ND		ug/kg	230	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		30-130
2-Fluorobiphenyl	74		30-130
4-Terphenyl-d14	58		30-130

Project Name: ABBY REALTY TRUST
Lab Number: L1839176
Project Number: 827.01
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-04 D
Client ID: GP8B/S2
Sample Location: BROADWAY & OSGOOD ST.- METHEUN

Date Collected: 09/27/18 14:15
Date Received: 09/28/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8270D
Analytical Date: 10/09/18 02:46
Analyst: RC
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 10/04/18 07:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
MCP PAHs - Westborough Lab						
Fluoranthene	7100		ug/kg	230	--	2
Pyrene	6800		ug/kg	230	--	2

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 10/07/18 16:38
Analyst: EK

Extraction Method: EPA 3546
Extraction Date: 10/04/18 07:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01,04 Batch: WG1164039-1					
Acenaphthene	ND		ug/kg	130	--
Fluoranthene	ND		ug/kg	98	--
Naphthalene	ND		ug/kg	160	--
Benzo(a)anthracene	ND		ug/kg	98	--
Benzo(a)pyrene	ND		ug/kg	130	--
Benzo(b)fluoranthene	ND		ug/kg	98	--
Benzo(k)fluoranthene	ND		ug/kg	98	--
Chrysene	ND		ug/kg	98	--
Acenaphthylene	ND		ug/kg	130	--
Anthracene	ND		ug/kg	98	--
Benzo(ghi)perylene	ND		ug/kg	130	--
Fluorene	ND		ug/kg	160	--
Phenanthrene	ND		ug/kg	98	--
Dibenzo(a,h)anthracene	ND		ug/kg	98	--
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130	--
Pyrene	ND		ug/kg	98	--
2-Methylnaphthalene	ND		ug/kg	200	--

Tentatively Identified Compounds			
Total TIC Compounds	156	J	ug/kg
Unknown	156	J	ug/kg

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8270D
Analytical Date: 10/07/18 16:38
Analyst: EK

Extraction Method: EPA 3546
Extraction Date: 10/04/18 07:25

Parameter	Result	Qualifier	Units	RL	MDL
MCP Semivolatile Organics - Westborough Lab for sample(s): 01,04 Batch: WG1164039-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		30-130
2-Fluorobiphenyl	79		30-130
4-Terphenyl-d14	77		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1839176
Report Date: 10/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01,04 Batch: WG1164039-2 WG1164039-3								
Acenaphthene	82		87		40-140	6		30
Fluoranthene	83		88		40-140	6		30
Naphthalene	78		83		40-140	6		30
Benzo(a)anthracene	76		80		40-140	5		30
Benzo(a)pyrene	81		84		40-140	4		30
Benzo(b)fluoranthene	80		85		40-140	6		30
Benzo(k)fluoranthene	80		84		40-140	5		30
Chrysene	83		87		40-140	5		30
Acenaphthylene	79		85		40-140	7		30
Anthracene	86		90		40-140	5		30
Benzo(ghi)perylene	81		83		40-140	2		30
Fluorene	82		87		40-140	6		30
Phenanthrene	83		87		40-140	5		30
Dibenzo(a,h)anthracene	81		83		40-140	2		30
Indeno(1,2,3-cd)pyrene	79		82		40-140	4		30
Pyrene	82		88		40-140	7		30
2-Methylnaphthalene	80		84		40-140	5		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1839176

Report Date: 10/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Semivolatile Organics - Westborough Lab Associated sample(s): 01,04 Batch: WG1164039-2 WG1164039-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	83		89		30-130
2-Fluorobiphenyl	81		88		30-130
4-Terphenyl-d14	75		79		30-130

PETROLEUM HYDROCARBONS

Project Name: ABBY REALTY TRUST **Lab Number:** L1839176

Project Number: 827.01 **Report Date:** 10/09/18

SAMPLE RESULTS

Lab ID:	L1839176-02 D	Date Collected:	09/27/18 11:30
Client ID:	GP3/S3B	Date Received:	09/28/18
Sample Location:	BROADWAY & OSGOOD ST.- METHEUN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	10/09/18 10:41		
Analyst:	MZ		
Percent Solids:	78%		
Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	1550		mg/kg	198	--	50
C9-C12 Aliphatics	1940		mg/kg	198	--	50
C9-C10 Aromatics	910		mg/kg	198	--	50
C5-C8 Aliphatics, Adjusted	1550		mg/kg	198	--	50
C9-C12 Aliphatics, Adjusted	1020		mg/kg	198	--	50
Benzene	ND		mg/kg	7.92	--	50
Toluene	ND		mg/kg	7.92	--	50
Ethylbenzene	ND		mg/kg	7.92	--	50
p/m-Xylene	ND		mg/kg	7.92	--	50
o-Xylene	18.9		mg/kg	7.92	--	50
Methyl tert butyl ether	ND		mg/kg	3.96	--	50
Naphthalene	ND		mg/kg	15.8	--	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	0	Q	70-130
2,5-Dibromotoluene-FID	0	Q	70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1839176
Project Number: 827.01
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID:	L1839176-03	Date Collected:	09/27/18 11:45
Client ID:	GP3/S4B	Date Received:	09/28/18
Sample Location:	BROADWAY & OSGOOD ST.- METHEUN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	10/06/18 14:07		
Analyst:	MZ		
Percent Solids:	93%		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	6.79		mg/kg	2.89	--	1
C9-C12 Aliphatics	38.4		mg/kg	2.89	--	1
C9-C10 Aromatics	23.7		mg/kg	2.89	--	1
C5-C8 Aliphatics, Adjusted	6.79		mg/kg	2.89	--	1
C9-C12 Aliphatics, Adjusted	14.5		mg/kg	2.89	--	1
Benzene	ND		mg/kg	0.116	--	1
Toluene	ND		mg/kg	0.116	--	1
Ethylbenzene	ND		mg/kg	0.116	--	1
p/m-Xylene	ND		mg/kg	0.116	--	1
o-Xylene	0.160		mg/kg	0.116	--	1
Methyl tert butyl ether	ND		mg/kg	0.058	--	1
Naphthalene	ND		mg/kg	0.231	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	125		70-130
2,5-Dibromotoluene-FID	**141**	Q	70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 10/06/18 10:31
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 03 Batch: WG1165863-4					
C5-C8 Aliphatics	ND		mg/kg	2.50	--
C9-C12 Aliphatics	ND		mg/kg	2.50	--
C9-C10 Aromatics	ND		mg/kg	2.50	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.50	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.50	--
Benzene	ND		mg/kg	0.100	--
Toluene	ND		mg/kg	0.100	--
Ethylbenzene	ND		mg/kg	0.100	--
p/m-Xylene	ND		mg/kg	0.100	--
o-Xylene	ND		mg/kg	0.100	--
Methyl tert butyl ether	ND		mg/kg	0.050	--
Naphthalene	ND		mg/kg	0.200	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	93		70-130
2,5-Dibromotoluene-FID	105		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 10/09/18 10:10
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 02 Batch: WG1165957-4					
C5-C8 Aliphatics	ND		mg/kg	2.50	--
C9-C12 Aliphatics	ND		mg/kg	2.50	--
C9-C10 Aromatics	ND		mg/kg	2.50	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.50	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.50	--
Benzene	ND		mg/kg	0.100	--
Toluene	ND		mg/kg	0.100	--
Ethylbenzene	ND		mg/kg	0.100	--
p/m-Xylene	ND		mg/kg	0.100	--
o-Xylene	ND		mg/kg	0.100	--
Methyl tert butyl ether	ND		mg/kg	0.050	--
Naphthalene	ND		mg/kg	0.200	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	98		70-130
2,5-Dibromotoluene-FID	112		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1839176

Report Date: 10/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 03 Batch: WG1165863-2 WG1165863-3								
C5-C8 Aliphatics	98		95		70-130	3		25
C9-C12 Aliphatics	109		107		70-130	2		25
C9-C10 Aromatics	90		88		70-130	2		25
Benzene	87		84		70-130	3		25
Toluene	86		84		70-130	2		25
Ethylbenzene	90		88		70-130	2		25
p/m-Xylene	89		87		70-130	3		25
o-Xylene	87		85		70-130	2		25
Methyl tert butyl ether	88		87		70-130	1		25
Naphthalene	88		89		70-130	1		25
1,2,4-Trimethylbenzene	90		88		70-130	2		25
Pentane	85		83		70-130	2		25
2-Methylpentane	102		100		70-130	2		25
2,2,4-Trimethylpentane	103		100		70-130	3		25
n-Nonane	105		103		30-130	2		25
n-Decane	112		110		70-130	2		25
n-Butylcyclohexane	110		108		70-130	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	90		90		70-130
2,5-Dibromotoluene-FID	100		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1839176

Report Date: 10/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 02 Batch: WG1165957-2 WG1165957-3								
C5-C8 Aliphatics	98		95		70-130	3		25
C9-C12 Aliphatics	113		111		70-130	2		25
C9-C10 Aromatics	93		92		70-130	1		25
Benzene	87		86		70-130	1		25
Toluene	88		86		70-130	1		25
Ethylbenzene	91		90		70-130	1		25
p/m-Xylene	90		89		70-130	1		25
o-Xylene	88		88		70-130	0		25
Methyl tert butyl ether	90		91		70-130	2		25
Naphthalene	89		91		70-130	3		25
1,2,4-Trimethylbenzene	93		92		70-130	1		25
Pentane	83		80		70-130	3		25
2-Methylpentane	102		100		70-130	2		25
2,2,4-Trimethylpentane	104		102		70-130	2		25
n-Nonane	109		107		30-130	2		25
n-Decane	115		114		70-130	1		25
n-Butylcyclohexane	114		112		70-130	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	91		92		70-130
2,5-Dibromotoluene-FID	103		104		70-130

METALS

Project Name: ABBY REALTY TRUST
Lab Number: L1839176
Project Number: 827.01
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-01
Client ID: GP1/S1B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Date Collected: 09/27/18 07:30
Date Received: 09/28/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	2.09	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Arsenic, Total	7.14		mg/kg	0.418	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Barium, Total	61.0		mg/kg	0.418	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Beryllium, Total	ND		mg/kg	0.209	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Cadmium, Total	ND		mg/kg	0.418	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Chromium, Total	31.1		mg/kg	0.418	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Lead, Total	376		mg/kg	2.09	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Mercury, Total	0.316		mg/kg	0.067	--	1	10/09/18 07:00	10/09/18 12:37	EPA 7471B	97,7471B	MG
Nickel, Total	16.0		mg/kg	1.04	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Selenium, Total	ND		mg/kg	2.09	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Silver, Total	ND		mg/kg	0.418	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Thallium, Total	ND		mg/kg	2.09	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Vanadium, Total	15.7		mg/kg	0.418	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS
Zinc, Total	30.3		mg/kg	2.09	--	1	10/09/18 11:15	10/09/18 17:17	EPA 3050B	97,6010D	PS

Project Name: ABBY REALTY TRUST
Lab Number: L1839176
Project Number: 827.01
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-02
Client ID: GP3/S3B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Date Collected: 09/27/18 11:30
Date Received: 09/28/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	5.00		mg/kg	2.49	--	1	10/09/18 11:15	10/09/18 17:22	EPA 3050B	97,6010D	PS

Project Name: ABBY REALTY TRUST **Lab Number:** L1839176

Project Number: 827.01 **Report Date:** 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-04 Date Collected: 09/27/18 14:15

Client ID: GP8B/S2 Date Received: 09/28/18

Sample Location: BROADWAY & OSGOOD ST.- METHEUN Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/kg	2.24	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Arsenic, Total	8.48		mg/kg	0.448	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Barium, Total	78.4		mg/kg	0.448	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Beryllium, Total	ND		mg/kg	0.224	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Cadmium, Total	ND		mg/kg	0.448	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Chromium, Total	16.3		mg/kg	0.448	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Lead, Total	244		mg/kg	2.24	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Mercury, Total	0.300		mg/kg	0.074	--	1	10/09/18 07:00	10/09/18 12:39	EPA 7471B	97,7471B	MG
Nickel, Total	11.0		mg/kg	1.12	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Selenium, Total	ND		mg/kg	2.24	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Silver, Total	ND		mg/kg	0.448	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Thallium, Total	ND		mg/kg	2.24	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Vanadium, Total	13.8		mg/kg	0.448	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS
Zinc, Total	61.9		mg/kg	2.24	--	1	10/09/18 11:15	10/09/18 17:26	EPA 3050B	97,6010D	PS

Project Name: ABBY REALTY TRUST **Lab Number:** L1839176

Project Number: 827.01 **Report Date:** 10/09/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01,04 Batch: WG1165700-1										
Mercury, Total	ND		mg/kg	0.083	--	1	10/09/18 07:00	10/09/18 12:26	97,7471B	MG

Prep Information

Digestion Method: EPA 7471B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 01-02,04 Batch: WG1165857-1										
Antimony, Total	ND		mg/kg	2.00	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Arsenic, Total	ND		mg/kg	0.400	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Barium, Total	ND		mg/kg	0.400	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Beryllium, Total	ND		mg/kg	0.200	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Cadmium, Total	ND		mg/kg	0.400	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Chromium, Total	ND		mg/kg	0.400	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Lead, Total	ND		mg/kg	2.00	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Nickel, Total	ND		mg/kg	1.00	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Selenium, Total	ND		mg/kg	2.00	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Silver, Total	ND		mg/kg	0.400	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Thallium, Total	ND		mg/kg	2.00	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Vanadium, Total	ND		mg/kg	0.400	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS
Zinc, Total	ND		mg/kg	2.00	--	1	10/09/18 11:15	10/09/18 16:21	97,6010D	PS

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1839176

Report Date: 10/09/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 01,04 Batch: WG1165700-2 WG1165700-3 SRM Lot Number: D102-540								
Mercury, Total	109		108		65-134	1		30
MCP Total Metals - Mansfield Lab Associated sample(s): 01-02,04 Batch: WG1165857-2 WG1165857-3 SRM Lot Number: D102-540								
Antimony, Total	155		148		1-199	5		30
Arsenic, Total	101		96		83-117	5		30
Barium, Total	98		88		83-118	11		30
Beryllium, Total	98		93		83-116	5		30
Cadmium, Total	103		98		83-118	5		30
Chromium, Total	98		92		83-117	6		30
Lead, Total	99		96		82-118	3		30
Nickel, Total	97		93		83-117	4		30
Selenium, Total	103		98		79-121	5		30
Silver, Total	97		91		80-120	6		30
Thallium, Total	100		97		81-119	3		30
Vanadium, Total	98		93		80-120	5		30
Zinc, Total	95		91		81-118	4		30

INORGANICS
&
MISCELLANEOUS

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-01
Client ID: GP1/S1B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Sample Depth:
Matrix: Soil

Date Collected: 09/27/18 07:30
Date Received: 09/28/18
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	93.9		%	0.100	NA	1	-	10/04/18 11:29	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-02
Client ID: GP3/S3B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Sample Depth:
Matrix: Soil

Date Collected: 09/27/18 11:30
Date Received: 09/28/18
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	78.3		%	0.100	NA	1	-	10/04/18 11:29	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-03
Client ID: GP3/S4B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Sample Depth:
Matrix: Soil

Date Collected: 09/27/18 11:45
Date Received: 09/28/18
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	92.9		%	0.100	NA	1	-	10/04/18 09:56	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1839176
Report Date: 10/09/18

SAMPLE RESULTS

Lab ID: L1839176-04
Client ID: GP8B/S2
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Sample Depth:
Matrix: Soil

Date Collected: 09/27/18 14:15
Date Received: 09/28/18
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	86.7		%	0.100	NA	1	-	10/04/18 11:29	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1839176
Report Date: 10/09/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1839176-01A	Glass 60mL/2oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-PAH-10(14)
L1839176-01B	Glass 250ml unpreserved split	A	NA		4.9	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-TL-6010T-10(180),MCP-AG-6010T-10(180),MCP-SB-6010T-10(180),MCP-ZN-6010T-10(180),MCP-BE-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)
L1839176-02A	Vial MeOH preserved	A	NA		4.9	Y	Absent		VPH-DELUX-18(28)
L1839176-02B	Glass 250ml/8oz unpreserved	A	NA		4.9	Y	Absent		TS(7)
L1839176-02C	Glass 60ml unpreserved split	A	NA		4.9	Y	Absent		MCP-PB-6010T-10(180)
L1839176-03A	Vial MeOH preserved	A	NA		4.9	Y	Absent		VPH-DELUX-18(28)
L1839176-03B	Glass 250ml/8oz unpreserved	A	NA		4.9	Y	Absent		TS(7)
L1839176-04A	Glass 250ml/8oz unpreserved	A	NA		4.9	Y	Absent		TS(7),MCP-PAH-10(14)
L1839176-04B	Glass 60ml unpreserved split	A	NA		4.9	Y	Absent		MCP-CR-6010T-10(180),MCP-AS-6010T-10(180),MCP-7471T-10(28),MCP-CD-6010T-10(180),MCP-TL-6010T-10(180),MCP-AG-6010T-10(180),MCP-SB-6010T-10(180),MCP-ZN-6010T-10(180),MCP-BE-6010T-10(180),MCP-SE-6010T-10(180),MCP-BA-6010T-10(180),MCP-V-6010T-10(180),MCP-NI-6010T-10(180),MCP-PB-6010T-10(180)

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1839176
Project Number:	827.01	**Report Date:**	10/09/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1839176
Project Number:	827.01	**Report Date:**	10/09/18

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.

