



March 28, 2022

US Environmental Protection Agency
Office of Ecosystem Protection
EPA/OEP RGP Applications Coordinator
5 Post Office Square – Suite 100 (OEP06-01)
Boston, Massachusetts 02109-3912

RE: Remediation General Permit (RGP) Notice of Intent (NOI)
Temporary Construction Dewatering
Lawless Jeep
196 Lexington Street
Woburn, MA 01801
VERTEX Project No. 72475

To Whom It May Concern:

On behalf of our client, Lawless, Inc. (the “Owner”), and in accordance with the National Pollutant Discharge Elimination System (NPDES) Remediation General Permit (RGP) for Dewatering Activities – Massachusetts General Permit, MAG910000, included herewith are the Notice of Intent (NOI) and applicable documentation as required by the United States Environmental Protection Agency (USEPA) and Massachusetts Department of Environmental protection (MassDEP) for construction site dewatering under the RGP. A copy of the “Suggested Format for the Remediation General Permit Notice of Intent (NOI)” form is included as Attachment A.

Construction dewatering is planned in support of upcoming site development activities at 196 Lexington Street in Woburn, Massachusetts (the “site”). The project will consist of the construction of an addition located to the northwest of the existing building located at the site. Construction activities that require dewatering include excavations for structural building systems and installation of utilities. It is anticipated that dewatering will likely be conducted continuously during the excavation activities for proposed construction.

SITE DESCRIPTION

The site is located at 196 Lexington Street, Woburn, Massachusetts. According to the Woburn Assessor’s Office, the site consists of approximately 3.1 acres of land. The site is improved with a 16,244 square-foot, single story commercial structure that was constructed in phases beginning in the 1960s through 2005. The site is currently occupied by a Jeep, Chrysler, Dodge, and Ram automotive dealership, which includes an automotive service center. On-site operations consist of the sale of automobiles, automotive maintenance, and general office activities.

The site is bounded to the north by an American Legion Hall, to the northeast by single-family residences, to the south by commercial properties including 99 Restaurant and Winchester Co-Operative Bank, and to the southwest by McCue Garden Center. The site is bounded to the west by Lexington Street followed by the intersection of Russell Street and Cambridge Street and a multi-tenant commercial building. The site is bounded to the west-southwest by the intersection of Lexington Street and Cambridge Street, beyond which is O'Rourke's Service Station.

The location of the site is depicted on Figure 1 – Site Locus, with the specific limits of the site depicted on Figure 2A – Site Schematic. A location of the Site and immediately surrounding area is depicted on Figure 2B – Neighborhood Schematic.

According to the MassDEP Phase I Site Assessment Map, the site is located within a current drinking water source area designated as a Zone II and Interim Wellhead Protection Area (IWPA). Freshwater wetlands are not located on-site, but are located within 500 feet of the site. Estimated rare wetland, vernal pools, saltwater wetlands, protected open spaces, or Areas of Critical Environmental Concern (ACEC) were not identified on-site or within 500 feet of the site. There are no naturally occurring open surface water bodies located within the limits of the site. The closest surface water body is Shaker Glen Brook, located approximately 400 feet northwest of the site. A copy of the MassDEP Phase I Site Assessment Map is included as Attachment B.

SITE OWNER & OPERATOR

The Owner of the site subject to this NOI is:

Lawless, Inc.
196 Lexington Street
Woburn, MA 01801
Attention: Ralph A. Bavaro

The Applicant & Operator subject to this NOI is:

Jewett Construction Company
25 Spaulding Road, Suite 17-2
Fremont, NH 03044
Attention: Jared Nicklas and
R. Daniel Ray

SITE REGULATORY COMPLIANCE AND BACKGROUND

In December 2021, the MassDEP was notified of the detection of extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), and chlorobenzenes to soil and groundwater at concentrations exceeding applicable Reportable Concentrations (RCs). Following notification, the MassDEP assigned Release Tracking Number (RTN) 3-37193. The area of identified impacts is located on the northern portion of the site, within and east of the proposed addition. The release condition is likely attributed to historic discharges from the on-site oil/water separator, which is connected to floor drains in the automotive repair bays within the site building. Regulatory response actions are currently ongoing for this release condition.

Groundwater sampling was completed at the site in August 2021 and October 2021. The groundwater samples obtained from on-site groundwater monitoring wells via USEPA Low Flow Sampling Methodology were analyzed for a combination of the following parameters:

- EPH with target Polynuclear Aromatic Hydrocarbons (PAHs) by MassDEP Methods;
- VPH by MassDEP Methods;
- Volatile Organic Compounds (VOCs) by USEPA Method 8260; and/or,
- Dissolved Resource Conservation and Recovery Act (RCRA) 8 Metals by USEPA Method 6010 (field filtered).

The laboratory results of the groundwater samples obtained from the two sampling events are summarized in Table 1. These data were used to further characterize conditions of groundwater and potential design and treatment options for construction dewatering. The following table outlines chemicals detected in groundwater at concentrations exceeding laboratory reporting limits or exceeding the applicable RCGW-1 RCs.

Chemicals of Potential Concern Detected in Groundwater					
Chemical	Detected Above Laboratory Reporting Limit	Detected Above RCGW-1 Reportable Concentration	Chemical	Detected Above Laboratory Reporting Limit	Detected Above RCGW-1 Reportable Concentration
EPH with Target PAHs			VPH		
C ₉ -C ₁₈ Aliphatic Hydrocarbons	X		C ₉ -C ₁₀ Aromatic Hydrocarbons	X	X
C ₁₁ -C ₂₂ Aromatic Hydrocarbons	X	X	C ₉ -C ₁₂ Aliphatic Hydrocarbons	X	X
C ₁₉ -C ₃₆ Aliphatics	X		VOCs		
2-Methylnaphthalene	X	X	1,2,4-Trimethylbenzene	X	
Acenaphthene	X		1,2-Dichlorobenzene	X	
Acenaphthylene	X		1,3,5-Trimethylbenzene	X	
Anthracene	X		1,3-Dichlorobenzene (1,3-DCB)	X	
Benzo(a)Anthracene	X		1,4-Dichlorobenzene	X	X
Benzo(a)Pyrene	X	X	1,4-Dioxane	X	
Benzo(b)Fluoranthene	X		Benzene	X	X
Chrysene	X		Chlorobenzene	X	X
Fluoranthene	X		Ethylbenzene	X	
Fluorene	X		Hexachlorobutadiene	X	
Naphthalene	X		Isopropyl Benzene	X	
Phenanthrene	X		Naphthalene	X	
Pyrene	X		n-Butylbenzene	X	
Metals (Dissolved)			o-Chlorotoluene	X	
Arsenic	X		o-Xylene	X	
Barium	X		p/m-Xylene	X	
Cadmium	X		p-Cymene	X	
Chromium	X		Propylbenzene	X	
Lead	X		Sec-Butylbenzene	X	
Mercury	X		Tert-Butylbenzene	X	
Selenium	X		Xylenes (Mixed Isomers)	X	
Silver	X				

PROPOSED CONSTRUCTION AND MANAGEMENT OF DEWATERING EFFLUENT

The construction of the building addition will be performed within the limits of the site. As part of this construction, excavation and dewatering will be performed to support the installation of foundations and underground utilities. Due to shallow groundwater, dewatering will likely be conducted on a continuous basis. Site work and associated dewatering are anticipated to begin in August 2022 and are estimated to be completed before February 2023.

Water generated during excavation activities will be collected and then pumped into a dewatering treatment system. The treated groundwater will be discharged to the existing storm drain system via a catch basin located to the southwest of the site along Lexington Street. The drain collects water in underground piping with eventual discharge to the Shaker Glen Brook. A copy of the Woburn WebGIS map depicting the location of the stormwater drain, proposed drainage path, and outfall to the Shaker Glen Brook is included as Attachment C.

The site contractor will provide a system that will be designed to meet the permit requirements for suspended solids, pH, and other constituents (as required) in the effluent stream prior to discharge into the proposed catch basin. At this time, it is assumed that the treatment system will consist of a 18,000-gallon sedimentation/fractionation tank, with bag filters, and liquid phase reactivated carbon vessels. The system will also be equipped with a flow meter and totalizer to monitor the discharge volume and various test ports for the collection of samples. As a contingency, a pH adjustment system, a chemical aided settling system, and a cation exchange media vessel will be available but will only be implemented, if necessary. The implementation of these system components will be based upon the results of effluent testing during system startup. The proposed system is outlined in the “Water Treatment System Schematic” included in Attachment D.

Once operations begin, a licensed wastewater treatment plant operator will conduct system monitoring, as required. On behalf of the Owner, VERTEX will perform the required sampling and testing of the dewatering effluent and will report the results as required by the permit. Results will be provided to the site contractor, and sedimentation and treatment system and/or dewatering procedures will be modified as necessary to comply with the Permit Discharge Criteria.

Summary of Water Analytical Testing and Results

On January 24, 2022, VERTEX collected representative samples of groundwater from the site, as well as surface water from the proposed receiving water body, Shaker Glen Brook. A groundwater sample was collected from an existing on-site monitoring well MW-3, which was identified as MW-3_NPDES_NOI_2022.01.24. This sample is considered to be representative of the water that will be generated during dewatering and representative of Site conditions. A sample of surface water was collected from the Shaker Glen Brook, proximal to the proposed stormwater outfall, which was identified as SG BROOK_NPDES_NOI_2022.01.24. The samples were collected in

laboratory supplied glassware and submitted to Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts under chain-of-custody for analysis of the following:

- Ammonia via USEPA Method 4500NH₃;
- Chloride via USEPA Method 300.0;
- Total Residual Chlorine via USEPA Method 4500CL;
- Total Suspended Solids via USEPA Method 2540D;
- Total Metals via USEPA Methods 200.7/200.8/107/245.1/7196A;
- Cyanide via USEPA Method 4500CN;
- Non-Halogenated VOCs via USEPA Method 8260C/624.1;
- Halogenated VOCs via USEPA Method 624.1;
- Phenol via USEPA Method 420.1;
- Non-Halogenated Semi-Volatile Organic Compounds (SVOCs) via USEPA Method 625.1;
- Halogenated SVOCs via USEPA Method 625.1;
- Polychlorinated Biphenyls (PCBs) via USEPA Method 608.3;
- Pentachlorophenol via USEPA Method 625.1;
- Total Petroleum Hydrocarbons (TPH) via USEPA Method 1664A;
- Ethanol via USEPA Method 1671A;
- Methyl-Tert-Butyl Ether (MTBE) via USEPA Method 624.1;
- Tert-Butyl Alcohol via USEPA Method 624.1;
- Tert-Amyl Methyl Ether via USEPA Method 624.1;
- Corrosivity (pH) (measured in the field); and
- Temperature (measured in the field)

The laboratory analytical results for the samples are summarized in Table 2, and were compared to the Technology Based Effluent Limitations (TBEL) and Water Quality Based Effluent Limitations (WQBEL) as outlined in the permit.

SUPPORTING DOCUMENTATION & PUBLIC CORRESPONDENCE

A copy of the NOI to conduct construction site dewatering is provided in Attachment A. The NOI indicates that the proposed discharge point, Shaker Glen Brook, was calculated to have a 7-day consecutive low flow discharge (7Q₁₀) of 0.0519 cubic feet per second (cfs) which equates to 0.0335 million gallons per day (MGD). This was developed using United States Geological Survey (USGS) StreamStats application. Based upon the calculated 7Q₁₀, and assuming that the dewatering system will have a maximum average flow rate of 150 gallons per minute (gpm), a dilution factor of 1.15 has been calculated for the site's dewatering effluent. Notification of the proposed dilution factor was provided to the USEPA and State of Massachusetts via email correspondence and was confirmed. A copy of the correspondence is included in Attachment E.

The Woburn Department of Public Works (WDPW) was also notified of the proposed dewatering operations. Coordination with the WDPW is ongoing. VERTEX will obtain approval concurrent

with this application and will not initiate discharge without appropriate permission from the WPDW.

The site is not known to be or located within the limits of a known Massachusetts ACEC, a historic place, or within a critical habitat for endangered species. Please refer to Attachments F, G, and H for supporting correspondence and documentation which was used to determine the site's status. Copies of laboratory analytical results are provided in Attachment I.

BEST MANAGEMENT PRACTICES PLAN

Prior to the initiation of dewatering activities or discharge of dewatering effluent, a Best Management Practices Plan (BMPP) will be prepared and implemented. At this time, it is anticipated that the BMPP will be incorporated within the Site's site-specific Stormwater Pollution Prevention Plan (SWPPP).

CLOSING

Thank you very much for your consideration of this NOI. Please feel free to contact us at 781-952-6000 or pplante@vertexeng.com should you wish to discuss the information contained herein or if you need additional information.

Sincerely,

The Vertex Companies, Inc.,



Benjamin Sivonen, EIT
Project Manager



Patrice A. Plante
Senior Project Manager



Lauren Lesinski, LSP, CHMM
Senior Project Manager

Attachments:

Figures

Figure 1:	Project Locus
Figure 2A:	Site Schematic
Figure 2B:	Neighborhood Schematic

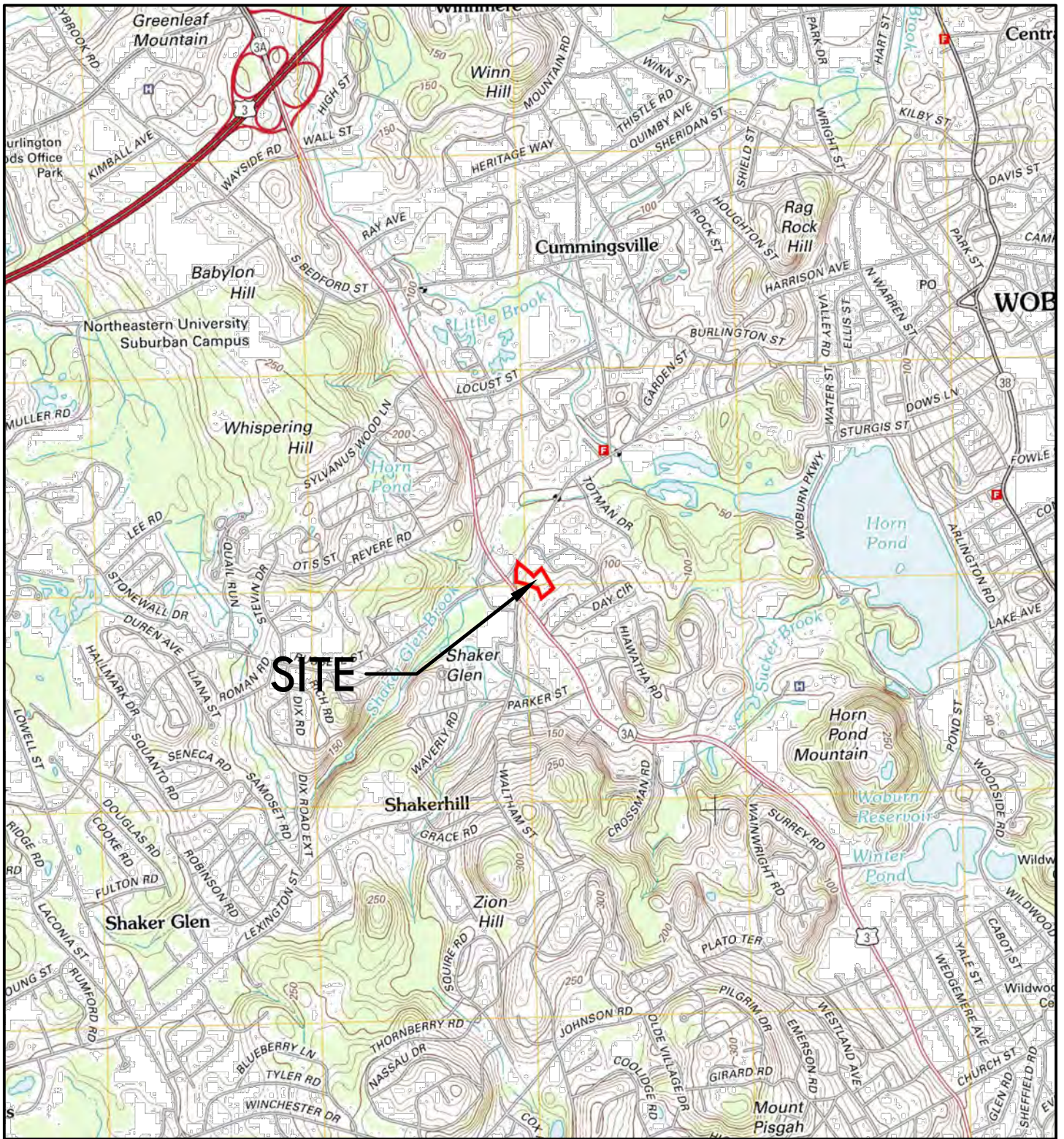
Tables

Table 1:	Summary of Low Flow Groundwater Analytical Results
Table 2:	Summary of Analytical Results – Source & Receiving Water

Attachments

Attachment A:	Notice of Intent Form
Attachment B:	MassDEP Phase I Site Assessment Map
Attachment C:	Proposed Drainage Path
Attachment D:	Proposed Treatment System
Attachment E:	Dilution Factor Correspondence and Approval
Attachment F:	Areas of Critical Environmental Concern Documentation
Attachment G:	National Register of Historic Places and Massachusetts Historical Commission Documentation
Attachment H:	Endangered Species Act Documentation
Attachment I:	Laboratory Analytical Reports

FIGURES



SCALE: 1:24,000

SOURCE:
UNITED STATES GEOLOGICAL SURVEY MAP
LEXINGTON, MA QUADRANGLE 7.5 MINUTES SERIES (2012)



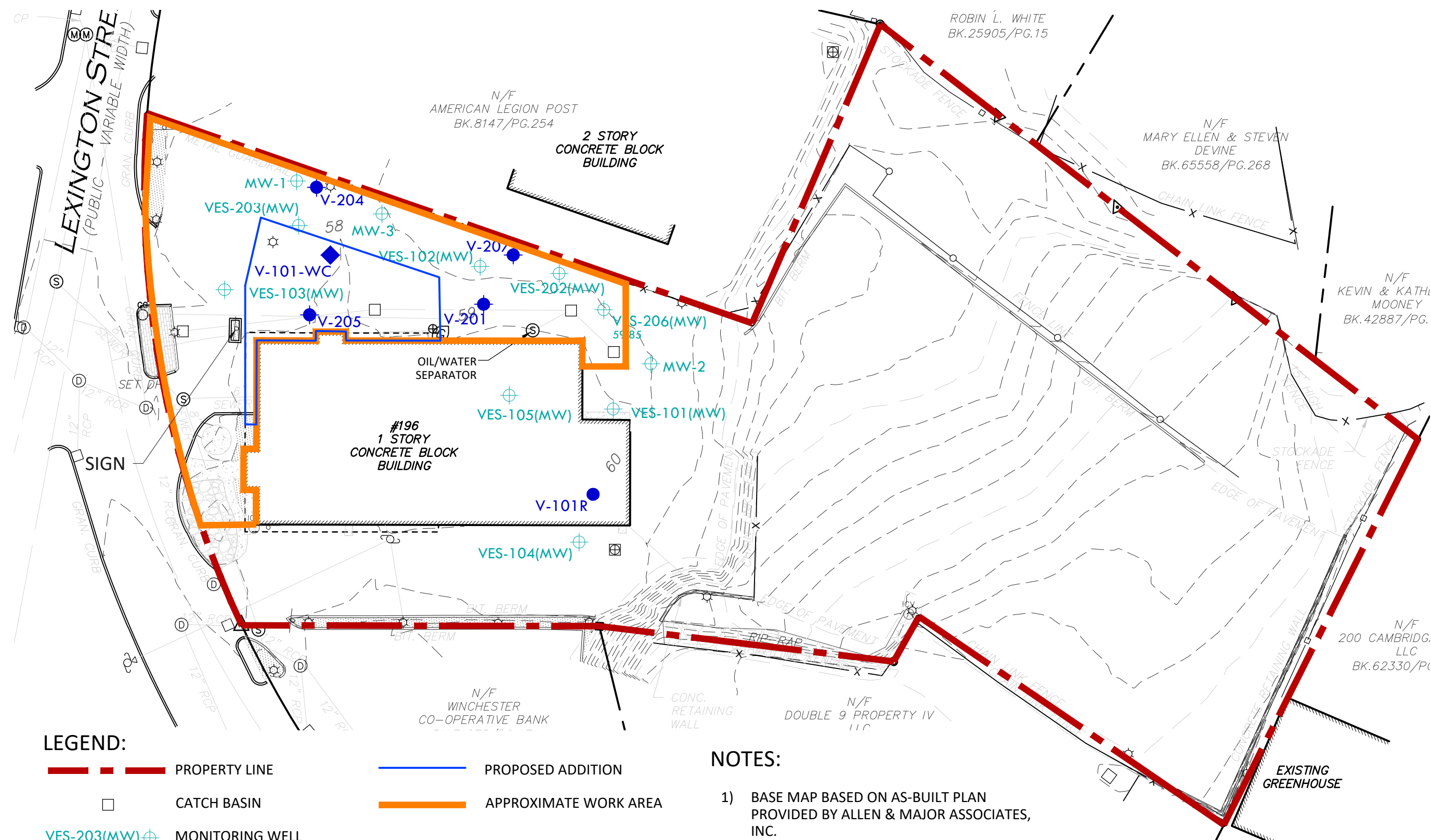
SITE LOCUS

SITE: LAWLESS JEEP
196 LEXINGTON STREET
WOBBURN, MA 01801

DATE:	11/11/2021	FIGURE
DRAWN BY:	CLH	1
CHECKED BY:	PAP	
VERTEX PROJ NO.:	72475	

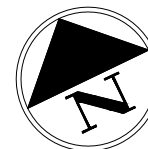
VERTEX®

400 Libbey Parkway | Weymouth, MA 02189
Main: 781.952.6000 | VERTEXENG.COM



LEGEND:

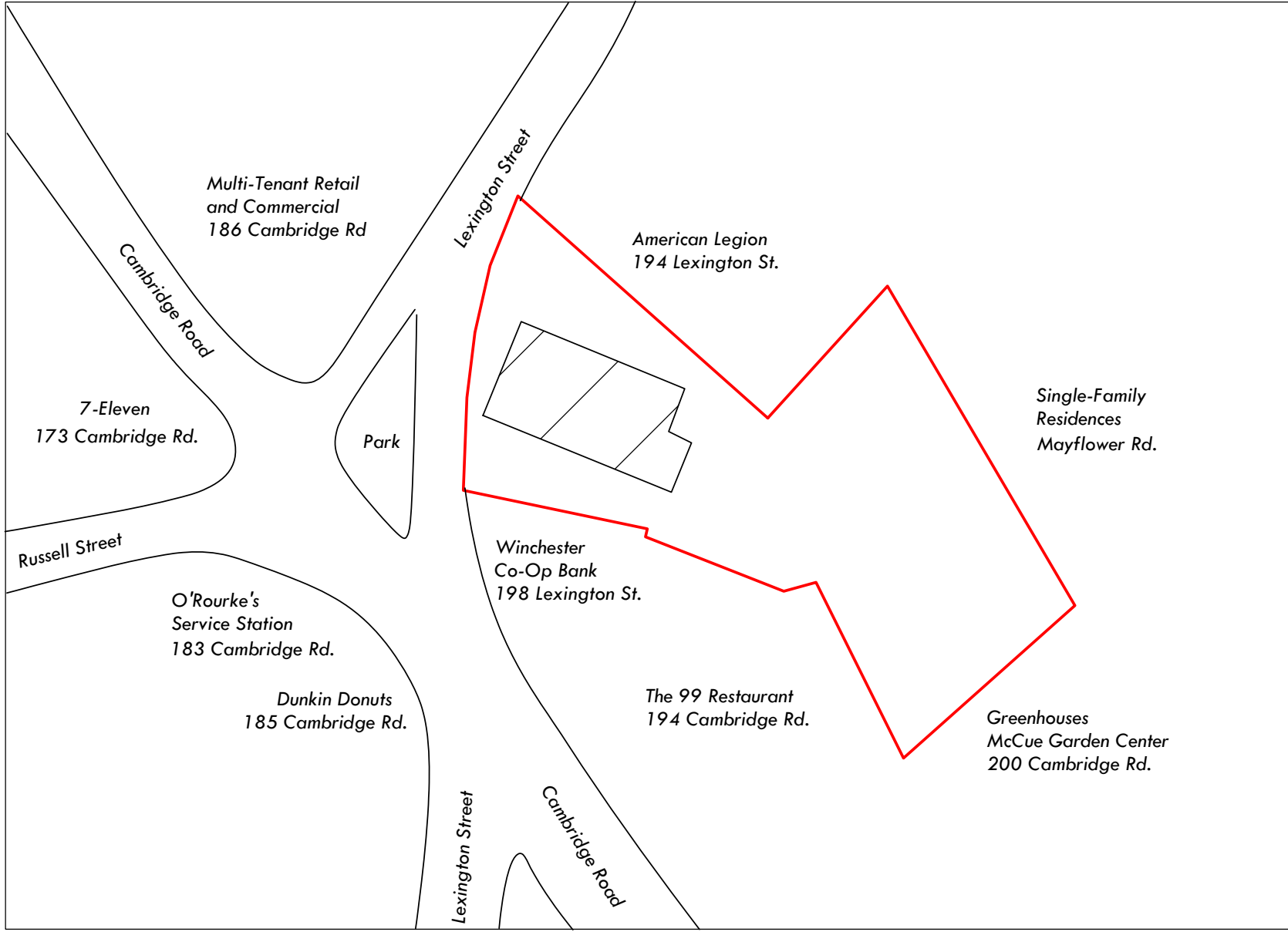
NOTES:



SITE SCHEMATIC

DATE:	03/09/2022	FIGURE 2
DRAWN BY:	CLH	
CHECKED BY:	PAP	
VERTEX PROJ NO.:	72475	

VERBIZ



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Main: 781.952.6000 | VERTEXENG.COM

NEIGHBORHOOD SCHEMATIC

SITE: Lawless Jeep 196 Lexington Street Woburn, Massachusetts 01801		NOT TO SCALE		FIGURE
		Date:	August 2021	2B
		Drawn:	GJR	
		Checked:	SPM	
		Job No.:	72475	

TABLES

Table 1 - Summary of Low Flow Groundwater Analytical Results

**Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475**

		Location ID	MW-1	MW-2	MW-03	VES-101
		Sample ID	MW-1-20211018	MW-2-20211018	MW-3-20211018	VES-101 (MW)
		Sample Date	10/18/2021	10/18/2021	10/18/2021	8/24/2021
		Lab ID	21J0596-04	21J0596-05	21J0596-06	21H0894-01
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
Extractable Petroleum Hydrocarbons (EPH) with target Polynuclear Aromatic Hydrocarbons (PAHs)						
C9-C18 Aliphatic Hydrocarbons (adjusted)	700	µg/L	ND(97)	ND(96)	ND(99)	ND(95)
C11-C22 Aromatic Hydrocarbons (adjusted)	200	µg/L	ND(97.1)	ND(96.2)	ND(99.0)	ND(95.2)
C19-C36 Aliphatics (adjusted)	14000	µg/L	ND(97)	ND(96)	ND(99)	ND(95)
2-Methylnaphthalene	10	µg/L	ND(0.49)	ND(0.48)	ND(0.50)	ND(0.48)
Acenaphthene	20	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Acenaphthylene	30	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Anthracene	30	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Benzo(a)Anthracene	1	µg/L	ND(0.19)	ND(0.19)	0.22	ND(0.19)
Benzo(a)Pyrene	0.2	µg/L	ND(0.10)	ND(0.10)	0.23	ND(0.10)
Benzo(b)Fluoranthene	1	µg/L	ND(0.19)	ND(0.19)	0.28	ND(0.19)
Benzo(g,h,i)Perylene	20	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Benzo(k)Fluoranthene	1	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Chrysene	2	µg/L	ND(0.19)	ND(0.19)	0.30	ND(0.19)
Dibenzo(a,h)Anthracene	0.5	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Fluoranthene	90	µg/L	ND(0.19)	0.26	0.60	ND(0.19)
Fluorene	30	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Indeno(1,2,3-cd)Pyrene	0.5	µg/L	ND(0.19)	ND(0.19)	ND(0.20)	ND(0.19)
Naphthalene	140	µg/L	ND(0.49)	ND(0.48)	ND(0.50)	ND(0.48)
Phenanthrene	40	µg/L	ND(0.49)	ND(0.48)	0.57	ND(0.48)
Pyrene	20	µg/L	ND(0.19)	ND(0.19)	0.53	ND(0.19)
Volatile Petroleum Hydrocarbons (VPH)						
C9-C10 Aromatic Hydrocarbons (adjusted)	200	µg/L	ND(100)	ND(100)	ND(100)	ND(100)
C5-C8 Aliphatic Hydrocarbons (adjusted)	300	µg/L	ND(150)	ND(150)	ND(150)	ND(150)
C9-C12 Aliphatic Hydrocarbons (adjusted)	700	µg/L	535	ND(150)	1500	ND(150)
Volatile Organic Compounds (VOCs)						
1,2,4-Trimethylbenzene	10000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	600	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3,5-Trimethylbenzene	100	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene (1,3-DCB)	100	µg/L	ND(1.0)	ND(1.0)	2.6	ND(1.0)

Table 1 - Summary of Low Flow Groundwater Analytical Results
Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475

		Location ID	MW-1	MW-2	MW-03	VES-101
		Sample ID	MW-1-20211018	MW-2-20211018	MW-3-20211018	VES-101 (MW)
		Sample Date	10/18/2021	10/18/2021	10/18/2021	8/24/2021
		Lab ID	21J0596-04	21J0596-05	21J0596-06	21H0894-01
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
1,4-Dichlorobenzene	5	µg/L	2.6	ND(1.0)	6.5	ND(1.0)
1,4-Dioxane	0.3	µg/L	ND(500)	ND(500)	ND(500)	ND(500)
Benzene	5	µg/L	7.1	ND(1.0)	23.2	ND(1.0)
Chlorobenzene	100	µg/L	608	ND(1.0)	1560	2.8
Ethylbenzene	700	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Hexachlorobutadiene	0.6	µg/L	ND(0.6)	ND(0.6)	ND(0.6)	ND(0.6)
Isopropyl Benzene	10000	µg/L	ND(1.0)	ND(1.0)	1.4	ND(1.0)
Naphthalene	140	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
n-Butylbenzene	NSE	µg/L	ND(1.0)	ND(1.0)	1.3	ND(1.0)
o-Chlorotoluene	1000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
o-Xylene	3000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
p/m-Xylene	3000	µg/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
p-Cymene	1000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Propylbenzene	1000	µg/L	ND(1.0)	ND(1.0)	2.3	ND(1.0)
Sec-Butylbenzene	NSE	µg/L	ND(1.0)	ND(1.0)	2.1	ND(1.0)
Tert-Butylbenzene	1000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Xylenes (Mixed Isomers)	3000	µg/L	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)
All other target VOCs	NSE	µg/L	ND	ND	ND	ND

Table 1 - Summary of Low Flow Groundwater Analytical Results
Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475

		Location ID	MW-1	MW-2	MW-03	VES-101
		Sample ID	MW-1-20211018	MW-2-20211018	MW-3-20211018	VES-101 (MW)
		Sample Date	10/18/2021	10/18/2021	10/18/2021	8/24/2021
		Lab ID	21J0596-04	21J0596-05	21J0596-06	21H0894-01
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
Metals, Dissolved						
Arsenic	10	µg/L	--	--	--	ND(5.0)
Barium	2000	µg/L	--	--	--	52.6
Cadmium	4	µg/L	--	--	--	ND(1.0)
Chromium	100	µg/L	--	--	--	ND(10.0)
Lead	10	µg/L	--	--	--	1.5
Mercury	2	µg/L	--	--	--	ND(0.20)
Selenium	50	µg/L	--	--	--	ND(5.0)
Silver	7	µg/L	--	--	--	ND(5.0)

Notes:

- µg/L=micrograms per Liter
- Reportable Concentrations (RCGW-1) taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parenthesis
- Tan shading = Not Detected above laboratory reporting limits; however, laboratory reporting limit is equal to or exceeds applicable standard
- -- = Not Analyzed
- NSE = No Standard Exists
- Highlighted values exceeds the applicable RCGW-1 Reportable Concentration
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report

Table 1 - Summary of Low Flow Groundwater Analytical Results

**Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475**

		Location ID	VES-102	VES-103	VES-104	VES-105
		Sample ID	VES-102 (MW)	VES-103 (MW)	VES-104 (MW)	VES-105 (MW)
		Sample Date	8/24/2021	8/24/2021	8/24/2021	8/24/2021
		Lab ID	21H0894-05	21H0894-02	21H0894-03	21H0894-04
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
Extractable Petroleum Hydrocarbons (EPH) with target Polynuclear Aromatic Hydrocarbons						
C9-C18 Aliphatic Hydrocarbons (adjusted)	700	µg/L	117	ND(101)	ND(100)	ND(100)
C11-C22 Aromatic Hydrocarbons (adjusted)	200	µg/L	236	ND(101)	ND(100)	ND(100)
C19-C36 Aliphatics (adjusted)	14000	µg/L	ND(100)	ND(101)	ND(100)	ND(100)
2-Methylnaphthalene	10	µg/L	8.94	ND(0.51)	ND(0.50)	ND(0.50)
Acenaphthene	20	µg/L	1.67	0.84	0.27	ND(0.20)
Acenaphthylene	30	µg/L	0.23	ND(0.20)	ND(0.20)	ND(0.20)
Anthracene	30	µg/L	0.23	ND(0.20)	ND(0.20)	ND(0.20)
Benzo(a)Anthracene	1	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Benzo(a)Pyrene	0.2	µg/L	ND(0.10)	ND(0.10)	ND(0.10)	ND(0.10)
Benzo(b)Fluoranthene	1	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Benzo(g,h,i)Perylene	20	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Benzo(k)Fluoranthene	1	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Chrysene	2	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Dibenzo(a,h)Anthracene	0.5	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Fluoranthene	90	µg/L	0.45	0.25	ND(0.20)	ND(0.20)
Fluorene	30	µg/L	1.73	0.23	ND(0.20)	ND(0.20)
Indeno(1,2,3-cd)Pyrene	0.5	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Naphthalene	140	µg/L	0.63	ND(0.51)	0.63	ND(0.50)
Phenanthrene	40	µg/L	1.89	ND(0.51)	ND(0.50)	ND(0.50)
Pyrene	20	µg/L	0.29	ND(0.20)	ND(0.20)	ND(0.20)
Volatile Petroleum Hydrocarbons (VPH)						
C9-C10 Aromatic Hydrocarbons (adjusted)	200	µg/L	490	ND(100)	ND(100)	ND(100)
C5-C8 Aliphatic Hydrocarbons (adjusted)	300	µg/L	ND(150)	ND(150)	ND(150)	ND(150)
C9-C12 Aliphatic Hydrocarbons (adjusted)	700	µg/L	607	ND(150)	ND(150)	ND(150)
Volatile Organic Compounds (VOCs)						
1,2,4-Trimethylbenzene	10000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	600	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3,5-Trimethylbenzene	100	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene (1,3-DCB)	100	µg/L	8.3	1.3	ND(1.0)	ND(1.0)

Table 1 - Summary of Low Flow Groundwater Analytical Results
Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475

		Location ID	VES-102	VES-103	VES-104	VES-105
		Sample ID	VES-102 (MW)	VES-103 (MW)	VES-104 (MW)	VES-105 (MW)
		Sample Date	8/24/2021	8/24/2021	8/24/2021	8/24/2021
		Lab ID	21H0894-05	21H0894-02	21H0894-03	21H0894-04
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
1,4-Dichlorobenzene	5	µg/L	26.4	2.6	ND(1.0)	ND(1.0)
1,4-Dioxane	0.3	µg/L	ND(500)	ND(500)	ND(500)	ND(500)
Benzene	5	µg/L	3.6	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	100	µg/L	560	52.3	ND(1.0)	ND(1.0)
Ethylbenzene	700	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Hexachlorobutadiene	0.6	µg/L	ND(0.6)	ND(0.6)	ND(0.6)	ND(0.6)
Isopropyl Benzene	10000	µg/L	10.0	ND(1.0)	ND(1.0)	ND(1.0)
Naphthalene	140	µg/L	1.1	ND(1.0)	ND(1.0)	ND(1.0)
n-Butylbenzene	NSE	µg/L	16.9	ND(1.0)	ND(1.0)	ND(1.0)
o-Chlorotoluene	1000	µg/L	1.2	ND(1.0)	ND(1.0)	ND(1.0)
o-Xylene	3000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
p/m-Xylene	3000	µg/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
p-Cymene	1000	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Propylbenzene	1000	µg/L	26.5	ND(1.0)	ND(1.0)	ND(1.0)
Sec-Butylbenzene	NSE	µg/L	12.8	ND(1.0)	ND(1.0)	ND(1.0)
Tert-Butylbenzene	1000	µg/L	2.7	ND(1.0)	ND(1.0)	ND(1.0)
Xylenes (Mixed Isomers)	3000	µg/L	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)
All other target VOCs	NSE	µg/L	ND	ND	ND	ND

Table 1 - Summary of Low Flow Groundwater Analytical Results
Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475

		Location ID	VES-102	VES-103	VES-104	VES-105
		Sample ID	VES-102 (MW)	VES-103 (MW)	VES-104 (MW)	VES-105 (MW)
		Sample Date	8/24/2021	8/24/2021	8/24/2021	8/24/2021
		Lab ID	21H0894-05	21H0894-02	21H0894-03	21H0894-04
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
Metals, Dissolved						
Arsenic	10	µg/L	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)
Barium	2000	µg/L	135	181	179	75.4
Cadmium	4	µg/L	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
Chromium	100	µg/L	ND(10.0)	ND(10.0)	ND(10.0)	ND(10.0)
Lead	10	µg/L	1.1	ND(1.0)	ND(1.0)	1.1
Mercury	2	µg/L	ND(0.20)	ND(0.20)	ND(0.20)	ND(0.20)
Selenium	50	µg/L	ND(10.0)	ND(5.0)	ND(5.0)	ND(5.0)
Silver	7	µg/L	ND(5.0)	ND(5.0)	ND(5.0)	ND(5.0)

Notes:

- µg/L=micrograms per Liter
- Reportable Concentrations (RCGW-1) taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parenthesis
- Tan shading = Not Detected above laboratory reporting limits; however, laboratory reporting limit is equal to or exceeds applicable standard
- -- = Not Analyzed
- NSE = No Standard Exists
- Highlighted values exceeds the applicable RCGW-1 Reportable Concentration
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report

Table 1 - Summary of Low Flow Groundwater Analytical Results

**Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475**

		Location ID	VES-202	VES-203	VES-206	Trip Blank
		Sample ID	VES-202(MW)-20211018	VES-203(MW)-20211018	VES-206(MW)-20211018	Trip Blank
		Sample Date	10/18/2021	10/18/2021	10/18/2021	10/18/2021
		Lab ID	21J0596-01	21J0596-02	21J0596-03	21J0596-07
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
Extractable Petroleum Hydrocarbons (EPH) with target Polynuclear Aromatic Hydrocarbons:						
C9-C18 Aliphatic Hydrocarbons (adjusted)	700	µg/L	617	ND(98)	ND(97)	--
C11-C22 Aromatic Hydrocarbons (adjusted)	200	µg/L	601	ND(98.0)	ND(97.1)	--
C19-C36 Aliphatics (adjusted)	14000	µg/L	117	ND(98)	ND(97)	--
2-Methylnaphthalene	10	µg/L	13.6	ND(0.49)	ND(0.49)	--
Acenaphthene	20	µg/L	2.13	0.37	ND(0.19)	--
Acenaphthylene	30	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Anthracene	30	µg/L	0.21	ND(0.20)	ND(0.19)	--
Benzo(a)Anthracene	1	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Benzo(a)Pyrene	0.2	µg/L	ND(0.10)	ND(0.10)	ND(0.10)	--
Benzo(b)Fluoranthene	1	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Benzo(g,h,i)Perylene	20	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Benzo(k)Fluoranthene	1	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Chrysene	2	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Dibenzo(a,h)Anthracene	0.5	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Fluoranthene	90	µg/L	0.49	0.27	ND(0.19)	--
Fluorene	30	µg/L	2.59	0.21	ND(0.19)	--
Indeno(1,2,3-cd)Pyrene	0.5	µg/L	ND(0.20)	ND(0.20)	ND(0.19)	--
Naphthalene	140	µg/L	3.06	ND(0.49)	ND(0.49)	--
Phenanthrene	40	µg/L	1.70	0.95	ND(0.49)	--
Pyrene	20	µg/L	0.35	ND(0.20)	ND(0.19)	--
Volatile Petroleum Hydrocarbons (VPH)						
C9-C10 Aromatic Hydrocarbons (adjusted)	200	µg/L	996	ND(100)	ND(100)	--
C5-C8 Aliphatic Hydrocarbons (adjusted)	300	µg/L	ND(150)	ND(150)	ND(150)	--
C9-C12 Aliphatic Hydrocarbons (adjusted)	700	µg/L	ND(150)	ND(150)	ND(150)	--
Volatile Organic Compounds (VOCs)						
1,2,4-Trimethylbenzene	10000	µg/L	152	ND(1.0)	ND(1.0)	ND(1.0)
1,2-Dichlorobenzene	600	µg/L	2.9	ND(1.0)	ND(1.0)	ND(1.0)
1,3,5-Trimethylbenzene	100	µg/L	47.0	ND(1.0)	ND(1.0)	ND(1.0)
1,3-Dichlorobenzene (1,3-DCB)	100	µg/L	15.0	ND(1.0)	ND(1.0)	ND(1.0)

Table 1 - Summary of Low Flow Groundwater Analytical Results
Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475

		Location ID	VES-202	VES-203	VES-206	Trip Blank
		Sample ID	VES-202(MW)-20211018	VES-203(MW)-20211018	VES-206(MW)-20211018	Trip Blank
		Sample Date	10/18/2021	10/18/2021	10/18/2021	10/18/2021
		Lab ID	21J0596-01	21J0596-02	21J0596-03	21J0596-07
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
1,4-Dichlorobenzene	5	µg/L	50.8	1.8	ND(1.0)	ND(1.0)
1,4-Dioxane	0.3	µg/L	ND(500)	ND(500)	ND(500)	ND(500)
Benzene	5	µg/L	3.0	ND(1.0)	ND(1.0)	ND(1.0)
Chlorobenzene	100	µg/L	952	32.4	3.1	ND(1.0)
Ethylbenzene	700	µg/L	2.0	ND(1.0)	ND(1.0)	ND(1.0)
Hexachlorobutadiene	0.6	µg/L	ND(0.6)	ND(0.6)	ND(0.6)	ND(0.6)
Isopropyl Benzene	10000	µg/L	9.7	ND(1.0)	ND(1.0)	ND(1.0)
Naphthalene	140	µg/L	3.7	ND(1.0)	ND(1.0)	ND(1.0)
n-Butylbenzene	NSE	µg/L	17.0	ND(1.0)	ND(1.0)	ND(1.0)
o-Chlorotoluene	1000	µg/L	1.1	ND(1.0)	ND(1.0)	ND(1.0)
o-Xylene	3000	µg/L	1.9	ND(1.0)	ND(1.0)	ND(1.0)
p/m-Xylene	3000	µg/L	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
p-Cymene	1000	µg/L	11.4	ND(1.0)	ND(1.0)	ND(1.0)
Propylbenzene	1000	µg/L	20.4	ND(1.0)	ND(1.0)	ND(1.0)
Sec-Butylbenzene	NSE	µg/L	8.3	ND(1.0)	ND(1.0)	ND(1.0)
Tert-Butylbenzene	1000	µg/L	2.4	ND(1.0)	ND(1.0)	ND(1.0)
Xylenes (Mixed Isomers)	3000	µg/L	ND(2.00)	ND(2.00)	ND(2.00)	ND(2.00)
All other target VOCs	NSE	µg/L	ND	ND	ND	ND

Table 1 - Summary of Low Flow Groundwater Analytical Results
Lawless Jeep
196 Lexington Street
Woburn, Massachusetts
VERTEX Project No. 72475

		Location ID	VES-202	VES-203	VES-206	Trip Blank
		Sample ID	VES-202(MW)-20211018	VES-203(MW)-20211018	VES-206(MW)-20211018	Trip Blank
		Sample Date	10/18/2021	10/18/2021	10/18/2021	10/18/2021
		Lab ID	21J0596-01	21J0596-02	21J0596-03	21J0596-07
CHEMICAL NAME	REPORTABLE CONCENTRATION RCGW-1	Units				
Metals, Dissolved						
Arsenic	10	µg/L	--	--	--	--
Barium	2000	µg/L	--	--	--	--
Cadmium	4	µg/L	--	--	--	--
Chromium	100	µg/L	--	--	--	--
Lead	10	µg/L	--	--	--	--
Mercury	2	µg/L	--	--	--	--
Selenium	50	µg/L	--	--	--	--
Silver	7	µg/L	--	--	--	--

Notes:

- µg/L=micrograms per Liter
- Reportable Concentrations (RCGW-1) taken from the Massachusetts Contingency Plan (MCP) 310 CMR 40.1600 dated April 2014
- ND = Not Detected above laboratory reporting limits shown in parenthesis
- Tan shading = Not Detected above laboratory reporting limits; however, laboratory reporting limit is equal to or exceeds applicable standard
- -- = Not Analyzed
- NSE = No Standard Exists
- Highlighted values exceeds the applicable RCGW-1 Reportable Concentration
- Full analytical results, including QA/QC information and data flags, are detailed in the laboratory analytical report

TABLE 2: SUMMARY OF NPDES ANALYTICAL DATA

LAWLESS JEEP
WOBURN, MASSACHUSETTS
VERTEX PROJECT NO. 72475

CHEMICAL NAME	CAS No.	USEPA Effluent Limitations		Location Sample Date Sample ID Lab ID	SOURCE 1/24/2022 MW-3_NPDES NOI 2022.01.24 L2203801-02	RECEIVING 1/24/2022 SG BROOK_NPDES NOI 2022.01.24 L2203801-01
		TBEL	WQBEL			
Inorganics				Units		
Ammonia	7664-41-7	Report		mg/L	1.90	0.118
Chloride	16887-00-6	Report		ug/L	564000	172000
Total Residual Chlorine	7782-50-SRESID	200	2.269	ug/L	ND(20)	ND(20)
Total Suspended Solids	TSS		30	mg/L	2300	14
Hardness	HARD	NSE	NSE	mg/L	394	73.2
Metals, Total						
Antimony	7440-36-0	206	131742	ug/L	ND(4.00)	ND(4.00)
Arsenic	7440-38-2	104	1931	ug/L	8.82	ND(1.00)
Cadmium	7440-43-9	10.2	0.0699	ug/L	0.34	ND(0.20)
Chromium	7440-47-3	323	11	ug/L	116.4	ND(1.00)
Chromium III	16065-43-1	323	3978.3	ug/L	116	ND(10)
Copper	7440-50-8	242	2	ug/L	122.5	1.67
Iron	7439-89-6	5000	110756	ug/L	114000	450
Lead	7439-92-1	160	0.31	ug/L	56.25	1.83
Mercury	7439-97-6	0.739	186.84	ug/L	ND(0.20)	ND(0.20)
Nickel	7440-02-0	1450	2292	ug/L	59.24	ND(2.00)
Selenium	7782-49-2	235.8	1031.3	ug/L	ND(5.00)	ND(5.00)
Silver	7440-22-4	35.1	33.7	ug/L	3.90	ND(0.40)
Zinc	7440-66-6	420	1801.6	ug/L	230.4	ND(10.00)
Cyanide	57-12-5	178000	1072500	ug/L	ND(5)	ND(5)
Non-Halogenated VOCs						
Total BTEX	CALC-BTEX		100	ug/L	50	ND(1.0)
Benzene	71-43-2		5	ug/L	50	ND(1.0)
Toluene	108-88-3	NSE	NSE	ug/L	ND(10)	ND(1.0)
Ethylbenzene	100-41-4	NSE	NSE	ug/L	ND(10)	ND(1.0)
Xylene O	95-47-6	NSE	NSE	ug/L	ND(10)	ND(1.0)
Xylene P,M	MPXYLENES	NSE	NSE	ug/L	ND(20)	ND(2.0)
Xylenes (Total)	1330-20-7	0.000064	0.000064	ug/L	ND(10)	ND(1.0)
1,4-Dioxane	123-91-1		200	ug/L	ND(50)	ND(5.0)
Acetone	67-64-1		7970	ug/L	ND(100)	ND(10)
Phenols	PHENOLS	1080	61875	ug/L	33	ND(30)
Halogenated VOCs						
Carbon Tetrachloride	56-23-5	4.4	330	ug/L	ND(10)	ND(1.0)
1,2-Dichlorobenzene	95-50-1		600	ug/L	ND(50)	ND(5.0)
1,3-Dichlorobenzene	541-73-1		320	ug/L	ND(50)	ND(5.0)
1,4-Dichlorobenzene	106-46-7		5	ug/L	ND(50)	ND(5.0)
1,1-Dichloroethane	75-34-3		5	ug/L	ND(15)	ND(1.5)
1,2-Dichloroethane	107-06-2		3.2	ug/L	ND(15)	ND(1.5)
1,1-Dichloroethene	75-35-4		0.05	ug/L	ND(10)	ND(1.0)
1,2-Dibromoethane	106-93-4		4.6	ug/L	ND(0.010)	ND(0.010)
Methylene Chloride	75-09-2		200	ug/L	ND(10)	ND(1.0)
1,1,1-Trichloroethane	71-55-6		5	ug/L	ND(20)	ND(2.0)
1,1,2-Trichloroethane	79-01-6		5	ug/L	ND(15)	ND(1.5)
Trichloroethene	79-01-6		5	ug/L	ND(10)	ND(1.0)
Tetrachloroethene	127-18-4	5	680.6	ug/L	ND(10)	ND(1.0)
cis-1,2-Dichloroethene	156-59-2		70	ug/L	ND(10)	ND(1.0)
Vinyl Chloride	75-01-4		2	ug/L	ND(10)	ND(1.0)
Non-Halogenated SVOCs						
Bis(2-Ethylhexyl)phthalate	117-81-7		453.8	ug/L	ND(2.20)	ND(2.20)
Butylbenzylphthalate	85-68-7	NSE	NSE	ug/L	ND(5.00)	ND(5.00)
Diethylphthalate	84-66-2	NSE	NSE	ug/L	ND(5.00)	ND(5.00)
Dimethylphthalate	131-11-3	NSE	NSE	ug/L	ND(5.00)	ND(5.00)
Di-n-butylphthalate	84-74-2	NSE	NSE	ug/L	ND(5.00)	ND(5.00)
Di-n-octylphthalate	117-84-0	NSE	NSE	ug/L	ND(5.00)	ND(5.00)
Total Group I PAHs	CALC-PAHsI	1		ug/L	0.290	8.972
Benzo(a)anthracene	56-35-3	As Total Group I PAHs	0.7838	ug/L	ND(0.100)	1.12
Benzo(a)pyrene	50-32-8		0.7838	ug/L	ND(0.100)	1.45
Benzo(b)fluoranthene	205-99-2		0.7838	ug/L	0.171	2.46
Benzo(k)fluoranthene	207-08-9		0.7838	ug/L	ND(0.100)	0.616
Chrysene	218-01-9		0.7838	ug/L	0.119	1.75
Dibenzo(a,h)Anthracene	53-70-3		0.7838	ug/L	ND(0.100)	0.236
Indeno(1,2,3-cd)Pyrene	193-39-5		0.7838	ug/L	ND(0.100)	1.34
Total Group II PAHs	CALC-PAHsII	100		ug/L	2.927	11.464
Acenaphthene	83-32-9	As Total Group II PAHs	0.140	ug/L	ND(0.100)	0.123
Acenaphthylene	208-96-8			ug/L	ND(0.100)	ND(0.100)
Anthracene	120-12-7			ug/L	ND(0.100)	0.186
Benzo(p,h)perylene	191-24-2			ug/L	ND(0.100)	1.17
Fluoranthene	206-44-0			ug/L	0.396	4.35
Fluorene	86-73-7			ug/L	ND(0.100)	0.165
Naphthalene	91-20-3	20		ug/L	1.63	ND(0.100)
Phenanthrene	85-01-8	As Total Group II PAHs		ug/L	0.469	2.34
Pyrene	129-00-0			ug/L	0.292	3.13
PCBs						
Aroclor 1016	12674-11-2	0.000064		ug/L	ND(0.250)	ND(0.250)
Aroclor 1221	11104-28-2	0.000064		ug/L	ND(0.250)	ND(0.250)
Aroclor 1232	11141-16-5	0.000064		ug/L	ND(0.250)	ND(0.250)
Aroclor 1242	53469-21-9	0.000064		ug/L	ND(0.250)	ND(0.250)
Aroclor 1248	12672-29-6	0.000064		ug/L	ND(0.250)	ND(0.250)
Aroclor 1254	11097-69-1	0.000064		ug/L	ND(0.250)	ND(0.250)
Aroclor 1260	11096-82-5	0.000064		ug/L	ND(0.200)	ND(0.200)
TOTAL PCBs	1330-20-7	0.000064		ug/L	ND(10)	ND(1.0)
Pentachlorophenol	87-86-5	1		ug/L	ND(1.00)	ND(1.00)
Fuel Parameters						
Total Petroleum Hydrocarbons	TPH	5	5	mg/L	ND(4.00)	ND(4.40)
Methyl tert-Butyl Ether	1634-04-4	70	4125	ug/L	ND(1000)	ND(10)
Tert-Butyl Alcohol	75-65-0		120	ug/L	ND(1000)	ND(100)
Tertiary-amyl methyl ether	994-05-8		90	ug/L	ND(200)	ND(20)
Ethanol	64-17-5	NSE		mg/L	ND(20)	ND(20)
General Chemistry						
Temperature (field measurement)	TEMP	NSE		Celsius	13.1	3.3
pH (field measurement)	pH		6.5 to 8.3	Standard Units	7.59	6.80

Notes

- USEPA = United States Environmental Protection Agency
- TBEL = Technology Based Effluent Limitation
- WQBEL = Water Quality Based Effluent Limitation
- ug/L = micrograms per liter
- mg/L = milligrams per liter
- ND = Not Detected above the laboratory reporting limit shown in parenthesis.
- CS = Compound Specific
- NSE = No Standard for Target Analyte
- --- = Sample not analyzed for Target Analyte
- Highlighted and Bolded values exceed one or more Standards
- Bolded ND values exceed one of more Standards

ATTACHMENT A:
NOTICE OF INTENT FORM

II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

A. General site information:

1. Name of site:	Site address: Street: <table border="1" data-bbox="888 475 1950 557"> <tr> <td data-bbox="888 475 1591 557">City:</td><td data-bbox="1591 475 1724 557">State:</td><td data-bbox="1724 475 1950 557">Zip:</td></tr> </table>	City:	State:	Zip:									
City:	State:	Zip:											
2. Site owner Owner is (check one): ☐ Federal ☐ State/Tribal ☐ Private ☐ Other; if so, specify:	<table border="1"> <tr> <td colspan="3" data-bbox="888 557 1950 630">Contact Person:</td></tr> <tr> <td data-bbox="888 630 1461 699">Telephone:</td><td colspan="2" data-bbox="1461 630 1950 699">Email:</td></tr> <tr> <td colspan="3" data-bbox="888 699 1950 800">Mailing address: Street:</td></tr> <tr> <td data-bbox="888 800 1591 878">City:</td><td data-bbox="1591 800 1724 878">State:</td><td data-bbox="1724 800 1950 878">Zip:</td></tr> </table>	Contact Person:			Telephone:	Email:		Mailing address: Street:			City:	State:	Zip:
Contact Person:													
Telephone:	Email:												
Mailing address: Street:													
City:	State:	Zip:											
3. Site operator, if different than owner	<table border="1"> <tr> <td colspan="3" data-bbox="888 878 1950 938">Contact Person:</td></tr> <tr> <td data-bbox="888 938 1461 998">Telephone:</td><td colspan="2" data-bbox="1461 938 1950 998">Email:</td></tr> <tr> <td colspan="3" data-bbox="888 998 1950 1099">Mailing address: Street:</td></tr> <tr> <td data-bbox="888 1099 1591 1154">City:</td><td data-bbox="1591 1099 1724 1154">State:</td><td data-bbox="1724 1099 1950 1154">Zip:</td></tr> </table>	Contact Person:			Telephone:	Email:		Mailing address: Street:			City:	State:	Zip:
Contact Person:													
Telephone:	Email:												
Mailing address: Street:													
City:	State:	Zip:											
4. NPDES permit number assigned by EPA: NPDES permit is (check all that apply): ☐ RGP ☐ DGP ☐ CGP ☐ MSGP ☐ Individual NPDES permit ☐ Other; if so, specify:	5. Other regulatory program(s) that apply to the site (check all that apply): <table border="0"> <tr> <td data-bbox="888 1214 1461 1284">☐ MA Chapter 21e; list RTN(s):</td><td data-bbox="1461 1214 1950 1284">☐ CERCLA</td></tr> <tr> <td data-bbox="888 1284 1461 1354">☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:</td><td data-bbox="1461 1284 1950 1354">☐ UIC Program</td></tr> <tr> <td></td><td data-bbox="1461 1354 1950 1398">☐ POTW Pretreatment</td></tr> <tr> <td></td><td data-bbox="1461 1398 1950 1458">☐ CWA Section 404</td></tr> </table>	☐ MA Chapter 21e; list RTN(s):	☐ CERCLA	☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:	☐ UIC Program		☐ POTW Pretreatment		☐ CWA Section 404				
☐ MA Chapter 21e; list RTN(s):	☐ CERCLA												
☐ NH Groundwater Management Permit or Groundwater Release Detection Permit:	☐ UIC Program												
	☐ POTW Pretreatment												
	☐ CWA Section 404												

B. Receiving water information:

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Receiving water is (check any that apply): ☐ Outstanding Resource Water ☐ Ocean Sanctuary ☐ territorial sea ☐ Wild and Scenic River		
2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): ☐ Yes ☐ No Are sensitive receptors present near the site? (check one): ☐ Yes ☐ No If yes, specify:		
3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP.		
4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.		
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.		
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): ☐ Yes ☐ No If yes, indicate date confirmation received:		
7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No		

C. Source water information:

1. Source water(s) is (check any that apply):			
☐ Contaminated groundwater Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ Contaminated surface water Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): ☐ Yes ☐ No	☐ The receiving water	☐ Potable water; if so, indicate municipality or origin: ☐ Other; if so, specify:
		☐ A surface water other than the receiving water; if so, indicate waterbody:	

2. Source water contaminants:	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): ☐ Yes ☐ No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): ☐ Yes ☐ No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): ☐ Yes ☐ No	

D. Discharge information

1.The discharge(s) is a(n) (check any that apply): ☐ Existing discharge ☐ New discharge ☐ New source	
Outfall(s):	Outfall location(s): (Latitude, Longitude)
Discharges enter the receiving water(s) via (check any that apply): ☐ Direct discharge to the receiving water ☐ Indirect discharge, if so, specify: ☐ A private storm sewer system ☐ A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): ☐ Yes ☐ No Has the operator has received permission from the owner to use such system for discharges? (check one): ☐ Yes ☐ No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): ☐ Yes ☐ No	
Provide the expected start and end dates of discharge(s) (month/year):	
Indicate if the discharge is expected to occur over a duration of: ☐ less than 12 months ☐ 12 months or more ☐ is an emergency discharge	
Has the operator attached a site plan in accordance with the instructions in D, above? (check one): ☐ Yes ☐ No	

2. Activity Category: (check all that apply)	3. Contamination Type Category: (check all that apply)	
☐ I – Petroleum-Related Site Remediation ☐ II – Non-Petroleum-Related Site Remediation ☐ III – Contaminated Site Dewatering ☐ IV – Dewatering of Pipelines and Tanks ☐ V – Aquifer Pump Testing ☐ VI – Well Development/Rehabilitation ☐ VII – Collection Structure Dewatering/Remediation ☐ VIII – Dredge-Related Dewatering	a. If Activity Category I or II: (check all that apply) ☐ A. Inorganics ☐ B. Non-Halogenated Volatile Organic Compounds ☐ C. Halogenated Volatile Organic Compounds ☐ D. Non-Halogenated Semi-Volatile Organic Compounds ☐ E. Halogenated Semi-Volatile Organic Compounds ☐ F. Fuels Parameters	
	b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)	
	☐ G. Sites with Known Contamination	☐ H. Sites with Unknown Contamination
	c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply) ☐ A. Inorganics ☐ B. Non-Halogenated Volatile Organic Compounds ☐ C. Halogenated Volatile Organic Compounds ☐ D. Non-Halogenated Semi-Volatile Organic Compounds ☐ E. Halogenated Semi-Volatile Organic Compounds ☐ F. Fuels Parameters	d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit ($\mu\text{g/l}$)	Influent		Effluent Limitations	
						Daily maximum ($\mu\text{g/l}$)	Daily average ($\mu\text{g/l}$)	TBEL	WQBEL
A. Inorganics									
Ammonia								Report mg/L	---
Chloride								Report $\mu\text{g/l}$	---
Total Residual Chlorine								0.2 mg/L	
Total Suspended Solids								30 mg/L	---
Antimony								206 $\mu\text{g/L}$	
Arsenic								104 $\mu\text{g/L}$	
Cadmium								10.2 $\mu\text{g/L}$	
Chromium III								323 $\mu\text{g/L}$	
Chromium VI								323 $\mu\text{g/L}$	
Copper								242 $\mu\text{g/L}$	
Iron								5,000 $\mu\text{g/L}$	
Lead								160 $\mu\text{g/L}$	
Mercury								0.739 $\mu\text{g/L}$	
Nickel								1,450 $\mu\text{g/L}$	
Selenium								235.8 $\mu\text{g/L}$	
Silver								35.1 $\mu\text{g/L}$	
Zinc								420 $\mu\text{g/L}$	
Cyanide								178 mg/L	
B. Non-Halogenated VOCs									
Total BTEX								100 $\mu\text{g/L}$	---
Benzene								5.0 $\mu\text{g/L}$	---
1,4 Dioxane								200 $\mu\text{g/L}$	---
Acetone								7.97 mg/L	---
Phenol								1,080 $\mu\text{g/L}$	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
C. Halogenated VOCs									
Carbon Tetrachloride								4.4 µg/L	
1,2 Dichlorobenzene								600 µg/L	---
1,3 Dichlorobenzene								320 µg/L	---
1,4 Dichlorobenzene								5.0 µg/L	---
Total dichlorobenzene								763 µg/L in NH	---
1,1 Dichloroethane								70 µg/L	---
1,2 Dichloroethane								5.0 µg/L	---
1,1 Dichloroethylene								3.2 µg/L	---
Ethylene Dibromide								0.05 µg/L	---
Methylene Chloride								4.6 µg/L	---
1,1,1 Trichloroethane								200 µg/L	---
1,1,2 Trichloroethane								5.0 µg/L	---
Trichloroethylene								5.0 µg/L	---
Tetrachloroethylene								5.0 µg/L	
cis-1,2 Dichloroethylene								70 µg/L	---
Vinyl Chloride								2.0 µg/L	---
D. Non-Halogenated SVOCs									
Total Phthalates								190 µg/L	
Diethylhexyl phthalate								101 µg/L	
Total Group I PAHs								1.0 µg/L	---
Benzo(a)anthracene								As Total PAHs	
Benzo(a)pyrene									
Benzo(b)fluoranthene									
Benzo(k)fluoranthene									
Chrysene									
Dibenzo(a,h)anthracene									
Indeno(1,2,3-cd)pyrene									

[illegible]

E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply) ☐ Adsorption/Absorption ☐ Advanced Oxidation Processes ☐ Air Stripping ☐ Granulated Activated Carbon (“GAC”)/Liquid Phase Carbon Adsorption ☐ Ion Exchange ☐ Precipitation/Coagulation/Flocculation ☐ Separation/Filtration ☐ Other; if so, specify:	
2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge. Identify each major treatment component (check any that apply): ☐ Fractionation tanks ☐ Equalization tank ☐ Oil/water separator ☐ Mechanical filter ☐ Media filter ☐ Chemical feed tank ☐ Air stripping unit ☐ Bag filter ☐ Other; if so, specify: Indicate if either of the following will occur (check any that apply): ☐ Chlorination ☐ De-chlorination	
3. Provide the design flow capacity in gallons per minute (gpm) of the most limiting component. Indicate the most limiting component: Is use of a flow meter feasible? (check one): ☐ Yes ☐ No, if so, provide justification:	
Provide the proposed maximum effluent flow in gpm.	
Provide the average effluent flow in gpm.	
If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:	
4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one): ☐ Yes ☐ No	

F. Chemical and additive information

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply) ☐ Algaecides/biocides ☐ Antifoams ☐ Coagulants ☐ Corrosion/scale inhibitors ☐ Disinfectants ☐ Flocculants ☐ Neutralizing agents ☐ Oxidants ☐ Oxygen ☐ scavengers ☐ pH conditioners ☐ Bioremedial agents, including microbes ☐ Chlorine or chemicals containing chlorine ☐ Other; if so, specify:
2. Provide the following information for each chemical/additive, using attachments, if necessary: a. Product name, chemical formula, and manufacturer of the chemical/additive; b. Purpose or use of the chemical/additive or remedial agent; c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive; d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive; e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).
3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one): ☐ Yes ☐ No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive? (check one): ☐ Yes ☐ No

G. Endangered Species Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit: ☐ FWS Criterion A: No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the “action area”. ☐ FWS Criterion B: Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one): ☐ Yes ☐ No; if no, is consultation underway? (check one): ☐ Yes ☐ No ☐ FWS Criterion C: Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have “no effect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one) ☐ the operator ☐ EPA ☐ Other; if so, specify:

- ☐ **NMFS Criterion:** A determination made by EPA is affirmed by the operator that the discharges and related activities will have “no effect” or are “not likely to adversely affect” any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one): ☐ Yes ☐ No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one): ☐ Yes ☐ No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one): ☐ Yes ☐ No; if yes, attach.