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.

Report Format: Data Usability Report

REFERENCES

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.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 9/29/18

ALPHA Job #: L1839176

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria RCS-1

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8270-PAHs	MCP 14 METALS	VPH w TARGETS	LEAD	TOTAL SOLIDS	Sample Specific Comments	TOTAL # BOTTLES
39176-01	GP1/S1B	9/27/18	7:30	S	CA	✓	✓					1
02	GP3/S3B	9/27/18	11:30	S	CA			✓	✓		113 PPM FIELD VOCS	2
03	GP3/S4B	9/27/18	11:45	S	CA			✓		✓	129 PPM FIELD VOCS	2
04	GP8B/S2	9/27/18	2:15	S	CA	✓	✓					1
Container Type						G	G	V	G	G		
Preservative						A	A	F	A	A		

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 9/28/18 1630	9/28/2018	[signature] AAL	9/29/18 1405

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

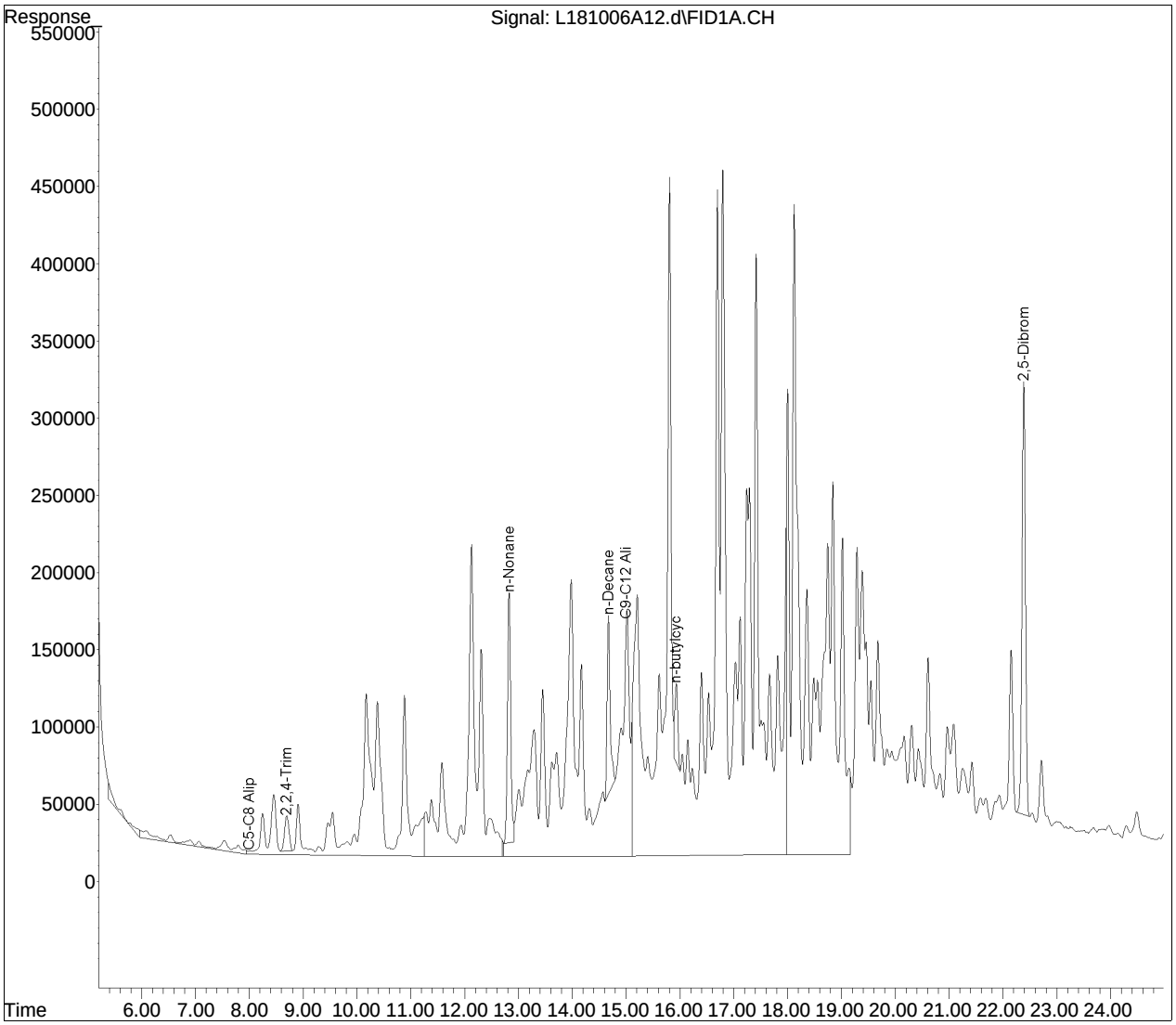
Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES_GC\LVPH\2018\181006ASali\
Data File : L181006A12.d
Signal(s) : FID1A.CH
Acq On : 06 Oct 2018 2:07 pm
Operator : LVPH:MZ
Sample : l1839176-03,41,15,14.96,0.100,,a
Misc : WG1165863,ICAL14892,VPH-75
ALS Vial : 12 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Oct 09 07:05:24 2018
Quant Method : I:\VOLATILES_GC\LVPH\2018\181006ASali\svph-ali180712N.m
Quant Title : VPH ALIPHATIC
QLast Update : Tue Jul 17 11:13:25 2018
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Sub List : Default - All compounds listed



ANALYTICAL REPORT

Lab Number:	L1841105
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	10/17/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1841105
Report Date: 10/17/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1841105-01	GP1/S1B	SOIL	BROADWAY & OSGOOD ST.-METHEUN	09/27/18 07:30	09/28/18

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1841105
Report Date: 10/17/18

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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.

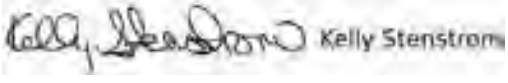
In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The 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.

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: 

Title: Technical Director/Representative Date: 10/17/18

METALS

Project Name: ABBY REALTY TRUST
Lab Number: L1841105
Project Number: 827.01
Report Date: 10/17/18

SAMPLE RESULTS

Lab ID: L1841105-01
Client ID: GP1/S1B
Sample Location: BROADWAY & OSGOOD ST.- METHEUN
Sample Depth:
Matrix: Soil

Date Collected: 09/27/18 07:30
Date Received: 09/28/18
Field Prep: Not Specified
TCLP/SPLP Ext. Date: 10/11/18 06:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab											
Lead, TCLP	3.05		mg/l	0.500	--	1	10/16/18 17:28	10/17/18 04:19	EPA 3015	1,6010D	AB

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1841105
Report Date: 10/17/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab for sample(s): 01 Batch: WG1168741-1										
Lead, TCLP	ND		mg/l	0.500	--	1	10/16/18 17:28	10/16/18 23:56	1,6010D	AB

Prep Information

Digestion Method: EPA 3015
TCLP/SPLP Extraction Date: 10/11/18 06:20

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1841105

Report Date: 10/17/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 01 Batch: WG1168741-2								
Lead, TCLP	94		-		75-125	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1841105
Report Date: 10/17/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1168741-3 QC Sample: L1840840-01 Client ID: MS Sample												
Lead, TCLP	ND	5.1	4.72	92		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1841105

Report Date: 10/17/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1168741-4 QC Sample: L1840840-01 Client ID: DUP Sample						
Lead, TCLP	ND	ND	mg/l	NC		20

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1841105
Report Date: 10/17/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1841105-01A	Glass 250ml/8oz unpreserved	A	NA		4.9	Y	Absent		-
L1841105-01X	Plastic 120ml HNO3 preserved Extracts	A	NA		4.9	Y	Absent		PB-CI(180)
L1841105-01X9	Tumble Vessel	A	NA		4.9	Y	Absent		-

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1841105
Project Number:	827.01	**Report Date:**	10/17/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1841105
Project Number:	827.01	**Report Date:**	10/17/18

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.

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.

Report Format: Data Usability Report

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1841105
Report Date: 10/17/18

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

DM 10/10/18 L1841105

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd In Lab: 9/29/18

ALPHA Job #: L1839116

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria RCS-1

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

TCLP-PB

41105	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8270-PAHs	MCP-14-METALS	VPH-w-TARGETS	LEAD	TOTAL SOLIDS					Sample Specific Comments	TOTAL # BOTTLES
41776-01	GP1/S1B	9/27/18	7:30	S	CA	✓	✓					X				1
02	GP3/S3B	9/27/18	11:30	S	CA			✓	✓						113 PPM FIELD VOCS	2
03	GP3/S4B	9/27/18	11:45	S	CA			✓		✓					129 PPM FIELD VOCS	2
04	GP8B/S2	9/27/18	2:15	S	CA	✓	✓									1

Container Type	G	G		V	G	G						
Preservative	A	A		F	A	A						

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 9/28/18	9/28/2018 1630	[signature] AAL	9/25/18 1405

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

ANALYTICAL REPORT

Lab Number:	L1843819
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	11/06/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1843819
Report Date: 11/06/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1843819-01	NC12/S2A	SOIL	BROADWAY & OSGOOD ST.-METHUEN	10/24/18 13:30	10/26/18
L1843819-02	NC12/S2C	SOIL	BROADWAY & OSGOOD ST.-METHUEN	10/24/18 13:30	10/26/18

Project Name: ABBY REALTY TRUST **Lab Number:** L1843819

Project Number: 827.01 **Report Date:** 11/06/18

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)?	NO
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)?	YES

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: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1843819
Report Date: 11/06/18

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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: ABBY REALTY TRUST **Lab Number:** L1843819
Project Number: 827.01 **Report Date:** 11/06/18

Case Narrative (continued)

MCP Related Narratives

VPH

In reference to question G:

L1843819-01: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1843819-01: The surrogate recovery is outside the acceptance criteria for 2,5-dibromotoluene-pid (152%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.

L1843819-02: The surrogate recovery is outside the acceptance criteria for 2,5-dibromotoluene-pid (143%) and 2,5-dibromotoluene-fid (139%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.

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: Michelle M. Morris

Title: Technical Director/Representative Date: 11/06/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: ABBY REALTY TRUST **Lab Number:** L1843819

Project Number: 827.01 **Report Date:** 11/06/18

SAMPLE RESULTS

Lab ID:	L1843819-01 D	Date Collected:	10/24/18 13:30
Client ID:	NC12/S2A	Date Received:	10/26/18
Sample Location:	BROADWAY & OSGOOD ST.-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	11/01/18 17:15		
Analyst:	MZ		
Percent Solids:	86%		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	302		mg/kg	13.4	--	4
C9-C12 Aliphatics	442		mg/kg	13.4	--	4
C9-C10 Aromatics	306		mg/kg	13.4	--	4
C5-C8 Aliphatics, Adjusted	301		mg/kg	13.4	--	4
C9-C12 Aliphatics, Adjusted	125		mg/kg	13.4	--	4
Benzene	0.825		mg/kg	0.535	--	4
Toluene	ND		mg/kg	0.535	--	4
Ethylbenzene	1.30		mg/kg	0.535	--	4
p/m-Xylene	7.09		mg/kg	0.535	--	4
o-Xylene	3.33		mg/kg	0.535	--	4
Methyl tert butyl ether	0.379		mg/kg	0.268	--	4
Naphthalene	5.16		mg/kg	1.07	--	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	**152**	Q	70-130
2,5-Dibromotoluene-FID	125		70-130

Project Name: ABBY REALTY TRUST **Lab Number:** L1843819

Project Number: 827.01 **Report Date:** 11/06/18

SAMPLE RESULTS

Lab ID:	L1843819-02	Date Collected:	10/24/18 13:30
Client ID:	NC12/S2C	Date Received:	10/26/18
Sample Location:	BROADWAY & OSGOOD ST.-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	11/01/18 16:44		
Analyst:	MZ		
Percent Solids:	87%		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	17.5		mg/kg	3.28	--	1
C9-C12 Aliphatics	26.0		mg/kg	3.28	--	1
C9-C10 Aromatics	16.2		mg/kg	3.28	--	1
C5-C8 Aliphatics, Adjusted	17.5		mg/kg	3.28	--	1
C9-C12 Aliphatics, Adjusted	9.58		mg/kg	3.28	--	1
Benzene	ND		mg/kg	0.131	--	1
Toluene	ND		mg/kg	0.131	--	1
Ethylbenzene	ND		mg/kg	0.131	--	1
p/m-Xylene	ND		mg/kg	0.131	--	1
o-Xylene	0.253		mg/kg	0.131	--	1
Methyl tert butyl ether	ND		mg/kg	0.066	--	1
Naphthalene	0.273		mg/kg	0.263	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	**143**	Q	70-130
2,5-Dibromotoluene-FID	**139**	Q	70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1843819
Report Date: 11/06/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 11/01/18 10:33
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1175263-4					
C5-C8 Aliphatics	ND		mg/kg	2.50	--
C9-C12 Aliphatics	ND		mg/kg	2.50	--
C9-C10 Aromatics	ND		mg/kg	2.50	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.50	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.50	--
Benzene	ND		mg/kg	0.100	--
Toluene	ND		mg/kg	0.100	--
Ethylbenzene	ND		mg/kg	0.100	--
p/m-Xylene	ND		mg/kg	0.100	--
o-Xylene	ND		mg/kg	0.100	--
Methyl tert butyl ether	ND		mg/kg	0.050	--
Naphthalene	ND		mg/kg	0.200	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	112		70-130
2,5-Dibromotoluene-FID	110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1843819