H. National Historic Preservation Act eligibility determination

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

- ☐ **Criterion A:** No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.
- ☐ **Criterion B:** Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.
- ☐ **Criterion C:** Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one): ☐ Yes ☐ No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one): ☐ Yes ☐ No

I. Supplemental information

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one): ☐ Yes ☐ No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one): ☐ Yes ☐ No

J. Certification requirement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

BMPP certification statement: **A BMPP meeting the requirements of this general permit will be developed and implemented prior to the initiation of discharge**

Notification provided to the appropriate State, including a copy of this NOI, if required.

Check one: Yes ☒ No ☐

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.

Check one: Yes ☒ No ☐

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.

Check one: Yes ☐ No ☐ NA ☒

Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.

Check one: Yes ☐ No ☐ NA ☒

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one): ☐ RGP ☐ DGP ☒ CGP ☐ MSGP ☐ Individual NPDES permit
☐ Other; if so, specify:

Check one: Yes ☒ No ☐ NA ☐

Signature:



Date:

3/28/22

Print Name and Title:

E. Daw Ray

ATTACHMENT B:
MASSDEP PHASE I SITE ASSESSMENT MAP

MassDEP - Bureau of Waste Site Cleanup

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

Site Information:

196 LEXINGTON STREET WOBURN, MA

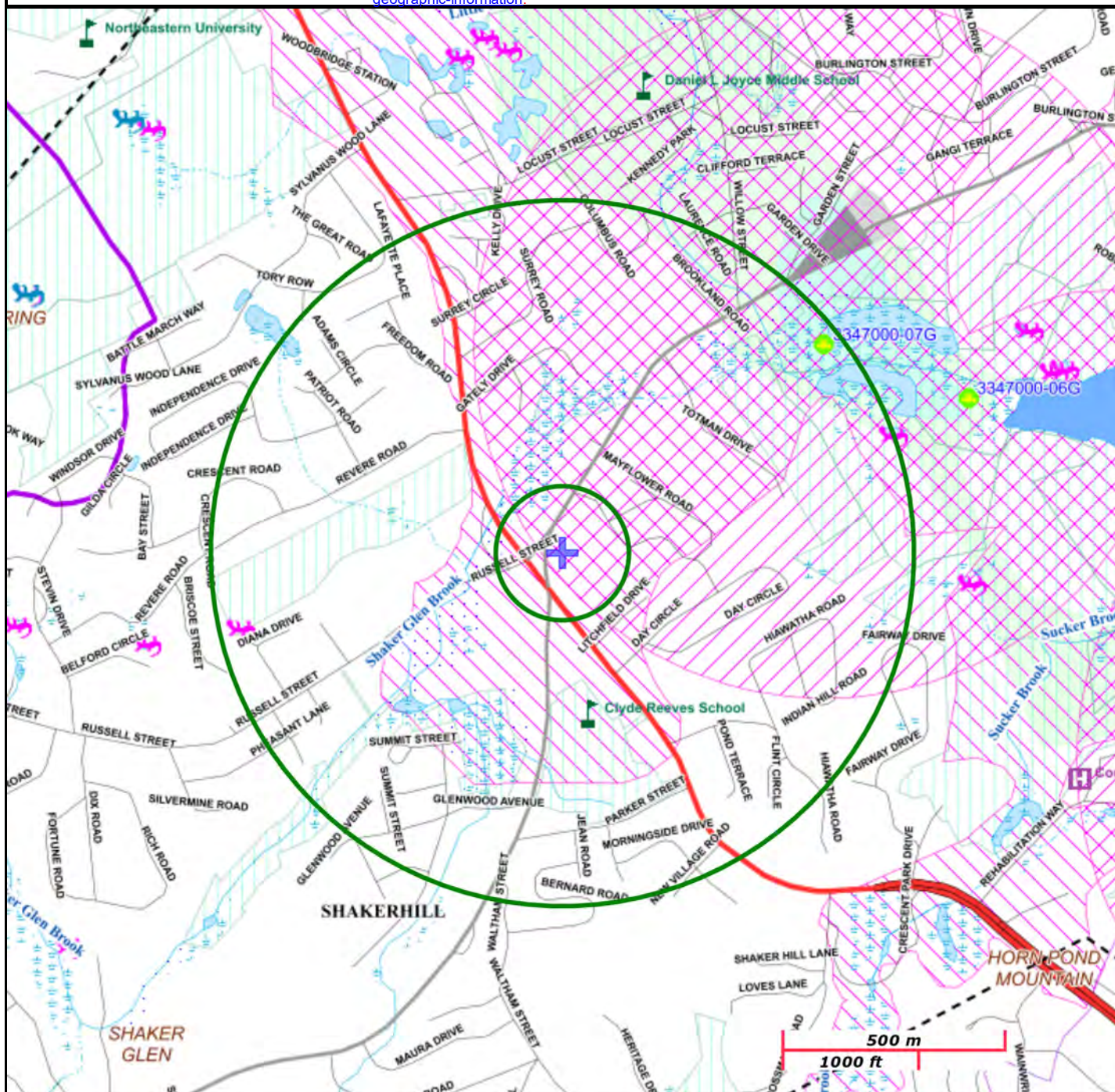
NAD83 UTM Meters:

4704052mN, 320987mE (Zone: 19)
September 1, 2021

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



MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Aquifers: Medium Yield, High Yield, EPA Sole Source.....

Non Potential Drinking Water Source Area: Medium, High (Yield)...

PWS Protection Areas: Zone II, IWPA, Zone A

Hydrography: Open Water, PWS Reservoir, Tidal Flat

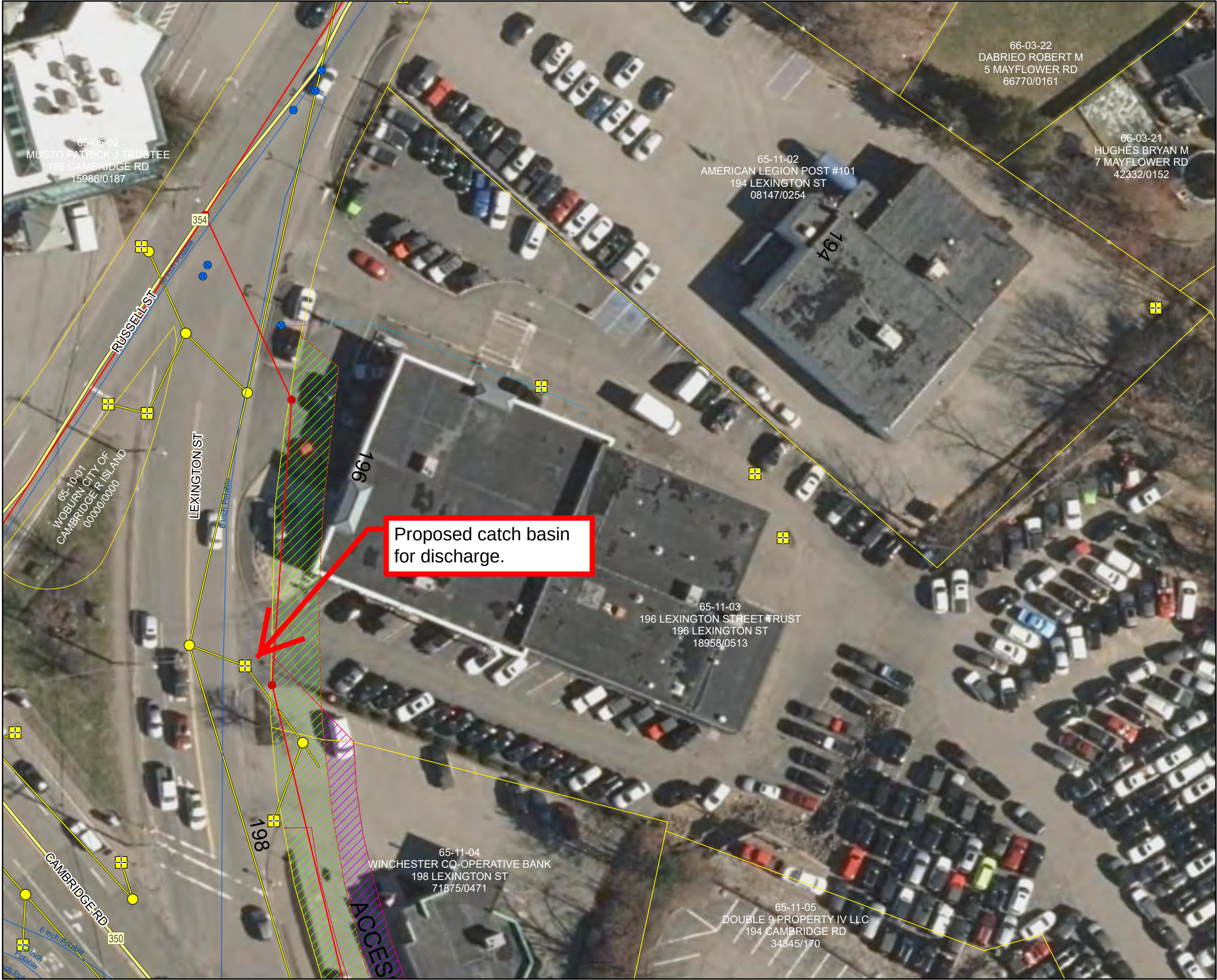
Wetlands: Freshwater, Saltwater, Cranberry Bog

FEMA 100yr Floodplain; Protected Open Space; ACEC

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

ATTACHMENT C:
PROPOSED DRAINAGE PATH



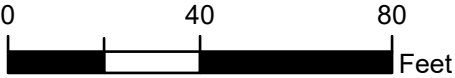
ASSESSOR MAP
OF WOBURN
MASSACHUSETTS



Legend

- Buildings
- City Boundary
- Easements
- Drainage
- Porch Decks
- Contours
- Parking Lots
- Driveways
- Edge of Pavement
- Paper Streets
- Parcels
- Treed Area
- Right of Way
- Zoning Lines
- FEMA100yrFloodPlain
- Local100yrFloodPlain
- R-1 Zoning Text
- 120101 Map/Block/Lot
- 5,500 SF Acreage
- 100.00' Dimensions

2019 Aerial Photography



THIS MAP IS PREPARED FOR THE INVENTORY OF REAL ESTATE PROPERTY WITHIN THE CITY OF WOBURN AND IS COMPILED FROM THE RECORDED DEEDS, PLATS, TAX MAPS, SURVEYS, PLANIMETRIC MAPS AND OTHER PUBLIC RECORDS AND DATA. USERS OF THIS MAP ARE HEARBY NOTIFIED THAT THE AFORMENTIONED PUBLIC PRIMARY INFORMATION SOURCES SHOULD BE CONSULTED FOR VERIFICATION OF THE INFORMATION CONTAINED ON THIS MAP. THE CITY OF WOBURN AND ITS MAPPING CONTRACTORS ASSUME NO LEGAL RESPONSIBILITY FOR THE INFORMATION CONTAINED HEREIN.

City of Woburn
Engineering Department

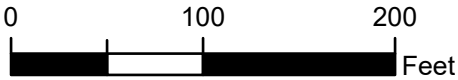
ASSESSOR MAP
OF WOBURN
MASSACHUSETTS



Legend

- Buildings
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2019 Aerial Photography



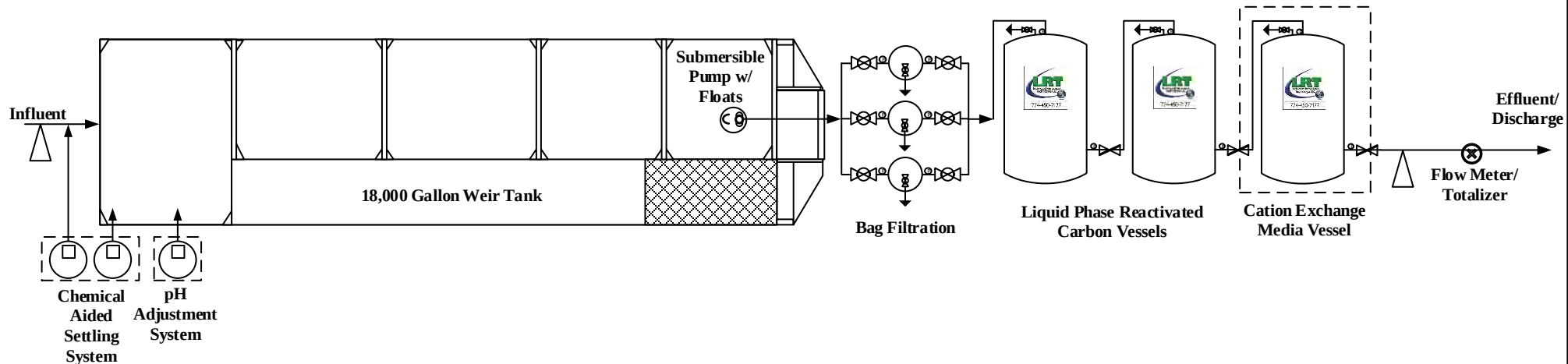
THIS MAP IS PREPARED FOR THE INVENTORY OF REAL ESTATE PROPERTY WITHIN THE CITY OF WOBURN AND IS COMPILED FROM THE RECORDED DEEDS, PLATS, TAX MAPS, SURVEYS, PLANIMETRIC MAPS AND OTHER PUBLIC RECORDS AND DATA. USERS OF THIS MAP ARE HEARBY NOTIFIED THAT THE AFORMENTIONED PUBLIC PRIMARY INFORMATION SOURCES SHOULD BE CONSULTED FOR VERIFICATION OF THE INFORMATION CONTAINED ON THIS MAP. THE CITY OF WOBURN AND ITS MAPPING CONTRACTORS ASSUME NO LEGAL RESPONSIBILITY FOR THE INFORMATION CONTAINED HEREIN.

City of Woburn
Engineering Department



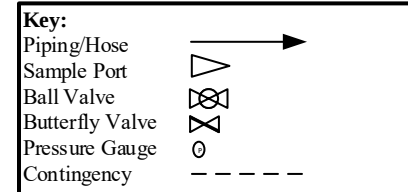
ATTACHMENT D:

PROPOSED TREATMENT SYSTEM SCHEMATIC AND CUT SHEETS



Notes:

- 1.) Figure is not to scale
- 2.) System rated for 150 GPM



Lockwood Remediation Technologies, LLC
89 Crawford Street
Leominster, MA 01453
Office: 774-450-7177

DESIGNED BY: LRT

DRAWN BY: JHJ

CHECKED BY:

DATE:

Water Treatment System Schematic

196 Lexington Street
Woburn, MA

PROJECT No.

FIGURE No.

ATTACHMENT E:
DILUTION FACTOR CORRESPONDENCE AND APPROVAL

Ben Sivonen

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Friday, March 25, 2022 5:01 PM
To: Ben Sivonen
Cc: Coniaris, Catherine (DEP)
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

Hi Ben,

I checked the calculation and can confirm that the dilution factor of 1.15 was correct for the proposed discharge with a design flow of 150 gpm.

The 7Q10 flow of 0.0519 cfs for the Shaker Glen Brook and the water quality information provided in my previous email remain the same.

Please let me know if you have any questions.

Thanks,
Xiaodan

Xiaodan Ruan
Environmental Engineer
Massachusetts Department of Environmental Protection
One Winter Street, Boston, MA 02108
(857)-256-4172
xiaodan.ruan@mass.gov

From: Ben Sivonen <bsivonen@vertexeng.com>
Sent: Thursday, March 24, 2022 2:08 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Cc: Coniaris, Catherine (DEP) <Catherine.Coniaris@mass.gov>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello Xiadon,

After some recent developments, there have been some modifications made to a proposed dewatering system that I had reached out to you about previously. The system is now proposed to have a maximum pump rate of 150 gpm. Based on this, I would like to confirm if we can apply a modified dilution factor for the proposed discharge to Shaker Glen Brook that had been approved previously. Attached is the StreamStats report for reference and below is the modified dilution factor calculation. Could you let me know if we are approved to apply this dilution factor?

StreamStats report indicates a 7Q10 of 0.0519 cfs at the proposed discharge point which equates to 0.033544 mgd. Our proposed discharge rate will be no greater than 150 gpm, which equates 0.216 mgd. Based on this, we calculate a dilution factor of 1.15.

Thank you

Benjamin Sivonen, EIT
PROJECT MANAGER

O: 617.275.5407 | C: 781.974.7595 | VERTEXENG.COM

THE VERTEX COMPANIES, INC.
100 NORTH WASHINGTON STREET, SUITE 302
BOSTON, MA 02114

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Thursday, March 10, 2022 8:00 PM
To: Ben Sivonen <bsivonen@vertexeng.com>
Cc: Coniaris, Catherine (DEP) <catherine.coniaris@state.ma.us>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

Hi Ben,

I can confirm that the 7Q10 of 0.0519 cfs for the Shaker Glen Brook and the dilution factor of 1.46 for the proposed discharge with a design flow of 50 gpm from the site located at 196 Lexington st., Woburn are correct.

Here is water quality information assisting you in filling out the NOI:

Waterbody and ID: Shaker Glen Brook (segment MA71-11) within the Boston Harbor: Mystic River Watershed
Classification: B
Outstanding Resource Water?: no
State's most recent Integrated List is located here: <https://www.mass.gov/doc/final-massachusetts-integrated-list-of-waters-for-the-clean-water-act-20182020-reporting-cycle/download>, search for "MA71-11" to see the causes of impairments.
TMDLs: there are no approved TMDLs for this segment.

If this is not a *current* MCP site, then in addition to submitting the NOI to EPA, you need to apply with MassDEP and submit a \$500 fee (unless fee exempt, e.g., municipality) using ePLACE. Instructions on how to apply are located here: <https://www.mass.gov/how-to/wm-15-npdes-general-permit-notice-of-intent> and information on how to get ePLACE technical assistance is available on the ePLACE Portal webpage: <https://eplace.eea.mass.gov/citizenaccess/>.

Please let me know if you have any additional questions.

Thanks,
Xiaodan

Xiaodan Ruan
Environmental Engineer
Massachusetts Department of Environmental Protection
One Winter Street, Boston, MA 02108
(857)-256-4172
xiaodan.ruan@mass.gov

From: Ben Sivonen <bsivonen@vertexeng.com>
Sent: Thursday, March 10, 2022 1:43 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Cc: Coniaris, Catherine (DEP) <Catherine.Coniaris@mass.gov>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello,

Following up on my previous email. Could someone confirm whether we may apply a dilution factor to our proposed discharge.

As a reminder, the attached StreamStats report indicates a 7Q10 of 0.0519 cfs at the proposed discharge point which equates to 0.033544 mgd. Our proposed discharge rate will be no greater than 50 gpm, which equates 0.072 mgd. Based on this, we calculate a dilution factor of 1.46.

Please let me know if this dilution factor may be applied/incorporated into our calculations.

Thank you

Benjamin Sivonen, EIT
PROJECT MANAGER

O: 617.275.5407 | C: 781.974.7595 | VERTEXENG.COM

THE VERTEX COMPANIES, INC.
100 NORTH WASHINGTON STREET, SUITE 302
BOSTON, MA 02114

From: Ben Sivonen
Sent: Thursday, March 3, 2022 3:00 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Cc: Coniaris, Catherine (DEP) <catherine.coniaris@state.ma.us>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

Hello Ruan,

I realized that I made a slight typo in my previous email, in that I referenced a 7Q10 value of 0.519 cfs when I should have written 0.0519 cfs. My calculations however were still correct, and the dilution factor we are hoping to apply for is 1.46. Please feel free to contact me with any questions, or if we may be able to apply this dilution factor.

Thank you.

Benjamin Sivonen, EIT
PROJECT MANAGER

O: 617.275.5407 | C: 781.974.7595 | VERTEXENG.COM

From: Ben Sivonen
Sent: Monday, February 28, 2022 1:43 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Cc: Coniaris, Catherine (DEP) <catherine.coniaris@state.ma.us>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

Hi Ruan,

Attached is a StreamStats report that we generated to support the NOI that we are currently drafting. As indicated in the report, the 7Q10 is calculated to be 0.519 cfs which equates to 0.033544 mgd. Our proposed discharge rate will be no greater than 50 gpm, which equates 0.072 mgd. Based on this, we calculate a dilution factor of 1.46.

Please let me know if this dilution factor may be applied/incorporated into our calculations.

Thank you

Benjamin Sivonen, EIT
PROJECT MANAGER

O: 617.275.5407 | C: 781.974.7595 | [VERTEXENG.COM](http://vertexeng.com)

THE VERTEX COMPANIES, INC.
100 NORTH WASHINGTON STREET, SUITE 302
BOSTON, MA 02114

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Tuesday, February 8, 2022 3:23 PM
To: Ben Sivonen <bsivonen@vertexeng.com>
Cc: Coniaris, Catherine (DEP) <catherine.coniaris@state.ma.us>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

Hi Benjamin,

Thank you for providing the information.

In general, StreamStats is the default tool to calculate the 7Q10s for RGP applications. However, there were cases where the StreamStats could not calculate a 7Q10, and then we also considered using other approaches such as SW Toolbox (developed by USGS as well).

I checked the NWIS website for the gage station USGS 01102490, and it appears that the gage station has stopped collecting data since 1994. In the station report, on the first page, the period of record that was used for the calculation was 1973-74. I am not familiar with how the flows in these station reports were calculated, but I think the accuracy of the 7Q10 might be questionable and it most likely would not represent a more recent low flow condition of the river.

The StreamStats should be used to calculate the 7Q10 for the Shaker Glen Brook to answer your question.

Please calculate the dilution factor using the design flow, the maximum flow rate that the treatment system would allow, and send it back to me for approval. I will include the water quality information after checking the dilution factor.

Please let me know if you have other questions.

Thanks,
Xiaodan

Xiaodan Ruan
Environmental Engineer
Massachusetts Department of Environmental Protection
One Winter Street, Boston, MA 02108
(857)-256-4172
xiaodan.ruan@mass.gov

From: Ben Sivonen <bsivonen@vertexeng.com>
Sent: Tuesday, February 8, 2022 7:50 AM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Cc: Coniaris, Catherine (DEP) <Catherine.Coniaris@mass.gov>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hi Xiaodan,

The project is located at 196 Lexington Street in Woburn. We are currently proposing to discharge to a stormdrain located in Lexington Street, which eventually discharges to Shaker Glen Brook via an outfall located on Lexington Street further northeast of the site.

I am trying to determine which 7Q10 to use given that there is a Station Report for the outfall as well as a Stream Stats report that I generated using the web based program.

Please feel free to let me know if there are any other questions.

Thanks

Benjamin Sivonen, EIT
PROJECT MANAGER

O: 617.275.5407 | C: 781.974.7595 | VERTEXENG.COM

THE VERTEX COMPANIES, INC.
100 NORTH WASHINGTON STREET, SUITE 302
BOSTON, MA 02114

From: Ruan, Xiaodan (DEP) <xiaodan.ruan@state.ma.us>
Sent: Monday, February 7, 2022 3:31 PM
To: Ben Sivonen <bsivonen@vertexeng.com>
Cc: Coniaris, Catherine (DEP) <catherine.coniaris@state.ma.us>
Subject: RE: 7Q10 Inquiry for Shaker Glen Brook

Hi Benjamin,

Could you please provide the address for the project?

Thanks,
Xiaodan

Xiaodan Ruan
Environmental Engineer
Massachusetts Department of Environmental Protection
One Winter Street, Boston, MA 02108
(857)-256-4172
xiaodan.ruan@mass.gov

From: Coniaris, Catherine (DEP) <Catherine.Coniaris@mass.gov>
Sent: Monday, February 7, 2022 2:51 PM
To: Ruan, Xiaodan (DEP) <xiaodan.ruan@mass.gov>
Cc: bsivonen@vertexeng.com
Subject: Fw: 7Q10 Inquiry for Shaker Glen Brook

Hi Xiaodan,
Are you able to look at this?
Cathy

PLEASE NOTE CHANGES IN RED

Cathy Coniaris (formerly Vakalopoulos)
Massachusetts Department of Environmental Protection
1 Winter St., Boston, MA 02108, 617-835-6693
Please consider the environment before printing this e-mail

From: Ben Sivonen <bsivonen@vertexeng.com>
Sent: Monday, February 7, 2022 2:40 PM
To: Coniaris, Catherine (DEP) <Catherine.Coniaris@mass.gov>
Subject: 7Q10 Inquiry for Shaker Glen Brook

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Hello Cathy,

I am in the process of assisting a colleague of mine with a RGP NOI for a site located in Woburn MA. While looking at StreamStats, I saw that our proposed point of discharge is immediately adjacent to a monitoring station in Shaker Glen Brook. So I was wondering which 7Q10 would be better for us to use. Attached are copies of the Station Report and the Stream Stats report that I generated. Could you let me know which would be a better 7Q10 to refer to? The Station Report indicates 0.37 cf/s, while the Stream Stats Report indicates a value of 0.0519 cf/s.

Thank you

Benjamin Sivonen, EIT

PROJECT MANAGER

O: 617.275.5407 | C: 781.974.7595 | VERTEXENG.COM

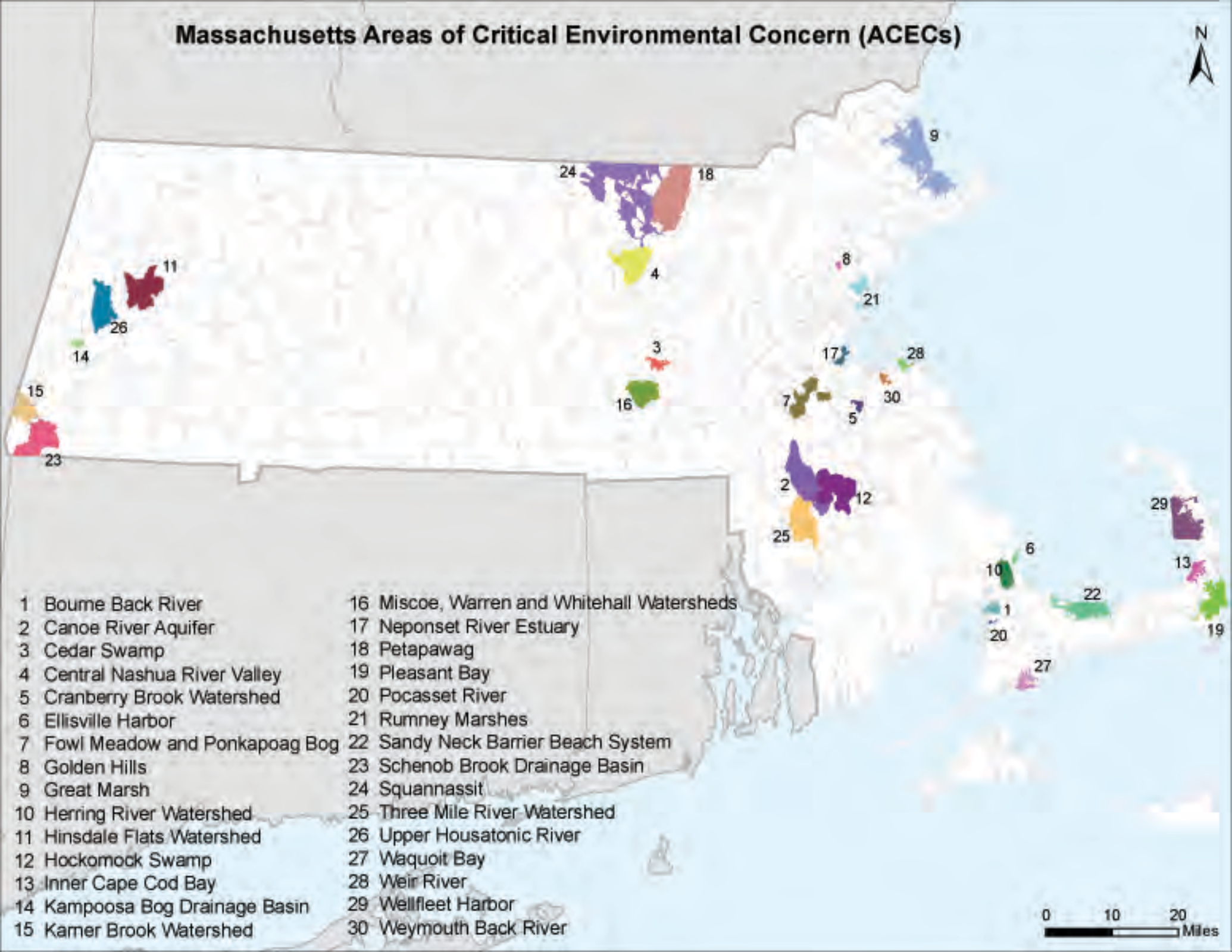
THE VERTEX COMPANIES, INC.

100 NORTH WASHINGTON STREET, SUITE 302
BOSTON, MA 02114

ATTACHMENT F:

AREAS OF CRITICAL ENVIRONMENTAL CONCERN DOCUMENTATION

Massachusetts Areas of Critical Environmental Concern (ACECs)



- | | |
|---------------------------------|--|
| 1 Bourns Back River | 16 Miscoe, Warren and Whitehall Watersheds |
| 2 Canoe River Aquifer | 17 Neponset River Estuary |
| 3 Cedar Swamp | 18 Petapawag |
| 4 Central Nashua River Valley | 19 Pleasant Bay |
| 5 Cranberry Brook Watershed | 20 Pocasset River |
| 6 Ellisville Harbor | 21 Rumney Marshes |
| 7 Fowl Meadow and Ponkapoag Bog | 22 Sandy Neck Barrier Beach System |
| 8 Golden Hills | 23 Schenob Brook Drainage Basin |
| 9 Great Marsh | 24 Squannassit |
| 10 Herring River Watershed | 25 Three Mile River Watershed |
| 11 Hinsdale Flats Watershed | 26 Upper Housatonic River |
| 12 Hockomock Swamp | 27 Waquoit Bay |
| 13 Inner Cape Cod Bay | 28 Weir River |
| 14 Kampoosa Bog Drainage Basin | 29 Wellfleet Harbor |
| 15 Kanner Brook Watershed | 30 Weymouth Back River |

0 10 20 Miles

ATTACHMENT G:

**NATIONAL HISTORIC REGISTER OF HISTORIC PLACES AND MASSACHUSETTS HISTORICAL
COMMISSION DOCUMENTATION**

Massachusetts Cultural Resource Information System

MACRIS



MACRIS Search Results

Search Date: 2/4/2022
Search Criteria: Town(s): Woburn;

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.A	Battle Road - Old Lexington Road Area		Woburn		
WOB.B	Middlesex Canal		Woburn		NRDIS; NRDIS;
WOB.C	Metropolitan Park System of Greater Boston		Woburn		
WOB.D	Middlesex Canal Area		Woburn		
WOB.E	Diners of Massachusetts		Woburn		NRMP5;
WOB.F	Woburn Public Library		Woburn		NRIND; NHL;
WOB.G	First Burial Ground		Woburn		NRIND; PR;
WOB.H	Baldwin Homestead Historic District		Woburn		LHD; NRDIS;
WOB.I	Saint Joseph's Roman Catholic Church Complex		Woburn		
WOB.J	Middlesex Canal Historic and Archaeological		Woburn		NRDIS;
WOB.K	Expanded Baldwin Homestead Historic District		Woburn		LHD;
WOB.L	Woburn Jewish Cemeteries		Woburn		
WOB.15	U. S. Post Office - Woburn Center Station	1 Abbott St	Woburn	1911	NRIND;
WOB.1	Baldwin, Loammi Mansion	2 Alfred St	Woburn	C 1750	NRIND; LHD; NRDIS;
WOB.46	Simonds, George A. House	1 Arlington Rd	Woburn	C 1900	
WOB.47	Johnson, John House	4 Arlington Rd	Woburn	C 1860	NRDIS;
WOB.291		6 Arlington Rd	Woburn	C 1830	NRDIS;
WOB.293		8 Arlington Rd	Woburn	C 1910	NRDIS;
WOB.48	Dow, Carrie Ellis - Lynch, Thomas K. House	9 Arlington Rd	Woburn	C 1890	
WOB.294	Taylor, James Dexter House	10 Arlington Rd	Woburn	C 1860	NRDIS;
WOB.49	Davis, William Frederic House	11 Arlington Rd	Woburn	1888	
WOB.295		14 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.296		16 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.50	Ramsdell, Julius F. House	17 Arlington Rd	Woburn	C 1898	
WOB.298	Trull, Alfred A. House	22 Arlington Rd	Woburn	C 1850	NRDIS;
WOB.300		24 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.301		26 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.302		30 Arlington Rd	Woburn	C 1890	NRDIS;
WOB.303		34 Arlington Rd	Woburn	C 1890	NRDIS;
WOB.305		36 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.635	Brown, Frederic J. House	37 Arlington Rd	Woburn	C 1882	
WOB.307	Kean, Frederick Clarence House	40 Arlington Rd	Woburn	1906	NRDIS;
WOB.636	Barnes, Rev. William S. - Ronco, David House	41 Arlington Rd	Woburn	C 1870	
WOB.677	Hudson, Edward W. House	45 Arlington Rd	Woburn	C 1880	
WOB.311		46 Arlington Rd	Woburn	C 1962	NRDIS;
WOB.313	Parker, Frederick Chandler House	48 Arlington Rd	Woburn	C 1840	NRDIS;
WOB.315		50 Arlington Rd	Woburn	C 1962	NRDIS;
WOB.325		61 Arlington Rd	Woburn	C 1910	NRDIS;

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.318	Butts, Charles A. House	62 Arlington Rd	Woburn	1928	NRDIS;
WOB.326		63 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.319		64 Arlington Rd	Woburn	C 1910	NRDIS;
WOB.327		65 Arlington Rd	Woburn	C 1930	NRDIS;
WOB.322		66 Arlington Rd	Woburn	C 1890	NRDIS;
WOB.329		69 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.637	Crovo, Harry House	70 Arlington Rd	Woburn	1924	
WOB.338	Hudson, Edward W. Double House	92 Arlington Rd	Woburn	C 1860	NRDIS;
WOB.638	McCauley, Patrick Filling Station	92 Arlington Rd	Woburn	R 1920	NRDIS;
WOB.339		100 Arlington Rd	Woburn	C 1960	NRDIS;
WOB.340		106 Arlington Rd	Woburn	C 1930	NRDIS;
WOB.341		108 Arlington Rd	Woburn	C 1940	NRDIS;
WOB.342		110 Arlington Rd	Woburn	C 1940	NRDIS;
WOB.343		112 Arlington Rd	Woburn	C 1918	NRDIS;
WOB.344	McLaughlin, James A. House	114 Arlington Rd	Woburn	C 1900	NRDIS;
WOB.345		116 Arlington Rd	Woburn	C 1960	NRDIS;
WOB.346		120 Arlington Rd	Woburn	C 1957	NRDIS;
WOB.347		126 Arlington Rd	Woburn	C 1957	NRDIS;
WOB.348		130 Arlington Rd	Woburn	C 1959	NRDIS;
WOB.350		138 Arlington Rd	Woburn	C 1850	NRDIS;
WOB.640	Donahue, Patrick Double House	6 Ash St	Woburn	C 1875	
WOB.641	Sloan, Patrick - McGowan, Charles E. House	10 Ash St	Woburn	C 1870	
WOB.642		12 Ash St	Woburn	C 1870	
WOB.248	Meehan, Bernard House	2 Ashburton Ave	Woburn	C 1940	NRDIS;
WOB.515	Stewart, Joseph E. House	27 Auburn St	Woburn	C 1880	
WOB.516	McDermott, Michael House	18 Bacon St	Woburn	C 1887	
WOB.517	O'Hara, Martin House	22 Bacon St	Woburn	C 1894	
WOB.356	Rand, Charles H. House	6 Beach St	Woburn	C 1870	
WOB.357	Knight, Alden House	10 Beach St	Woburn	C 1860	
WOB.358	Kenney, John P. House	11 Beach St	Woburn	C 1926	
WOB.359	Wright, Jacob House	15 Beach St	Woburn	C 1875	
WOB.360	French, Charles P. - McHugh, Annie House	18-20 Beach St	Woburn	C 1910	
WOB.361	Cummings, William H. - Wood, Charles Lincoln House	19 Beach St	Woburn	C 1882	
WOB.518	Winn, J. House	5 Beacon St	Woburn	R 1830	
WOB.519	Winn, J. House	7 Beacon St	Woburn	C 1840	
WOB.520	Gifford, Seth - Hurd, E. Arthur House	9 Beacon St	Woburn	C 1887	
WOB.521	Winn, Joseph - Gifford, Seth House	11 Beacon St	Woburn	C 1830	
WOB.522	Simonds, Susan House	13 Beacon St	Woburn	C 1860	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.51	Cutler, Warren House	40 Beacon St	Woburn	C 1860	
WOB.52	Nichols, Frank C. Double House	43 Beacon St	Woburn	C 1890	
WOB.362	Bowen, John - Shea, Michael House	49 Bedford Rd	Woburn	C 1870	
WOB.523	Breslin, Charles House	80 Bedford Rd	Woburn	C 1850	
WOB.524	Given, Frederic House	116 Bedford Rd	Woburn	C 1880	
WOB.525	Johnson, Oscar House	118 Bedford Rd	Woburn	C 1916	
WOB.526	Cummings, John House	120 Bedford Rd	Woburn	C 1810	
WOB.527	Wenzell, Henry - Blaney, George Arnold House	131 Bedford Rd	Woburn	C 1865	
WOB.528	Cummings, John - Stevenson, Matthew House	134 Bedford Rd	Woburn	C 1860	
WOB.529	McLaughlin, Neil - Ellard, John House	135 Bedford Rd	Woburn	C 1860	
WOB.530	Cummings, John - O'Rourke, Edward House	136 Bedford Rd	Woburn	C 1860	
WOB.531		137 Bedford Rd	Woburn	C 1910	
WOB.532	Cummings, Cyrus - Glass, Isabella G. House	141 Bedford Rd	Woburn	C 1870	
WOB.533	Cummings, Cyrus Double House and Market	143 Bedford Rd	Woburn	C 1860	
WOB.534	Cummings, John - Busteed, Adam Double House	157-159 Bedford Rd	Woburn	C 1810	
WOB.535	Bacon, John - Doherty, John A. Double House	161-163 Bedford Rd	Woburn	R 1820	
WOB.536	Kendall, Nathaniel - Cummings, John Double House	167-169 Bedford Rd	Woburn	C 1840	
WOB.537	Downs, Mark - Heald, Alvah House	171 Bedford Rd	Woburn	C 1860	
WOB.538	Heald, Alvah Barn	171 Bedford Rd	Woburn	R 1920	
WOB.539	Graham, A. House	173 Bedford Rd	Woburn	C 1880	
WOB.540	Barrett, Abel House	175 Bedford Rd	Woburn	C 1880	
WOB.541	Harron, John Garage	175 Bedford Rd	Woburn	R 1920	
WOB.2	Martin, Capt. William House	10 Bennett St	Woburn	C 1828	
WOB.363	Leahey, Edward M. House	4 Blake St	Woburn	1928	
WOB.364	Watt, John - Potamis, Gregory House	5 Blake St	Woburn	1928	
WOB.365	Maguire, John House	6 Blake St	Woburn	1928	
WOB.366	Blake, Henry C. House	8 Blake St	Woburn	1928	
WOB.367	Blake, Henry C. - McGonagle, Daniel House	10 Blake St	Woburn	1928	
WOB.368	Blake, Henry C. - Carpenter, Edna House	1 Blake Ter	Woburn	C 1930	
WOB.369	Howe, William House	3 Blake Ter	Woburn	1927	
WOB.370	Smith, Kennick R. - Garrity, Mary House	5 Blake Ter	Woburn	1927	
WOB.53	Conn, Horace - Place, Griffin Carriage House	6 Blake Ter	Woburn	C 1868	
WOB.371	Blake, Henry C. - Mahoney, Edward House	7 Blake Ter	Woburn	1928	
WOB.643	Dolan, Thomas House	10 Border St	Woburn	C 1870	
WOB.4	Converse, Josiah - Richardson, Bartholomew House	76 Bow St	Woburn	C 1675	
WOB.231	Richardson, F. P. Barn	76 Bow St	Woburn	R 1885	
WOB.644	McDonald, James - Sullivan, Patrick House	12 Buckman Ct	Woburn	R 1875	
WOB.372	Nichols, Charles A. House	3 Burlington St	Woburn	C 1870	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.55	Flagg, Benjamin F. House	51 Burlington St	Woburn	C 1880	
WOB.56	Blanchard, David O. House	133 Burlington St	Woburn	C 1860	
WOB.34	Cummings, Ebenezer - Cummings, Charles House	35 Cambridge Rd	Woburn	C 1850	
WOB.373	Weston, John House	134 Cambridge Rd	Woburn	C 1840	
WOB.57	Tarky, William J. House	165 Cambridge Rd	Woburn	C 1920	
WOB.58	Hale, Jonas House	210 Cambridge Rd	Woburn	C 1830	
WOB.59	Looker, Bertha - Reeves, George House	213 Cambridge Rd	Woburn	C 1910	
WOB.60	Russell, George House	216 Cambridge Rd	Woburn	C 1830	
WOB.230	Russell, William Barn	216 Cambridge Rd	Woburn	R 1920	
WOB.61	Cambridge Street School	216R Cambridge Rd	Woburn	C 1844	
WOB.5	Parker, Joseph - Tufts, William A. House	221 Cambridge Rd	Woburn	1782	
WOB.374	Parker, Joseph - Heald, Jonathan Bradford House	241 Cambridge Rd	Woburn	C 1800	
WOB.940	Saint Joseph's Roman Catholic Church Ballfield	22 Central St	Woburn	C 1920	
WOB.26	Saint Joseph's Roman Catholic Rectory	22 Central St	Woburn	C 1840	
WOB.27	Saint Joseph's Roman Catholic Rectory Garage	22 Central St	Woburn	C 1920	
WOB.542	Bucknam, Asahel Porter House	26 Central St	Woburn	C 1830	
WOB.375	Johnson, Nathaniel M. House	3 Charles St	Woburn	C 1840	
WOB.376	Shaw, J. W. Double House	5-7 Charles St	Woburn	C 1890	
WOB.377	Carter, Alfred Gowing House	6-8 Charles St	Woburn	C 1870	
WOB.378	Cole, Joseph H. House	9 Charles St	Woburn	C 1890	
WOB.379	Rice, Thomas House	12 Charles St	Woburn	C 1870	
WOB.380	Thurston, Samuel House	14 Charles St	Woburn	C 1860	
WOB.574	Madan, John Jr. - Cooper, Charles E. Barn	2 Chestnut St	Woburn	C 1840	
WOB.62	Skinner, James Leather Company Worker Housing	6 Chestnut St	Woburn	C 1860	
WOB.268		37 1/2 Chestnut St	Woburn	C 1880	NRDIS;
WOB.269		45 Chestnut St	Woburn	C 1890	NRDIS;
WOB.271		47 Chestnut St	Woburn	C 1910	NRDIS;
WOB.543	Dow, Stephen Double House	4-6 Church Ave	Woburn	C 1820	
WOB.199	Richardson, Lemuel Gerrish Carriage House	14 Church Ave	Woburn		
WOB.63	Richardson, Lemuel Gerrish House	14 Church Ave	Woburn	C 1860	
WOB.544	Smith, Susan - Miller, John House	17 Church Ave	Woburn	C 1852	
WOB.381	Kelley, Joseph House	10 Church St	Woburn	C 1850	
WOB.545	Kelley, Joseph - Poole, Eleazer Flagg Double House	20-22 Church St	Woburn	C 1840	
WOB.382	Whitcher, Celenda Thompson House	3 Cleveland Ave	Woburn	1888	
WOB.383	Kendrick, Simeon Edgar House	6 Cleveland Ave	Woburn	C 1880	
WOB.384	Eames, Henry M. House	7 Cleveland Ave	Woburn	C 1890	
WOB.385	Godkin, Bertha House	8 Cleveland Ave	Woburn	C 1890	
WOB.386	Conn, George C. House	9 Cleveland Ave	Woburn	C 1890	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.387	Long, Margaret I. House	10 Cleveland Ave	Woburn	C 1890	
WOB.388	Parker, Gordon House	11 Cleveland Ave	Woburn	C 1890	
WOB.389	Cummings, William H. - Burke, Michael F. House	12 Cleveland Ave	Woburn	C 1890	
WOB.390		13 Cleveland Ave	Woburn	C 1923	
WOB.391		13A Cleveland Ave	Woburn	C 1923	
WOB.392	Cummings, William H. House	14 Cleveland Ave	Woburn	C 1890	
WOB.393	Sweetser, John H. House	15 Cleveland Ave	Woburn	C 1890	
WOB.394	Cummings, Frank H. House	16 Cleveland Ave	Woburn	C 1890	
WOB.395	Cummings, William F. - Connolly, Thomas W.	17 Cleveland Ave	Woburn	C 1890	
WOB.396	Wheaton, Joseph Ray	18 Cleveland Ave	Woburn	C 1910	
WOB.397	Emery, William F. - Leland, Frank House	19 Cleveland Ave	Woburn	C 1880	
WOB.398	LeBaron, William H.B. House	21 Cleveland Ave	Woburn	C 1880	
WOB.399	Cummings, William H. House	22 Cleveland Ave	Woburn	C 1890	
WOB.400	Randall, Hiram G - Wood, Guy House	25 Cleveland Ave	Woburn	C 1880	
WOB.401	Kelleher, Timothy House	35 Cleveland Ave	Woburn	C 1915	
WOB.402	Clement, Albert A. House	7 Clinton St	Woburn	C 1875	
WOB.403	Claridge, Fred H. - Boutwell, James E. House	9 Clinton St	Woburn	C 1870	
WOB.404	Temple, Charles Augustus House	10 Clinton St	Woburn	C 1910	
WOB.405	Hart - Clinton Hose Company #6	12 Clinton St	Woburn	R 1879	
WOB.406	Young, Charles House	14 Clinton St	Woburn	C 1920	
WOB.407	Knapp, Josephine House	16 Clinton St	Woburn	C 1875	
WOB.408	Firth, John - Teele, Melinda House	17 Clinton St	Woburn	C 1860	
WOB.409	Cavicchi, Joseph House	18 Clinton St	Woburn	1925	
WOB.411	Brooks, R. W. Double House	19-21 Clinton St	Woburn	C 1880	
WOB.410	Murdock, Alexander House	20 Clinton St	Woburn	1893	
WOB.412	Sheeran, Frank J. House	22 Clinton St	Woburn	1906	
WOB.413	McKay, Joseph House	23 Clinton St	Woburn	1929	
WOB.414	Richardson, Marshall L. House	25 Clinton St	Woburn	C 1860	
WOB.415	Richardson, Sydney S. Double House	26-28 Clinton St	Woburn	C 1870	
WOB.416	Ames, Jacob House	29 Clinton St	Woburn	R 1855	
WOB.417	Singer, William J. House	36 Clinton St	Woburn	C 1890	
WOB.902	U. S. S. Maine Ventilator Cowl	Common St	Woburn	1912	
WOB.914	Woburn Korean War Memorial	Common St	Woburn	1978	
WOB.904	Woburn Spanish American War Statue	Common St	Woburn	1934	
WOB.913	Woburn Vietnam War Memorial	Common St	Woburn	C 1980	
WOB.901	Woburn World War I Memorial	Common St	Woburn	C 1920	
WOB.915	Woburn World War II Memorial	Common St	Woburn	1944	
WOB.64	Woburn Co-operative Bank	6 Common St	Woburn	1927	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.16	Woburn City Hall	10 Common St	Woburn	1930	
WOB.65	Grammer, William T. and Samuel House	15 Court St	Woburn	C 1860	
WOB.66	Woburn Water Works Engine House	5 Cove St	Woburn	1873	
WOB.546	Tripp, Charles Edgar House	2 Eastern Ave	Woburn	C 1890	
WOB.547	Fowle, Jeduthun - Pierce, William House	4 Eastern Ave	Woburn	C 1850	
WOB.548	Grothe, John Barn	4 Eastern Ave	Woburn	C 1906	
WOB.549	Putnam, William R. Double House	33-35 Eastern Ave	Woburn	C 1870	
WOB.418	Seaver, John - McGrath, Jame F. House	14 Eaton Ave	Woburn	1897	
WOB.419	Lausch, Frederick A. - McHugh, Rev. Thomas F House	16 Eaton Ave	Woburn	1897	
WOB.420	Larsen, Hans P. House	18 Eaton Ave	Woburn	1897	
WOB.421	Koniares, Theodore House	20 Eaton Ave	Woburn	1928	
WOB.422	Kimball, Charles H. - Murray, Francis H. House	21 Eaton Ave	Woburn	1898	
WOB.423	Ray, Arthur F. House	24 Eaton Ave	Woburn	1917	
WOB.424	McLatchy, Allen H. House	28 Eaton Ave	Woburn	1923	
WOB.425	Smith, William P. - Bagnall, Herbert V. House	29 Eaton Ave	Woburn	C 1895	
WOB.426	Ray, John Oliver House	33 Eaton Ave	Woburn	1895	
WOB.427	Dearborn, Charles A. House	35 Eaton Ave	Woburn	1893	
WOB.428	Haber, William - Henchey, Judge William House	41 Eaton Ave	Woburn	1898	
WOB.429	Houghton, Thomas Frank House	43 Eaton Ave	Woburn	1892	
WOB.430	Bailey, David E. House	45 Eaton Ave	Woburn	1925	
WOB.431	Cummings, Eustace House	47 Eaton Ave	Woburn	1921	
WOB.432	Cummings, Edward H. House	49 Eaton Ave	Woburn	C 1920	
WOB.433	Riley, Thomas F. House	51 Eaton Ave	Woburn	1916	
WOB.10	Baldwin Farmhouse	16-18 Elm St	Woburn	C 1820	LHD;
WOB.67	Kimball, Charles H. House	19 Elm St	Woburn	C 1890	
WOB.39	Thompson, Cyrus House	21 Elm St	Woburn	C 1820	LHD;
WOB.200	Bowser, Fred H. Jr. Garage	22 Elm St	Woburn	C 1920	
WOB.68	Bowser, Fred H. Jr. House	22 Elm St	Woburn	C 1920	
WOB.40	Thompson, Samuel House	31 Elm St	Woburn	C 1730	LHD;
WOB.41	Thompson, Eunice Memorial Library	33 Elm St	Woburn	1906	LHD;
WOB.69	Dearborn, Charles T. House	41 Elm St	Woburn	1882	
WOB.70	Buckman, Minot House	43 Elm St	Woburn	C 1885	
WOB.201	Mack, Richard - Horne, Chester Garage	43 Elm St	Woburn	C 1920	
WOB.42	Thompson, Charles House	44 Elm St	Woburn	C 1800	LHD;
WOB.71	Goodwin, Mary F. Double House	45 Elm St	Woburn	C 1884	
WOB.72	North Congregational Church Parsonage	53 Elm St	Woburn	1894	
WOB.202	North Congregational Church Parsonage Garage	53 Elm St	Woburn	R 1920	
WOB.203	Bixby, Dr. Josiah Peet Barn	55 Elm St	Woburn		