Report Date: 11/06/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1175263-2 WG1175263-3								
C5-C8 Aliphatics	106		104		70-130	2		25
C9-C12 Aliphatics	114		113		70-130	1		25
C9-C10 Aromatics	109		108		70-130	1		25
Benzene	105		103		70-130	2		25
Toluene	104		102		70-130	2		25
Ethylbenzene	108		106		70-130	2		25
p/m-Xylene	107		106		70-130	1		25
o-Xylene	105		104		70-130	1		25
Methyl tert butyl ether	106		105		70-130	1		25
Naphthalene	106		104		70-130	2		25
1,2,4-Trimethylbenzene	109		108		70-130	1		25
Pentane	98		96		70-130	2		25
2-Methylpentane	111		108		70-130	3		25
2,2,4-Trimethylpentane	108		106		70-130	2		25
n-Nonane	110		110		30-130	0		25
n-Decane	117		116		70-130	1		25
n-Butylcyclohexane	114		114		70-130	0		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	111		110		70-130
2,5-Dibromotoluene-FID	109		107		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1843819
Report Date: 11/06/18

SAMPLE RESULTS

Lab ID: L1843819-01
Client ID: NC12/S2A
Sample Location: BROADWAY & OSGOOD ST.-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 10/24/18 13:30
Date Received: 10/26/18
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	85.5		%	0.100	NA	1	-	10/30/18 13:45	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1843819
Report Date: 11/06/18

SAMPLE RESULTS

Lab ID: L1843819-02
Client ID: NC12/S2C
Sample Location: BROADWAY & OSGOOD ST.-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 10/24/18 13:30
Date Received: 10/26/18
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	87.0		%	0.100	NA	1	-	10/30/18 13:45	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1843819
Report Date: 11/06/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1843819-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		VPH-DELUX-18(28)
L1843819-01B	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TS(7)
L1843819-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		VPH-DELUX-18(28)
L1843819-02B	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1843819
Project Number:	827.01	**Report Date:**	11/06/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1843819
Project Number:	827.01	**Report Date:**	11/06/18

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.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1843819
Project Number:	827.01	**Report Date:**	11/06/18

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 10/26/18

ALPHA Job #: L1843819

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria RCS-1

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VPH w TARGETS	TOTAL SOLIDS	Sample Specific Comments	TOTAL # BOTTLES
43819 -01	NC12/S2A	10/24/18	13:30	S	CA	✓	✓		2
-02	NC12/S2C	10/24/18	13:30	S	CA	✓	✓		2

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type						V		G							
Preservative						F		A							

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	10/25/18	AAL	10/26 1210
AAL	10/26 1755		10/26/18 1755

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 19-Jan-2010)

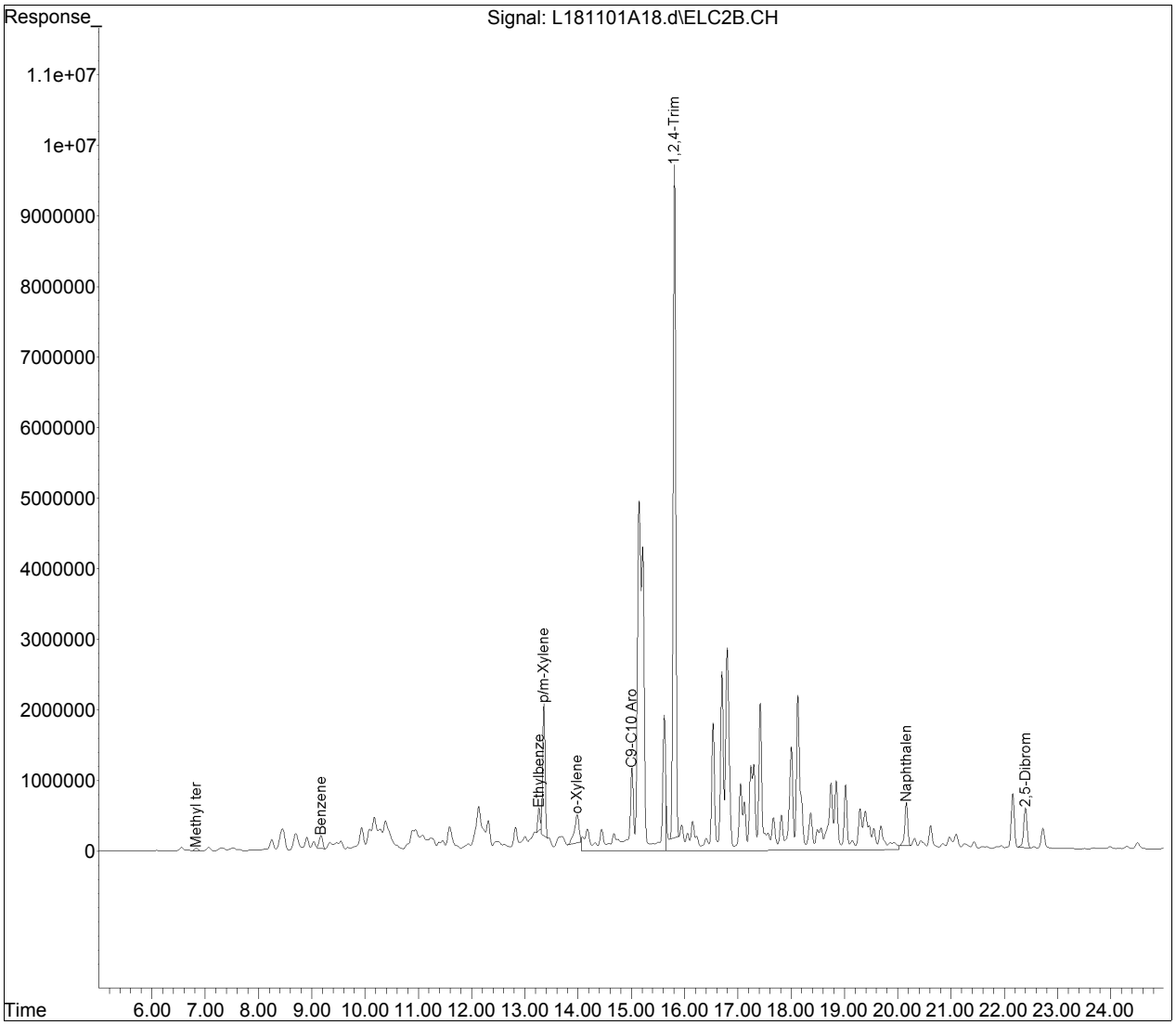
Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES_GC\LVPH\2018\181101ASaro\
Data File : L181101A18.d
Signal(s) : ELC2B.CH
Acq On : 01 Nov 2018 5:15 pm
Operator : LVPH:MZ
Sample : l1843819-01D,41,15,15.02,0.025,,a
Misc : WG1175263,ICAL14893,VPH-75
ALS Vial : 0 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 02 07:57:49 2018
Quant Method : I:\VOLATILES_GC\LVPH\2018\181101ASaro\svph-aro180712N.m
Quant Title : VPH AROMATIC
QLast Update : Tue Jul 17 11:06:44 2018
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Sub List : Default - All compounds listed



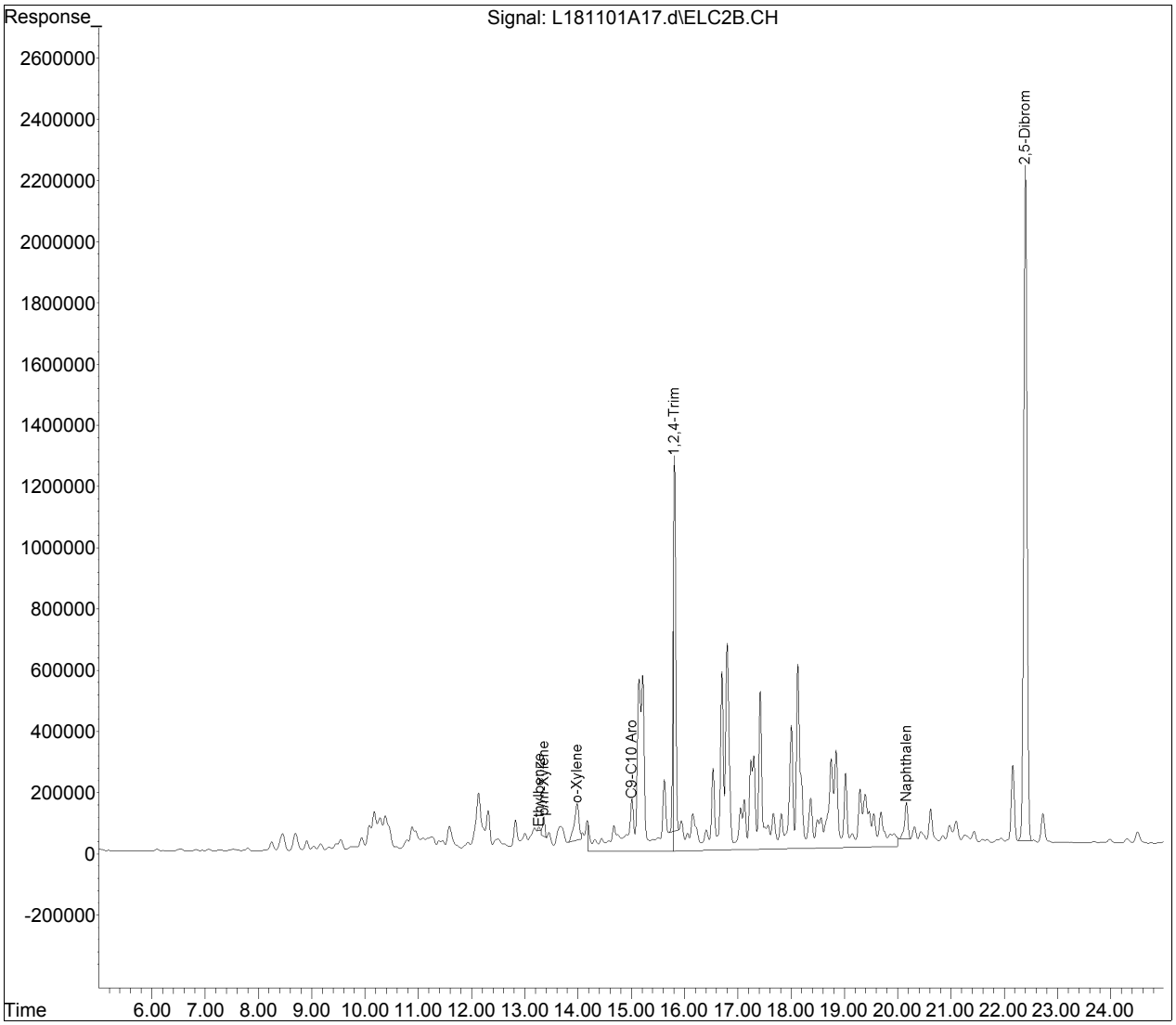
Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES_GC\LVPH\2018\181101ASaro\
Data File : L181101A17.d
Signal(s) : ELC2B.CH
Acq On : 01 Nov 2018 4:44 pm
Operator : LVPH:MZ
Sample : l1843819-02,41,15,14.80,0.100,,a
Misc : WG1175263,ICAL14893,VPH-75
ALS Vial : 0 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 02 07:55:43 2018
Quant Method : I:\VOLATILES_GC\LVPH\2018\181101ASaro\svph-aro180712N.m
Quant Title : VPH AROMATIC
QLast Update : Tue Jul 17 11:06:44 2018
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Sub List : Default - All compounds listed



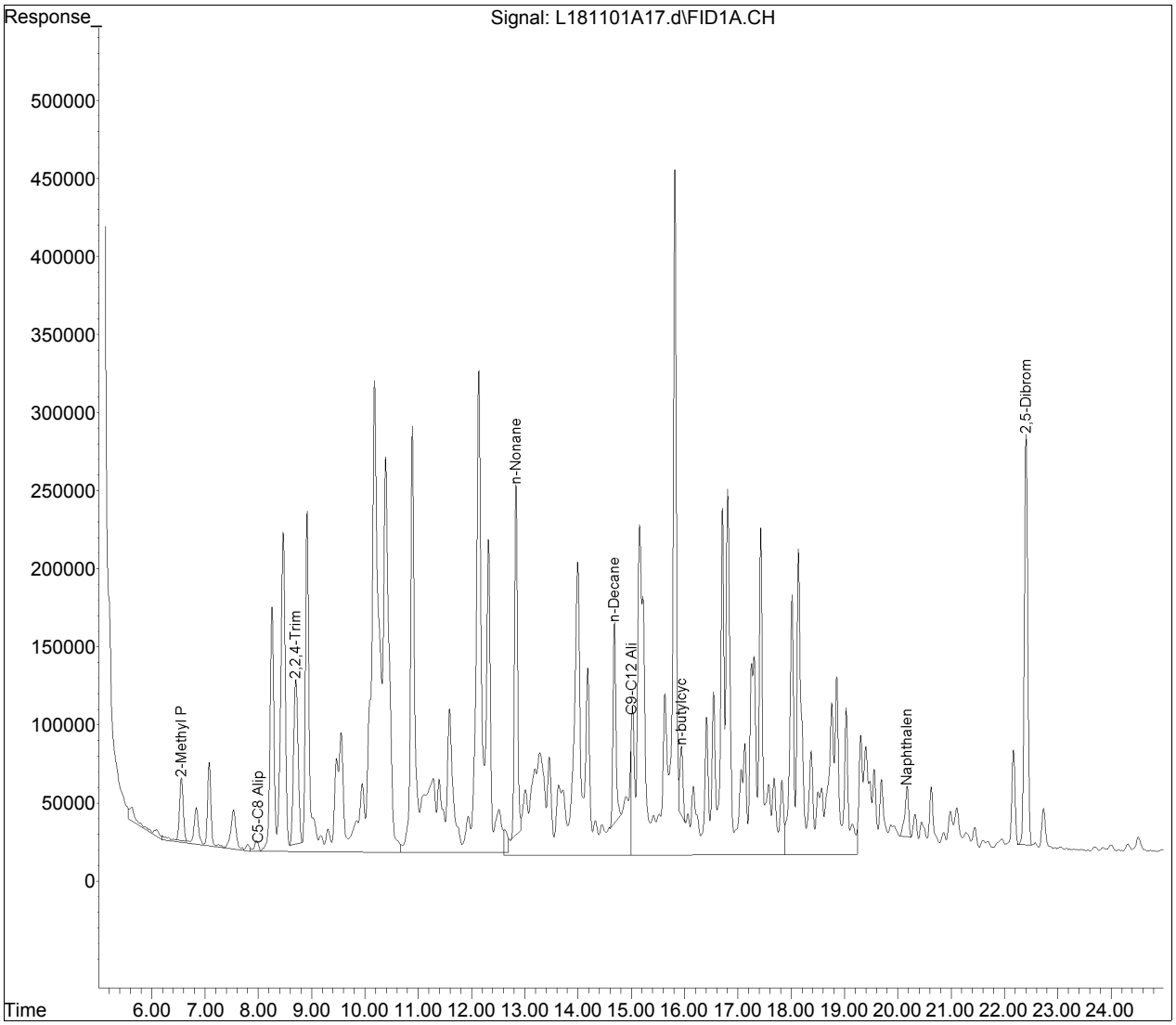
Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES_GC\LVPH\2018\181101ASali\
Data File : L181101A17.d
Signal(s) : FID1A.CH
Acq On : 01 Nov 2018 4:44 pm
Operator : LVPH:MZ
Sample : l1843819-02,41,15,14.80,0.100,,a
Misc : WG1175263,ICAL14892,VPH-75
ALS Vial : 17 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Nov 02 07:37:55 2018
Quant Method : I:\VOLATILES_GC\LVPH\2018\181101ASali\svph-ali180712N.m
Quant Title : VPH ALIPHATIC
QLast Update : Tue Jul 17 11:13:25 2018
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Sub List : Default - All compounds listed



ANALYTICAL REPORT

Lab Number:	L1844902
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	11/14/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1844902
Report Date: 11/14/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1844902-01	NC11	WATER	BROADWAY & OSGOOD ST-METHUEN	11/01/18 13:20	11/02/18
L1844902-02	NC12	WATER	BROADWAY & OSGOOD ST-METHUEN	11/01/18 13:40	11/02/18
L1844902-03	P1/S1-S3	SOIL	BROADWAY & OSGOOD ST-METHUEN	11/01/18 12:00	11/02/18
L1844902-04	P2/S1&S2	SOIL	BROADWAY & OSGOOD ST-METHUEN	11/01/18 12:30	11/02/18
L1844902-05	P3/S1	SOIL	BROADWAY & OSGOOD ST-METHUEN	11/01/18 12:45	11/02/18
L1844902-06	P4/S1	SOIL	BROADWAY & OSGOOD ST-METHUEN	11/01/18 12:50	11/02/18

Project Name: ABBY REALTY TRUST **Lab Number:** L1844902

Project Number: 827.01 **Report Date:** 11/14/18

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)?	NO
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: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1844902
Report Date: 11/14/18

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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:	ABBY REALTY TRUST	**Lab Number:**	L1844902
Project Number:	827.01	**Report Date:**	11/14/18

Case Narrative (continued)

MCP Related Narratives

VPH

In reference to question G:

L1844902-02: One or more of the target analytes did not achieve the requested CAM reporting limits.