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.73	Bixby, Dr. Josiah Peet House	55 Elm St	Woburn	1893	LHD;
WOB.43	Thompson, Charles Roswell House	58 Elm St	Woburn	R 1780	LHD;
WOB.36	Pierce, Charles A. House	59 Elm St	Woburn	C 1900	LHD;
WOB.204		64 Elm St	Woburn	R 1980	
WOB.74	Carter, Frank House	64 Elm St	Woburn	C 1910	
WOB.75	Richardson, E. House	65 Elm St	Woburn	C 1880	
WOB.205	Shannon, Thomas J. Garage	65 Elm St	Woburn		
WOB.168	Shannon, Thomas J. - Duncan, Andrew House	67R Elm St	Woburn	C 1890	
WOB.76	Winn, Abigail House	69 Elm St	Woburn	R 1880	
WOB.77	Perkins, Warren B. House	70 Elm St	Woburn	C 1850	
WOB.3	Shaw, Lewis - Brooks, H. House	71 Elm St	Woburn	C 1800	
WOB.9	Tidd, John House	74 Elm St	Woburn	1809	LHD;
WOB.78	Winn House	75 Elm St	Woburn	C 1880	
WOB.207	Winn Barn	77 Elm St	Woburn	C 1880	
WOB.79	Winn House	77 Elm St	Woburn	C 1880	
WOB.80	Alley, Charles House	79 Elm St	Woburn	1880	
WOB.208	Hopkinson, Sumner Garage	80 Elm St	Woburn	C 1906	
WOB.81	Hopkinson, Sumner House	80 Elm St	Woburn	C 1906	
WOB.82	Flint, Frederick W. House	81 Elm St	Woburn	C 1890	
WOB.11	Rumford, Count Birthplace	90 Elm St	Woburn	1714	NHL; NRIND; LHD;
WOB.550	Hayward, Alpheus Shaw House	4 Fairmount St	Woburn	C 1860	
WOB.551	Seminatore, Salvatore House	8 Flagg St	Woburn	C 1925	
WOB.646	Whitney, Lewis Lafayette Barn	51 Fowle St	Woburn	C 1850	
WOB.645	Whitney, Lewis Lafayette House	51 Fowle St	Woburn	C 1850	
WOB.647	Pollard, S. O. - Cummings, Eustace Carriage House	98 Fowle St	Woburn	C 1870	
WOB.83	Wyman, Arthur - Case, Walter House	1 Frances St	Woburn	C 1890	
WOB.84	Tidd, Alice Stanwood - Leathe, Henry House	3 Frances St	Woburn	C 1900	
WOB.85	Murdock, J. Grafton House	5 Frances St	Woburn	C 1900	
WOB.86	Langill, Amos House	9 Frances St	Woburn	C 1896	
WOB.87	Murdock, John K. House	10 Frances St	Woburn	1913	
WOB.88	Parker, John - Hovey, H. Stillman House	12-16 Frances St	Woburn	C 1875	
WOB.89	Thompson, L. Waldo House	17 Frances St	Woburn	1911	
WOB.552	Flagg, George - Conn, Horace House	12 Franklin St	Woburn	C 1840	
WOB.553	Bancroft, Parker Everton Double House	14-16 Franklin St	Woburn	C 1885	
WOB.554	Smith, Cyrus - Wyer, Benjamin Franklin Double House	17-19 Franklin St	Woburn	C 1840	
WOB.555	Reed, Artemas - Cummings, Joshua House	21 Franklin St	Woburn	1853	
WOB.90	Gage, G. R. - Caros, Paul House	22 Franklin St	Woburn	C 1880	
WOB.91	Evans, Thomas J. House	25 Franklin St	Woburn	C 1865	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.556	Thompson, George - Jameson, John House	27 Franklin St	Woburn	C 1840	
WOB.557	Simonds, Edward - Walsh, Dennis House	30 Franklin St	Woburn	C 1849	
WOB.558	Whitford, Hiram - Taylor, Susan House	32 Franklin St	Woburn	C 1845	
WOB.559	Vinall, Whitney House	33 Franklin St	Woburn	C 1840	
WOB.560	Harrington, Charles House	35 Franklin St	Woburn	C 1840	
WOB.561	McCauley, John F. - Mahoney, John House	3 Frederick Dr	Woburn	C 1940	
WOB.562	Cedario, John - Lovell, Carleton House	10 Frederick Dr	Woburn	C 1940	
WOB.648	Fowle, George E. House	67 Garfield Ave	Woburn	C 1865	
WOB.650	Kimball, George W. Carriage House	76 Garfield Ave	Woburn	C 1880	
WOB.649	Kimball, George W. House	76 Garfield Ave	Woburn	C 1872	
WOB.651	Littlefield, Joshua - Miller, William M. House	1 Glenwood St	Woburn	C 1850	
WOB.653	Littlefield, Clarence Carriage House	9 Glenwood St	Woburn	C 1860	
WOB.652	Littlefield, Clarence House	9 Glenwood St	Woburn	C 1860	
WOB.654	Boston Edison Electric Substation	Green St	Woburn	C 1918	
WOB.655	Littlefield, Joshua House	18 Green St	Woburn	C 1840	
WOB.656	Pollard, Mary S. House	20 Green St	Woburn	C 1925	
WOB.657	Ring, Margaret House	22 Green St	Woburn	R 1930	
WOB.658	Cottle, Edmund C. - Marion, C. Walter House	25 Green St	Woburn	C 1886	
WOB.659	Frisbee, Dr. Jesse Franklin House	26 Green St	Woburn	C 1865	
WOB.660	Harkins, Thomas F. Store	26A Green St	Woburn	C 1920	
WOB.661	Cummings, Cyrus Jr. House	38 Green St	Woburn	C 1875	
WOB.662	Lord, George - White, James N. House	88 Green St	Woburn	C 1885	
WOB.663	Larson, Nelse - Casey, William E. House	116 Green St	Woburn	R 1920	
WOB.54	Flagg House	129 Harrison Ave	Woburn	C 1820	
WOB.678	Richardson, Joseph House	6 Hart Pl	Woburn	C 1850	
WOB.679	McLeod, George House	19 Hart Pl	Woburn	1889	
WOB.563	Burbank, Daniel House	25 Hawthorne St	Woburn	C 1830	
WOB.664	Johnson, Edward F. House	1 Highland St	Woburn	1882	
WOB.665	Lewis, Hanson Beetfield House	2A Highland St	Woburn	1851	
WOB.666	McDonald, Joseph B. House	4 Highland St	Woburn	C 1870	
WOB.209	Cottle, Edmund C. Carriage House	14 Highland St	Woburn	C 1875	
WOB.92	Cottle, Edmund C. House	14 Highland St	Woburn	C 1875	
WOB.93	Hudson, Edward W. Groundskeeper's Cottage	35 Hudson St	Woburn	C 1870	
WOB.905	Revolutionary War Memorial	Johnson St	Woburn	1924	
WOB.564	Gleason, Henry A. - Dickinson, Joseph Albert House	1 Johnson St	Woburn	C 1840	
WOB.680	Porter, Benjamin T. H. House	2 Johnson St	Woburn	C 1865	
WOB.565	Kimball, William Kilroy House	6 Johnson St	Woburn	C 1850	
WOB.566	Buckman, Otis - Shattuck, Nathan J. House	7 Johnson St	Woburn	C 1840	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.681	Cummings, R. - Balfe, Luke House	14 Kilby St	Woburn	C 1830	
WOB.682	Mulligan, Bernard House	17 Kilby St	Woburn	C 1860	
WOB.683	Fox, Warren House	21 Kilby St	Woburn	C 1830	
WOB.684	Wheeler, John S. House	23 Kilby St	Woburn	C 1860	
WOB.686	Parker, Benjamin - Coccولو, Cosmo House	26 Kilby St	Woburn	C 1840	
WOB.685	Fox, Warren - Clements, William House	27-29 Kilby St	Woburn	C 1850	
WOB.687	Buckman, Ira House	33 Kilby St	Woburn	C 1840	
WOB.264		37 Kilby St	Woburn	C 1950	NRDIS;
WOB.265		37 Kilby St	Woburn	C 1980	NRDIS;
WOB.266		37 Kilby St	Woburn	C 1980	NRDIS;
WOB.688	Stevens, Edwin W. House	48 Kilby St	Woburn	C 1870	
WOB.689	Johnson, Oscar E. House	50 Kilby St	Woburn	C 1887	
WOB.691	Fox, John William Carriage House	54 Kilby St	Woburn	C 1886	
WOB.690	Fox, John William House	54 Kilby St	Woburn	1886	
WOB.692	Bryenton, Amos House	60 Kilby St	Woburn	C 1891	
WOB.434	Eaton, Marcus - Stuart, Dr. James N. House	61 Kilby St	Woburn	C 1866	
WOB.435	Kendall, Nathaniel House	69 Kilby St	Woburn	C 1860	
WOB.693	Kenney, Kieran House	73 Kilby St	Woburn	C 1860	
WOB.694	Grant, John T. - Donovan, Patrick House	74 Kilby St	Woburn	C 1893	
WOB.695	Davis, Albert D. House	78 Kilby St	Woburn	C 1890	
WOB.436	Knowlton, Amos House	83 Kilby St	Woburn	C 1860	
WOB.696	Cook, George House	87 Kilby St	Woburn	C 1871	
WOB.667	Maguire, John H. House	22 Lake Ave	Woburn	C 1880	
WOB.437	McGowan, Patrick House	24 Lake Ave	Woburn	C 1880	
WOB.351		34 Lake Ave	Woburn	C 1950	NRDIS;
WOB.355		1 Lake Cir	Woburn	C 1975	NRDIS;
WOB.352		1 Lake Ter	Woburn	C 1955	NRDIS;
WOB.353		7 Lake Ter	Woburn	C 1958	NRDIS;
WOB.24	Horn Pond House	7 Lakeview Ter	Woburn	C 1820	
WOB.94	O'Neill, George C. - Dolan, Elizabeth House	28 Lawrence St	Woburn	C 1925	
WOB.567	Ober, Benjamin H. - Manard, William House	6 Lexington St	Woburn	C 1840	
WOB.569	Colomb, Esther Barn	10 Lexington St	Woburn	R 1900	
WOB.568	McIntire, Joseph - Colomb, Esther House	10 Lexington St	Woburn	C 1845	
WOB.570	Thompson, Benjamin F. - Vaughan, William House	12 Lexington St	Woburn	C 1820	
WOB.95	Flagg, Benjamin F. - Jones, Jenkins W. House	53 Lexington St	Woburn	C 1840	
WOB.210	Jones, Jenkins W. Barn	53 Lexington St	Woburn	C 1840	
WOB.7	Gardner, Dea. Joseph House	168 Lexington St	Woburn	1820	
WOB.96	Harris, William B. - Pierce, Theodore L. House	183 Lexington St	Woburn	C 1810	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.97	Collins, Agnes House	190 Lexington St	Woburn	C 1930	
WOB.98	Shannon, Robert J. House	287 Lexington St	Woburn	C 1920	
WOB.99	Shannon, James House	299 Lexington St	Woburn	R 1900	
WOB.100	Shannon, James W. House	305 Lexington St	Woburn	C 1920	
WOB.278		Library Pl	Woburn	C 1980	NRDIS;
WOB.438	Scire, Fortunato House	11 Locust St	Woburn	1926	
WOB.439	Church, Stillman H. House	2 Lowell St	Woburn	C 1880	
WOB.440	Church, Stillman H. House	4-6 Lowell St	Woburn	C 1890	
WOB.441	Greydon, Frank W. House	7 Lowell St	Woburn	1896	
WOB.442	Minot, Robert S. House	10 Lowell St	Woburn	C 1890	
WOB.13	Thompson, Leonard House	11 Lowell St	Woburn	C 1810	NRDIS;
WOB.443	Richards, Edward H. House	12 Lowell St	Woburn	C 1890	
WOB.444	Minot, Robert S. House	14 Lowell St	Woburn	C 1895	
WOB.445	Greydon, William F. - Kerr, Lewis Double House	16 Lowell St	Woburn	C 1920	
WOB.446	Young, William Stage House	41 Lowell St	Woburn	C 1779	
WOB.101	Fowle, Timothy House	2 Lynn St	Woburn	C 1850	
WOB.907	Baldwin, Col. Loammi Statue	Main St	Woburn	1917	LHD;
WOB.104	Saint Charles Roman Catholic Elementary School	Main St	Woburn	1907	
WOB.903	Woburn Civil War Memorial	Main St	Woburn	1869	
WOB.941	Guardian Angel Statue	280 Main St	Woburn	1912	
WOB.102	Saint Charles Roman Catholic Church Rectory	280 Main St	Woburn	1898	
WOB.103	Saint Charles Borromeo Roman Catholic Church	282 Main St	Woburn	1869	
WOB.17	Woburn Company G - Fifth Regiment Armory	320 Main St	Woburn	1916	
WOB.20	First Congregational Church in Woburn	322 Main St	Woburn	1860	NRIND;
WOB.105	Bank Block - Woburn Masonic Hall	395 Main St	Woburn	1862	
WOB.106	Wade, Col. John Block	406 Main St	Woburn	C 1810	
WOB.19	Best Petroleum - Colonial Beacon Filling Station	477 Main St	Woburn	R 1925	
WOB.571	Parker, Ebenezer - Parker, John House	520 Main St	Woburn	C 1853	
WOB.107	Woods, Rev. Frederick House	524 Main St	Woburn	C 1890	
WOB.572	Parker, Ebenezer - Hammond, Joseph House	528 Main St	Woburn	C 1840	
WOB.108	Young, Mary A. Double House	537 Main St	Woburn	C 1840	
WOB.573	Madan, John Jr. - Cooper, Charles E. House	564 Main St	Woburn	C 1840	
WOB.109	Hayes, Henry B. House	568 Main St	Woburn	C 1885	
WOB.447	Gillette, Osborn D. House	577 Main St	Woburn	C 1895	
WOB.448	Lane, Susan M. House	578 Main St	Woburn	C 1895	
WOB.449	Almore, The	579 Main St	Woburn	C 1920	
WOB.450	Lane, Susan M. - Callahan, Daniel F. House	580 Main St	Woburn	C 1895	
WOB.451		581 Main St	Woburn	C 1926	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.452	Lane, Susan M. House	582 Main St	Woburn	C 1904	
WOB.453	Wyman, Elijah House	590 Main St	Woburn	R 1800	
WOB.454	Wyman, Elijah Barn	592 Main St	Woburn	C 1910	
WOB.455	Main Street School	595 Main St	Woburn	1794	
WOB.110	Ames, Erskine House	596 Main St	Woburn	C 1830	
WOB.111	Prior, William A. House	602 Main St	Woburn	R 1890	
WOB.211	Murdock, John K. Carriage House	604 Main St	Woburn	C 1895	
WOB.112	Murdock, John K. House	604 Main St	Woburn	C 1895	
WOB.212	Burdett, C. Fred Garage	605 Main St	Woburn	C 1930	
WOB.113	Wade - Wyman, Walter House	605 Main St	Woburn	C 1840	
WOB.114	Hartshorne, George Franklin House	607 Main St	Woburn	C 1891	
WOB.115	Beggs, Mary House	616 Main St	Woburn	C 1900	
WOB.116	Beggs, William House	620 Main St	Woburn	C 1890	
WOB.117	Burdett, Fred Hartshorne House	623 Main St	Woburn	C 1895	
WOB.118	Conn, Horace - Place, Griffin House	627 Main St	Woburn	C 1868	
WOB.119	Place, Everett Griffin House	628 Main St	Woburn	C 1890	
WOB.120	Trull, S. Franksford House	629 Main St	Woburn	C 1895	
WOB.456	Osbeck, Dagmar - Foley, Patrick Double House	632 Main St	Woburn	C 1900	
WOB.457	Pearson, John T. House	635 Main St	Woburn	C 1840	
WOB.458	Wyman, W. House	636 Main St	Woburn	R 1830	
WOB.459	Fox, Everett House	637 Main St	Woburn	C 1880	
WOB.460	Slater, William H. House	639 Main St	Woburn	C 1875	
WOB.461	Clement, Albert A. Double House	643-645 Main St	Woburn	C 1880	
WOB.462	Buckman, Francis Alvah House	644 Main St	Woburn	C 1885	
WOB.463	Buckman, Christina House	646 Main St	Woburn	C 1915	
WOB.8	Thompson, Daniel House	649 Main St	Woburn	1760	
WOB.464	Thompson, Jonathan House	650 Main St	Woburn	C 1860	
WOB.465	Parker, Samuel P. Harness- Upholstery Shop	653 Main St	Woburn	R 1820	
WOB.466	Central Square Fire Station	654 Main St	Woburn	1906	
WOB.467	Rigby, George Grocery Store	658 Main St	Woburn	C 1880	
WOB.14	Guastavino, R. Ceramic Tile Factory and Showroom	660 Main St	Woburn	1907	
WOB.468	Flagg, Charles House	662 Main St	Woburn	C 1870	
WOB.469	Wyman, Charles Austin House	663 Main St	Woburn	C 1850	
WOB.470	Stone, Clinton C. House	664 Main St	Woburn	C 1870	
WOB.471	Gage, William House	668 Main St	Woburn	C 1880	
WOB.472	Wyman, Charles Austin House	670 Main St	Woburn	C 1870	
WOB.121	Wyman Grammar School	677 Main St	Woburn	1891	
WOB.473	Parker, Josiah House	706 Main St	Woburn	C 1847	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.474	Adlington, William - Graham, James R. House	707 Main St	Woburn	C 1840	
WOB.475	Tenney, Patrick H. House	750 Main St	Woburn	C 1906	
WOB.476	Johnson, Robert - Leen, Henry M. House	751 Main St	Woburn	1922	
WOB.12	1790 House	827 Main St	Woburn	C 1790	NRIND; LHD; NRDIS;
WOB.44		848 Main St	Woburn	C 1830	LHD;
WOB.944	Knights of Columbus Memorial to the Unborn	859 Main St	Woburn	1995	
WOB.122	Saint Anthony Roman Catholic Church	859 Main St	Woburn	1927	
WOB.213	Saint Anthony Roman Catholic Church Garage	859 Main St	Woburn	1927	
WOB.943	Saint Anthony Statue	859 Main St	Woburn		
WOB.942	Virgin Mary Immaculate Conception Statue	859 Main St	Woburn		
WOB.123	North Congregational Church	896 Main St	Woburn	1882	
WOB.21	Main Street Diner	901 Main St	Woburn	1952	NRIND; NRMPS;
WOB.45	Winn, Col. Moses F. House	903 Main St	Woburn	C 1830	LHD;
WOB.249		985 Main St	Woburn	C 1970	NRDIS;
WOB.247		1011 Main St	Woburn	C 1970	NRDIS;
WOB.246		1021 Main St	Woburn	C 1930	NRDIS;
WOB.245		1023 Main St	Woburn	C 1920	NRDIS;
WOB.243		1037 Main St	Woburn	C 1885	NRDIS;
WOB.239		1071R Main St	Woburn	C 1959	NRDIS;
WOB.237		1075 Main St	Woburn	C 1963	NRDIS;
WOB.236		1077 Main St	Woburn	C 1910	NRDIS;
WOB.235		1081 Main St	Woburn	1890	NRDIS;
WOB.234		1082 Main St	Woburn	C 1921	NRDIS;
WOB.575	Tay, William Jr. - Wood, Robert House	1083 Main St	Woburn	R 1780	
WOB.233		1098 Main St	Woburn	C 1985	NRDIS;
WOB.232		1100 Main St	Woburn	C 1956	NRDIS;
WOB.241		2 Massachusetts Ave	Woburn	C 1900	NRDIS;
WOB.242		7 Massachusetts Ave	Woburn	C 1950	NRDIS;
WOB.257		2 Merrimac St	Woburn	C 2003	NRDIS;
WOB.258		10 Merrimac St	Woburn	C 1967	NRDIS;
WOB.945	Middlesex Canal	Middlesex Canal	Woburn	C 1802	NRDIS; LHD; NRDIS;
WOB.274		2 Middlesex St	Woburn	C 1997	NRDIS;
WOB.22	Middlesex Canal Tollkeeper's House	5 Middlesex St	Woburn	C 1802	
WOB.909	Mishawum Road Bridge over Route 128	Mishawum Rd	Woburn	1961	
WOB.124	Burdett, Charles A. House	7 Mishawum Rd	Woburn	C 1880	
WOB.125	Fox, Everett P. House	8 Mishawum Rd	Woburn	C 1895	
WOB.126	Richardson, Frank B. House	9 Mishawum Rd	Woburn	C 1895	
WOB.127	Beggs, Daniel R. House	11 Mishawum Rd	Woburn	C 1899	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.128	Beggs, Thomas G. Jr. House	12 Mishawum Rd	Woburn	C 1920	
WOB.129	Blodgett, William E. House	14 Mishawum Rd	Woburn	C 1895	
WOB.214	Varney, Lloyd Garage	14 Mishawum Rd	Woburn	C 1965	
WOB.130	Fox, John William - Glaser, Charles House	15 Mishawum Rd	Woburn	C 1889	
WOB.477	Hovey, Eveline House	17 Mishawum Rd	Woburn	1886	
WOB.478	Blodgett, Malcolm House	18 Mishawum Rd	Woburn	1922	
WOB.479	Waughn, George W. House	19 Mishawum Rd	Woburn	C 1885	
WOB.480	Chute, William Prior Jr. - Johnson, Dexter House	20 Mishawum Rd	Woburn	1917	
WOB.481	Dean, Joseph - Bancroft, Hartwell House	21 Mishawum Rd	Woburn	C 1800	
WOB.482	Bancroft, Charles H. Double House	23-25 Mishawum Rd	Woburn	C 1890	
WOB.483	Tuttle, Samuel L. - Sweetser, Charles A. House	24 Mishawum Rd	Woburn	1870	
WOB.484	Mundy, John House	26 Mishawum Rd	Woburn	C 1850	
WOB.485	Brooks, Andrew Bigelow House	30 Mishawum Rd	Woburn	C 1850	
WOB.486	Vacant Lot	31 Mishawum Rd	Woburn	C 1910	
WOB.487	Eames, Henry House	35 Mishawum Rd	Woburn	C 1906	
WOB.488	Parker, Robert W. Double House	37-39 Mishawum Rd	Woburn	C 1880	
WOB.489	Eames, Henry Martin House	38 Mishawum Rd	Woburn	C 1860	
WOB.490	Sleeper, Moses W. - Blye, Harrie House	66 Mishawum Rd	Woburn	C 1880	
WOB.900	Montvale Avenue Bridge over B & M Railroad	Montvale Ave	Woburn	1917	
WOB.131	Woburn Company G 5th Regiment Armory	29 Montvale Ave	Woburn	1891	
WOB.132	Woburn Swedish Evangelical Lutheran Church	29A Montvale Ave	Woburn	1898	
WOB.133	Bean, Gilman A. House	47 Montvale Ave	Woburn	1874	
WOB.134	Gage, Gawin Riddle House	51 Montvale Ave	Woburn	C 1870	
WOB.491	Leighton, F. M. - Johnson, Charles House	65 Montvale Ave	Woburn	C 1870	
WOB.135	Skinner, James House	79 Montvale Ave	Woburn	1875	
WOB.576	Stabile, Pasquale - Donahue, Mary House	81 Montvale Ave	Woburn	C 1930	
WOB.577	Bezatti, Edward House	83 Montvale Ave	Woburn	C 1930	
WOB.578	Begley, John House	85 Montvale Ave	Woburn	C 1930	
WOB.579	Spencer, Julia - McDonough, Harold House	87 Montvale Ave	Woburn	C 1929	
WOB.492	Fowle, J. House	91-93 Montvale Ave	Woburn	C 1850	
WOB.580	Hastings, Oliver - Hill, Jotham House	97 Montvale Ave	Woburn	R 1820	
WOB.581	Swallow, Rev. J. E. - Taylor, Edward E. House	99 Montvale Ave	Woburn	C 1860	
WOB.582	Hall, Capt. George W. M. House	101 Montvale Ave	Woburn	C 1860	
WOB.583	Converse, John - Floyd, William House	110 Montvale Ave	Woburn	C 1800	
WOB.584	Trull, Dr. Samuel - Yates, James House	111 Montvale Ave	Woburn	C 1856	
WOB.585	Maquire, John G. House	113 Montvale Ave	Woburn	C 1887	
WOB.136	Pollard, F. - True, John S. House	120 Montvale Ave	Woburn	1871	
WOB.586	Moore, Charles - Ford, Howard M. House	129 Montvale Ave	Woburn	C 1850	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.587	Barber, Joseph F. - Linnell, Joseph House	133 Montvale Ave	Woburn	C 1870	
WOB.588	Stevens, Frank - Brown, Charles A. House	135 Montvale Ave	Woburn	C 1860	
WOB.697	Boutelle, Theodore House	138 Montvale Ave	Woburn	C 1890	
WOB.698	Bishop, Harry S. - Elson, Alfred House	142 Montvale Ave	Woburn	C 1890	
WOB.700	Waisnor, William Double House	144-146 Montvale Ave	Woburn	C 1890	
WOB.701	Anderson, Peter House	147 Montvale Ave	Woburn	C 1900	
WOB.702	Donovan, James P. House	160 Montvale Ave	Woburn	C 1890	
WOB.703	Corry, Robert J. House	162 Montvale Ave	Woburn	C 1916	
WOB.704	Johnson, John G. House	166 Montvale Ave	Woburn	C 1890	
WOB.589	Tucker, Hannah - Prentice, Daniel House	192 Montvale Ave	Woburn	C 1850	
WOB.705	Mahoney, Timothy House	197 Montvale Ave	Woburn	C 1860	
WOB.706	Jones, Charles S. House	239 Montvale Ave	Woburn	1889	
WOB.707	Pettingill, William House	251 Montvale Ave	Woburn	C 1850	
WOB.708	McDonald, Patrick House	269 Montvale Ave	Woburn	1909	
WOB.709	Ramsdell, Henry - Cogan, Patrick Double House	284 Montvale Ave	Woburn	C 1860	
WOB.590	Woburn Agricultural Manufacturing Boarding House	286 Montvale Ave	Woburn	1837	
WOB.591	Woburn Agricultural Manufacturing Boarding House	288 Montvale Ave	Woburn	1837	
WOB.592	Woburn Agricultural Manufacturing Boarding House	290 Montvale Ave	Woburn	1837	
WOB.593	Woburn Agricultural Manufacturing Boarding House	292 Montvale Ave	Woburn	1837	
WOB.699	Bishop, Harry S. - Elson, Alfred Barn	142 Montvale St	Woburn	C 1890	
WOB.668	Whitcher, Jacob C. House	8 Mount Pleasant St	Woburn	C 1872	
WOB.669	Stewart, Donald W. - Chester, Thomas House	10 Mount Pleasant St	Woburn	C 1875	
WOB.670	Stewart, Donald W. Barn	10R Mount Pleasant St	Woburn	C 1875	
WOB.671	Oxford, Charles - Bryant, Grace Marion House	47 Mount Pleasant St	Woburn	C 1860	
WOB.672	Allen, George W. - Wyer, Capt. Edwin F. House	50 Mount Pleasant St	Woburn	C 1860	
WOB.673	Conn, Charles Kyler House	53 Mount Pleasant St	Woburn	C 1865	
WOB.137	Conn, George H. - Bickford, Dr. H. C. House	62 Mount Pleasant St	Woburn	1873	
WOB.138	Saint Charles Roman Catholic Parish School	8 Myrtle St	Woburn	1921	
WOB.288		1 North Warren St	Woburn	C 1920	NRDIS;
WOB.594	Ellard - Larkin, John F. House	8 North Warren St	Woburn	R 1820	
WOB.595	Murray, Patrick H. - Martin, Philip House	39 North Warren St	Woburn	C 1880	
WOB.596	Burbank, Daniel Poultry House	34 Orange St	Woburn	R 1889	
WOB.598	Montvale Congregational Church Parsonage	36 Orange St	Woburn	C 1945	
WOB.597	New Jerusalem Swedenborgian Chapel	36 Orange St	Woburn	1868	
WOB.493	Kenty, Frederick W. House	6 Page Pl	Woburn	C 1900	
WOB.494	Sherburne, William Alexander House	8 Page Pl	Woburn	C 1890	
WOB.495	Wallace, John M. House	10 Page Pl	Woburn	C 1890	
WOB.496	Page, Catherine - Robinson, Albert H. House	11 Page Pl	Woburn	C 1870	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.497	Wallace, John M. - Crowell, Clarence M. House	12 Page Pl	Woburn	C 1890	
WOB.498	Robinson, Carrie Page House	13 Page Pl	Woburn	C 1906	
WOB.499	Burnes, Clara M. House	14 Page Pl	Woburn	C 1930	
WOB.500	Robinson, Carrie Page Double House	15-17 Page Pl	Woburn	C 1890	
WOB.934	First Burial Ground - Baldwin Family Obelisk	Park St	Woburn	R 1820	NRIND; PR;
WOB.931	First Burial Ground - Brook, Benjamin Headstone	Park St	Woburn	C 1769	NRIND; PR;
WOB.926	First Burial Ground - Burbeen, John Headstone	Park St	Woburn	C 1713	NRIND; PR;
WOB.936	First Burial Ground - Commemorative Plaques	Park St	Woburn	R 1980	NRIND; PR;
WOB.920	First Burial Ground - Convers, Ann Headstone	Park St	Woburn	C 1691	NRIND; PR;
WOB.935	First Burial Ground - Fowle, James Monument	Park St	Woburn	C 1856	NRIND; PR;
WOB.924	First Burial Ground - Fyfeild, Abraham Headstone	Park St	Woburn	C 1711	NRIND; PR;
WOB.929	First Burial Ground - Gardner, Dorothy Headstone	Park St	Woburn	C 1787	NRIND; PR;
WOB.923	First Burial Ground - Johnson, Sarah Headstone	Park St	Woburn	C 1710	NRIND; PR;
WOB.930	First Burial Ground - Pool, Eleazar F. Headstone	Park St	Woburn	C 1776	NRIND; PR;
WOB.925	First Burial Ground - Richardson, Samuel Headstone	Park St	Woburn	C 1712	NRIND; PR;
WOB.928	First Burial Ground - Thompson, Daniel Headstone	Park St	Woburn	C 1775	NRIND; PR;
WOB.921	First Burial Ground - Thomson, Lt. James Headstone	Park St	Woburn	C 1693	NRIND; PR;
WOB.933	First Burial Ground - Tyng, Judith Headstone	Park St	Woburn	C 1736	NRIND; PR;
WOB.932	First Burial Ground - Wyman, Abigail Headstone	Park St	Woburn	C 1772	NRIND; PR;
WOB.927	First Burial Ground - Wyman, Benjamin Headstone	Park St	Woburn	C 1774	NRIND; PR;
WOB.922	First Burial Ground - Wyman, Francis Headstone	Park St	Woburn	C 1699	NRIND; PR;
WOB.800	Woburn First Burial Ground	Park St	Woburn	1642	NRIND; PR;
WOB.918	Woburn First Burial Ground Chain Link Fence	Park St	Woburn	R 1980	NRIND; PR;
WOB.919	Woburn First Burial Ground Path, Plaza & Flagpole	Park St	Woburn	R 1980	NRIND; PR;
WOB.917	Woburn First Burial Ground Perimeter Wall	Park St	Woburn	R 1850	NRIND; PR;
WOB.28	Downing, Jonathan - Parkhurst, George House	48 Pearl St	Woburn	C 1860	LHD;
WOB.29	Tuttle, Mary - White, Hugh House	52 Pearl St	Woburn	C 1870	LHD;
WOB.215	Locke Barn	61 Pearl St	Woburn		
WOB.139	Locke House	61 Pearl St	Woburn	C 1800	
WOB.30	Reed, Moses D. - Howard, J. P. House	66 Pearl St	Woburn	R 1835	LHD;
WOB.31	Thayer, Howard - Duffy, Thomas E. Double House	68 Pearl St	Woburn	C 1910	LHD;
WOB.32	Eaton, Edwin House	70 Pearl St	Woburn	C 1870	LHD;
WOB.33	Green, Charles B. House	72 Pearl St	Woburn	R 1865	LHD;
WOB.140	Page, John O. - Hall, Charles A. House	76 Pearl St	Woburn	C 1800	
WOB.141	Poole, Rufus F. House	88 Pearl St	Woburn	C 1890	
WOB.142	Tidd, Jonathan House	89 Pearl St	Woburn	C 1700	LHD;
WOB.216	Watson, Abby Tidd Garage	89 Pearl St	Woburn	R 1920	
WOB.143	Fridolin, Julius Double House	90 Pearl St	Woburn	C 1906	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.144	Andersen, M. Peter House	94 Pearl St	Woburn	1914	
WOB.145	Pierce, Andrew House	108 Pearl St	Woburn	C 1840	
WOB.146	Greenan, William Double House	121 Pearl St	Woburn	R 1900	
WOB.147	Carter, Alfred G. House	125 Pearl St	Woburn	C 1870	
WOB.599	Hermann, Alfred House	16 Pine St	Woburn	1914	
WOB.600	Leech, Henry E. House	20 Pine St	Woburn	1923	
WOB.601	Wright, Thomas J. - Cornett, Frank House	40 Pine St	Woburn	C 1904	
WOB.501	Kent, George House	100 Pine St	Woburn	C 1925	
WOB.602	Place, Griffin - Cook, William House	7 Place Ln	Woburn	R 1780	
WOB.148	Woburn Congregational Church	1 Pleasant St	Woburn	R 1850	
WOB.149	Woburn Five Cents Savings Bank	19 Pleasant St	Woburn	1931	
WOB.906	Count Rumford Statue	45 Pleasant St	Woburn	1899	NRIND; NHL;
WOB.6	Woburn Public Library	45 Pleasant St	Woburn	C 1876	NRIND; NHL;
WOB.150	Craigin, Francis K. Double House	57 Pleasant St	Woburn	C 1870	NRDIS;
WOB.283		61 Pleasant St	Woburn	C 1900	NRDIS;
WOB.284		69 Pleasant St	Woburn	C 1910	NRDIS;
WOB.287		71 Pleasant St	Woburn	C 1950	NRDIS;
WOB.151	Winn, Joseph House	73 Pleasant St	Woburn	C 1860	
WOB.217	West - Chute, William Carriage House	82 Pleasant St	Woburn	C 1880	
WOB.152	West - Chute, William Prior House	82 Pleasant St	Woburn	C 1880	
WOB.153	Gifford, Seth T. House	83 Pleasant St	Woburn	C 1880	
WOB.154	Pierce, Maj. Thomas Jefferson House	84 Pleasant St	Woburn	C 1870	
WOB.155	Crosby, Rufus P. House	85 Pleasant St	Woburn	C 1870	
WOB.603	Winn, Joseph B. House	96 Pleasant St	Woburn	C 1840	
WOB.156	Winn, William H. House	103 Pleasant St	Woburn	C 1850	
WOB.157	Leonard, Christopher Double House	105-107 Pleasant St	Woburn	C 1880	
WOB.604	Trull, George - Bacon, Mary B. House	106 Pleasant St	Woburn	C 1840	
WOB.605	Chickering, Rev. Joseph - Bacon, Oliver House	115 Pleasant St	Woburn	C 1810	
WOB.158	Dow, Stephen - Ellis, George F. House	131 Pleasant St	Woburn	C 1840	
WOB.606	Thompson, Abijah - Dow, Stephen House	132 Pleasant St	Woburn	C 1825	
WOB.502	Lyons, Thomas F. House	136 Pleasant St	Woburn	1933	
WOB.159	Doyle, John B. House	137 Pleasant St	Woburn	C 1850	
WOB.503	Finn, George House	138 Pleasant St	Woburn	1933	
WOB.504	Simonds, Marshall House	143 Pleasant St	Woburn	C 1890	
WOB.505	Thompson, Benjamin Franklin - Frost, Walter House	146 Pleasant St	Woburn	C 1820	
WOB.506	Symmes, Zachariah - Doherty, John N. House	147 Pleasant St	Woburn	C 1815	
WOB.160	Clark, George F. House	149 Pleasant St	Woburn	1846	
WOB.507	Johnson, Joseph House	151 Pleasant St	Woburn	1846	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.508	Buss, Dr. Charles H. House	15 Plympton St	Woburn	1913	
WOB.674	Hudson, Edward W. - Keany, Terrence House	34 Porter St	Woburn	R 1860	
WOB.675	Whitcher, Jacob C. - Began, Timothy House	42 Prospect St	Woburn	R 1873	
WOB.161	Cole, John G. - Giles, Royal House	62 Prospect St	Woburn	C 1856	
WOB.218	Ferullo Garage	7 Richmond Ave	Woburn	C 1980	
WOB.162	Ferullo, Luigi House	7 Richmond Ave	Woburn	C 1900	
WOB.912	Route 128 Bridge over Aberjona River	Rt 128	Woburn	1949	
WOB.910	Route 128 Bridge over Boston and Maine Railroad	Rt 128	Woburn	1950	
WOB.911	Route 128 Bridge over Route 38 (Eastbound)	Rt 128	Woburn	1949	
WOB.908	Route 128 Bridge over Route 38 (Westbound)	Rt 128	Woburn	1949	
WOB.916	Walnut Hill Bridge	Salem St	Woburn	1928	
WOB.163	Converse, Parker Lindall House	10 Salem St	Woburn	C 1870	
WOB.219	Converse, Parker Lindall Outbuilding	10 Salem St	Woburn	C 1870	
WOB.164	Perry, Florence Clemson House	178 Salem St	Woburn	C 1920	
WOB.165	Heald, Walter House	184 Salem St	Woburn	C 1916	
WOB.220	Hayward, Martin Barn	372 Salem St	Woburn	C 1850	
WOB.166	Maplewood Farm	372 Salem St	Woburn	C 1910	
WOB.222	Maplewood Farm Blacksmith Shop	372 Salem St	Woburn		
WOB.221	Schneider Dairy Farm Milkhouse	372 Salem St	Woburn	C 1910	
WOB.710	McFeeley, James House	36 School St	Woburn	C 1871	
WOB.711	Ames, Henry Lyman House	170 School St	Woburn	R 1830	
WOB.607	Thompson, Lewis Waldo - McMahon, Frank House	10 Scott St	Woburn	C 1885	
WOB.608	Thompson, Lewis Waldo - Rooney, Henry J. House	12 Scott St	Woburn	C 1900	
WOB.609	Thompson, Lewis Waldo - Clemson, Frederick House	14 Scott St	Woburn	C 1900	
WOB.610	Thompson, Lewis Waldo - Carr, Alice House	16 Scott St	Woburn	C 1900	
WOB.611	Deland, Joseph Foster House	19-21 Scott St	Woburn	C 1874	
WOB.612	Wyman, Nathan House	22 Scott St	Woburn	C 1865	
WOB.613	MacDonald, John House	31 Scott St	Woburn	C 1919	
WOB.676	Barker, George G. - Campbell, Donald House	14 South St	Woburn	C 1895	
WOB.167	DeLong, James F. Three Decker	11 Sturgis St	Woburn	R 1915	
WOB.712	Wyman, William P. House	14 Sturgis St	Woburn	C 1850	
WOB.713	Hudson, Edward W. House	30 Sturgis St	Woburn	C 1875	
WOB.169	Ray, George House	3 Tidd Ave	Woburn	C 1890	
WOB.37	Pierce, Charles A. Carriage House	4 Tidd Ave	Woburn	C 1900	
WOB.170	Torry, Richard - Veno, George House	5 Tidd Ave	Woburn	C 1890	
WOB.171	Bond, Daniel Wilbur House	6 Tidd Ave	Woburn	C 1902	
WOB.223	Healey, Francis C. Garage	1 Traverse St	Woburn		
WOB.172	Healey, Francis C. House	1 Traverse St	Woburn	C 1900	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.173	Cutler, Warren - Thompson, Jonathan House	7 Traverse St	Woburn	C 1860	
WOB.224	Bond, Lewis F. Garage	19 Traverse St	Woburn	C 1926	
WOB.174	Tidd, Marshall - Flint, Frederick House	19 Traverse St	Woburn	C 1870	
WOB.175	Hartshorn, S. A. House	60 Union St	Woburn	C 1880	
WOB.509	Murphy, James H. House	6 Valley Rd	Woburn	1925	
WOB.285		1 Wade Pl	Woburn	C 1920	NRDIS;
WOB.286		1 Wade Pl	Woburn	C 1910	NRDIS;
WOB.282		7 Wade Pl	Woburn	C 1920	NRDIS;
WOB.714	Menchin, Frank House	96 Waltham St	Woburn	1894	
WOB.225	Foucar, Mary M. Garage	4 Ward St	Woburn		
WOB.176	Foucar, Mary M. House	4 Ward St	Woburn	C 1906	
WOB.226		6 Ward St	Woburn		
WOB.177	Merrill, William R. House	6 Ward St	Woburn	C 1870	
WOB.178	Carlberg, Carl House	9 Ward St	Woburn	C 1906	
WOB.38	Tidd, Marshall House	11 Ward St	Woburn	R 1820	LHD;
WOB.179	Tidd, Arthur W. House	15 Ward St	Woburn	C 1910	
WOB.180	Edgecomb, Noah House	18 Ward St	Woburn	C 1848	
WOB.181	Tidd, Jonathan House	23 Ward St	Woburn	C 1870	LHD;
WOB.182	Bond, Charles House	30 Ward St	Woburn	C 1870	
WOB.227	Colvin, John Garage	30 Ward St	Woburn	1918	
WOB.289	Thompson, Jonathan - Tidd, Marshall House	1 Warren Ave	Woburn	C 1835	NRDIS;
WOB.183	Grammer, Col. William T. House	14 Warren Ave	Woburn	C 1875	
WOB.18	Hayden, Edward D. House	17 Warren Ave	Woburn	C 1892	
WOB.184	Munroe, John I. House	26 Warren Ave	Woburn	1894	
WOB.185	Dow, Alfred A. House	31 Warren Ave	Woburn	C 1870	
WOB.228	Fagg, Stephen D. Garage	35 Warren Ave	Woburn	C 1910	
WOB.186	Fagg, Stephen D. House	35 Warren Ave	Woburn	C 1910	
WOB.187	Nichols, Benjamin Harrison House	37 Warren Ave	Woburn	C 1890	
WOB.188	Duncan, Robert - Barker, E. Gerry House	39 Warren Ave	Woburn	C 1890	
WOB.229	Munroe, George J. Garage	43 Warren Ave	Woburn	C 1870	
WOB.189	Munroe, George J. House	43 Warren Ave	Woburn	C 1870	
WOB.190	Crane, Capt. John P. House	48 Warren Ave	Woburn	C 1875	
WOB.614	Wyman, Amasa - Allen, George W. House	150 Washington Cir	Woburn	R 1780	
WOB.615	Hadley - Allen, George W. House	152 Washington Cir	Woburn	C 1800	
WOB.819	Agudath Achim Cemetery	Washington St	Woburn	C 1906	
WOB.965	Agudath Achim Cemetery Gate and Fence	Washington St	Woburn		
WOB.827	American Austrian - City of Boston Lodge Cemetery	Washington St	Woburn	C 1906	
WOB.976	American Austrian Cemetery Gate	Washington St	Woburn	1922	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.821	Anshe Libavitz Cemetery	Washington St	Woburn	C 1899	
WOB.633	Anshe Libavitz Cemetery Chapel	Washington St	Woburn		
WOB.968	Anshe Libavitz Cemetery Fence	Washington St	Woburn		
WOB.967	Anshe Libavitz Cemetery Gate	Washington St	Woburn		
WOB.801	Anshei Poland Cemetery	Washington St	Woburn	C 1900	
WOB.628	Anshei Poland Cemetery Chapel	Washington St	Woburn	1922	
WOB.946	Anshei Poland Cemetery Gate and Fence	Washington St	Woburn		
WOB.805	Beth David #2 Cemetery	Washington St	Woburn	C 1906	
WOB.948	Beth David #2 Cemetery Gate and Fence	Washington St	Woburn		
WOB.804	Beth David Cemetery	Washington St	Woburn	C 1906	
WOB.802	Beth Joseph #1 Cemetery	Washington St	Woburn	C 1908	
WOB.823	Beth Joseph #3 Cemetery	Washington St	Woburn	C 1906	
WOB.970	Beth Joseph #3 Cemetery Gates	Washington St	Woburn		
WOB.971	Beth Joseph #3 Cemetery Marker	Washington St	Woburn		
WOB.949	Beth Joseph Cemetery #2 - Wolkon, Rose Tablet	Washington St	Woburn	C 1974	
WOB.807	Chebra Kadisha of Chelsea Cemetery	Washington St	Woburn	C 1899	
WOB.952	Chebra Kadisha of Chelsea Cemetery Fence	Washington St	Woburn		
WOB.951	Chebra Kadisha of Chelsea Cemetery Gate	Washington St	Woburn		
WOB.812	Chevra Kadusha of Boston Cemetery	Washington St	Woburn	C 1903	
WOB.630	Chevra Kadusha of Boston Cemetery Chapel	Washington St	Woburn	C 1903	
WOB.960	Chevra Kadusha of Boston Cemetery Gate and Fence	Washington St	Woburn	1925	
WOB.828	Chevra Mishnias Cemetery	Washington St	Woburn	C 1906	
WOB.978	Chevra Mishnias Cemetery Gate and Fence	Washington St	Woburn		
WOB.977	City of Boston Lodge Cemetery Gate and Fence	Washington St	Woburn		
WOB.808	Congregation Ohel Jacob and East Boston Cemetery	Washington St	Woburn	C 1906	
WOB.629	Congregation Ohel Jacob Cemetery Chapel	Washington St	Woburn		
WOB.953	Congregation Ohel Jacob Cemetery Gate and Fence	Washington St	Woburn		
WOB.826	Independent Golden Crown Cemetery	Washington St	Woburn	C 1906	
WOB.975	Independent Golden Crown Cemetery Gate	Washington St	Woburn		
WOB.825	Independent Pride of Boston Cemetery	Washington St	Woburn	C 1900	
WOB.973	Independent Pride of Boston Cemetery Tablet	Washington St	Woburn	1900	
WOB.974	Independent Pride of Boston Cemetery Tablet	Washington St	Woburn	1931	
WOB.811	Kenesseth Israel Cemetery	Washington St	Woburn	C 1899	
WOB.956	Kenesseth Israel Cemetery Gate and Fence	Washington St	Woburn		
WOB.958	Kenesseth Israel Cemetery Tablet	Washington St	Woburn	1899	
WOB.959	Kenesseth Israel Cemetery Tablet	Washington St	Woburn	1899	
WOB.957	Kenesseth Israel Cemetery Tablets	Washington St	Woburn	1899	
WOB.824	Knights of Liberty Cemetery	Washington St	Woburn	C 1903	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.634	Knights of Liberty Cemetery Chapel	Washington St	Woburn	1941	
WOB.972	Knights of Liberty Cemetery Fence	Washington St	Woburn		
WOB.803	Meretz Cemetery	Washington St	Woburn	1893	
WOB.947	Meretz Cemetery Gate and Fence	Washington St	Woburn	C 1914	
WOB.806	Montefiore Cemetery	Washington St	Woburn	C 1906	
WOB.950	Montefiore Cemetery Gate - Fence - Tablets	Washington St	Woburn	1924	
WOB.815	Pride of Boston Cemetery A	Washington St	Woburn	C 1897	
WOB.816	Pride of Boston Cemetery B	Washington St	Woburn	C 1897	
WOB.817	Pride of Boston Cemetery C	Washington St	Woburn	C 1897	
WOB.631	Pride of Boston Cemetery Chapel	Washington St	Woburn	C 1980	
WOB.818	Pride of Boston Cemetery D	Washington St	Woburn	C 1897	
WOB.964	Pride of Boston Cemetery Gate and Fence	Washington St	Woburn		
WOB.963	Pride of Boston Cemetery Gate and Wall	Washington St	Woburn	C 1930	
WOB.814	Puritan - Mount Sinai Cemetery	Washington St	Woburn	C 1906	
WOB.962	Puritan - Mount Sinai Cemetery Gate and Fence	Washington St	Woburn		
WOB.810	Roxbury Mutual Cemetery	Washington St	Woburn	C 1898	
WOB.955	Roxbury Mutual Cemetery Gate and Fence	Washington St	Woburn	1930	
WOB.820	Shari Jerusalem Chevra Thilim Cemetery	Washington St	Woburn	C 1906	
WOB.632	Shari Jerusalem Chevra Thilim Cemetery Chapel	Washington St	Woburn		
WOB.966	Shari Jerusalem Chevra Thilim Cemetery Gate	Washington St	Woburn		
WOB.809	South Boston Lodge Cemetery	Washington St	Woburn	C 1906	
WOB.954	South Boston Lodge Cemetery Gate and Fence	Washington St	Woburn		
WOB.813	United Congregation Beth Jacob Cemetery	Washington St	Woburn	C 1902	
WOB.961	United Congregation Beth Jacob Cemetery Gate	Washington St	Woburn	C 1970	
WOB.822	Woburn Hebrew Center Cemetery	Washington St	Woburn	C 1945	
WOB.969	Woburn Hebrew Center Cemetery Gate and Plaque	Washington St	Woburn	1945	
WOB.616	Hayward, Nathaniel - Macfarlane, Duncan House	72 Washington St	Woburn	C 1840	
WOB.939	Gillis, Shawn - Carroll, Paul Monument	100 Washington St	Woburn		
WOB.937	Immaculate Conception Statue	100 Washington St	Woburn	1926	
WOB.25	Saint Joseph's Roman Catholic Church	100 Washington St	Woburn	1877	
WOB.938	Saint Jude Statue	100 Washington St	Woburn		
WOB.617	Knights, John II - Nelson, James House	10 Water St	Woburn	C 1840	
WOB.618	Eaton, Timothy - Devlin, John House	12 Water St	Woburn	R 1840	
WOB.256		10 West Dexter Ave	Woburn	C 1983	NRDIS;
WOB.191	Thompson, Samuel A. House	7 West St	Woburn	C 1885	
WOB.192	Lyng, Arthur House	11 West St	Woburn	C 1932	
WOB.193	Flaws, James House	16 West St	Woburn	C 1930	
WOB.194	Bell, James D. - Rollins, Elijah Jr. House	25 West St	Woburn	C 1860	