PCBs

L1844902-06: The sample has elevated detection limits due to limited sample volume available for analysis.

In reference to question G:

L1844902-06: One or more of the target analytes did not achieve the requested CAM reporting limits.

Dissolved Metals

L1844902-01: The sample has an elevated detection limit due to the prep dilution required by the sample matrix.

In reference to question G:

L1844902-01: One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question I:

All samples were analyzed for a subset of MCP analytes per client request.

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: Melissa Cripps

Title: Technical Director/Representative Date: 11/14/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID:	L1844902-01	Date Collected:	11/01/18 13:20
Client ID:	NC11	Date Received:	11/02/18
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	11/06/18 19:39		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	103		70-130
2,5-Dibromotoluene-FID	103		70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-02 D
Client ID: NC12
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Date Collected: 11/01/18 13:40
Date Received: 11/02/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 131,VPH-18-2.1
Analytical Date: 11/06/18 20:19
Analyst: MZ

Trap: EST, Carbopack B/Carboxen 1000&1001
Analytical Column: Restek, RTX-502.2, 105m, 0.53ID, 3um

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	288		ug/l	100	--	2
C9-C12 Aliphatics	1620		ug/l	100	--	2
C9-C10 Aromatics	1420		ug/l	100	--	2
C5-C8 Aliphatics, Adjusted	288		ug/l	100	--	2
C9-C12 Aliphatics, Adjusted	117		ug/l	100	--	2
Benzene	ND		ug/l	4.00	--	2
Toluene	ND		ug/l	4.00	--	2
Ethylbenzene	ND		ug/l	4.00	--	2
p/m-Xylene	74.0		ug/l	4.00	--	2
o-Xylene	5.29		ug/l	4.00	--	2
Methyl tert butyl ether	ND		ug/l	6.00	--	2
Naphthalene	ND		ug/l	8.00	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	100		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1844902
Report Date: 11/14/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 11/06/18 10:15
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1176936-4					
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	108		70-130
2,5-Dibromotoluene-FID	108		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1844902

Report Date: 11/14/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1176936-2 WG1176936-3								
C5-C8 Aliphatics	107		103		70-130	4		25
C9-C12 Aliphatics	107		105		70-130	2		25
C9-C10 Aromatics	108		105		70-130	3		25
Benzene	107		103		70-130	4		25
Toluene	96		92		70-130	3		25
Ethylbenzene	111		107		70-130	4		25
p/m-Xylene	110		106		70-130	4		25
o-Xylene	109		105		70-130	4		25
Methyl tert butyl ether	103		101		70-130	2		25
Naphthalene	104		104		70-130	0		25
1,2,4-Trimethylbenzene	108		105		70-130	3		25
Pentane	106		100		70-130	6		25
2-Methylpentane	109		104		70-130	5		25
2,2,4-Trimethylpentane	111		107		70-130	4		25
n-Nonane	105		102		30-130	3		25
n-Decane	112		109		70-130	3		25
n-Butylcyclohexane	106		103		70-130	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	113		111		70-130
2,5-Dibromotoluene-FID	112		111		70-130

PCBS

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-03
Client ID: P1/S1-S3
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 11/01/18 12:00
Date Received: 11/02/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 11/12/18 18:55
Analyst: WR
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 11/05/18 12:14
Cleanup Method: EPA 3665A
Cleanup Date: 11/06/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/07/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.9	--	1	A
Aroclor 1221	ND		ug/kg	36.9	--	1	A
Aroclor 1232	ND		ug/kg	36.9	--	1	A
Aroclor 1242	ND		ug/kg	36.9	--	1	A
Aroclor 1248	ND		ug/kg	36.9	--	1	A
Aroclor 1254	ND		ug/kg	36.9	--	1	A
Aroclor 1260	ND		ug/kg	36.9	--	1	A
Aroclor 1262	ND		ug/kg	36.9	--	1	A
Aroclor 1268	ND		ug/kg	36.9	--	1	A
PCBs, Total	ND		ug/kg	36.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	70		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	62		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-04
Client ID: P2/S1&S2
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 11/01/18 12:30
Date Received: 11/02/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 11/12/18 19:08
Analyst: WR
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 11/05/18 12:14
Cleanup Method: EPA 3665A
Cleanup Date: 11/06/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/07/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	34.8	--	1	A
Aroclor 1221	ND		ug/kg	34.8	--	1	A
Aroclor 1232	ND		ug/kg	34.8	--	1	A
Aroclor 1242	ND		ug/kg	34.8	--	1	A
Aroclor 1248	ND		ug/kg	34.8	--	1	A
Aroclor 1254	ND		ug/kg	34.8	--	1	A
Aroclor 1260	ND		ug/kg	34.8	--	1	A
Aroclor 1262	ND		ug/kg	34.8	--	1	A
Aroclor 1268	ND		ug/kg	34.8	--	1	A
PCBs, Total	ND		ug/kg	34.8	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	67		30-150	B
Decachlorobiphenyl	73		30-150	B
2,4,5,6-Tetrachloro-m-xylene	63		30-150	A
Decachlorobiphenyl	62		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-05
Client ID: P3/S1
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Date Collected: 11/01/18 12:45
Date Received: 11/02/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 11/12/18 19:21
Analyst: WR
Percent Solids: 69%

Extraction Method: EPA 3546
Extraction Date: 11/05/18 12:14
Cleanup Method: EPA 3665A
Cleanup Date: 11/06/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/07/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	47.2	--	1	A
Aroclor 1221	ND		ug/kg	47.2	--	1	A
Aroclor 1232	ND		ug/kg	47.2	--	1	A
Aroclor 1242	ND		ug/kg	47.2	--	1	A
Aroclor 1248	ND		ug/kg	47.2	--	1	A
Aroclor 1254	ND		ug/kg	47.2	--	1	B
Aroclor 1260	ND		ug/kg	47.2	--	1	B
Aroclor 1262	ND		ug/kg	47.2	--	1	A
Aroclor 1268	ND		ug/kg	47.2	--	1	A
PCBs, Total	ND		ug/kg	47.2	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	47		30-150	B
Decachlorobiphenyl	61		30-150	B
2,4,5,6-Tetrachloro-m-xylene	45		30-150	A
Decachlorobiphenyl	52		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-06 D
Client ID: P4/S1
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 11/01/18 12:50
Date Received: 11/02/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 11/13/18 13:19
Analyst: WR
Percent Solids: 68%

Extraction Method: EPA 3546
Extraction Date: 11/05/18 12:14
Cleanup Method: EPA 3665A
Cleanup Date: 11/06/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/07/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	486	--	5	A
Aroclor 1221	ND		ug/kg	486	--	5	A
Aroclor 1232	ND		ug/kg	486	--	5	A
Aroclor 1242	ND		ug/kg	486	--	5	A
Aroclor 1248	ND		ug/kg	486	--	5	A
Aroclor 1254	2830		ug/kg	486	--	5	B
Aroclor 1260	ND		ug/kg	486	--	5	A
Aroclor 1262	ND		ug/kg	486	--	5	A
Aroclor 1268	ND		ug/kg	486	--	5	A
PCBs, Total	2830		ug/kg	486	--	5	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		30-150	B
Decachlorobiphenyl	55		30-150	B
2,4,5,6-Tetrachloro-m-xylene	76		30-150	A
Decachlorobiphenyl	61		30-150	A

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1844902
Report Date: 11/14/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 11/09/18 14:40
Analyst: AWS

Extraction Method: EPA 3546
Extraction Date: 11/05/18 05:50
Cleanup Method: EPA 3665A
Cleanup Date: 11/05/18
Cleanup Method: EPA 3660B
Cleanup Date: 11/06/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 03-06 Batch: WG1175919-1						
Aroclor 1016	ND		ug/kg	31.8	--	A
Aroclor 1221	ND		ug/kg	31.8	--	A
Aroclor 1232	ND		ug/kg	31.8	--	A
Aroclor 1242	ND		ug/kg	31.8	--	A
Aroclor 1248	ND		ug/kg	31.8	--	A
Aroclor 1254	ND		ug/kg	31.8	--	A
Aroclor 1260	ND		ug/kg	31.8	--	A
Aroclor 1262	ND		ug/kg	31.8	--	A
Aroclor 1268	ND		ug/kg	31.8	--	A
PCBs, Total	ND		ug/kg	31.8	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	102		30-150	B
Decachlorobiphenyl	102		30-150	B
2,4,5,6-Tetrachloro-m-xylene	105		30-150	A
Decachlorobiphenyl	94		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1844902

Report Date: 11/14/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 03-06 Batch: WG1175919-2 WG1175919-3									
Aroclor 1016	73		76		40-140	4		30	A
Aroclor 1260	76		78		40-140	3		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	92		95		30-150	B
Decachlorobiphenyl	91		96		30-150	B
2,4,5,6-Tetrachloro-m-xylene	90		96		30-150	A
Decachlorobiphenyl	83		87		30-150	A

METALS

Project Name: ABBY REALTY TRUST
Lab Number: L1844902
Project Number: 827.01
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-01
Client ID: NC11
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Date Collected: 11/01/18 13:20
Date Received: 11/02/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		mg/l	0.020	--	1	11/07/18 14:45	11/08/18 11:14	EPA 3005A	97,6010D	PE

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1844902
Report Date: 11/14/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1176958-1										
Lead, Dissolved	ND		mg/l	0.010	--	1	11/07/18 14:45	11/08/18 10:33	97,6010D	PE

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1844902

Report Date: 11/14/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1176958-2 WG1176958-3								
Lead, Dissolved	102		102		80-120	0		20

INORGANICS
&
MISCELLANEOUS

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1844902
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-03
Client ID: P1/S1-S3
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 11/01/18 12:00
Date Received: 11/02/18
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	89.3		%	0.100	NA	1	-	11/05/18 10:14	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1844902
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-04
Client ID: P2/S1&S2
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 11/01/18 12:30
Date Received: 11/02/18
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	92.3		%	0.100	NA	1	-	11/05/18 10:14	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1844902
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-05
Client ID: P3/S1
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 11/01/18 12:45
Date Received: 11/02/18
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	68.8		%	0.100	NA	1	-	11/05/18 10:14	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1844902
Report Date: 11/14/18

SAMPLE RESULTS

Lab ID: L1844902-06
Client ID: P4/S1
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 11/01/18 12:50
Date Received: 11/02/18
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	67.9		%	0.100	NA	1	-	11/05/18 10:14	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1844902
Report Date: 11/14/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1844902-01A	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-DELUX-18(14)
L1844902-01B	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-DELUX-18(14)
L1844902-01C	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-DELUX-18(14)
L1844902-01D	Plastic 250ml HNO3 preserved	A	<2	<2	3.0	Y	Absent		MCP-PB-6010S-10(180)
L1844902-02A	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-DELUX-18(14)
L1844902-02B	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-DELUX-18(14)
L1844902-02C	Vial HCl preserved	A	NA		3.0	Y	Absent		VPH-DELUX-18(14)
L1844902-03A	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		MCP-8082-10(365),TS(7)
L1844902-04A	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		MCP-8082-10(365),TS(7)
L1844902-05A	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		MCP-8082-10(365),TS(7)
L1844902-06A	Glass 250ml/8oz unpreserved	A	NA		3.0	Y	Absent		MCP-8082-10(365),TS(7)

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1844902
Project Number:	827.01	**Report Date:**	11/14/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1844902
Project Number:	827.01	**Report Date:**	11/14/18

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.

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.

Report Format: Data Usability Report

REFERENCES

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.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 11/2/18

ALPHA Job #: L1844902

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria RCS-1

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

NC11 dissolved Pb was filtered in field

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VPH w TARGETS	Dissolved Pb	PCBs	Sample Specific Comments	TOTAL # BOTTLES
44962-01	NC11	11/1/18	13:20	GW	CA	✓	✓			3
02	NC12	11/1/18	13:40	GW	CA	✓				3
03	P1/S1-S3	11/1/18	12:00	S	CA			✓		1
04	P2/S1&S2	11/1/18	12:30	S	CA			✓		1
05	P3/S1	11/1/18	12:45	S	CA			✓		1
06	P4/S1	11/1/18	12:50	S	CA			✓		1

Container Type	V	P	G
Preservative	B	C	A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/2/18		11-2-18 1750
	11-2-18 1605		11/2/18 1605

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

ANALYTICAL REPORT

Lab Number:	L1850800
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	12/18/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1850800
Report Date: 12/18/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1850800-01	NC-13/S3A	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 09:30	12/11/18
L1850800-02	NC-14/S4	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 13:00	12/11/18
L1850800-03	NC-14/S5	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 13:30	12/11/18
L1850800-04	NC-16/S4	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/07/18 14:00	12/11/18
L1850800-05	NC-16/S5C	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/07/18 14:30	12/11/18
L1850800-06	P5/S1	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 09:00	12/11/18
L1850800-07	P5/S2	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 09:00	12/11/18
L1850800-08	P6/S1	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 10:00	12/11/18
L1850800-09	P7/S1	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 10:15	12/11/18
L1850800-10	P8/S1	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 10:30	12/11/18
L1850800-11	P9/S2	SOIL	BROADWAY & OSGOOD ST- METHUEN	12/06/18 10:45	12/11/18

Project Name: ABBY REALTY TRUST **Lab Number:** L1850800

Project Number: 827.01 **Report Date:** 12/18/18

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)?	YES

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: ABBY REALTY TRUST **Lab Number:** L1850800
Project Number: 827.01 **Report Date:** 12/18/18

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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:	ABBY REALTY TRUST	**Lab Number:**	L1850800
Project Number:	827.01	**Report Date:**	12/18/18

Case Narrative (continued)

MCP Related Narratives

VPH

In reference to question H:

L1850800-01: The surrogate recovery is outside the acceptance criteria for 2,5-dibromotoluene-FID (138%); however, the sample was not re-analyzed due to coelution with an unresolved complex mixture (UCM). A copy of the chromatogram is included as an attachment to this report. The results are not considered to be biased.

Total Metals

In reference to question H:

The WG1190244-4 MS recovery, performed on L1850800-04, is outside the acceptance criteria for lead (73%). Re-analysis of the MS yielded an unacceptable recovery in the range of 30-74% or >125%. The LCS recovery was within acceptance criteria for this analyte; therefore, no further action was taken.

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: Lisa Westerlind

Title: Technical Director/Representative Date: 12/18/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: ABBY REALTY TRUST **Lab Number:** L1850800

Project Number: 827.01 **Report Date:** 12/18/18

SAMPLE RESULTS

Lab ID:	L1850800-01	Date Collected:	12/06/18 09:30
Client ID:	NC-13/S3A	Date Received:	12/11/18
Sample Location:	BROADWAY & OSGOOD ST- METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/15/18 00:59		
Analyst:	MZ		
Percent Solids:	86%		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	12.0		mg/kg	3.36	--	1
C9-C12 Aliphatics	113		mg/kg	3.36	--	1
C9-C10 Aromatics	63.6		mg/kg	3.36	--	1
C5-C8 Aliphatics, Adjusted	12.0		mg/kg	3.36	--	1
C9-C12 Aliphatics, Adjusted	48.6		mg/kg	3.36	--	1
Benzene	ND		mg/kg	0.134	--	1
Toluene	ND		mg/kg	0.134	--	1
Ethylbenzene	0.311		mg/kg	0.134	--	1
p/m-Xylene	ND		mg/kg	0.134	--	1
o-Xylene	0.218		mg/kg	0.134	--	1
Methyl tert butyl ether	ND		mg/kg	0.067	--	1
Naphthalene	ND		mg/kg	0.269	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	115		70-130
2,5-Dibromotoluene-FID	**138**	Q	70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID:	L1850800-02	Date Collected:	12/06/18 13:00
Client ID:	NC-14/S4	Date Received:	12/11/18
Sample Location:	BROADWAY & OSGOOD ST- METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/15/18 00:28		
Analyst:	MZ		
Percent Solids:	87%		
Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	19.9		mg/kg	3.67	--	1
C9-C12 Aliphatics	44.3		mg/kg	3.67	--	1
C9-C10 Aromatics	25.8		mg/kg	3.67	--	1
C5-C8 Aliphatics, Adjusted	19.9		mg/kg	3.67	--	1
C9-C12 Aliphatics, Adjusted	18.1		mg/kg	3.67	--	1
Benzene	ND		mg/kg	0.147	--	1
Toluene	ND		mg/kg	0.147	--	1
Ethylbenzene	ND		mg/kg	0.147	--	1
p/m-Xylene	ND		mg/kg	0.147	--	1
o-Xylene	0.365		mg/kg	0.147	--	1
Methyl tert butyl ether	ND		mg/kg	0.073	--	1
Naphthalene	0.300		mg/kg	0.293	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	109		70-130
2,5-Dibromotoluene-FID	118		70-130

Project Name: ABBY REALTY TRUST **Lab Number:** L1850800

Project Number: 827.01 **Report Date:** 12/18/18

SAMPLE RESULTS

Lab ID:	L1850800-03	Date Collected:	12/06/18 13:30
Client ID:	NC-14/S5	Date Received:	12/11/18
Sample Location:	BROADWAY & OSGOOD ST- METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/15/18 01:30		
Analyst:	MZ		
Percent Solids:	83%		
Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	30.6		mg/kg	3.86	--	1
C9-C12 Aliphatics	88.8		mg/kg	3.86	--	1
C9-C10 Aromatics	46.5		mg/kg	3.86	--	1
C5-C8 Aliphatics, Adjusted	30.6		mg/kg	3.86	--	1
C9-C12 Aliphatics, Adjusted	41.6		mg/kg	3.86	--	1
Benzene	ND		mg/kg	0.154	--	1
Toluene	ND		mg/kg	0.154	--	1
Ethylbenzene	ND		mg/kg	0.154	--	1
p/m-Xylene	ND		mg/kg	0.154	--	1
o-Xylene	0.627		mg/kg	0.154	--	1
Methyl tert butyl ether	ND		mg/kg	0.077	--	1
Naphthalene	0.341		mg/kg	0.308	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	108		70-130
2,5-Dibromotoluene-FID	120		70-130

Project Name: ABBY REALTY TRUST **Lab Number:** L1850800

Project Number: 827.01 **Report Date:** 12/18/18

SAMPLE RESULTS

Lab ID:	L1850800-04 D	Date Collected:	12/07/18 14:00
Client ID:	NC-16/S4	Date Received:	12/11/18
Sample Location:	BROADWAY & OSGOOD ST- METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/15/18 18:19		
Analyst:	MZ		
Percent Solids:	88%		
Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	308		mg/kg	7.20	--	2
C9-C12 Aliphatics	268		mg/kg	7.20	--	2
C9-C10 Aromatics	132		mg/kg	7.20	--	2
C5-C8 Aliphatics, Adjusted	308		mg/kg	7.20	--	2
C9-C12 Aliphatics, Adjusted	133		mg/kg	7.20	--	2
Benzene	ND		mg/kg	0.288	--	2
Toluene	ND		mg/kg	0.288	--	2
Ethylbenzene	ND		mg/kg	0.288	--	2
p/m-Xylene	ND		mg/kg	0.288	--	2
o-Xylene	3.05		mg/kg	0.288	--	2
Methyl tert butyl ether	ND		mg/kg	0.144	--	2
Naphthalene	0.730		mg/kg	0.576	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	110		70-130
2,5-Dibromotoluene-FID	119		70-130

Project Name: ABBY REALTY TRUST **Lab Number:** L1850800

Project Number: 827.01 **Report Date:** 12/18/18

SAMPLE RESULTS

Lab ID:	L1850800-05	Date Collected:	12/07/18 14:30
Client ID:	NC-16/S5C	Date Received:	12/11/18
Sample Location:	BROADWAY & OSGOOD ST- METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/15/18 17:48		
Analyst:	MZ		
Percent Solids:	82%		
Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	8.48		mg/kg	3.94	--	1
C9-C12 Aliphatics	11.5		mg/kg	3.94	--	1
C9-C10 Aromatics	ND		mg/kg	3.94	--	1
C5-C8 Aliphatics, Adjusted	8.48		mg/kg	3.94	--	1
C9-C12 Aliphatics, Adjusted	11.5		mg/kg	3.94	--	1
Benzene	ND		mg/kg	0.158	--	1
Toluene	ND		mg/kg	0.158	--	1
Ethylbenzene	ND		mg/kg	0.158	--	1
p/m-Xylene	ND		mg/kg	0.158	--	1
o-Xylene	ND		mg/kg	0.158	--	1
Methyl tert butyl ether	ND		mg/kg	0.079	--	1
Naphthalene	ND		mg/kg	0.315	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	117		70-130
2,5-Dibromotoluene-FID	129		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 12/14/18 12:37
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-03 Batch: WG1189854-4					
C5-C8 Aliphatics	ND		mg/kg	2.50	--
C9-C12 Aliphatics	ND		mg/kg	2.50	--
C9-C10 Aromatics	ND		mg/kg	2.50	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.50	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.50	--
Benzene	ND		mg/kg	0.100	--
Toluene	ND		mg/kg	0.100	--
Ethylbenzene	ND		mg/kg	0.100	--
p/m-Xylene	ND		mg/kg	0.100	--
o-Xylene	ND		mg/kg	0.100	--
Methyl tert butyl ether	ND		mg/kg	0.050	--
Naphthalene	ND		mg/kg	0.200	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	97		70-130
2,5-Dibromotoluene-FID	107		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 12/15/18 10:34
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 04-05 Batch: WG1189874-4					
C5-C8 Aliphatics	ND		mg/kg	2.50	--
C9-C12 Aliphatics	ND		mg/kg	2.50	--
C9-C10 Aromatics	ND		mg/kg	2.50	--
C5-C8 Aliphatics, Adjusted	ND		mg/kg	2.50	--
C9-C12 Aliphatics, Adjusted	ND		mg/kg	2.50	--
Benzene	ND		mg/kg	0.100	--
Toluene	ND		mg/kg	0.100	--
Ethylbenzene	ND		mg/kg	0.100	--
p/m-Xylene	ND		mg/kg	0.100	--
o-Xylene	ND		mg/kg	0.100	--
Methyl tert butyl ether	ND		mg/kg	0.050	--
Naphthalene	ND		mg/kg	0.200	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	113		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1850800

Report Date: 12/18/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-03 Batch: WG1189854-2 WG1189854-3								
C5-C8 Aliphatics	107		105		70-130	2		25
C9-C12 Aliphatics	111		110		70-130	1		25
C9-C10 Aromatics	97		96		70-130	0		25
Benzene	93		92		70-130	1		25
Toluene	92		92		70-130	1		25
Ethylbenzene	96		95		70-130	1		25
p/m-Xylene	95		94		70-130	1		25
o-Xylene	94		93		70-130	0		25
Methyl tert butyl ether	95		92		70-130	3		25
Naphthalene	91		92		70-130	0		25
1,2,4-Trimethylbenzene	96		96		70-130	0		25
Pentane	103		100		70-130	3		25
2-Methylpentane	112		110		70-130	2		25
2,2,4-Trimethylpentane	106		104		70-130	2		25
n-Nonane	108		106		30-130	2		25
n-Decane	113		112		70-130	1		25
n-Butylcyclohexane	111		111		70-130	0		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	97		97		70-130
2,5-Dibromotoluene-FID	106		106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1850800

Report Date: 12/18/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 04-05 Batch: WG1189874-2 WG1189874-3								
C5-C8 Aliphatics	112		108		70-130	4		25
C9-C12 Aliphatics	116		112		70-130	4		25
C9-C10 Aromatics	100		96		70-130	4		25
Benzene	95		93		70-130	3		25
Toluene	95		92		70-130	3		25
Ethylbenzene	98		95		70-130	3		25
p/m-Xylene	98		95		70-130	4		25
o-Xylene	96		93		70-130	3		25
Methyl tert butyl ether	97		97		70-130	0		25
Naphthalene	99		94		70-130	5		25
1,2,4-Trimethylbenzene	100		96		70-130	4		25
Pentane	108		103		70-130	5		25
2-Methylpentane	116		112		70-130	4		25
2,2,4-Trimethylpentane	110		108		70-130	2		25
n-Nonane	113		108		30-130	5		25
n-Decane	119		116		70-130	3		25
n-Butylcyclohexane	116		113		70-130	3		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	104		98		70-130
2,5-Dibromotoluene-FID	114		107		70-130

PCBS

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-06
Client ID: P5/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN

Date Collected: 12/06/18 09:00
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 12/13/18 19:39
Analyst: AWS
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 12/12/18 05:01
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.5	--	1	A
Aroclor 1221	ND		ug/kg	38.5	--	1	A
Aroclor 1232	ND		ug/kg	38.5	--	1	A
Aroclor 1242	ND		ug/kg	38.5	--	1	A
Aroclor 1248	ND		ug/kg	38.5	--	1	A
Aroclor 1254	187		ug/kg	38.5	--	1	B
Aroclor 1260	78.5		ug/kg	38.5	--	1	A
Aroclor 1262	ND		ug/kg	38.5	--	1	A
Aroclor 1268	ND		ug/kg	38.5	--	1	A
PCBs, Total	266		ug/kg	38.5	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	85		30-150	B
Decachlorobiphenyl	80		30-150	B
2,4,5,6-Tetrachloro-m-xylene	97		30-150	A
Decachlorobiphenyl	101		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-07
Client ID: P5/S2
Sample Location: BROADWAY & OSGOOD ST- METHUEN

Date Collected: 12/06/18 09:00
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 12/13/18 19:52
Analyst: AWS
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 12/12/18 05:01
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	36.3	--	1	A
Aroclor 1221	ND		ug/kg	36.3	--	1	A
Aroclor 1232	ND		ug/kg	36.3	--	1	A
Aroclor 1242	ND		ug/kg	36.3	--	1	A
Aroclor 1248	ND		ug/kg	36.3	--	1	A
Aroclor 1254	89.3		ug/kg	36.3	--	1	A
Aroclor 1260	95.6	IP	ug/kg	36.3	--	1	A
Aroclor 1262	ND		ug/kg	36.3	--	1	A
Aroclor 1268	54.5	P	ug/kg	36.3	--	1	A
PCBs, Total	239		ug/kg	36.3	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	83		30-150	B
Decachlorobiphenyl	103		30-150	B
2,4,5,6-Tetrachloro-m-xylene	90		30-150	A
Decachlorobiphenyl	107		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-08
Client ID: P6/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN

Date Collected: 12/06/18 10:00
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 12/13/18 20:04
Analyst: AWS
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 12/12/18 05:01
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	40.9	--	1	A
Aroclor 1221	ND		ug/kg	40.9	--	1	A
Aroclor 1232	ND		ug/kg	40.9	--	1	A
Aroclor 1242	ND		ug/kg	40.9	--	1	A
Aroclor 1248	ND		ug/kg	40.9	--	1	A
Aroclor 1254	117		ug/kg	40.9	--	1	A
Aroclor 1260	69.9		ug/kg	40.9	--	1	A
Aroclor 1262	ND		ug/kg	40.9	--	1	A
Aroclor 1268	ND		ug/kg	40.9	--	1	A
PCBs, Total	187		ug/kg	40.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	66		30-150	B
2,4,5,6-Tetrachloro-m-xylene	92		30-150	A
Decachlorobiphenyl	93		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-09
Client ID: P7/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Date Collected: 12/06/18 10:15
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 12/13/18 20:16
Analyst: AWS
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 12/12/18 05:01
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.9	--	1	A
Aroclor 1221	ND		ug/kg	38.9	--	1	A
Aroclor 1232	ND		ug/kg	38.9	--	1	A
Aroclor 1242	ND		ug/kg	38.9	--	1	A
Aroclor 1248	ND		ug/kg	38.9	--	1	A
Aroclor 1254	ND		ug/kg	38.9	--	1	A
Aroclor 1260	ND		ug/kg	38.9	--	1	A
Aroclor 1262	ND		ug/kg	38.9	--	1	A
Aroclor 1268	ND		ug/kg	38.9	--	1	A
PCBs, Total	ND		ug/kg	38.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	87		30-150	B
Decachlorobiphenyl	82		30-150	B
2,4,5,6-Tetrachloro-m-xylene	96		30-150	A
Decachlorobiphenyl	108		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-10
Client ID: P8/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Date Collected: 12/06/18 10:30
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 12/13/18 20:29
Analyst: AWS
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 12/12/18 05:01
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	41.0	--	1	A
Aroclor 1221	ND		ug/kg	41.0	--	1	A
Aroclor 1232	ND		ug/kg	41.0	--	1	A
Aroclor 1242	ND		ug/kg	41.0	--	1	A
Aroclor 1248	ND		ug/kg	41.0	--	1	A
Aroclor 1254	ND		ug/kg	41.0	--	1	A
Aroclor 1260	ND		ug/kg	41.0	--	1	A
Aroclor 1262	ND		ug/kg	41.0	--	1	A
Aroclor 1268	ND		ug/kg	41.0	--	1	A
PCBs, Total	ND		ug/kg	41.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	95		30-150	B
Decachlorobiphenyl	60		30-150	B
2,4,5,6-Tetrachloro-m-xylene	106		30-150	A
Decachlorobiphenyl	89		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-11
Client ID: P9/S2
Sample Location: BROADWAY & OSGOOD ST- METHUEN

Date Collected: 12/06/18 10:45
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 12/13/18 20:41
Analyst: AWS
Percent Solids: 91%

Extraction Method: EPA 3546
Extraction Date: 12/12/18 05:01
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.9	--	1	A
Aroclor 1221	ND		ug/kg	35.9	--	1	A
Aroclor 1232	ND		ug/kg	35.9	--	1	A
Aroclor 1242	ND		ug/kg	35.9	--	1	A
Aroclor 1248	ND		ug/kg	35.9	--	1	A
Aroclor 1254	ND		ug/kg	35.9	--	1	A
Aroclor 1260	ND		ug/kg	35.9	--	1	B
Aroclor 1262	ND		ug/kg	35.9	--	1	A
Aroclor 1268	ND		ug/kg	35.9	--	1	A
PCBs, Total	ND		ug/kg	35.9	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	94		30-150	B
Decachlorobiphenyl	88		30-150	B
2,4,5,6-Tetrachloro-m-xylene	89		30-150	A
Decachlorobiphenyl	109		30-150	A