Inv. No.	Property Name	Street	Town	Year	Designations
WOB.195	Fowle, James House	26 West St	Woburn	C 1920	
WOB.196	Sevrens, Urial House	30 West St	Woburn	C 1895	
WOB.244		2 Wheeling St	Woburn	C 1940	NRDIS;
WOB.510	Cummings, Lottie - Wilcox, Walter L. House	6 Wilcox Cir	Woburn	1898	
WOB.511	Cummings, M. - Newman, John Hawkins House	74 Willow St	Woburn	C 1870	
WOB.512	Taylor, Sewell 2nd House	75 Willow St	Woburn	1864	
WOB.513	Colgate, William A. - Aylward, Michael J. House	78 Willow St	Woburn	1851	
WOB.620	Winn and Lane Row House	Winn Park	Woburn	C 1880	
WOB.619	Winn and Lane Row House	2-12 Winn Park	Woburn	C 1880	
WOB.197	Woburn First Baptist Church	3 Winn St	Woburn	1926	
WOB.621	Woburn First Baptist Church Parsonage	7 Winn St	Woburn	C 1895	
WOB.35	Tillson, David H. House	56 Winn St	Woburn	C 1850	
WOB.275		100 Winn St	Woburn	C 1964	NRDIS;
WOB.622	Henchey, James H. House	122 Winn St	Woburn	C 1880	
WOB.623	Ryan, John J. House	126 Winn St	Woburn	1913	
WOB.624	Barnes, James - O'Hare, Fannie Double House	127-129 Winn St	Woburn	C 1890	
WOB.625	Boviard, James - Palage, Harry House	131 Winn St	Woburn	C 1929	
WOB.198	Caulfield, Dr. Peter House	160 Winn St	Woburn	1908	
WOB.514	Richardson, S. S. House	2 Wyman St	Woburn	C 1840	
WOB.626	Wheaton, Frank E. House	7 Wyman St	Woburn	C 1924	
WOB.627	Chute, Susan - Cummings, Joanna House	21 Wyman St	Woburn	C 1925	

ATTACHMENT H:
ENDANGERED SPECIES ACT DOCUMENTATION



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>

In Reply Refer To:
Project Code: 2022-0004102
Project Name: Proposed Building Addition

February 07, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan
(http://www.fws.gov/windenergy/eagle_guidance.html)

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Project Code: 2022-0004102

Event Code: None

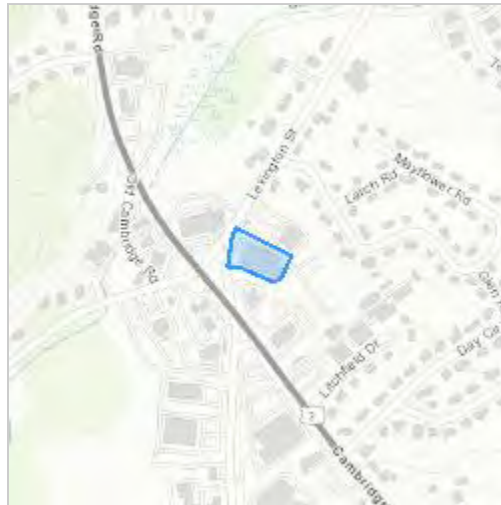
Project Name: Proposed Building Addition

Project Type: Commercial Development

Project Description: Construction to support an addition to the existing building.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.4682468,-71.177591269918,14z>



Counties: Middlesex County, Massachusetts

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

ATTACHMENT I:
LABORATORY ANALYTICAL REPORTS

CERTIFICATE OF ANALYSIS

Patrice Plante
The Vertex Companies
100 North Washington Street Suite 302
Boston, MA 02114

RE: Lawless Jeep Woburn MA (77475)
ESS Laboratory Work Order Number: 21H0894

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED*By ESS Laboratory at 4:49 pm, Sep 02, 2021***Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

SAMPLE RECEIPT

The following samples were received on August 24, 2021 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for metals were analyzed for a subset of the required MCP list per the client's request.

Revision 1 September 2, 2021: This report has been revised to include ID correction on 21H0894-05.

Lab Number	Sample Name	Matrix	Analysis
21H0894-01	VES-101 MW	Ground Water	6010C, 6020A, 7010, 7470A, 8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21H0894-02	VES-103 MW	Ground Water	6010C, 6020A, 7010, 7470A, 8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21H0894-03	VES-104 MW	Ground Water	6010C, 6020A, 7010, 7470A, 8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21H0894-04	VES-105 MW	Ground Water	6010C, 6020A, 7010, 7470A, 8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21H0894-05	VES-102 MW	Ground Water	6010C, 6020A, 7010, 7470A, 8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

PROJECT NARRATIVE

8260B Volatile Organic Compounds

D1H0420-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).
Tetrachloroethene (27% @ 20%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **21H0894-01 through 21H0894-05**

Matrices: ☒ Ground Water/Surface Water ☐ Soil/Sediment ☐ Drinking Water ☐ Air ☐ Other: _____

CAM Protocol (check all that apply below):

☒ 8260 VOC CAM II A	☒ 7470/7471 Hg CAM III B	☒ MassDEP VPH (GC/PID/FID) CAM IV A	☐ 8082 PCB CAM V A	☐ 9014 Total Cyanide/PAC CAM VI A	☐ 6860 Perchlorate CAM VIII B
☐ 8270 SVOC CAM II B	☒ 7010 Metals CAM III C	☐ MassDEP VPH (GC/MS) CAM IV C	☐ 8081 Pesticides CAM V B	☐ 7196 Hex Cr CAM VI B	☐ MassDEP APH CAM IX A
☒ 6010 Metals CAM III A	☒ 6020 Metals CAM III D	☒ MassDEP EPH CAM IV B	☐ 8151 Herbicides CAM V C	☐ Explosives CAM VIII A	☐ TO-15 VOC CAM IX B

Affirmative responses to questions A through F are 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 ☒ No ☐
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes ☒ No ☐
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 ☒ No ☐
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes ☒ No ☐
E	VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ☒ No ☐
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 ☒ No ☐

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.	Yes ☒ No ☐ *
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes ☐ No ☒ *
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ☐ No ☒ *

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard

Printed Name: Laurel Stoddard

Date: August 31, 2021

Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-101 MW
Date Sampled: 08/24/21 09:25
Percent Solids: N/A

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-01
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	ND (5.0)		7010		1	KJK	08/26/21 18:24	10	10	DH12434
Barium	52.6 (50.0)		6010C		1	KJK	08/25/21 19:48	10	10	DH12434
Cadmium	ND (1.0)		6020A		1	KJK	08/25/21 15:07	10	10	DH12434
Chromium	ND (10.0)		6010C		1	KJK	08/25/21 19:48	10	10	DH12434
Lead	1.5 (1.0)		6020A		1	KJK	08/25/21 15:07	10	10	DH12434
Mercury	ND (0.20)		7470A		1	JRB	08/26/21 11:20	20	40	DH12544
Selenium	ND (5.0)		6020A		1	KJK	08/25/21 15:07	10	10	DH12434
Silver	ND (5.0)		6010C		1	KJK	08/25/21 19:48	10	10	DH12434



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-101 MW
Date Sampled: 08/24/21 09:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,1,1-Trichloroethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,1,2-Trichloroethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,1-Dichloroethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,1-Dichloroethene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,1-Dichloropropene	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2,3-Trichloropropane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2-Dibromoethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2-Dichloroethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,3-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,3-Dichloropropane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,4-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
1,4-Dioxane - Screen	ND (500)		8260B		1	08/25/21 13:17	D1H0420	DH12529
2,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
2-Butanone	ND (10.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
2-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
2-Hexanone	ND (10.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
4-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
4-Isopropyltoluene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Acetone	ND (10.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Benzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Bromobenzene	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Bromochloromethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-101 MW
Date Sampled: 08/24/21 09:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Bromoform	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Bromomethane	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Carbon Disulfide	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Carbon Tetrachloride	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Chlorobenzene	2.8 (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Chloroethane	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Chloroform	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Chloromethane	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Dibromochloromethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Dibromomethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Dichlorodifluoromethane	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Diethyl Ether	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Di-isopropyl ether	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Ethylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Hexachlorobutadiene	ND (0.6)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Hexachloroethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Isopropylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Methylene Chloride	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Naphthalene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
n-Butylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
n-Propylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
sec-Butylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Styrene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
tert-Butylbenzene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Tetrachloroethene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Tetrahydrofuran	ND (5.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-101 MW
Date Sampled: 08/24/21 09:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Trichloroethene	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Trichlorofluoromethane	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Vinyl Chloride	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Xylene O	ND (1.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Xylene P,M	ND (2.0)		8260B		1	08/25/21 13:17	D1H0420	DH12529
Xylenes (Total)	ND (2.00)		8260B		1	08/25/21 13:17		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-101 MW
Date Sampled: 08/24/21 09:25
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-01
Sample Matrix: Ground Water
Units: ug/L

Prepared: 8/25/21 12:40

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (95)		MADEP-EPH		1	IBM	08/26/21 3:23	D1H0408	DH12503
C19-C36 Aliphatics1	ND (95)		MADEP-EPH		1	IBM	08/26/21 3:23	D1H0408	DH12503
C11-C22 Unadjusted Aromatics1	ND (95.2)		EPH8270		1	IBM	08/26/21 19:36	D1H0437	DH12503
C11-C22 Aromatics1,2	ND (95.2)		EPH8270			TAJ	08/30/21 17:51		[CALC]
2-Methylnaphthalene	ND (0.48)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Acenaphthene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Naphthalene	ND (0.48)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Phenanthrene	ND (0.48)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Acenaphthylene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Benzo(a)anthracene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Benzo(b)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Benzo(g,h,i)perylene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Benzo(k)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Chrysene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Dibenzo(a,h)Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Fluorene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Indeno(1,2,3-cd)Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	08/30/21 17:51	D1H0509	DH12503
Preservative:	pH <= 2		MADEP-EPH			IBM			DH12503

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	70 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	69 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	91 %		40-140
<i>Surrogate: O-Terphenyl</i>	80 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-101 MW
Date Sampled: 08/24/21 09:25
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	08/25/21 19:43	D1H0428	DH12532
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	08/25/21 19:43		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	08/25/21 19:43		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DH12532

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>95 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-103 MW
Date Sampled: 08/24/21 10:42
Percent Solids: N/A

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-02
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	ND (5.0)		7010		1	KJK	08/26/21 18:29	10	10	DH12434
Barium	181 (50.0)		6010C		1	KJK	08/25/21 19:50	10	10	DH12434
Cadmium	ND (1.0)		6020A		1	KJK	08/25/21 15:12	10	10	DH12434
Chromium	ND (10.0)		6010C		1	KJK	08/25/21 19:50	10	10	DH12434
Lead	ND (1.0)		6020A		1	KJK	08/25/21 15:12	10	10	DH12434
Mercury	ND (0.20)		7470A		1	JRB	08/26/21 11:22	20	40	DH12544
Selenium	ND (5.0)		6020A		1	KJK	08/25/21 15:12	10	10	DH12434
Silver	ND (5.0)		6010C		1	KJK	08/25/21 19:50	10	10	DH12434



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-103 MW
Date Sampled: 08/24/21 10:42
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,1,1-Trichloroethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,1,2-Trichloroethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,1-Dichloroethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,1-Dichloroethene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,1-Dichloropropene	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2,3-Trichloropropane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2-Dibromoethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2-Dichloroethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,3-Dichlorobenzene	1.3 (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,3-Dichloropropane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,4-Dichlorobenzene	2.6 (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
1,4-Dioxane - Screen	ND (500)		8260B		1	08/25/21 13:43	D1H0420	DH12529
2,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
2-Butanone	ND (10.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
2-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
2-Hexanone	ND (10.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
4-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
4-Isopropyltoluene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Acetone	ND (10.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Benzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Bromobenzene	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Bromochloromethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-103 MW
Date Sampled: 08/24/21 10:42
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Bromoform	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Bromomethane	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Carbon Disulfide	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Carbon Tetrachloride	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Chlorobenzene	52.3 (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Chloroethane	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Chloroform	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Chloromethane	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Dibromochloromethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Dibromomethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Dichlorodifluoromethane	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Diethyl Ether	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Di-isopropyl ether	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Ethylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Hexachlorobutadiene	ND (0.6)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Hexachloroethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Isopropylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Methylene Chloride	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Naphthalene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
n-Butylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
n-Propylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
sec-Butylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Styrene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
tert-Butylbenzene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Tetrachloroethene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Tetrahydrofuran	ND (5.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-103 MW
Date Sampled: 08/24/21 10:42
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Trichloroethene	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Trichlorofluoromethane	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Vinyl Chloride	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Xylene O	ND (1.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Xylene P,M	ND (2.0)		8260B		1	08/25/21 13:43	D1H0420	DH12529
Xylenes (Total)	ND (2.00)		8260B		1	08/25/21 13:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	98 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	99 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-103 MW
Date Sampled: 08/24/21 10:42
Percent Solids: N/A
Initial Volume: 990
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-02
Sample Matrix: Ground Water
Units: ug/L

Prepared: 8/25/21 12:40

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (101)		MADEP-EPH		1	IBM	08/26/21 3:57	D1H0408	DH12503
C19-C36 Aliphatics1	ND (101)		MADEP-EPH		1	IBM	08/26/21 3:57	D1H0408	DH12503
C11-C22 Unadjusted Aromatics1	ND (101)		EPH8270		1	IBM	08/26/21 20:16	D1H0437	DH12503
C11-C22 Aromatics1,2	ND (101)		EPH8270			TAJ	08/30/21 18:38		[CALC]
2-Methylnaphthalene	ND (0.51)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Acenaphthene	0.84 (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Naphthalene	ND (0.51)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Phenanthrene	ND (0.51)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Acenaphthylene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Benzo(a)anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Benzo(b)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Chrysene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Fluoranthene	0.25 (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Fluorene	0.23 (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 18:38	D1H0509	DH12503
Preservative:	pH <= 2		MADEP-EPH			IBM			DH12503

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	71 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	67 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	91 %		40-140
<i>Surrogate: O-Terphenyl</i>	79 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-103 MW
Date Sampled: 08/24/21 10:42
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	08/25/21 20:17	D1H0428	DH12532
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	08/25/21 20:17		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	08/25/21 20:17		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DH12532

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>96 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-104 MW
Date Sampled: 08/24/21 12:43
Percent Solids: N/A

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-03
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	ND (5.0)		7010		1	KJK	08/26/21 18:35	10	10	DH12434
Barium	179 (50.0)		6010C		1	KJK	08/25/21 19:52	10	10	DH12434
Cadmium	ND (1.0)		6020A		1	KJK	08/25/21 15:18	10	10	DH12434
Chromium	ND (10.0)		6010C		1	KJK	08/25/21 19:52	10	10	DH12434
Lead	ND (1.0)		6020A		1	KJK	08/25/21 15:18	10	10	DH12434
Mercury	ND (0.20)		7470A		1	JRB	08/26/21 11:24	20	40	DH12544
Selenium	ND (5.0)		6020A		1	KJK	08/25/21 15:18	10	10	DH12434
Silver	ND (5.0)		6010C		1	KJK	08/25/21 19:52	10	10	DH12434



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-104 MW
Date Sampled: 08/24/21 12:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,1,1-Trichloroethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,1,2-Trichloroethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,1-Dichloroethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,1-Dichloroethene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,1-Dichloropropene	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2,3-Trichloropropane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2-Dibromoethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2-Dichloroethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,3-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,3-Dichloropropane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,4-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
1,4-Dioxane - Screen	ND (500)		8260B		1	08/25/21 14:09	D1H0420	DH12529
2,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
2-Butanone	ND (10.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
2-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
2-Hexanone	ND (10.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
4-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
4-Isopropyltoluene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Acetone	ND (10.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Benzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Bromobenzene	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Bromochloromethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-104 MW
Date Sampled: 08/24/21 12:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Bromoform	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Bromomethane	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Carbon Disulfide	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Carbon Tetrachloride	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Chlorobenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Chloroethane	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Chloroform	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Chloromethane	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Dibromochloromethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Dibromomethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Dichlorodifluoromethane	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Diethyl Ether	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Di-isopropyl ether	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Ethylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Hexachlorobutadiene	ND (0.6)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Hexachloroethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Isopropylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Methylene Chloride	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Naphthalene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
n-Butylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
n-Propylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
sec-Butylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Styrene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
tert-Butylbenzene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Tetrachloroethene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Tetrahydrofuran	ND (5.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-104 MW
Date Sampled: 08/24/21 12:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Trichloroethene	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Trichlorofluoromethane	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Vinyl Chloride	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Xylene O	ND (1.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Xylene P,M	ND (2.0)		8260B		1	08/25/21 14:09	D1H0420	DH12529
Xylenes (Total)	ND (2.00)		8260B		1	08/25/21 14:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	97 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	100 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-104 MW
Date Sampled: 08/24/21 12:43
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-03
Sample Matrix: Ground Water
Units: ug/L

Prepared: 8/30/21 16:36

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (100)		MADEP-EPH		1	IBM	08/31/21 3:55	D1H0481	DH13001
C19-C36 Aliphatics1	ND (100)		MADEP-EPH		1	IBM	08/31/21 3:55	D1H0481	DH13001
C11-C22 Unadjusted Aromatics1	ND (100)		EPH8270		1	IBM	08/30/21 21:13	D1H0514	DH13001
C11-C22 Aromatics1,2	ND (100)		EPH8270			TAJ	08/31/21 3:06		[CALC]
2-Methylnaphthalene	ND (0.50)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Acenaphthene	0.27 (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Naphthalene	0.63 (0.50)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Phenanthrene	ND (0.50)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Acenaphthylene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Benzo(a)anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Benzo(b)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Chrysene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Fluorene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 3:06	D1H0509	DH13001
Preservative:	pH <= 2		MADEP-EPH			IBM			DH13001

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1-Chlorooctadecane	75 %		40-140
Surrogate: 2-Bromonaphthalene	79 %		40-140
Surrogate: 2-Fluorobiphenyl	112 %		40-140
Surrogate: O-Terphenyl	84 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-104 MW
Date Sampled: 08/24/21 12:43
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	08/25/21 20:51	D1H0428	DH12532
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	08/25/21 20:51		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	08/25/21 20:51		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DH12532

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-105 MW
Date Sampled: 08/24/21 13:55
Percent Solids: N/A

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-04
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	ND (5.0)		7010		1	KJK	08/26/21 18:46	10	10	DH12434
Barium	75.4 (50.0)		6010C		1	KJK	08/25/21 19:53	10	10	DH12434
Cadmium	ND (1.0)		6020A		1	KJK	08/25/21 15:23	10	10	DH12434
Chromium	ND (10.0)		6010C		1	KJK	08/25/21 19:53	10	10	DH12434
Lead	1.1 (1.0)		6020A		1	KJK	08/25/21 15:23	10	10	DH12434
Mercury	ND (0.20)		7470A		1	JRB	08/26/21 11:27	20	40	DH12544
Selenium	ND (5.0)		6020A		1	KJK	08/25/21 15:23	10	10	DH12434
Silver	ND (5.0)		6010C		1	KJK	08/25/21 19:53	10	10	DH12434



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-105 MW
Date Sampled: 08/24/21 13:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,1,1-Trichloroethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,1,2-Trichloroethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,1-Dichloroethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,1-Dichloroethene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,1-Dichloropropene	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2,3-Trichloropropane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2-Dibromoethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2-Dichloroethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,3-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,3-Dichloropropane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,4-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
1,4-Dioxane - Screen	ND (500)		8260B		1	08/25/21 14:35	D1H0420	DH12529
2,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
2-Butanone	ND (10.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
2-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
2-Hexanone	ND (10.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
4-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
4-Isopropyltoluene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Acetone	ND (10.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Benzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Bromobenzene	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Bromochloromethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-105 MW
Date Sampled: 08/24/21 13:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Bromoform	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Bromomethane	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Carbon Disulfide	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Carbon Tetrachloride	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Chlorobenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Chloroethane	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Chloroform	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Chloromethane	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Dibromochloromethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Dibromomethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Dichlorodifluoromethane	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Diethyl Ether	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Di-isopropyl ether	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Ethylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Hexachlorobutadiene	ND (0.6)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Hexachloroethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Isopropylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Methylene Chloride	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Naphthalene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
n-Butylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
n-Propylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
sec-Butylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Styrene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
tert-Butylbenzene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Tetrachloroethene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Tetrahydrofuran	ND (5.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-105 MW
Date Sampled: 08/24/21 13:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Trichloroethene	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Trichlorofluoromethane	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Vinyl Chloride	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Xylene O	ND (1.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Xylene P,M	ND (2.0)		8260B		1	08/25/21 14:35	D1H0420	DH12529
Xylenes (Total)	ND (2.00)		8260B		1	08/25/21 14:35		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	97 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	99 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-105 MW
Date Sampled: 08/24/21 13:55
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-04
Sample Matrix: Ground Water
Units: ug/L

Prepared: 8/26/21 12:55

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (100)		MADEP-EPH		1	IBM	08/27/21 1:22	D1H0452	DH12601
C19-C36 Aliphatics1	ND (100)		MADEP-EPH		1	IBM	08/27/21 1:22	D1H0452	DH12601
C11-C22 Unadjusted Aromatics1	ND (100)		EPH8270		1	IBM	08/27/21 2:55	D1H0437	DH12601
C11-C22 Aromatics1,2	ND (100)		EPH8270			TAJ	08/30/21 23:15		[CALC]
2-Methylnaphthalene	ND (0.50)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Acenaphthene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Naphthalene	ND (0.50)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Phenanthrene	ND (0.50)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Acenaphthylene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Benzo(a)anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Benzo(b)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Chrysene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Fluorene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/30/21 23:15	D1H0509	DH12601
Preservative:	pH <= 2		MADEP-EPH			IBM			DH12601

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	60 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	68 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	92 %		40-140
<i>Surrogate: O-Terphenyl</i>	77 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-105 MW
Date Sampled: 08/24/21 13:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	08/25/21 21:25	D1H0428	DH12532
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	08/25/21 21:25		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	08/25/21 21:25		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DH12532

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	99 %		70-130
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	96 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-102 MW
Date Sampled: 08/24/21 15:07
Percent Solids: N/A

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-05
Sample Matrix: Ground Water
Units: ug/L

Extraction Method: 200.7/6010BNoDigest

Dissolved Metals

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Arsenic	ND (5.0)		7010		1	KJK	08/26/21 18:52	10	10	DH12434
Barium	135 (50.0)		6010C		1	KJK	08/25/21 19:55	10	10	DH12434
Cadmium	ND (1.0)		6020A		1	NAR	08/30/21 12:23	10	10	DH12434
Chromium	ND (10.0)		6010C		1	KJK	08/25/21 19:55	10	10	DH12434
Lead	1.1 (1.0)		6020A		1	NAR	08/30/21 12:23	10	10	DH12434
Mercury	ND (0.20)		7470A		1	JRB	08/26/21 11:29	20	40	DH12544
Selenium	ND (10.0)		7010		1	KJK	08/26/21 23:18	10	10	DH12434
Silver	ND (5.0)		6010C		1	KJK	08/25/21 19:55	10	10	DH12434



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-102 MW
Date Sampled: 08/24/21 15:07
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,1,1-Trichloroethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,1,2-Trichloroethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,1-Dichloroethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,1-Dichloroethene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,1-Dichloropropene	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2,3-Trichloropropane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2-Dibromoethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2-Dichlorobenzene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2-Dichloroethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,3-Dichlorobenzene	8.3 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,3-Dichloropropane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,4-Dichlorobenzene	26.4 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
1,4-Dioxane - Screen	ND (500)		8260B		1	08/25/21 15:01	D1H0420	DH12529
2,2-Dichloropropane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
2-Butanone	ND (10.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
2-Chlorotoluene	1.2 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
2-Hexanone	ND (10.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
4-Chlorotoluene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
4-Isopropyltoluene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Acetone	ND (10.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Benzene	3.6 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Bromobenzene	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Bromochloromethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-102 MW
Date Sampled: 08/24/21 15:07
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Bromoform	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Bromomethane	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Carbon Disulfide	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Carbon Tetrachloride	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Chlorobenzene	560 (10.0)		8260B		10	08/25/21 16:46	D1H0420	DH12529
Chloroethane	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Chloroform	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Chloromethane	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Dibromochloromethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Dibromomethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Dichlorodifluoromethane	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Diethyl Ether	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Di-isopropyl ether	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Ethylbenzene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Hexachlorobutadiene	ND (0.6)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Hexachloroethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Isopropylbenzene	10.0 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Methylene Chloride	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Naphthalene	1.1 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
n-Butylbenzene	16.9 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
n-Propylbenzene	26.5 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
sec-Butylbenzene	12.8 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Styrene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
tert-Butylbenzene	2.7 (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Tetrachloroethene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Tetrahydrofuran	ND (5.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-102 MW
Date Sampled: 08/24/21 15:07
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Trichloroethene	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Trichlorofluoromethane	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Vinyl Chloride	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Xylene O	ND (1.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Xylene P,M	ND (2.0)		8260B		1	08/25/21 15:01	D1H0420	DH12529
Xylenes (Total)	ND (2.00)		8260B		1	08/25/21 15:01		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>101 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-102 MW
Date Sampled: 08/24/21 15:07
Percent Solids: N/A
Initial Volume: 1000
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-05
Sample Matrix: Ground Water
Units: ug/L

Prepared: 8/26/21 12:55

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	117 (100)		MADEP-EPH		1	IBM	08/27/21 1:57	D1H0452	DH12601
C19-C36 Aliphatics1	ND (100)		MADEP-EPH		1	IBM	08/27/21 1:57	D1H0452	DH12601
C11-C22 Unadjusted Aromatics1	252 (100)		EPH8270		1	IBM	08/27/21 3:35	D1H0437	DH12601
C11-C22 Aromatics1,2	236 (100)		EPH8270			TAJ	08/31/21 0:01		[CALC]
2-Methylnaphthalene	8.94 (0.50)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Acenaphthene	1.67 (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Naphthalene	0.63 (0.50)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Phenanthrene	1.89 (0.50)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Acenaphthylene	0.23 (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Anthracene	0.23 (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Benzo(a)anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Benzo(b)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Chrysene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Fluoranthene	0.45 (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Fluorene	1.73 (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Pyrene	0.29 (0.20)		EPH8270SIM		1	TAJ	08/31/21 0:01	D1H0509	DH12601
Preservative:	pH <= 2		MADEP-EPH			IBM			DH12601

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	63 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	74 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	91 %		40-140
<i>Surrogate: O-Terphenyl</i>	70 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-102 MW
Date Sampled: 08/24/21 15:07
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21H0894
ESS Laboratory Sample ID: 21H0894-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	490 (100)		MA-VPH-2.1		1	08/25/21 23:42	D1H0428	DH12532
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	08/25/21 23:42		[CALC]
C9-C12 Aliphatics2,3	607 (150)		MA-VPH-2.1		1	08/25/21 23:42		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DH12532

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 2,5-Dibromotoluene - FID	109 %		70-130
Surrogate: 2,5-Dibromotoluene - PID	108 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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Dissolved Metals

Batch DH12434 - 200.7/6010BNoDigest

Blank

Barium	ND	50.0	ug/L
Chromium	ND	10.0	ug/L
Silver	ND	5.0	ug/L

Blank

Cadmium	ND	1.0	ug/L
Lead	ND	1.0	ug/L
Selenium	ND	5.0	ug/L

Blank

Arsenic	ND	5.0	ug/L
Selenium	ND	10.0	ug/L

Blank

Lead	ND	1.0	ug/L
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LCS

Barium	0.5		mg/L	0.5000	102	80-120
Chromium	0.5		mg/L	0.5000	101	80-120
Silver	0.3		mg/L	0.2500	101	80-120

LCS

Cadmium	10.0		ug/L	10.05	100	80-120
Lead	9.9		ug/L	9.990	99	80-120
Selenium	10.1		ug/L	9.990	101	80-120

LCS

Arsenic	25.2		ug/L	25.00	101	80-120
Selenium	50.8		ug/L	50.00	102	80-120

Batch DH12544 - 245.1/7470A

Blank

Mercury	ND	0.20	ug/L
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LCS

Mercury	5.92	0.20	ug/L	6.042	98	80-120
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LCS Dup

Mercury	5.96	0.20	ug/L	6.042	99	80-120	0.5	20
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8260B Volatile Organic Compounds

Batch DH12529 - 5030B

Blank

1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloropropene	ND	2.0	ug/L



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DH12529 - 5030B

1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,2,4-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichloropropane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
1,4-Dioxane - Screen	ND	500	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
2-Butanone	ND	10.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	10.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	0.4	ug/L
Dibromochloromethane	ND	1.0	ug/L
Dibromomethane	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
Diethyl Ether	ND	1.0	ug/L
Di-isopropyl ether	ND	1.0	ug/L
Ethyl tertiary-butyl ether	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
Hexachlorobutadiene	ND	0.6	ug/L
Hexachloroethane	ND	1.0	ug/L



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DH12529 - 5030B

Isopropylbenzene	ND	1.0	ug/L							
Methyl tert-Butyl Ether	ND	1.0	ug/L							
Methylene Chloride	ND	2.0	ug/L							
Naphthalene	ND	1.0	ug/L							
n-Butylbenzene	ND	1.0	ug/L							
n-Propylbenzene	ND	1.0	ug/L							
sec-Butylbenzene	ND	1.0	ug/L							
Styrene	ND	1.0	ug/L							
tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
trans-1,3-Dichloropropene	ND	0.4	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	25.2		ug/L	25.00		101	70-130			
Surrogate: 4-Bromofluorobenzene	24.3		ug/L	25.00		97	70-130			
Surrogate: Dibromofluoromethane	23.8		ug/L	25.00		95	70-130			
Surrogate: Toluene-d8	25.4		ug/L	25.00		101	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.8	1.0	ug/L	10.00		108	70-130			
1,1,1-Trichloroethane	10.3	1.0	ug/L	10.00		103	70-130			
1,1,2,2-Tetrachloroethane	11.0	0.5	ug/L	10.00		110	70-130			
1,1,2-Trichloroethane	10.5	1.0	ug/L	10.00		105	70-130			
1,1-Dichloroethane	10.5	1.0	ug/L	10.00		105	70-130			
1,1-Dichloroethene	11.7	1.0	ug/L	10.00		117	70-130			
1,1-Dichloropropene	10.8	2.0	ug/L	10.00		108	70-130			
1,2,3-Trichlorobenzene	10.8	1.0	ug/L	10.00		108	70-130			
1,2,3-Trichloropropane	10.2	1.0	ug/L	10.00		102	70-130			
1,2,4-Trichlorobenzene	10.7	1.0	ug/L	10.00		107	70-130			
1,2,4-Trimethylbenzene	11.1	1.0	ug/L	10.00		111	70-130			
1,2-Dibromo-3-Chloropropane	9.4	5.0	ug/L	10.00		94	70-130			
1,2-Dibromoethane	10.7	1.0	ug/L	10.00		107	70-130			
1,2-Dichlorobenzene	10.6	1.0	ug/L	10.00		106	70-130			
1,2-Dichloroethane	10.5	1.0	ug/L	10.00		105	70-130			
1,2-Dichloropropane	10.3	1.0	ug/L	10.00		103	70-130			
1,3,5-Trimethylbenzene	11.2	1.0	ug/L	10.00		112	70-130			
1,3-Dichlorobenzene	10.6	1.0	ug/L	10.00		106	70-130			
1,3-Dichloropropane	10.7	1.0	ug/L	10.00		107	70-130			
1,4-Dichlorobenzene	10.7	1.0	ug/L	10.00		107	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DH12529 - 5030B

1,4-Dioxane - Screen	193	500	ug/L	200.0		97	0-332			
2,2-Dichloropropane	11.1	1.0	ug/L	10.00		111	70-130			
2-Butanone	47.1	10.0	ug/L	50.00		94	70-130			
2-Chlorotoluene	10.8	1.0	ug/L	10.00		108	70-130			
2-Hexanone	48.9	10.0	ug/L	50.00		98	70-130			
4-Chlorotoluene	10.8	1.0	ug/L	10.00		108	70-130			
4-Isopropyltoluene	10.6	1.0	ug/L	10.00		106	70-130			
4-Methyl-2-Pentanone	50.4	10.0	ug/L	50.00		101	70-130			
Acetone	44.5	10.0	ug/L	50.00		89	70-130			
Benzene	10.5	1.0	ug/L	10.00		105	70-130			
Bromobenzene	10.4	2.0	ug/L	10.00		104	70-130			
Bromochloromethane	10.4	1.0	ug/L	10.00		104	70-130			
Bromodichloromethane	10.4	0.6	ug/L	10.00		104	70-130			
Bromoform	9.8	1.0	ug/L	10.00		98	70-130			
Bromomethane	10.4	2.0	ug/L	10.00		104	70-130			
Carbon Disulfide	10.5	1.0	ug/L	10.00		105	70-130			
Carbon Tetrachloride	10.8	1.0	ug/L	10.00		108	70-130			
Chlorobenzene	10.4	1.0	ug/L	10.00		104	70-130			
Chloroethane	10.9	2.0	ug/L	10.00		109	70-130			
Chloroform	10.5	1.0	ug/L	10.00		105	70-130			
Chloromethane	9.6	2.0	ug/L	10.00		96	70-130			
cis-1,2-Dichloroethene	10.6	1.0	ug/L	10.00		106	70-130			
cis-1,3-Dichloropropene	10.9	0.4	ug/L	10.00		109	70-130			
Dibromochloromethane	10.7	1.0	ug/L	10.00		107	70-130			
Dibromomethane	10.6	1.0	ug/L	10.00		106	70-130			
Dichlorodifluoromethane	9.0	2.0	ug/L	10.00		90	70-130			
Diethyl Ether	10.6	1.0	ug/L	10.00		106	70-130			
Di-isopropyl ether	9.5	1.0	ug/L	10.00		95	70-130			
Ethyl tertiary-butyl ether	8.9	1.0	ug/L	10.00		89	70-130			
Ethylbenzene	10.7	1.0	ug/L	10.00		107	70-130			
Hexachlorobutadiene	10.7	0.6	ug/L	10.00		107	70-130			
Hexachloroethane	10.2	1.0	ug/L	10.00		102	70-130			
Isopropylbenzene	11.0	1.0	ug/L	10.00		110	70-130			
Methyl tert-Butyl Ether	10.1	1.0	ug/L	10.00		101	70-130			
Methylene Chloride	10.4	2.0	ug/L	10.00		104	70-130			
Naphthalene	10.3	1.0	ug/L	10.00		103	70-130			
n-Butylbenzene	11.1	1.0	ug/L	10.00		111	70-130			
n-Propylbenzene	10.9	1.0	ug/L	10.00		109	70-130			
sec-Butylbenzene	10.8	1.0	ug/L	10.00		108	70-130			
Styrene	9.7	1.0	ug/L	10.00		97	70-130			
tert-Butylbenzene	11.0	1.0	ug/L	10.00		110	70-130			
Tertiary-amyl methyl ether	9.1	1.0	ug/L	10.00		91	70-130			
Tetrachloroethene	8.0	1.0	ug/L	10.00		80	70-130			
Tetrahydrofuran	9.6	5.0	ug/L	10.00		96	70-130			
Toluene	10.4	1.0	ug/L	10.00		104	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DH12529 - 5030B

trans-1,2-Dichloroethene	10.1	1.0	ug/L	10.00		101	70-130			
trans-1,3-Dichloropropene	10.2	0.4	ug/L	10.00		102	70-130			
Trichloroethene	10.0	1.0	ug/L	10.00		100	70-130			
Trichlorofluoromethane	10.1	1.0	ug/L	10.00		101	70-130			
Vinyl Chloride	10.9	1.0	ug/L	10.00		109	70-130			
Xylene O	11.0	1.0	ug/L	10.00		110	70-130			
Xylene P,M	22.2	2.0	ug/L	20.00		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	25.1		ug/L	25.00		101	70-130			
Surrogate: 4-Bromofluorobenzene	25.2		ug/L	25.00		101	70-130			
Surrogate: Dibromofluoromethane	25.0		ug/L	25.00		100	70-130			
Surrogate: Toluene-d8	25.1		ug/L	25.00		100	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	10.9	1.0	ug/L	10.00		109	70-130	1	20	
1,1,1-Trichloroethane	10.4	1.0	ug/L	10.00		104	70-130	2	20	
1,1,2,2-Tetrachloroethane	11.1	0.5	ug/L	10.00		111	70-130	2	20	
1,1,2-Trichloroethane	10.7	1.0	ug/L	10.00		107	70-130	1	20	
1,1-Dichloroethane	10.6	1.0	ug/L	10.00		106	70-130	0.9	20	
1,1-Dichloroethene	11.4	1.0	ug/L	10.00		114	70-130	2	20	
1,1-Dichloropropene	11.0	2.0	ug/L	10.00		110	70-130	1	20	
1,2,3-Trichlorobenzene	10.8	1.0	ug/L	10.00		108	70-130	0.09	20	
1,2,3-Trichloropropane	10.4	1.0	ug/L	10.00		104	70-130	2	20	
1,2,4-Trichlorobenzene	10.9	1.0	ug/L	10.00		109	70-130	2	20	
1,2,4-Trimethylbenzene	11.2	1.0	ug/L	10.00		112	70-130	0.4	20	
1,2-Dibromo-3-Chloropropane	9.6	5.0	ug/L	10.00		96	70-130	3	20	
1,2-Dibromoethane	10.8	1.0	ug/L	10.00		108	70-130	0.7	20	
1,2-Dichlorobenzene	10.6	1.0	ug/L	10.00		106	70-130	0.6	20	
1,2-Dichloroethane	10.4	1.0	ug/L	10.00		104	70-130	1	20	
1,2-Dichloropropane	10.5	1.0	ug/L	10.00		105	70-130	2	20	
1,3,5-Trimethylbenzene	11.4	1.0	ug/L	10.00		114	70-130	2	20	
1,3-Dichlorobenzene	10.8	1.0	ug/L	10.00		108	70-130	2	20	
1,3-Dichloropropane	10.9	1.0	ug/L	10.00		109	70-130	2	20	
1,4-Dichlorobenzene	10.4	1.0	ug/L	10.00		104	70-130	2	20	
1,4-Dioxane - Screen	ND	500	ug/L	200.0		0	0-332	200	200	
2,2-Dichloropropane	11.3	1.0	ug/L	10.00		113	70-130	2	20	
2-Butanone	48.2	10.0	ug/L	50.00		96	70-130	2	20	
2-Chlorotoluene	10.9	1.0	ug/L	10.00		109	70-130	0.5	20	
2-Hexanone	51.5	10.0	ug/L	50.00		103	70-130	5	20	
4-Chlorotoluene	11.0	1.0	ug/L	10.00		110	70-130	2	20	
4-Isopropyltoluene	10.6	1.0	ug/L	10.00		106	70-130	0.6	20	
4-Methyl-2-Pentanone	52.5	10.0	ug/L	50.00		105	70-130	4	20	
Acetone	46.3	10.0	ug/L	50.00		93	70-130	4	20	
Benzene	10.6	1.0	ug/L	10.00		106	70-130	0.8	20	
Bromobenzene	10.6	2.0	ug/L	10.00		106	70-130	2	20	
Bromochloromethane	10.7	1.0	ug/L	10.00		107	70-130	3	20	
Bromodichloromethane	10.9	0.6	ug/L	10.00		109	70-130	5	20	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DH12529 - 5030B

Bromoform	10.3	1.0	ug/L	10.00		103	70-130	4	20	
Bromomethane	9.8	2.0	ug/L	10.00		98	70-130	6	20	
Carbon Disulfide	10.4	1.0	ug/L	10.00		104	70-130	0.7	20	
Carbon Tetrachloride	11.1	1.0	ug/L	10.00		111	70-130	3	20	
Chlorobenzene	10.6	1.0	ug/L	10.00		106	70-130	2	20	
Chloroethane	10.7	2.0	ug/L	10.00		107	70-130	2	20	
Chloroform	10.7	1.0	ug/L	10.00		107	70-130	2	20	
Chloromethane	10.1	2.0	ug/L	10.00		101	70-130	5	20	
cis-1,2-Dichloroethene	10.7	1.0	ug/L	10.00		107	70-130	1	20	
cis-1,3-Dichloropropene	11.0	0.4	ug/L	10.00		110	70-130	1	20	
Dibromochloromethane	10.8	1.0	ug/L	10.00		108	70-130	0.5	20	
Dibromomethane	10.7	1.0	ug/L	10.00		107	70-130	1	20	
Dichlorodifluoromethane	9.3	2.0	ug/L	10.00		93	70-130	3	20	
Diethyl Ether	10.9	1.0	ug/L	10.00		109	70-130	3	20	
Di-isopropyl ether	9.8	1.0	ug/L	10.00		98	70-130	2	20	
Ethyl tertiary-butyl ether	9.1	1.0	ug/L	10.00		91	70-130	2	20	
Ethylbenzene	10.7	1.0	ug/L	10.00		107	70-130	0.4	20	
Hexachlorobutadiene	10.6	0.6	ug/L	10.00		106	70-130	1	20	
Hexachloroethane	10.2	1.0	ug/L	10.00		102	70-130	0	20	
Isopropylbenzene	11.1	1.0	ug/L	10.00		111	70-130	1	20	
Methyl tert-Butyl Ether	10.4	1.0	ug/L	10.00		104	70-130	2	20	
Methylene Chloride	10.4	2.0	ug/L	10.00		104	70-130	1	20	
Naphthalene	10.4	1.0	ug/L	10.00		104	70-130	0.8	20	
n-Butylbenzene	11.2	1.0	ug/L	10.00		112	70-130	1	20	
n-Propylbenzene	11.0	1.0	ug/L	10.00		110	70-130	0.9	20	
sec-Butylbenzene	10.8	1.0	ug/L	10.00		108	70-130	0.8	20	
Styrene	9.8	1.0	ug/L	10.00		98	70-130	0.9	20	
tert-Butylbenzene	11.2	1.0	ug/L	10.00		112	70-130	2	20	
Tertiary-amyl methyl ether	9.3	1.0	ug/L	10.00		93	70-130	2	20	
Tetrachloroethene	8.2	1.0	ug/L	10.00		82	70-130	2	20	
Tetrahydrofuran	9.7	5.0	ug/L	10.00		97	70-130	0.9	20	
Toluene	10.4	1.0	ug/L	10.00		104	70-130	0.6	20	
trans-1,2-Dichloroethene	11.1	1.0	ug/L	10.00		111	70-130	9	20	
trans-1,3-Dichloropropene	10.4	0.4	ug/L	10.00		104	70-130	2	20	
Trichloroethene	10.2	1.0	ug/L	10.00		102	70-130	2	20	
Trichlorofluoromethane	10.3	1.0	ug/L	10.00		103	70-130	2	20	
Vinyl Chloride	11.0	1.0	ug/L	10.00		110	70-130	0.5	20	
Xylene O	11.0	1.0	ug/L	10.00		110	70-130	0.09	20	
Xylene P,M	22.6	2.0	ug/L	20.00		113	70-130	2	20	
Surrogate: 1,2-Dichloroethane-d4	25.2		ug/L	25.00		101	70-130			
Surrogate: 4-Bromofluorobenzene	25.2		ug/L	25.00		101	70-130			
Surrogate: Dibromofluoromethane	25.1		ug/L	25.00		100	70-130			
Surrogate: Toluene-d8	25.1		ug/L	25.00		100	70-130			

MADEP-EPH Extractable Petroleum Hydrocarbons



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch DH12503 - 3510C										
Blank										
C19-C36 Aliphatics1	ND	100	ug/L							
C9-C18 Aliphatics1	ND	100	ug/L							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>37.8</i>		ug/L	<i>50.00</i>		<i>76</i>	<i>40-140</i>			
Blank										
C11-C22 Unadjusted Aromatics1	ND	100	ug/L							
<i>Surrogate: 2-Bromonaphthalene</i>	<i>38.5</i>		ug/L	<i>50.00</i>		<i>77</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>43.4</i>		ug/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>41.5</i>		ug/L	<i>50.00</i>		<i>83</i>	<i>40-140</i>			
Blank										
2-Methylnaphthalene	ND	0.50	ug/L							
Acenaphthene	ND	0.20	ug/L							
Acenaphthylene	ND	0.20	ug/L							
Anthracene	ND	0.20	ug/L							
Benzo(a)anthracene	ND	0.20	ug/L							
Benzo(a)pyrene	ND	0.10	ug/L							
Benzo(b)fluoranthene	ND	0.20	ug/L							
Benzo(g,h,i)perylene	ND	0.20	ug/L							
Benzo(k)fluoranthene	ND	0.20	ug/L							
Chrysene	ND	0.20	ug/L							
Dibenzo(a,h)Anthracene	ND	0.20	ug/L							
Fluoranthene	ND	0.20	ug/L							
Fluorene	ND	0.20	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	0.20	ug/L							
Naphthalene	ND	0.50	ug/L							
Phenanthrene	ND	0.50	ug/L							
Pyrene	ND	0.20	ug/L							
LCS										
C19-C36 Aliphatics1	359	100	ug/L	400.0		90	40-140			
C9-C18 Aliphatics1	204	100	ug/L	300.0		68	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>37.4</i>		ug/L	<i>50.00</i>		<i>75</i>	<i>40-140</i>			
LCS										
C11-C22 Unadjusted Aromatics1	754	100	ug/L	850.0		89	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>42.2</i>		ug/L	<i>50.00</i>		<i>84</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>47.5</i>		ug/L	<i>50.00</i>		<i>95</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>43.7</i>		ug/L	<i>50.00</i>		<i>87</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS										
2-Methylnaphthalene	3.55	0.50	ug/L	5.000		71	40-140			
Acenaphthene	4.26	0.20	ug/L	5.000		85	40-140			
Acenaphthylene	4.32	0.20	ug/L	5.000		86	40-140			



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch DH12503 - 3510C

Anthracene	4.40	0.20	ug/L	5.000		88	40-140			
Benzo(a)anthracene	4.28	0.20	ug/L	5.000		86	40-140			
Benzo(a)pyrene	4.37	0.10	ug/L	5.000		87	40-140			
Benzo(b)fluoranthene	4.81	0.20	ug/L	5.000		96	40-140			
Benzo(g,h,i)perylene	5.01	0.20	ug/L	5.000		100	40-140			
Benzo(k)fluoranthene	4.22	0.20	ug/L	5.000		84	40-140			
Chrysene	4.83	0.20	ug/L	5.000		97	40-140			
Dibenzo(a,h)Anthracene	4.93	0.20	ug/L	5.000		99	40-140			
Fluoranthene	4.42	0.20	ug/L	5.000		88	40-140			
Fluorene	4.22	0.20	ug/L	5.000		84	40-140			
Indeno(1,2,3-cd)Pyrene	5.14	0.20	ug/L	5.000		103	40-140			
Naphthalene	3.68	0.50	ug/L	5.000		74	40-140			
Phenanthrene	4.12	0.50	ug/L	5.000		82	40-140			
Pyrene	4.54	0.20	ug/L	5.000		91	40-140			

LCS Dup

C19-C36 Aliphatics1	363	100	ug/L	400.0		91	40-140	1	25	
C9-C18 Aliphatics1	206	100	ug/L	300.0		69	40-140	1	25	

<i>Surrogate: 1-Chlorooctadecane</i>	<i>39.4</i>		ug/L	<i>50.00</i>		<i>79</i>	<i>40-140</i>			
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LCS Dup

C11-C22 Unadjusted Aromatics1	746	100	ug/L	850.0		88	40-140	1	25	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>41.2</i>		ug/L	<i>50.00</i>		<i>82</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>45.8</i>		ug/L	<i>50.00</i>		<i>92</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>42.9</i>		ug/L	<i>50.00</i>		<i>86</i>	<i>40-140</i>			

LCS Dup

2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	

LCS Dup

2-Methylnaphthalene	3.50	0.50	ug/L	5.000		70	40-140	1	20	
Acenaphthene	4.15	0.20	ug/L	5.000		83	40-140	3	20	
Acenaphthylene	4.31	0.20	ug/L	5.000		86	40-140	0.3	20	
Anthracene	4.42	0.20	ug/L	5.000		88	40-140	0.5	20	
Benzo(a)anthracene	4.31	0.20	ug/L	5.000		86	40-140	0.8	20	
Benzo(a)pyrene	4.41	0.10	ug/L	5.000		88	40-140	1	20	
Benzo(b)fluoranthene	4.93	0.20	ug/L	5.000		99	40-140	2	20	
Benzo(g,h,i)perylene	5.17	0.20	ug/L	5.000		103	40-140	3	20	
Benzo(k)fluoranthene	4.37	0.20	ug/L	5.000		87	40-140	4	20	
Chrysene	4.83	0.20	ug/L	5.000		97	40-140	0.09	20	
Dibenzo(a,h)Anthracene	5.01	0.20	ug/L	5.000		100	40-140	2	20	
Fluoranthene	4.39	0.20	ug/L	5.000		88	40-140	0.9	20	
Fluorene	4.15	0.20	ug/L	5.000		83	40-140	2	20	
Indeno(1,2,3-cd)Pyrene	5.25	0.20	ug/L	5.000		105	40-140	2	20	
Naphthalene	3.75	0.50	ug/L	5.000		75	40-140	2	20	
Phenanthrene	4.11	0.50	ug/L	5.000		82	40-140	0.3	20	
Pyrene	4.58	0.20	ug/L	5.000		92	40-140	0.9	20	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch DH12601 - 3510C

Blank

C19-C36 Aliphatics1	ND	100	ug/L							
C9-C18 Aliphatics1	ND	100	ug/L							
Decane (C10)	ND	5	ug/L							
Docosane (C22)	ND	5	ug/L							
Dodecane (C12)	ND	5	ug/L							
Eicosane (C20)	ND	5	ug/L							
Hexacosane (C26)	ND	5	ug/L							
Hexadecane (C16)	ND	5	ug/L							
Hexatriacontane (C36)	ND	5	ug/L							
Nonadecane (C19)	ND	5	ug/L							
Nonane (C9)	ND	5	ug/L							
Octacosane (C28)	ND	5	ug/L							
Octadecane (C18)	ND	5	ug/L							
Tetracosane (C24)	ND	5	ug/L							
Tetradecane (C14)	ND	5	ug/L							
Triacontane (C30)	ND	5	ug/L							

Surrogate: 1-Chlorooctadecane	39.0		ug/L	50.00		78	40-140			
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Blank

C11-C22 Unadjusted Aromatics1	ND	100	ug/L							
Surrogate: 2-Bromonaphthalene	32.7		ug/L	50.00		65	40-140			
Surrogate: 2-Fluorobiphenyl	43.9		ug/L	50.00		88	40-140			
Surrogate: O-Terphenyl	38.7		ug/L	50.00		77	40-140			

Blank

2-Methylnaphthalene	ND	0.50	ug/L							
Acenaphthene	ND	0.20	ug/L							
Acenaphthylene	ND	0.20	ug/L							
Anthracene	ND	0.20	ug/L							
Benzo(a)anthracene	ND	0.20	ug/L							
Benzo(a)pyrene	ND	0.10	ug/L							
Benzo(b)fluoranthene	ND	0.20	ug/L							
Benzo(g,h,i)perylene	ND	0.20	ug/L							
Benzo(k)fluoranthene	ND	0.20	ug/L							
Chrysene	ND	0.20	ug/L							
Dibenzo(a,h)Anthracene	ND	0.20	ug/L							
Fluoranthene	ND	0.20	ug/L							
Fluorene	ND	0.20	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	0.20	ug/L							
Naphthalene	ND	0.50	ug/L							
Phenanthrene	ND	0.50	ug/L							
Pyrene	ND	0.20	ug/L							

LCS

C19-C36 Aliphatics1	335	100	ug/L	400.0		84	40-140			
C9-C18 Aliphatics1	185	100	ug/L	300.0		62	40-140			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch DH12601 - 3510C										
Decane (C10)	22	5	ug/L	50.00		44	40-140			
Docosane (C22)	39	5	ug/L	50.00		79	40-140			
Dodecane (C12)	27	5	ug/L	50.00		55	40-140			
Eicosane (C20)	39	5	ug/L	50.00		77	40-140			
Hexacosane (C26)	39	5	ug/L	50.00		79	40-140			
Hexadecane (C16)	36	5	ug/L	50.00		73	40-140			
Hexatriacontane (C36)	41	5	ug/L	50.00		83	40-140			
Nonadecane (C19)	38	5	ug/L	50.00		77	40-140			
Nonane (C9)	18	5	ug/L	50.00		35	30-140			
Octacosane (C28)	40	5	ug/L	50.00		79	40-140			
Octadecane (C18)	38	5	ug/L	50.00		76	40-140			
Tetracosane (C24)	39	5	ug/L	50.00		79	40-140			
Tetradecane (C14)	33	5	ug/L	50.00		65	40-140			
triacontane (C30)	39	5	ug/L	50.00		78	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>39.1</i>		ug/L	<i>50.00</i>		<i>78</i>	<i>40-140</i>			
LCS										
C11-C22 Unadjusted Aromatics1	564	100	ug/L	850.0		66	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>37.4</i>		ug/L	<i>50.00</i>		<i>75</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>46.5</i>		ug/L	<i>50.00</i>		<i>93</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>39.9</i>		ug/L	<i>50.00</i>		<i>80</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS										
2-Methylnaphthalene	3.22	0.50	ug/L	5.000		64	40-140			
Acenaphthene	3.72	0.20	ug/L	5.000		74	40-140			
Acenaphthylene	3.84	0.20	ug/L	5.000		77	40-140			
Anthracene	4.33	0.20	ug/L	5.000		87	40-140			
Benzo(a)anthracene	4.09	0.20	ug/L	5.000		82	40-140			
Benzo(a)pyrene	4.03	0.10	ug/L	5.000		81	40-140			
Benzo(b)fluoranthene	4.29	0.20	ug/L	5.000		86	40-140			
Benzo(g,h,i)perylene	4.60	0.20	ug/L	5.000		92	40-140			
Benzo(k)fluoranthene	4.24	0.20	ug/L	5.000		85	40-140			
Chrysene	4.58	0.20	ug/L	5.000		92	40-140			
Dibenzo(a,h)Anthracene	4.44	0.20	ug/L	5.000		89	40-140			
Fluoranthene	4.36	0.20	ug/L	5.000		87	40-140			
Fluorene	3.76	0.20	ug/L	5.000		75	40-140			
Indeno(1,2,3-cd)Pyrene	4.78	0.20	ug/L	5.000		96	40-140			
Naphthalene	3.34	0.50	ug/L	5.000		67	40-140			
Phenanthrene	4.01	0.50	ug/L	5.000		80	40-140			
Pyrene	4.29	0.20	ug/L	5.000		86	40-140			
LCS Dup										
C19-C36 Aliphatics1	369	100	ug/L	400.0		92	40-140	10	25	
C9-C18 Aliphatics1	207	100	ug/L	300.0		69	40-140	11	25	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch DH12601 - 3510C										
Decane (C10)	26	5	ug/L	50.00		51	40-140	14	25	
Docosane (C22)	44	5	ug/L	50.00		87	40-140	10	25	
Dodecane (C12)	31	5	ug/L	50.00		63	40-140	14	25	
Eicosane (C20)	43	5	ug/L	50.00		86	40-140	11	25	
Hexacosane (C26)	44	5	ug/L	50.00		87	40-140	10	25	
Hexadecane (C16)	41	5	ug/L	50.00		82	40-140	12	25	
Hexatriacontane (C36)	46	5	ug/L	50.00		92	40-140	11	25	
Nonadecane (C19)	43	5	ug/L	50.00		86	40-140	11	25	
Nonane (C9)	20	5	ug/L	50.00		40	30-140	13	25	
Octacosane (C28)	44	5	ug/L	50.00		88	40-140	11	25	
Octadecane (C18)	43	5	ug/L	50.00		85	40-140	11	25	
Tetracosane (C24)	44	5	ug/L	50.00		87	40-140	10	25	
Tetradecane (C14)	37	5	ug/L	50.00		75	40-140	13	25	
Triacontane (C30)	44	5	ug/L	50.00		87	40-140	11	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>37.9</i>		ug/L	<i>50.00</i>		<i>76</i>	<i>40-140</i>			
LCS Dup										
C11-C22 Unadjusted Aromatics1	658	100	ug/L	850.0		77	40-140	15	25	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>38.6</i>		ug/L	<i>50.00</i>		<i>77</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>46.5</i>		ug/L	<i>50.00</i>		<i>93</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>40.6</i>		ug/L	<i>50.00</i>		<i>81</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	
LCS Dup										
2-Methylnaphthalene	3.27	0.50	ug/L	5.000		65	40-140	1	20	
Acenaphthene	3.75	0.20	ug/L	5.000		75	40-140	0.7	20	
Acenaphthylene	3.89	0.20	ug/L	5.000		78	40-140	1	20	
Anthracene	4.19	0.20	ug/L	5.000		84	40-140	3	20	
Benzo(a)anthracene	4.02	0.20	ug/L	5.000		80	40-140	2	20	
Benzo(a)pyrene	4.08	0.10	ug/L	5.000		82	40-140	1	20	
Benzo(b)fluoranthene	4.33	0.20	ug/L	5.000		87	40-140	1	20	
Benzo(g,h,i)perylene	4.62	0.20	ug/L	5.000		92	40-140	0.6	20	
Benzo(k)fluoranthene	4.24	0.20	ug/L	5.000		85	40-140	0.1	20	
Chrysene	4.52	0.20	ug/L	5.000		90	40-140	1	20	
Dibenzo(a,h)Anthracene	4.52	0.20	ug/L	5.000		90	40-140	2	20	
Fluoranthene	4.26	0.20	ug/L	5.000		85	40-140	2	20	
Fluorene	3.83	0.20	ug/L	5.000		77	40-140	2	20	
Indeno(1,2,3-cd)Pyrene	4.60	0.20	ug/L	5.000		92	40-140	4	20	
Naphthalene	3.48	0.50	ug/L	5.000		70	40-140	4	20	
Phenanthrene	3.94	0.50	ug/L	5.000		79	40-140	2	20	
Pyrene	4.24	0.20	ug/L	5.000		85	40-140	1	20	
Batch DH13001 - 3510C										
Blank										



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch DH13001 - 3510C										
C19-C36 Aliphatics1	ND	100	ug/L							
C9-C18 Aliphatics1	ND	100	ug/L							
Decane (C10)	ND	5	ug/L							
Docosane (C22)	ND	5	ug/L							
Dodecane (C12)	ND	5	ug/L							
Eicosane (C20)	ND	5	ug/L							
Hexacosane (C26)	ND	5	ug/L							
Hexadecane (C16)	ND	5	ug/L							
Hexatriacontane (C36)	ND	5	ug/L							
Nonadecane (C19)	ND	5	ug/L							
Nonane (C9)	ND	5	ug/L							
Octacosane (C28)	ND	5	ug/L							
Octadecane (C18)	ND	5	ug/L							
Tetracosane (C24)	ND	5	ug/L							
Tetradecane (C14)	ND	5	ug/L							
Triacontane (C30)	ND	5	ug/L							
<i>Surrogate: 1-Chlorooctadecane</i>	<i>28.0</i>		ug/L	<i>50.00</i>		<i>56</i>	<i>40-140</i>			
Blank										
C11-C22 Unadjusted Aromatics1	ND	100	ug/L							
<i>Surrogate: 2-Bromonaphthalene</i>	<i>41.8</i>		ug/L	<i>50.00</i>		<i>84</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>53.2</i>		ug/L	<i>50.00</i>		<i>106</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>43.9</i>		ug/L	<i>50.00</i>		<i>88</i>	<i>40-140</i>			
Blank										
2-Methylnaphthalene	ND	0.50	ug/L							
Acenaphthene	ND	0.20	ug/L							
Acenaphthylene	ND	0.20	ug/L							
Anthracene	ND	0.20	ug/L							
Benzo(a)anthracene	ND	0.20	ug/L							
Benzo(a)pyrene	ND	0.10	ug/L							
Benzo(b)fluoranthene	ND	0.20	ug/L							
Benzo(g,h,i)perylene	ND	0.20	ug/L							
Benzo(k)fluoranthene	ND	0.20	ug/L							
Chrysene	ND	0.20	ug/L							
Dibenzo(a,h)Anthracene	ND	0.20	ug/L							
Fluoranthene	ND	0.20	ug/L							
Fluorene	ND	0.20	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	0.20	ug/L							
Naphthalene	ND	0.50	ug/L							
Phenanthrene	ND	0.50	ug/L							
Pyrene	ND	0.20	ug/L							
LCS										
C19-C36 Aliphatics1	379	100	ug/L	400.0		95	40-140			
C9-C18 Aliphatics1	221	100	ug/L	300.0		74	40-140			
Decane (C10)	27	5	ug/L	50.00		54	40-140			



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch DH13001 - 3510C										
Docosane (C22)	46	5	ug/L	50.00		91	40-140			
Dodecane (C12)	33	5	ug/L	50.00		66	40-140			
Eicosane (C20)	45	5	ug/L	50.00		91	40-140			
Hexacosane (C26)	45	5	ug/L	50.00		91	40-140			
Hexadecane (C16)	43	5	ug/L	50.00		86	40-140			
Hexatriacontane (C36)	48	5	ug/L	50.00		97	40-140			
Nonadecane (C19)	45	5	ug/L	50.00		90	40-140			
Nonane (C9)	21	5	ug/L	50.00		43	30-140			
Octacosane (C28)	46	5	ug/L	50.00		92	40-140			
Octadecane (C18)	44	5	ug/L	50.00		89	40-140			
Tetracosane (C24)	46	5	ug/L	50.00		91	40-140			
Tetradecane (C14)	39	5	ug/L	50.00		78	40-140			
Triacontane (C30)	45	5	ug/L	50.00		91	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>41.0</i>		ug/L	<i>50.00</i>		<i>82</i>	<i>40-140</i>			
LCS										
C11-C22 Unadjusted Aromatics1	766	100	ug/L	850.0		90	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>42.1</i>		ug/L	<i>50.00</i>		<i>84</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>55.2</i>		ug/L	<i>50.00</i>		<i>110</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>45.4</i>		ug/L	<i>50.00</i>		<i>91</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS										
2-Methylnaphthalene	3.60	0.50	ug/L	5.000		72	40-140			
Acenaphthene	4.20	0.20	ug/L	5.000		84	40-140			
Acenaphthylene	4.26	0.20	ug/L	5.000		85	40-140			
Anthracene	4.65	0.20	ug/L	5.000		93	40-140			
Benzo(a)anthracene	4.35	0.20	ug/L	5.000		87	40-140			
Benzo(a)pyrene	4.60	0.10	ug/L	5.000		92	40-140			
Benzo(b)fluoranthene	4.76	0.20	ug/L	5.000		95	40-140			
Benzo(g,h,i)perylene	5.24	0.20	ug/L	5.000		105	40-140			
Benzo(k)fluoranthene	4.83	0.20	ug/L	5.000		97	40-140			
Chrysene	4.88	0.20	ug/L	5.000		98	40-140			
Dibenzo(a,h)Anthracene	5.07	0.20	ug/L	5.000		101	40-140			
Fluoranthene	4.62	0.20	ug/L	5.000		92	40-140			
Fluorene	4.05	0.20	ug/L	5.000		81	40-140			
Indeno(1,2,3-cd)Pyrene	5.14	0.20	ug/L	5.000		103	40-140			
Naphthalene	3.69	0.50	ug/L	5.000		74	40-140			
Phenanthrene	4.28	0.50	ug/L	5.000		86	40-140			
Pyrene	4.55	0.20	ug/L	5.000		91	40-140			
LCS Dup										
C19-C36 Aliphatics1	406	100	ug/L	400.0		101	40-140	7	25	
C9-C18 Aliphatics1	230	100	ug/L	300.0		77	40-140	4	25	
Decane (C10)	28	5	ug/L	50.00		57	40-140	5	25	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch DH13001 - 3510C