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1850800
Report Date: 12/18/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 12/14/18 13:17
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 12/11/18 13:50
Cleanup Method: EPA 3665A
Cleanup Date: 12/12/18
Cleanup Method: EPA 3660B
Cleanup Date: 12/12/18

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 06-11 Batch: WG1188057-1						
Aroclor 1016	ND		ug/kg	31.9	--	A
Aroclor 1221	ND		ug/kg	31.9	--	A
Aroclor 1232	ND		ug/kg	31.9	--	A
Aroclor 1242	ND		ug/kg	31.9	--	A
Aroclor 1248	ND		ug/kg	31.9	--	A
Aroclor 1254	ND		ug/kg	31.9	--	A
Aroclor 1260	ND		ug/kg	31.9	--	A
Aroclor 1262	ND		ug/kg	31.9	--	A
Aroclor 1268	ND		ug/kg	31.9	--	A
PCBs, Total	ND		ug/kg	31.9	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	104		30-150	B
Decachlorobiphenyl	98		30-150	B
2,4,5,6-Tetrachloro-m-xylene	92		30-150	A
Decachlorobiphenyl	83		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1850800

Report Date: 12/18/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 06-11 Batch: WG1188057-2 WG1188057-3									
Aroclor 1016	67		72		40-140	7		30	A
Aroclor 1260	49		55		40-140	12		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76		81		30-150	B
Decachlorobiphenyl	61		68		30-150	B
2,4,5,6-Tetrachloro-m-xylene	73		79		30-150	A
Decachlorobiphenyl	53		60		30-150	A

METALS

Project Name: ABBY REALTY TRUST
Lab Number: L1850800
Project Number: 827.01
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-04
Client ID: NC-16/S4
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Date Collected: 12/07/18 14:00
Date Received: 12/11/18
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab											
Lead, Total	6.61		mg/kg	2.24	--	1	12/17/18 11:50	12/18/18 00:42	EPA 3050B	97,6010D	MC

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Mansfield Lab for sample(s): 04 Batch: WG1190244-1										
Lead, Total	ND		mg/kg	2.00	--	1	12/17/18 11:50	12/18/18 00:22	97,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1850800

Report Date: 12/18/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 04 Batch: WG1190244-2 WG1190244-3 SRM Lot Number: D102-540								
Lead, Total	85		88		82-118	3		30

Matrix Spike Analysis
Batch Quality Control

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1850800
Report Date: 12/18/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1190244-4 QC Sample: L1850800-04 Client ID: NC-16/S4												
Lead, Total	6.61	45.3	39.7	**73**	Q	-	-		75-125	-		35

INORGANICS
&
MISCELLANEOUS

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-01
Client ID: NC-13/S3A
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 09:30
Date Received: 12/11/18
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	85.5		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-02
Client ID: NC-14/S4
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 13:00
Date Received: 12/11/18
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	87.0		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-03
Client ID: NC-14/S5
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 13:30
Date Received: 12/11/18
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	83.2		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-04
Client ID: NC-16/S4
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/07/18 14:00
Date Received: 12/11/18
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	87.6		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-05
Client ID: NC-16/S5C
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/07/18 14:30
Date Received: 12/11/18
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	82.2		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-06
Client ID: P5/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 09:00
Date Received: 12/11/18
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	85.0		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-07
Client ID: P5/S2
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 09:00
Date Received: 12/11/18
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	90.6		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-08
Client ID: P6/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 10:00
Date Received: 12/11/18
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	80.6		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-09
Client ID: P7/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 10:15
Date Received: 12/11/18
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	83.0		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-10
Client ID: P8/S1
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 10:30
Date Received: 12/11/18
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	79.6		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1850800
Report Date: 12/18/18

SAMPLE RESULTS

Lab ID: L1850800-11
Client ID: P9/S2
Sample Location: BROADWAY & OSGOOD ST- METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 12/06/18 10:45
Date Received: 12/11/18
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	90.6		%	0.100	NA	1	-	12/14/18 16:01	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1850800

Report Date: 12/18/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-11 QC Batch ID: WG1189574-1 QC Sample: L1850800-01 Client ID: NC-13/S3A						
Solids, Total	85.5	87.2	%	2		20

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1850800
Report Date: 12/18/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1850800-01A	Vial MeOH preserved	A	NA		3.1	Y	Absent		VPH-DELUX-18(28)
L1850800-01B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		TS(7)
L1850800-02A	Vial MeOH preserved	A	NA		3.1	Y	Absent		VPH-DELUX-18(28)
L1850800-02B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		TS(7)
L1850800-03A	Vial MeOH preserved	A	NA		3.1	Y	Absent		VPH-DELUX-18(28)
L1850800-03B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		TS(7)
L1850800-04A	Vial MeOH preserved	A	NA		3.1	Y	Absent		VPH-DELUX-18(28)
L1850800-04B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		TS(7),MCP-PB-6010T-10(180)
L1850800-05A	Vial MeOH preserved	A	NA		3.1	Y	Absent		VPH-DELUX-18(28)
L1850800-05B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		TS(7)
L1850800-06B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		MCP-8082-10(365),TS(7)
L1850800-07B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		MCP-8082-10(365),TS(7)
L1850800-08B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		MCP-8082-10(365),TS(7)
L1850800-09B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		MCP-8082-10(365),TS(7)
L1850800-10B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		MCP-8082-10(365),TS(7)
L1850800-11B	Glass 250ml/8oz unpreserved	A	NA		3.1	Y	Absent		MCP-8082-10(365),TS(7)

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1850800
Project Number:	827.01	**Report Date:**	12/18/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1850800
Project Number:	827.01	**Report Date:**	12/18/18

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.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1850800
Project Number:	827.01	**Report Date:**	12/18/18

REFERENCES

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.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/11/18

ALPHA Job #: L1850800

Client Information
Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information
Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time
☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables
☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information
☐ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program MASS/MCP Criteria METHOD 1 S1 GW2/GW3

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☑ Yes ☐ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	LEAD	VPH w TARGETS	MATRIX SPIKE	TOTAL SOLIDS	PCBs	Sample Specific Comments	TOTAL # BOTTLES
50800-01	NC-13/S3A	12/06/18	9:30	S	CA		✓		✓		15-16	2
02	NC-14/S4	12/06/18	13:00	S	CA		✓		✓		21-21.8	2
03	NC-14/S5	12/06/18	13:30	S	CA		✓		✓		22-22.2	2
04	NC-16/S4	12/07/18	14:00	S	CA	✓	✓	✓			23.5-25.5	2
05	NC-16/S5C	12/07/18	14:30	S	CA		✓		✓		26.3-26.7	2
06	P5/S1	12/06/18	9:00	S	CA					✓	0-2	
07	P5/S2	12/06/18	9:00	S	CA					✓	2-4	
08	P6/S1	12/06/18	10:00	S	CA					✓	0-2	
09	P7/S1	12/06/18	10:15	S	CA					✓	0-2	
10	P8/S1	12/06/18	10:30	S	CA					✓	0-2	
	Container Type					G	V	G	G	G		
	Preservative					A	F	A	A	A		

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/11/18		12/11/18 1310
	12/11/18 1517	Rich Gelbeau	12/11/18 1517

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 12/11/18

ALPHA Job #: L1850800

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria METHOD 1 S1 GW2/GW3

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCBs	Sample Specific Comments	TOTAL # BOTTLES
50800-01	P9/S2	12/6/18	10:45	S	CA	✓	2-4	1

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type									G					
Preservative									A					

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/11/18	AMC	12/11/18 1310
	12/11/18 1517	Chris Tebeau	12/11/18 1517

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 16-Jan-2010)

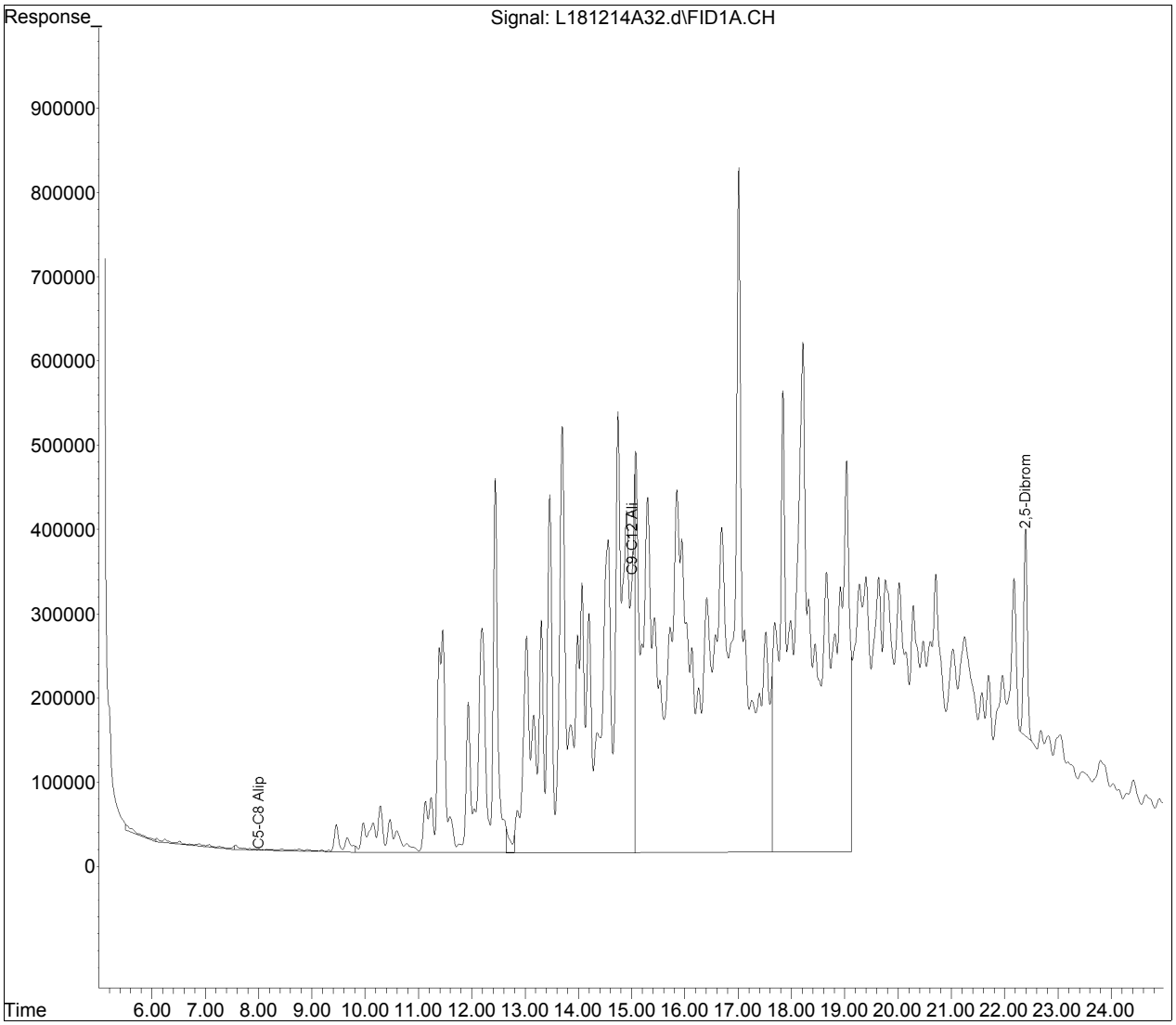
Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES_GC\LVPH\2018\181214ASali\
Data File : L181214A32.d
Signal(s) : FID1A.CH
Acq On : 15 Dec 2018 12:59 am
Operator : LVPH:MZ
Sample : l1850800-01,41,15,14.92,0.100,,a
Misc : WG1189854,ICAL14892,VPH-75
ALS Vial : 32 Sample Multiplier: 1

Integration File: autoint1.e
Quant Time: Dec 15 10:55:57 2018
Quant Method : I:\VOLATILES_GC\LVPH\2018\181214ASali\svph-ali180712N.m
Quant Title : VPH ALIPHATIC
QLast Update : Tue Jul 17 11:13:25 2018
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. :
Signal Phase :
Signal Info :

Sub List : Default - All compounds listed



ANALYTICAL REPORT

Lab Number:	L1852056
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	12/27/18

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1852056
Report Date: 12/27/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1852056-01	NC-12	WATER	BROADWAY & OSGOOD ST-METHUEN	12/17/18 12:55	12/18/18
L1852056-02	NC-13	WATER	BROADWAY & OSGOOD ST-METHUEN	12/17/18 12:05	12/18/18
L1852056-03	NC-14	WATER	BROADWAY & OSGOOD ST-METHUEN	12/17/18 13:10	12/18/18
L1852056-04	NC-16	WATER	BROADWAY & OSGOOD ST-METHUEN	12/17/18 13:20	12/18/18

Project Name: ABBY REALTY TRUST **Lab Number:** L1852056

Project Number: 827.01 **Report Date:** 12/27/18

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)?	YES

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: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1852056
Report Date: 12/27/18

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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:	ABBY REALTY TRUST	**Lab Number:**	L1852056
Project Number:	827.01	**Report Date:**	12/27/18

Case Narrative (continued)

MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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: 12/27/18

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: ABBY REALTY TRUST
Lab Number: L1852056
Project Number: 827.01
Report Date: 12/27/18

SAMPLE RESULTS

Lab ID:	L1852056-01	Date Collected:	12/17/18 12:55
Client ID:	NC-12	Date Received:	12/18/18
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/21/18 16:40		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	58.7		ug/l	50.0	--	1
C9-C10 Aromatics	51.0		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	99		70-130
2,5-Dibromotoluene-FID	99		70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1852056
Project Number: 827.01
Report Date: 12/27/18

SAMPLE RESULTS

Lab ID:	L1852056-02	Date Collected:	12/17/18 12:05
Client ID:	NC-13	Date Received:	12/18/18
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/21/18 17:20		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	98		70-130
2,5-Dibromotoluene-FID	98		70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1852056
Project Number: 827.01
Report Date: 12/27/18

SAMPLE RESULTS

Lab ID:	L1852056-03	Date Collected:	12/17/18 13:10
Client ID:	NC-14	Date Received:	12/18/18
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/21/18 18:00		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	101		ug/l	50.0	--	1
C9-C12 Aliphatics	289		ug/l	50.0	--	1
C9-C10 Aromatics	252		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	101		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	4.58		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	101		70-130
2,5-Dibromotoluene-FID	100		70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1852056
Project Number: 827.01
Report Date: 12/27/18

SAMPLE RESULTS

Lab ID:	L1852056-04	Date Collected:	12/17/18 13:20
Client ID:	NC-16	Date Received:	12/18/18
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	12/21/18 18:40		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	873		ug/l	50.0	--	1
C9-C12 Aliphatics	1070		ug/l	50.0	--	1
C9-C10 Aromatics	876		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	873		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	184		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	4.63		ug/l	2.00	--	1
p/m-Xylene	7.00		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	4.96		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	102		70-130
2,5-Dibromotoluene-FID	101		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1852056
Report Date: 12/27/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 12/21/18 09:57
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-04 Batch: WG1192377-4					
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	108		70-130
2,5-Dibromotoluene-FID	110		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1852056

Report Date: 12/27/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-04 Batch: WG1192377-2 WG1192377-3								
C5-C8 Aliphatics	112		108		70-130	4		25
C9-C12 Aliphatics	107		105		70-130	2		25
C9-C10 Aromatics	109		106		70-130	3		25
Benzene	110		106		70-130	4		25
Toluene	97		94		70-130	4		25
Ethylbenzene	112		108		70-130	4		25
p/m-Xylene	112		108		70-130	4		25
o-Xylene	111		108		70-130	3		25
Methyl tert butyl ether	109		106		70-130	3		25
Naphthalene	111		110		70-130	1		25
1,2,4-Trimethylbenzene	109		106		70-130	3		25
Pentane	116		112		70-130	4		25
2-Methylpentane	113		109		70-130	4		25
2,2,4-Trimethylpentane	114		110		70-130	4		25
n-Nonane	106		103		30-130	3		25
n-Decane	111		109		70-130	2		25
n-Butylcyclohexane	105		103		70-130	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	116		112		70-130
2,5-Dibromotoluene-FID	114		112		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1852056
Report Date: 12/27/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1852056-01A	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-01B	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-01C	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-02A	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-02B	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-02C	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-03A	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-03B	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-03C	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-04A	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-04B	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)
L1852056-04C	Vial HCl preserved	A	NA		5.4	Y	Absent		VPH-DELUX-18(14)

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1852056
Project Number:	827.01	**Report Date:**	12/27/18

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1852056
Project Number:	827.01	**Report Date:**	12/27/18

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.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1852056
Project Number:	827.01	**Report Date:**	12/27/18

REFERENCES

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd In Lab: 12/18/18

ALPHA Job #: L1852056

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria RC-GW2

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VPH w TARGETS	Sample Specific Comments	TOTAL # BOTTLES
52056 - 01	NC-12	12/17/18	12:55	GW	CA	✓		3
02	NC-13	12/17/18	12:05	GW	CA	✓		3
03	NC-14	12/17/18	13:10	GW	CA	✓		3
04	NC-16	12/17/18	13:20	GW	CA	✓		3

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type			G		V		G	G	G			
Preservative			A		F		A	A	A			

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/18/18 12/18/18 1640		12/18/18 1255 12/18/18 1640

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 16-Jan-2010)

ANALYTICAL REPORT

Lab Number:	L1902452
Client:	Nangle Consulting Associates 45 Dan Road Suite 115 Canton, MA 02021
ATTN:	Chuck Altobello
Phone:	(781) 821-0521
Project Name:	ABBY REALTY TRUST
Project Number:	827.01
Report Date:	01/25/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1902452
Report Date: 01/25/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1902452-01	NC-14	WATER	BROADWAY & OSGOOD ST-METHUEN	01/17/19 12:00	01/18/19
L1902452-02	NC-16	WATER	BROADWAY & OSGOOD ST-METHUEN	01/17/19 12:20	01/18/19
L1902452-03	COMP:S3&S5	SOIL	BROADWAY & OSGOOD ST-METHUEN	01/17/19 14:00	01/18/19
L1902452-04	S2	SOIL	BROADWAY & OSGOOD ST-METHUEN	01/17/19 13:45	01/18/19
L1902452-05	S4	SOIL	BROADWAY & OSGOOD ST-METHUEN	01/17/19 14:10	01/18/19
L1902452-06	S6	SOIL	BROADWAY & OSGOOD ST-METHUEN	01/17/19 14:15	01/18/19

Project Name: ABBY REALTY TRUST **Lab Number:** L1902452

Project Number: 827.01 **Report Date:** 01/25/19

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)?	YES

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:	ABBY REALTY TRUST	**Lab Number:**	L1902452
Project Number:	827.01	**Report Date:**	01/25/19

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1902452
Project Number:	827.01	**Report Date:**	01/25/19

Case Narrative (continued)

MCP Related Narratives

Report Submission

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

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: Melissa Cripps

Title: Technical Director/Representative Date: 01/25/19

QC OUTLIER SUMMARY REPORT

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1902452
Report Date: 01/25/19

Method	Client ID (Native ID)	Lab ID	Parameter	QC Type	Recovery/RPD (%)	QC Limits (%)	Associated Samples	Data Quality Assessment

ORGANICS

PETROLEUM HYDROCARBONS

Project Name: ABBY REALTY TRUST
Lab Number: L1902452
Project Number: 827.01
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID:	L1902452-01	Date Collected:	01/17/19 12:00
Client ID:	NC-14	Date Received:	01/18/19
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	01/23/19 18:52		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	133		ug/l	50.0	--	1
C9-C12 Aliphatics	480		ug/l	50.0	--	1
C9-C10 Aromatics	389		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	133		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	83.1		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	3.52		ug/l	2.00	--	1
p/m-Xylene	5.10		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	91		70-130
2,5-Dibromotoluene-FID	93		70-130

Project Name: ABBY REALTY TRUST
Lab Number: L1902452
Project Number: 827.01
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID:	L1902452-02	Date Collected:	01/17/19 12:20
Client ID:	NC-16	Date Received:	01/18/19
Sample Location:	BROADWAY & OSGOOD ST-METHUEN	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		
Analytical Method:	131,VPH-18-2.1		
Analytical Date:	01/23/19 19:33		
Analyst:	MZ		

Trap:	EST, Carbopack B/Carboxen 1000&1001	Analytical Column:	Restek, RTX-502.2, 105m, 0.53ID, 3um

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	665		ug/l	50.0	--	1
C9-C12 Aliphatics	901		ug/l	50.0	--	1
C9-C10 Aromatics	711		ug/l	50.0	--	1
C5-C8 Aliphatics, Adjusted	665		ug/l	50.0	--	1
C9-C12 Aliphatics, Adjusted	181		ug/l	50.0	--	1
Benzene	ND		ug/l	2.00	--	1
Toluene	ND		ug/l	2.00	--	1
Ethylbenzene	4.32		ug/l	2.00	--	1
p/m-Xylene	5.38		ug/l	2.00	--	1
o-Xylene	ND		ug/l	2.00	--	1
Methyl tert butyl ether	ND		ug/l	3.00	--	1
Naphthalene	4.18		ug/l	4.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,5-Dibromotoluene-PID	93		70-130
2,5-Dibromotoluene-FID	94		70-130

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1902452
Report Date: 01/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 131,VPH-18-2.1
Analytical Date: 01/23/19 10:49
Analyst: MZ

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-02 Batch: WG1200569-4					
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	100		70-130
2,5-Dibromotoluene-FID	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1902452
Report Date: 01/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-02 Batch: WG1200569-2 WG1200569-3								
C5-C8 Aliphatics	106		108		70-130	2		25
C9-C12 Aliphatics	107		110		70-130	3		25
C9-C10 Aromatics	105		108		70-130	3		25
Benzene	105		107		70-130	2		25
Toluene	106		109		70-130	3		25
Ethylbenzene	109		112		70-130	3		25
p/m-Xylene	108		110		70-130	2		25
o-Xylene	106		108		70-130	2		25
Methyl tert butyl ether	103		102		70-130	1		25
Naphthalene	102		101		70-130	1		25
1,2,4-Trimethylbenzene	105		108		70-130	3		25
Pentane	106		106		70-130	0		25
2-Methylpentane	109		111		70-130	2		25
2,2,4-Trimethylpentane	108		110		70-130	2		25
n-Nonane	107		110		30-130	3		25
n-Decane	112		115		70-130	3		25
n-Butylcyclohexane	104		106		70-130	2		25

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,5-Dibromotoluene-PID	109		111		70-130
2,5-Dibromotoluene-FID	111		113		70-130

PCBS

Project Name: ABBY REALTY TRUST
Lab Number: L1902452
Project Number: 827.01
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-03
Client ID: COMP:S3&S5
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 01/17/19 14:00
Date Received: 01/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 01/24/19 13:47
Analyst: HT
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 01/21/19 23:00
Cleanup Method: EPA 3665A
Cleanup Date: 01/22/19
Cleanup Method: EPA 3660B
Cleanup Date: 01/23/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	38.1	--	1	A
Aroclor 1221	ND		ug/kg	38.1	--	1	A
Aroclor 1232	ND		ug/kg	38.1	--	1	A
Aroclor 1242	ND		ug/kg	38.1	--	1	A
Aroclor 1248	ND		ug/kg	38.1	--	1	A
Aroclor 1254	66.3		ug/kg	38.1	--	1	B
Aroclor 1260	39.1		ug/kg	38.1	--	1	A
Aroclor 1262	ND		ug/kg	38.1	--	1	A
Aroclor 1268	ND		ug/kg	38.1	--	1	A
PCBs, Total	105		ug/kg	38.1	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	71		30-150	B
2,4,5,6-Tetrachloro-m-xylene	59		30-150	A
Decachlorobiphenyl	63		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1902452
Project Number: 827.01
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-04
Client ID: S2
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 01/17/19 13:45
Date Received: 01/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 01/24/19 14:00
Analyst: HT
Percent Solids: 89%

Extraction Method: EPA 3546
Extraction Date: 01/21/19 23:00
Cleanup Method: EPA 3665A
Cleanup Date: 01/22/19
Cleanup Method: EPA 3660B
Cleanup Date: 01/23/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.7	--	1	A
Aroclor 1221	ND		ug/kg	35.7	--	1	A
Aroclor 1232	ND		ug/kg	35.7	--	1	A
Aroclor 1242	ND		ug/kg	35.7	--	1	A
Aroclor 1248	ND		ug/kg	35.7	--	1	A
Aroclor 1254	ND		ug/kg	35.7	--	1	B
Aroclor 1260	ND		ug/kg	35.7	--	1	A
Aroclor 1262	ND		ug/kg	35.7	--	1	A
Aroclor 1268	ND		ug/kg	35.7	--	1	A
PCBs, Total	ND		ug/kg	35.7	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	66		30-150	B
Decachlorobiphenyl	76		30-150	B
2,4,5,6-Tetrachloro-m-xylene	60		30-150	A
Decachlorobiphenyl	68		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1902452
Project Number: 827.01
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-05
Client ID: S4
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 01/17/19 14:10
Date Received: 01/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 01/24/19 14:13
Analyst: HT
Percent Solids: 90%

Extraction Method: EPA 3546
Extraction Date: 01/21/19 23:00
Cleanup Method: EPA 3665A
Cleanup Date: 01/22/19
Cleanup Method: EPA 3660B
Cleanup Date: 01/23/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	35.3	--	1	A
Aroclor 1221	ND		ug/kg	35.3	--	1	A
Aroclor 1232	ND		ug/kg	35.3	--	1	A
Aroclor 1242	ND		ug/kg	35.3	--	1	A
Aroclor 1248	ND		ug/kg	35.3	--	1	A
Aroclor 1254	56.3		ug/kg	35.3	--	1	B
Aroclor 1260	ND		ug/kg	35.3	--	1	B
Aroclor 1262	ND		ug/kg	35.3	--	1	A
Aroclor 1268	ND		ug/kg	35.3	--	1	A
PCBs, Total	56.3		ug/kg	35.3	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		30-150	B
Decachlorobiphenyl	72		30-150	B
2,4,5,6-Tetrachloro-m-xylene	57		30-150	A
Decachlorobiphenyl	63		30-150	A

Project Name: ABBY REALTY TRUST
Lab Number: L1902452
Project Number: 827.01
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-06
Client ID: S6
Sample Location: BROADWAY & OSGOOD ST-METHUEN

Date Collected: 01/17/19 14:15
Date Received: 01/18/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 97,8082A
Analytical Date: 01/24/19 14:26
Analyst: HT
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 01/21/19 23:00
Cleanup Method: EPA 3665A
Cleanup Date: 01/22/19
Cleanup Method: EPA 3660B
Cleanup Date: 01/23/19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	39.7	--	1	A
Aroclor 1221	ND		ug/kg	39.7	--	1	A
Aroclor 1232	ND		ug/kg	39.7	--	1	A
Aroclor 1242	ND		ug/kg	39.7	--	1	A
Aroclor 1248	ND		ug/kg	39.7	--	1	A
Aroclor 1254	263		ug/kg	39.7	--	1	B
Aroclor 1260	96.5		ug/kg	39.7	--	1	B
Aroclor 1262	ND		ug/kg	39.7	--	1	A
Aroclor 1268	ND		ug/kg	39.7	--	1	A
PCBs, Total	360		ug/kg	39.7	--	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	65		30-150	B
Decachlorobiphenyl	75		30-150	B
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	62		30-150	A

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1902452
Report Date: 01/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 01/22/19 17:20
Analyst: KEG

Extraction Method: EPA 3546
Extraction Date: 01/21/19 00:04
Cleanup Method: EPA 3665A
Cleanup Date: 01/21/19
Cleanup Method: EPA 3660B
Cleanup Date: 01/21/19

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 03-06 Batch: WG1199333-1						
Aroclor 1016	ND		ug/kg	33.1	--	A
Aroclor 1221	ND		ug/kg	33.1	--	A
Aroclor 1232	ND		ug/kg	33.1	--	A
Aroclor 1242	ND		ug/kg	33.1	--	A
Aroclor 1248	ND		ug/kg	33.1	--	A
Aroclor 1254	ND		ug/kg	33.1	--	A
Aroclor 1260	ND		ug/kg	33.1	--	A
Aroclor 1262	ND		ug/kg	33.1	--	A
Aroclor 1268	ND		ug/kg	33.1	--	A
PCBs, Total	ND		ug/kg	33.1	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	84		30-150	B
Decachlorobiphenyl	55		30-150	B
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	66		30-150	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ABBY REALTY TRUST

Project Number: 827.01

Lab Number: L1902452

Report Date: 01/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 03-06 Batch: WG1199333-2 WG1199333-3									
Aroclor 1016	97		97		40-140	0		30	A
Aroclor 1260	87		88		40-140	1		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	86		84		30-150	B
Decachlorobiphenyl	57		53		30-150	B
2,4,5,6-Tetrachloro-m-xylene	88		88		30-150	A
Decachlorobiphenyl	65		63		30-150	A

INORGANICS
&
MISCELLANEOUS

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1902452
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-03
Client ID: COMP:S3&S5
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 01/17/19 14:00
Date Received: 01/18/19
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	85.4		%	0.100	NA	1	-	01/21/19 09:28	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1902452
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-04
Client ID: S2
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 01/17/19 13:45
Date Received: 01/18/19
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	88.9		%	0.100	NA	1	-	01/21/19 09:28	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1902452
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-05
Client ID: S4
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 01/17/19 14:10
Date Received: 01/18/19
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	89.6		%	0.100	NA	1	-	01/21/19 09:28	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01
Lab Number: L1902452
Report Date: 01/25/19

SAMPLE RESULTS

Lab ID: L1902452-06
Client ID: S6
Sample Location: BROADWAY & OSGOOD ST-METHUEN
Sample Depth:
Matrix: Soil

Date Collected: 01/17/19 14:15
Date Received: 01/18/19
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	81.6		%	0.100	NA	1	-	01/21/19 09:28	121,2540G	JK

Project Name: ABBY REALTY TRUST
Project Number: 827.01

Lab Number: L1902452
Report Date: 01/25/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1902452-01A	Vial HCl preserved	A	NA		3.4	Y	Absent		VPH-DELUX-18(14)
L1902452-01B	Vial HCl preserved	A	NA		3.4	Y	Absent		VPH-DELUX-18(14)
L1902452-01C	Vial HCl preserved	A	NA		3.4	Y	Absent		VPH-DELUX-18(14)
L1902452-02A	Vial HCl preserved	A	NA		3.4	Y	Absent		VPH-DELUX-18(14)
L1902452-02B	Vial HCl preserved	A	NA		3.4	Y	Absent		VPH-DELUX-18(14)
L1902452-02C	Vial HCl preserved	A	NA		3.4	Y	Absent		VPH-DELUX-18(14)
L1902452-03A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		MCP-8082-10(365),TS(7)
L1902452-04A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		MCP-8082-10(365),TS(7)
L1902452-05A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		MCP-8082-10(365),TS(7)
L1902452-06A	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		MCP-8082-10(365),TS(7)

*Values in parentheses indicate holding time in days

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1902452
Project Number:	827.01	**Report Date:**	01/25/19

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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

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.

Report Format: Data Usability Report

Project Name:	ABBY REALTY TRUST	**Lab Number:**	L1902452
Project Number:	827.01	**Report Date:**	01/25/19

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.

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.

Report Format: Data Usability Report

REFERENCES

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.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

131 Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MassDEP, February 2018, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of VPH under the Massachusetts Contingency Plan, WSC-CAM-IVA, June 1, 2018.

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

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

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
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.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, 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, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

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

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 1/18/19

ALPHA Job #: L1902452

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Nangle Consulting Assoc. (NCA)
Address: 45 Dan Road - Suite 115
Canton, Massachusetts
Phone: 781-821-0521
Fax: 781-821-4182
Email: Nangle@ncaenv.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Abby Realty Trust
Project Location: Broadway & Osgood St-Methuen
Project #: 827.01
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MASS/MCP Criteria METHOD 1 GW1/GW2/GW3

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All **CAM** methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VPH w TARGETS	PCBs	Sample Specific Comments	TOTAL # BOTTLES
02452-01	NC-14	1/17/19	12:00	GW	CA	✓			3
02	NC-16	1/17/19	12:20	GW	CA	✓			3
03	COMP:S3&S5	1/17/19	14:00	S	CA		✓		1
04	S2	1/17/19	13:45	S	CA		✓		1
05	S4	1/17/19	14:10	S	CA		✓		1
06	S6	1/17/19	14:15	S	CA		✓		1

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	V	G	
Preservative	B	A	

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 1-18-19	1/18/2019 1520	[signature] 1-18-19 1222	1/18/19 1500

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

NANGLE CONSULTING ASSOCIATES, INC

APPENDIX H

Environmental Engineering and Land Use Planning

960 Turnpike Street, Canton, MA 02021 Telephone (781) 821-0521 email: nangle@ncaenv.com Facsimile (781) 821-4182

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
One Winter Street Boston, MA 02108 • 617-292-5500

DEVAL L. PATRICK
Governor

MAEVE VALLELY BARTLETT
Secretary

DAVID W. CASH
Commissioner

BEST MANAGEMENT PRACTICES ("BMPS") FOR NON-COMMERCIAL GARDENING AT DISPOSAL SITES

WSC # 14-910

This document provides guidance on the use of Best Management Practices or "BMPs" for gardening at locations within the boundary of a disposal site cleaned up pursuant to the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.

This document is intended solely as guidance. It is not a regulation, rule or requirement, and should not be construed as mandatory. It does not create any substantive or procedural rights, and is not enforceable by any party in any administrative proceeding with the Commonwealth. This document provides guidance on approaches the Massachusetts Department of Environmental Protection (MassDEP) considers acceptable for meeting requirements set forth in the MCP. Parties using this guidance should be aware that other acceptable alternatives may be available for achieving and documenting compliance with the applicable regulatory requirements and performance standards of the MCP.

Benjamin J. Ericson
Assistant Commissioner

12/31/14

1.0 Introduction: Why Should Gardening Best Management Practices Be Used?

It is not uncommon for properties in Massachusetts to have measurable levels – usually low levels – of contaminants such as lead or petroleum hydrocarbons in soil. These contaminants may be present from natural sources or as a result of human activities on or around the property. Some contamination may require cleanup based on the standards published by the Massachusetts Department of Environmental Protection (MassDEP) in 310 CMR 40.0000, the Massachusetts Contingency Plan (MCP), although even properties that have been cleaned up under the MCP will likely have measurable residual levels of some contaminants remaining in the soil. Such residual levels are safe and protective when they meet the cleanup requirements.

MassDEP recognizes that in a residential setting, yards and gardens are areas where people are most likely to have increased direct and indirect contact with soils, and that many gardeners may wish to further reduce their exposure to even residual contaminants in soil. Therefore MassDEP has developed recommendations for practical techniques, or Best Management Practices ("BMPs"), for non-commercial gardening in areas that may still contain residual levels of contaminants. These BMPs are consistent with national guidance on urban gardening and reflect a consensus among gardening experts on measures that effectively reduce exposure to common contaminants that may occur through non-commercial gardening. They work by isolating the garden from any contamination remaining in the soil below through the use of impermeable barriers and/or raised garden beds, and other relatively simple, common sense measures.

In all cases, the *use* of the recommended BMPs is optional. The *inclusion* of BMPs and a recommendation for their use in an MCP Permanent Solution Statement that documents the disposal site assessment and cleanup is required in specific circumstances, however, to inform current and future occupants of a property of practical methods to further reduce exposure to residual soil contaminants during gardening.

2.0 Purpose

The purpose of this guidance is to support Potentially Responsible Parties and Licensed Site Professionals in preparing those Permanent Solution Statements that, pursuant to 310 CMR 1056(2)(j)1 and based on a Method 3 risk characterization, require inclusion of "the recommendation and description of Best Management Practices for Non-commercial Gardening in a residential setting to minimize and control potential risk qualitatively evaluated pursuant to 310 CMR 40.0923(3)(c)." More generally, beyond the

required recommendation for BMPs under the MCP, MassDEP encourages the optional use these gardening BMPs or similar measures by gardeners in residential settings who wish to reduce their potential exposure to soil contaminants.

3.0 Scope and Applicability

The following provisions are relevant to including the recommendation of gardening BMPs in a Permanent Solution Statement as part of a Permanent Solution with Conditions:

- 310 CMR 40.0006(12) (definition of Best Management Practices for Non-commercial Gardening)
- 310 CMR 40.1056(2)(j)1 (Content of Permanent Solution Statements);
- 310 CMR 40.1041(2)(c)2 (Categories of Permanent Solutions);
- 310 CMR 40.40.1013 (Limitations, Assumptions and Conditions on Site Activities and Uses That Do Not Require an AUL); and
- 310 CMR 40.0923(3)(c) (Identification of Site Activity and Uses).

The MCP defines gardening BMPs as follows:

> Best Management Practices for Non-commercial Gardening means current practices generally accepted by practitioners of safe gardening methods that limit potential human exposure to OHM during gardening activities and as the result of consumption of fruits and vegetables grown in a non-commercial garden. Such practices include, but are not limited to: locating garden beds outside of areas affected by releases of OHM; gardening in raised beds above a barrier layer; use of soil and soil amendments unaffected by releases of OHM in garden beds; and covering adjacent areas to limit the transfer of OHM from windborne material into garden beds.

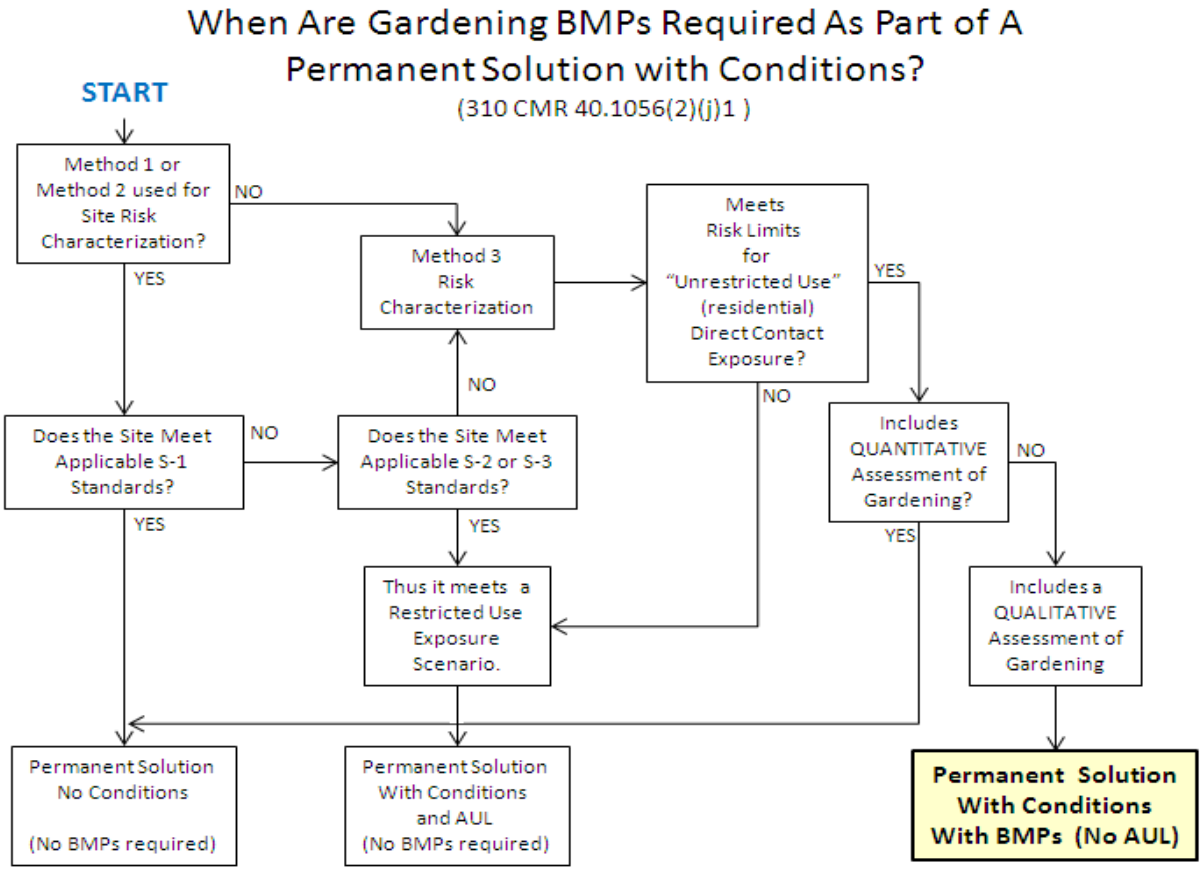
As required at 310 CMR 40.1056(2)(j)1, where applicable to disposal sites evaluated using a Method 3 Risk Characterization, "the recommendation and description of Best Management Practices for Non-commercial Gardening in a residential setting to minimize and control potential risk qualitatively evaluated pursuant to 310 CMR 40.0923(3)(c)" must be included in the disposal site Permanent Solution Statement. The gardening BMPs requirement applies to disposal sites that are demonstrated to pose No Significant Risk of Harm to Health using a Method 3 Risk Characterization that includes:

(a) the assumption of unrestricted use (including residential use) of the property;
(b) a quantitative assessment of direct contact exposures (ingestion, dermal contact and inhalation) to soil; and

(c) a *qualitative* assessment of incremental exposures associated with gardening activities.

In those cases where a *quantitative* assessment of exposures associated with gardening is conducted and the disposal site is shown to meet risk limits for gardening, then inclusion of gardening BMPs descriptions and a recommendation for their use in the Permanent Solution Statement is *not* required. Figure 1 below illustrates when inclusion of gardening BMPs descriptions and a recommendation for their use is required as part of a Permanent Solution with Conditions.

Figure 1



4.0 Best Management Practices for Non-Commercial Gardening

The attachment below, "Best Management Practices for Non-commercial Gardening at Disposal Sites," is appropriate for use to meet the requirement at 310 CMR 40.1056(2)(j)1 to include in the Permanent Solution Statement a "recommendation and description of Best Management Practices for Non-commercial Gardening in a residential setting to minimize and control potential risk qualitatively evaluated pursuant to 310 CMR 40.0923(3)(c)."

To highlight and assist readers in locating this information in the Permanent Solution Statement, these BMPs should appear under a distinct heading in the Permanent Solution Statement and be identified as a distinct item in the Table of Contents of the Permanent Solution Statement. The narrative of the Permanent Solution Statement should provide some context for the BMPs, including a reference to recommended use of the BMPs as a condition of the Permanent Solution with Conditions.

Attachment
Best Management Practices for Non-commercial Gardening at Disposal Sites

Best Management Practices for Non-commercial Gardening at Disposal Sites

This property is part of a disposal site that has been assessed and determined to meet the requirements of a Permanent Solution with Conditions under the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000, where the Conditions include the recommendation of Best Management Practices ("BMPs") for gardening to reduce the potential risks from exposure to contaminated soil that remains on the site.

While the property has been determined to be safe for unrestricted use, including residential use, there are residual levels of contaminants remaining in the soil. Gardeners should consider implementing BMPs to further reduce potential exposure to material in the soil, regardless of the contaminant levels remaining. Implementing BMPs such as those suggested below will allow safer gardening in a wider range of site conditions. Not every BMP is necessary for every single site, but a combination of BMPs appropriate for your particular site will help reduce the potential for additional exposure.

Construct Physical Controls and Improve Soil Conditions

Actions to minimize contact (covering the soil) and reduce contaminant levels (such as amending the soil) will further reduce potential risks. Many good gardening practices, like adding compost and soil amendments, improve the soil while reducing the amount of contaminants and exposure to them. Recommendations include:

- Build your garden away from areas known or suspected to be contaminated. In addition to areas where residual contamination may be present, as identified by the disposal site assessment, other sources of contamination can include painted structures (particularly older buildings that may have been painted with lead paint), roads and rail lines.
- Build a hedge or fence to reduce windblown contamination from mobile sources and busy streets.
- Cover existing soil and walkways with mulch, landscape fabric, stones, or bricks.
- Use mulch in your garden beds to reduce dust and soil splash back, reduce weed establishment, regulate soil temperature and moisture, and add organic matter.
- Use soil amendments (such as lime and compost) to maintain neutral pH and add organic matter to improve soil structure.
    - Not all amendments are the same; be sure to choose the right amendments for your soil - amendments that improve conditions at one garden may not work well in others.
    - Keep in mind that each amendment type will have different application amounts and techniques (e.g., rototilling), and may need to be maintained and reapplied (e.g., annually).

  - Be sure to work with your local or state regulatory agency, and ask if your municipality provides free compost or mulch. Obtain compost only from a reputable source that can provide information regarding the quality and type of feedstock used to generate the compost.
- Add topsoil or clean fill from a reputable source that can provide information regarding the quality of the topsoil or fill to ensure the soil is safe for handling by children or gardeners of all ages and for food production.
- Build raised beds or container gardens.
  - Raised beds can be made by simply mounding soil into windrows or by building containers.
  - Raised beds help improve water drainage in heavy clay soils or low-lying areas. They also create accessible gardening locations for many users and allow for more precise soil management.
  - Foot traffic should not be necessary in the bed, so the soil does not become compacted and soil preparation in the coming years is minimized.
  - Place a water permeable fabric cover or geotextile as the bottom layer of your raised bed to further reduce exposure to soils of concern.
  - Sided beds can be made from wood, synthetic wood, stone, concrete block, brick or naturally rot-resistant woods such as cedar and redwood. Avoid using chemical-treated lumber for the raised bed because chemicals used in the treated wood could make their way into the soils and plants.

Minimize Ongoing Contact with or Ingestion of Soil

Actions to further reduce contact with soil during and after gardening activities can also minimize potential risks from any contaminants remaining in the soil.

- Do not use plants grown in contaminated soil for compost.
- Work in the garden when soil is moist or damp to minimize creation of dust.
- Avoid “double-digging” to decrease likelihood of moving deep soils to the surface.
- Wear gloves, long sleeves and pants while gardening to prevent skin exposure;
- Remove gardening shoes and garments before entering the home, and wash gardening clothes separately from other clothing.
- Wash hands after gardening.
- Wash all vegetables thoroughly.

For More Information

These recommended BMPs are consistent with federal, state and local guidance on urban gardening in general. MassDEP has additional information available online at: http://www.Mass.Gov/eea/agencies/massdep/cleanup/regulations/gardening-best-management-practices-at-disposal-sites.html