Docosane (C22)	49	5	ug/L	50.00		98	40-140	7	25	
Dodecane (C12)	35	5	ug/L	50.00		69	40-140	6	25	
Eicosane (C20)	48	5	ug/L	50.00		97	40-140	7	25	
Hexacosane (C26)	49	5	ug/L	50.00		98	40-140	7	25	
Hexadecane (C16)	46	5	ug/L	50.00		92	40-140	6	25	
Hexatriacontane (C36)	52	5	ug/L	50.00		104	40-140	7	25	
Nonadecane (C19)	48	5	ug/L	50.00		96	40-140	6	25	
Nonane (C9)	22	5	ug/L	50.00		44	30-140	4	25	
Octacosane (C28)	50	5	ug/L	50.00		99	40-140	7	25	
Octadecane (C18)	47	5	ug/L	50.00		95	40-140	7	25	
Tetracosane (C24)	49	5	ug/L	50.00		98	40-140	7	25	
Tetradecane (C14)	41	5	ug/L	50.00		83	40-140	6	25	
Triacontane (C30)	49	5	ug/L	50.00		97	40-140	7	25	

<i>Surrogate: 1-Chlorooctadecane</i>	<i>39.2</i>		ug/L	<i>50.00</i>		<i>78</i>	<i>40-140</i>			
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LCS Dup

C11-C22 Unadjusted Aromatics1	821	100	ug/L	850.0		97	40-140	7	25	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>48.3</i>		ug/L	<i>50.00</i>		<i>97</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>54.1</i>		ug/L	<i>50.00</i>		<i>108</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>46.2</i>		ug/L	<i>50.00</i>		<i>92</i>	<i>40-140</i>			

LCS Dup

2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	

LCS Dup

2-Methylnaphthalene	3.69	0.50	ug/L	5.000		74	40-140	2	20	
Acenaphthene	4.18	0.20	ug/L	5.000		84	40-140	0.4	20	
Acenaphthylene	4.25	0.20	ug/L	5.000		85	40-140	0.2	20	
Anthracene	4.51	0.20	ug/L	5.000		90	40-140	3	20	
Benzo(a)anthracene	4.25	0.20	ug/L	5.000		85	40-140	3	20	
Benzo(a)pyrene	4.35	0.10	ug/L	5.000		87	40-140	6	20	
Benzo(b)fluoranthene	4.57	0.20	ug/L	5.000		91	40-140	4	20	
Benzo(g,h,i)perylene	5.02	0.20	ug/L	5.000		100	40-140	4	20	
Benzo(k)fluoranthene	4.48	0.20	ug/L	5.000		90	40-140	7	20	
Chrysene	4.78	0.20	ug/L	5.000		96	40-140	2	20	
Dibenzo(a,h)Anthracene	4.83	0.20	ug/L	5.000		97	40-140	5	20	
Fluoranthene	4.49	0.20	ug/L	5.000		90	40-140	3	20	
Fluorene	4.00	0.20	ug/L	5.000		80	40-140	1	20	
Indeno(1,2,3-cd)Pyrene	4.91	0.20	ug/L	5.000		98	40-140	5	20	
Naphthalene	3.80	0.50	ug/L	5.000		76	40-140	3	20	
Phenanthrene	4.19	0.50	ug/L	5.000		84	40-140	2	20	
Pyrene	4.41	0.20	ug/L	5.000		88	40-140	3	20	

MADEP-VPH Volatile Petroleum Hydrocarbon

Batch DH12532 - 5030B



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

MADEP-VPH Volatile Petroleum Hydrocarbon

Batch DH12532 - 5030B

Blank

1,2,4-Trimethylbenzene	ND	5.0	ug/L							
2,2,4-Trimethylpentane	ND	5.0	ug/L							
2-Methylpentane	ND	5.0	ug/L							
Benzene	ND	1.5	ug/L							
C5-C8 Unadjusted Aliphatics	ND	150	ug/L							
C9-C10 Aromatics	ND	100	ug/L							
C9-C12 Unadjusted Aliphatics	ND	150	ug/L							
Ethylbenzene	ND	5.0	ug/L							
Methyl tert-Butyl Ether	ND	1.5	ug/L							
Naphthalene	ND	5.0	ug/L							
n-Butylcyclohexane	ND	5.0	ug/L							
n-Decane	ND	5.0	ug/L							
Nonane (C9)	ND	5.0	ug/L							
Pentane	ND	5.0	ug/L							
Toluene	ND	5.0	ug/L							
Xylene O	ND	5.0	ug/L							
Xylene P,M	ND	10.0	ug/L							

Surrogate: 2,5-Dibromotoluene - FID	49.9		ug/L	50.00		100	70-130
Surrogate: 2,5-Dibromotoluene - PID	47.4		ug/L	50.00		95	70-130

LCS

1,2,4-Trimethylbenzene	84.6	5.0	ug/L	100.0		85	70-130
2,2,4-Trimethylpentane	145	5.0	ug/L	150.0		96	70-130
2-Methylpentane	151	5.0	ug/L	150.0		100	70-130
Benzene	44.8	1.5	ug/L	50.00		90	70-130
C5-C8 Unadjusted Aliphatics	388	150	ug/L	400.0		97	70-130
C9-C10 Aromatics	84.6	100	ug/L	100.0		85	70-130
C9-C12 Unadjusted Aliphatics	217	150	ug/L	300.0		72	70-130
Ethylbenzene	43.8	5.0	ug/L	50.00		88	70-130
Methyl tert-Butyl Ether	132	1.5	ug/L	150.0		88	70-130
Naphthalene	87.8	5.0	ug/L	100.0		88	70-130
n-Butylcyclohexane	87.3	5.0	ug/L	100.0		87	70-130
n-Decane	76.0	5.0	ug/L	100.0		76	70-130
Nonane (C9)	82.2	5.0	ug/L	100.0		82	30-130
Pentane	95.8	5.0	ug/L	100.0		96	70-130
Toluene	126	5.0	ug/L	150.0		84	70-130
Xylene O	79.4	5.0	ug/L	100.0		79	70-130
Xylene P,M	168	10.0	ug/L	200.0		84	70-130

Surrogate: 2,5-Dibromotoluene - FID	53.5		ug/L	50.00		107	70-130
Surrogate: 2,5-Dibromotoluene - PID	50.9		ug/L	50.00		102	70-130

LCS Dup

1,2,4-Trimethylbenzene	84.8	5.0	ug/L	100.0		85	70-130	0.2	25
2,2,4-Trimethylpentane	149	5.0	ug/L	150.0		99	70-130	3	25



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-VPH Volatile Petroleum Hydrocarbon										
Batch DH12532 - 5030B										
2-Methylpentane	149	5.0	ug/L	150.0		99	70-130	1	25	
Benzene	44.2	1.5	ug/L	50.00		88	70-130	1	25	
C5-C8 Unadjusted Aliphatics	389	150	ug/L	400.0		97	70-130	0.2	25	
C9-C10 Aromatics	84.8	100	ug/L	100.0		85	70-130	0.2	25	
C9-C12 Unadjusted Aliphatics	271	150	ug/L	300.0		90	70-130	22	25	
Ethylbenzene	43.5	5.0	ug/L	50.00		87	70-130	0.5	25	
Methyl tert-Butyl Ether	133	1.5	ug/L	150.0		89	70-130	0.6	25	
Naphthalene	90.4	5.0	ug/L	100.0		90	70-130	3	25	
n-Butylcyclohexane	105	5.0	ug/L	100.0		105	70-130	19	25	
n-Decane	94.4	5.0	ug/L	100.0		94	70-130	22	25	
Nonane (C9)	104	5.0	ug/L	100.0		104	30-130	24	25	
Pentane	94.4	5.0	ug/L	100.0		94	70-130	1	25	
Toluene	126	5.0	ug/L	150.0		84	70-130	0.6	25	
Xylene O	79.9	5.0	ug/L	100.0		80	70-130	0.5	25	
Xylene P,M	169	10.0	ug/L	200.0		84	70-130	0.4	25	
Surrogate: 2,5-Dibromotoluene - FID	54.1		ug/L	50.00		108	70-130			
Surrogate: 2,5-Dibromotoluene - PID	50.8		ug/L	50.00		102	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21H0894

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: The Vertex Companies - TB

ESS Project ID: 21H0894

Date Received: 8/24/2021

Project Due Date: 8/31/2021

Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

1. Air bill manifest present? ☐ No

Air No.: NA

2. Were custody seals present? ☐ No

3. Is radiation count <100 CPM? ☐ Yes

4. Is a Cooler Present? ☐ Yes

Temp: 2.7 Iced with: Ice

5. Was COC signed and dated by client? ☐ Yes

6. Does COC match bottles? ☐ Yes

7. Is COC complete and correct? ☐ Yes

8. Were samples received intact? ☐ Yes

9. Were labs informed about **short holds & rushes**? Yes / No / NA

10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No

ESS Sample IDs:

Analysis: _____

TAT: _____

12. Were VOAs received?

a. Air bubbles in aqueous VOAs?

b. Does methanol cover soil completely?

Yes / No

Yes / No

Yes / No / NA

13. Are the samples properly preserved? Yes / No

a. If metals preserved upon receipt:

b. Low Level VOA vials frozen:

Date: _____

Date: _____

Time: _____

Time: _____

By: _____

By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No

a. Was there a need to contact the client? Yes / No

Who was contacted? _____

Date: _____

Time: _____

By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	200028	Yes	N/A	Yes	250 mL Poly	HNO3	
1	200033	Yes	N/A	Yes	1L Amber	HCl	
1	200034	Yes	N/A	Yes	1L Amber	HCl	
1	200043	Yes	No	Yes	VOA Vial	HCl	
1	200044	Yes	No	Yes	VOA Vial	HCl	
1	200045	Yes	No	Yes	VOA Vial	HCl	
1	200046	Yes	No	Yes	VOA Vial	HCl	
1	200047	Yes	No	Yes	VOA Vial	HCl	
1	200048	Yes	No	Yes	VOA Vial	HCl	
2	200029	Yes	N/A	Yes	250 mL Poly	HNO3	
2	200035	Yes	N/A	Yes	1L Amber	HCl	
2	200036	Yes	N/A	Yes	1L Amber	HCl	
2	200049	Yes	No	Yes	VOA Vial	HCl	
2	200050	Yes	No	Yes	VOA Vial	HCl	
2	200051	Yes	No	Yes	VOA Vial	HCl	
2	200052	Yes	No	Yes	VOA Vial	HCl	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: The Vertex Companies - TB

ESS Project ID: 21H0894

Date Received: 8/24/2021

2	200053	Yes	No	Yes	VOA Vial	HCl
2	200054	Yes	No	Yes	VOA Vial	HCl
3	200030	Yes	N/A	Yes	250 mL Poly	HNO3
3	200037	Yes	N/A	Yes	1L Amber	HCl
3	200038	Yes	N/A	Yes	1L Amber	HCl
3	200055	Yes	No	Yes	VOA Vial	HCl
3	200056	Yes	No	Yes	VOA Vial	HCl
3	200057	Yes	No	Yes	VOA Vial	HCl
3	200058	Yes	No	Yes	VOA Vial	HCl
3	200059	Yes	No	Yes	VOA Vial	HCl
3	200060	Yes	No	Yes	VOA Vial	HCl
4	200031	Yes	N/A	Yes	250 mL Poly	HNO3
4	200039	Yes	N/A	Yes	1L Amber	HCl
4	200040	Yes	N/A	Yes	1L Amber	HCl
4	200061	Yes	No	Yes	VOA Vial	HCl
4	200062	Yes	No	Yes	VOA Vial	HCl
4	200063	Yes	No	Yes	VOA Vial	HCl
4	200064	Yes	No	Yes	VOA Vial	HCl
4	200065	Yes	No	Yes	VOA Vial	HCl
4	200066	Yes	No	Yes	VOA Vial	HCl
5	200032	Yes	N/A	Yes	250 mL Poly	HNO3
5	200041	Yes	N/A	Yes	1L Amber	HCl
5	200042	Yes	N/A	Yes	1L Amber	HCl
5	200067	Yes	No	Yes	VOA Vial	HCl
5	200068	Yes	No	Yes	VOA Vial	HCl
5	200069	Yes	No	Yes	VOA Vial	HCl
5	200070	Yes	No	Yes	VOA Vial	HCl
5	200071	Yes	No	Yes	VOA Vial	HCl
5	200072	Yes	No	Yes	VOA Vial	HCl

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials

KL

Yes / No

Yes / No / NA

Yes / No / NA

Yes / No / NA

Yes / No / NA

Completed

By:

[Signature]

Date & Time:

8-24-21 18:09

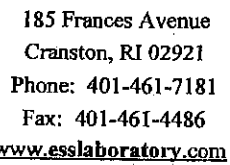
Reviewed

By:

[Signature]

Date & Time:

8/24/21 1821



ESS Lab # 21H0814 Page 1 of 1

ELECTRONIC DELIVERABLES (Final Reports are PDF)

☒ Limit Checker ☐ State Forms ☒ EQuIS

☒ Excel ☐ Hard Copy ☐ Enviro Data

☐ CLP-Like Package ☐ Other (Specify) →

REQUESTED ANALYSES

[illegible]Page 55 of 55

CERTIFICATE OF ANALYSIS

Patrice Plante
The Vertex Companies
100 North Washington Street Suite 302
Boston, MA 02114

RE: Lawless Jeep Woburn MA (72475)
ESS Laboratory Work Order Number: 21J0596

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 5:13 pm, Oct 26, 2021

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

SAMPLE RECEIPT

The following samples were received on October 18, 2021 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
21J0596-01	VES-202 MW-20211018	Ground Water	8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21J0596-02	VES-203MW-20211018	Ground Water	8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21J0596-03	VES-206MW-20211018	Ground Water	8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21J0596-04	MW-1-20211018	Ground Water	8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21J0596-05	MW-2-20211018	Ground Water	8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21J0596-06	MW-3-20211018	Ground Water	8260B, EPH8270, EPH8270SIM, MADEP-EPH, MA-VPH-2.1
21J0596-07	Trip Blank	Aqueous	8260B



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

PROJECT NARRATIVE

8260B Volatile Organic Compounds

D1J0342-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).
Bromomethane (40% @ 20%), Trichlorofluoromethane (24% @ 20%)

D1J0342-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).
Hexachloroethane (21% @ 20%), Tetrachloroethene (22% @ 20%)

D1J0369-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).
Bromomethane (23% @ 20%), Trichlorofluoromethane (25% @ 20%)

D1J0369-CCV1 Continuing Calibration %Diff/Drift is below control limit (CD-).
Hexachloroethane (26% @ 20%)

DJ12135-BS1 Blank Spike recovery is above upper control limit (B+).
Bromomethane (149% @ 70-130%)

DJ12135-BSD1 Blank Spike recovery is above upper control limit (B+).
Bromomethane (146% @ 70-130%)

DJ12241-BS1 Blank Spike recovery is above upper control limit (B+).
Bromomethane (137% @ 70-130%), Chloroethane (135% @ 70-130%)

DJ12241-BS1 Blank Spike recovery is below lower control limit (B-).
Hexachloroethane (67% @ 70-130%)

DJ12241-BSD1 Blank Spike recovery is above upper control limit (B+).
Bromomethane (138% @ 70-130%), Chloroethane (138% @ 70-130%)

DJ12241-BSD1 Blank Spike recovery is below lower control limit (B-).
Hexachloroethane (65% @ 70-130%)

MADEP-EPH Extractable Petroleum Hydrocarbons

D1J0336-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).
Benzo(b)fluoranthene (26% @ 20%), Benzo(g,h,i)perylene (23% @ 20%)

D1J0389-CCV1 Continuing Calibration %Diff/Drift is above control limit (CD+).
Benzo(b)fluoranthene (22% @ 20%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH
MADEP 18-2.1 - VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035A - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **21J0596-01 through 21J0596-07**

Matrices: ☒ Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

☒ 8260 VOC CAM II A	() 7470/7471 Hg CAM III B	☒ MassDEP VPH (GC/PID/FID) CAM IV A	() 8082 PCB CAM V A	() 9014 Total Cyanide/PAC CAM VI A	() 6860 Perchlorate CAM VIII B
() 8270 SVOC CAM II B	() 7010 Metals CAM III C	() MassDEP VPH (GC/MS) CAM IV C	() 8081 Pesticides CAM V B	() 7196 Hex Cr CAM VI B	() MassDEP APH CAM IX A
() 6010 Metals CAM III A	() 6020 Metals CAM III D	☒ MassDEP EPH CAM IV B	() 8151 Herbicides CAM V C	() Explosives CAM VIII A	() TO-15 VOC CAM IX B

Affirmative responses to questions A through F are 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 ☒ No ()
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	Yes ☒ No ()
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 ☒ No ()
D	Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	Yes ☒ No ()
E	VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	Yes ☒ No ()
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 ☒ No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.	Yes ☒ No ()*
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	Yes () No ☒ *
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	Yes ☒ No ()*

***All negative responses must be addressed in an attached laboratory narrative.**

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Laurel Stoddard

Printed Name: Laurel Stoddard

Date: October 26, 2021

Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-202 MW-20211018
Date Sampled: 10/18/21 12:14
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,1-Dichloroethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,1-Dichloroethene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,1-Dichloropropene	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2,4-Trimethylbenzene	152 (50.0)		8260B		50	10/22/21 17:04	D1J0342	DJ12135
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2-Dibromoethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2-Dichlorobenzene	2.9 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2-Dichloroethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,3,5-Trimethylbenzene	47.0 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,3-Dichlorobenzene	15.0 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,3-Dichloropropane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,4-Dichlorobenzene	50.8 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
1,4-Dioxane - Screen	ND (500)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
2,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
2-Butanone	ND (10.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
2-Chlorotoluene	1.1 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
2-Hexanone	ND (10.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
4-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
4-Isopropyltoluene	11.4 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Acetone	ND (10.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Benzene	3.0 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Bromobenzene	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Bromochloromethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-202 MW-20211018
Date Sampled: 10/18/21 12:14
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromodichloromethane	ND (0.6)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Bromoform	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Bromomethane	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Carbon Disulfide	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Carbon Tetrachloride	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Chlorobenzene	952 (50.0)		8260B		50	10/22/21 17:04	D1J0342	DJ12135
Chloroethane	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Chloroform	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Chloromethane	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Dibromochloromethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Dibromomethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Diethyl Ether	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Di-isopropyl ether	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Ethylbenzene	2.0 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Hexachlorobutadiene	ND (0.6)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Hexachloroethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Isopropylbenzene	9.7 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Methylene Chloride	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Naphthalene	3.7 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
n-Butylbenzene	17.0 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
n-Propylbenzene	20.4 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
sec-Butylbenzene	8.3 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Styrene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
tert-Butylbenzene	2.4 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Tetrachloroethene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Tetrahydrofuran	ND (5.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-202 MW-20211018
Date Sampled: 10/18/21 12:14
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Trichloroethene	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Trichlorofluoromethane	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Vinyl Chloride	ND (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Xylene O	1.9 (1.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Xylene P,M	ND (2.0)		8260B		1	10/21/21 17:28	D1J0342	DJ12135
Xylenes (Total)	ND (2.00)		8260B		1	10/21/21 17:28		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-202 MW-20211018
Date Sampled: 10/18/21 12:14
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-01
Sample Matrix: Ground Water
Units: ug/L

Prepared: 10/20/21 16:15

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	617 (98)		MADEP-EPH		1	MJV	10/21/21 19:53	D1J0334	DJ12004
C19-C36 Aliphatics1	117 (98)		MADEP-EPH		1	MJV	10/21/21 19:53	D1J0334	DJ12004
C11-C22 Unadjusted Aromatics1	625 (98.0)		EPH8270		1	MJV	10/22/21 1:27	D1J0331	DJ12004
C11-C22 Aromatics1,2	601 (98.0)		EPH8270			TAJ	10/26/21 6:15		[CALC]
2-Methylnaphthalene	13.6 (0.49)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Acenaphthene	2.13 (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Naphthalene	3.06 (0.49)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Phenanthrene	1.70 (0.49)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Acenaphthylene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Anthracene	0.21 (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Benzo(a)anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Benzo(b)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Chrysene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Fluoranthene	0.49 (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Fluorene	2.59 (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Pyrene	0.35 (0.20)		EPH8270SIM		1	TAJ	10/26/21 6:15	D1J0389	DJ12004
Preservative:	pH <= 2		MADEP-EPH			IBM			DJ12004

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1-Chlorooctadecane	65 %		40-140
Surrogate: 2-Bromonaphthalene	108 %		40-140
Surrogate: 2-Fluorobiphenyl	109 %		40-140
Surrogate: O-Terphenyl	89 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-202 MW-20211018
Date Sampled: 10/18/21 12:14
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	996 (100)		MA-VPH-2.1		1	10/19/21 7:59	D1J0261	DJ11840
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	10/19/21 7:59		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	10/19/21 7:59		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DJ11840

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 2,5-Dibromotoluene - FID	111 %		70-130
Surrogate: 2,5-Dibromotoluene - PID	106 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-203MW-20211018
Date Sampled: 10/18/21 15:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,1-Dichloroethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,1-Dichloroethene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,1-Dichloropropene	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2-Dibromoethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2-Dichloroethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,3-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,3-Dichloropropane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,4-Dichlorobenzene	1.8 (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
1,4-Dioxane - Screen	ND (500)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
2,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
2-Butanone	ND (10.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
2-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
2-Hexanone	ND (10.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
4-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
4-Isopropyltoluene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Acetone	ND (10.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Benzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Bromobenzene	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Bromochloromethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-203MW-20211018
Date Sampled: 10/18/21 15:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Bromoform	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Bromomethane	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Carbon Disulfide	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Carbon Tetrachloride	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Chlorobenzene	32.4 (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Chloroethane	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Chloroform	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Chloromethane	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Dibromochloromethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Dibromomethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Diethyl Ether	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Di-isopropyl ether	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Ethylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Hexachlorobutadiene	ND (0.6)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Hexachloroethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Isopropylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Methylene Chloride	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Naphthalene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
n-Butylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
n-Propylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
sec-Butylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Styrene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
tert-Butylbenzene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Tetrachloroethene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Tetrahydrofuran	ND (5.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-203MW-20211018
Date Sampled: 10/18/21 15:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Trichloroethene	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Trichlorofluoromethane	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Vinyl Chloride	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Xylene O	ND (1.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Xylene P,M	ND (2.0)		8260B		1	10/21/21 15:20	D1J0342	DJ12135
Xylenes (Total)	ND (2.00)		8260B		1	10/21/21 15:20		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>113 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-203MW-20211018
Date Sampled: 10/18/21 15:20
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-02
Sample Matrix: Ground Water
Units: ug/L

Prepared: 10/20/21 16:15

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (98)		MADEP-EPH		1	MJV	10/21/21 20:27	D1J0334	DJ12004
C19-C36 Aliphatics1	ND (98)		MADEP-EPH		1	MJV	10/21/21 20:27	D1J0334	DJ12004
C11-C22 Unadjusted Aromatics1	ND (98.0)		EPH8270		1	MJV	10/22/21 2:05	D1J0331	DJ12004
C11-C22 Aromatics1,2	ND (98.0)		EPH8270			TAJ	10/26/21 8:32		[CALC]
2-Methylnaphthalene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Acenaphthene	0.37 (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Naphthalene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Phenanthrene	0.95 (0.49)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Acenaphthylene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Benzo(a)anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Benzo(b)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Chrysene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Fluoranthene	0.27 (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Fluorene	0.21 (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 8:32	D1J0404	DJ12004
Preservative:	pH <= 2		MADEP-EPH			IBM			DJ12004

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	57 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	100 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	109 %		40-140
<i>Surrogate: O-Terphenyl</i>	84 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-203MW-20211018
Date Sampled: 10/18/21 15:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-02
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	10/19/21 7:25	D1J0261	DJ11840
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	10/19/21 7:25		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	10/19/21 7:25		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DJ11840

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>90 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-206MW-20211018
Date Sampled: 10/18/21 13:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,1-Dichloroethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,1-Dichloroethene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,1-Dichloropropene	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2-Dibromoethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2-Dichloroethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,3-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,3-Dichloropropane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,4-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
1,4-Dioxane - Screen	ND (500)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
2,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
2-Butanone	ND (10.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
2-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
2-Hexanone	ND (10.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
4-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
4-Isopropyltoluene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Acetone	ND (10.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Benzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Bromobenzene	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Bromochloromethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-206MW-20211018
Date Sampled: 10/18/21 13:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Bromoform	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Bromomethane	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Carbon Disulfide	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Carbon Tetrachloride	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Chlorobenzene	3.1 (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Chloroethane	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Chloroform	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Chloromethane	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Dibromochloromethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Dibromomethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Diethyl Ether	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Di-isopropyl ether	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Ethylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Hexachlorobutadiene	ND (0.6)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Hexachloroethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Isopropylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Methylene Chloride	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Naphthalene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
n-Butylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
n-Propylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
sec-Butylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Styrene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
tert-Butylbenzene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Tetrachloroethene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Tetrahydrofuran	ND (5.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-206MW-20211018
Date Sampled: 10/18/21 13:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Trichloroethene	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Trichlorofluoromethane	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Vinyl Chloride	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Xylene O	ND (1.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Xylene P,M	ND (2.0)		8260B		1	10/21/21 15:46	D1J0342	DJ12135
Xylenes (Total)	ND (2.00)		8260B		1	10/21/21 15:46		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-206MW-20211018
Date Sampled: 10/18/21 13:32
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-03
Sample Matrix: Ground Water
Units: ug/L

Prepared: 10/20/21 16:15

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (97)		MADEP-EPH		1	MJV	10/21/21 21:01	D1J0334	DJ12004
C19-C36 Aliphatics1	ND (97)		MADEP-EPH		1	MJV	10/21/21 21:01	D1J0334	DJ12004
C11-C22 Unadjusted Aromatics1	ND (97.1)		EPH8270		1	MJV	10/22/21 2:43	D1J0331	DJ12004
C11-C22 Aromatics1,2	ND (97.1)		EPH8270			TAJ	10/26/21 9:20		[CALC]
2-Methylnaphthalene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Acenaphthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Naphthalene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Phenanthrene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Acenaphthylene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Benzo(a)anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Benzo(b)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Benzo(g,h,i)perylene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Benzo(k)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Chrysene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Dibenzo(a,h)Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Fluorene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Indeno(1,2,3-cd)Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 9:20	D1J0404	DJ12004
Preservative:	pH <= 2		MADEP-EPH			IBM			DJ12004

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	67 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	108 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	117 %		40-140
<i>Surrogate: O-Terphenyl</i>	93 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: VES-206MW-20211018
Date Sampled: 10/18/21 13:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-03
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	10/19/21 20:11	D1J0288	DJ11940
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	10/19/21 20:11		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	10/19/21 20:11		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DJ11940

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>93 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-1-20211018
Date Sampled: 10/18/21 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,1-Dichloroethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,1-Dichloroethene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,1-Dichloropropene	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2-Dibromoethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2-Dichloroethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,3-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,3-Dichloropropane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,4-Dichlorobenzene	2.6 (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
1,4-Dioxane - Screen	ND (500)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
2,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
2-Butanone	ND (10.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
2-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
2-Hexanone	ND (10.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
4-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
4-Isopropyltoluene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Acetone	ND (10.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Benzene	7.1 (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Bromobenzene	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Bromochloromethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-1-20211018
Date Sampled: 10/18/21 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Bromoform	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Bromomethane	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Carbon Disulfide	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Carbon Tetrachloride	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Chlorobenzene	608 (10.0)		8260B		10	10/22/21 16:39	D1J0342	DJ12135
Chloroethane	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Chloroform	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Chloromethane	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Dibromochloromethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Dibromomethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Diethyl Ether	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Di-isopropyl ether	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Ethylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Hexachlorobutadiene	ND (0.6)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Hexachloroethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Isopropylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Methylene Chloride	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Naphthalene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
n-Butylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
n-Propylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
sec-Butylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Styrene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
tert-Butylbenzene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Tetrachloroethene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Tetrahydrofuran	ND (5.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-1-20211018
Date Sampled: 10/18/21 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Trichloroethene	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Trichlorofluoromethane	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Vinyl Chloride	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Xylene O	ND (1.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Xylene P,M	ND (2.0)		8260B		1	10/21/21 16:11	D1J0342	DJ12135
Xylenes (Total)	ND (2.00)		8260B		1	10/21/21 16:11		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>92 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-1-20211018
Date Sampled: 10/18/21 13:00
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-04
Sample Matrix: Ground Water
Units: ug/L

Prepared: 10/20/21 16:15

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (97)		MADEP-EPH		1	MJV	10/21/21 21:36	D1J0334	DJ12004
C19-C36 Aliphatics1	ND (97)		MADEP-EPH		1	MJV	10/21/21 21:36	D1J0334	DJ12004
C11-C22 Unadjusted Aromatics1	ND (97.1)		EPH8270		1	MJV	10/22/21 3:20	D1J0331	DJ12004
C11-C22 Aromatics1,2	ND (97.1)		EPH8270			TAJ	10/26/21 10:08		[CALC]
2-Methylnaphthalene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Acenaphthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Naphthalene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Phenanthrene	ND (0.49)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Acenaphthylene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Benzo(a)anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Benzo(b)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Benzo(g,h,i)perylene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Benzo(k)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Chrysene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Dibenzo(a,h)Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Fluorene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Indeno(1,2,3-cd)Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:08	D1J0404	DJ12004
Preservative:	pH <= 2		MADEP-EPH			IBM			DJ12004

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	64 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	104 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	110 %		40-140
<i>Surrogate: O-Terphenyl</i>	91 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-1-20211018
Date Sampled: 10/18/21 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-04
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	10/19/21 18:28	D1J0288	DJ11940
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	10/19/21 18:28		[CALC]
C9-C12 Aliphatics2,3	535 (150)		MA-VPH-2.1		1	10/19/21 18:28		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DJ11940

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 2,5-Dibromotoluene - FID	98 %		70-130
Surrogate: 2,5-Dibromotoluene - PID	93 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-2-20211018
Date Sampled: 10/18/21 10:26
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,1-Dichloroethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,1-Dichloroethene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,1-Dichloropropene	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2-Dibromoethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2-Dichlorobenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2-Dichloroethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,2-Dichloropropane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,3-Dichlorobenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,3-Dichloropropane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,4-Dichlorobenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
1,4-Dioxane - Screen	ND (500)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
2,2-Dichloropropane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
2-Butanone	ND (10.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
2-Chlorotoluene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
2-Hexanone	ND (10.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
4-Chlorotoluene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
4-Isopropyltoluene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Acetone	ND (10.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Benzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Bromobenzene	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Bromochloromethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-2-20211018
Date Sampled: 10/18/21 10:26
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Bromoform	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Bromomethane	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Carbon Disulfide	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Carbon Tetrachloride	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Chlorobenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Chloroethane	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Chloroform	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Chloromethane	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Dibromochloromethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Dibromomethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Diethyl Ether	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Di-isopropyl ether	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Ethylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Hexachlorobutadiene	ND (0.6)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Hexachloroethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Isopropylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Methylene Chloride	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Naphthalene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
n-Butylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
n-Propylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
sec-Butylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Styrene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
tert-Butylbenzene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Tetrachloroethene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Tetrahydrofuran	ND (5.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-2-20211018
Date Sampled: 10/18/21 10:26
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Trichloroethene	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Trichlorofluoromethane	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Vinyl Chloride	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Xylene O	ND (1.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Xylene P,M	ND (2.0)		8260B		1	10/22/21 15:22	D1J0369	DJ12241
Xylenes (Total)	ND (2.00)		8260B		1	10/22/21 15:22		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-2-20211018
Date Sampled: 10/18/21 10:26
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-05
Sample Matrix: Ground Water
Units: ug/L

Prepared: 10/20/21 16:15

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (96)		MADEP-EPH		1	MJV	10/21/21 22:10	D1J0334	DJ12004
C19-C36 Aliphatics1	ND (96)		MADEP-EPH		1	MJV	10/21/21 22:10	D1J0334	DJ12004
C11-C22 Unadjusted Aromatics1	ND (96.2)		EPH8270		1	MJV	10/22/21 3:58	D1J0331	DJ12004
C11-C22 Aromatics1,2	ND (96.2)		EPH8270			TAJ	10/26/21 10:56		[CALC]
2-Methylnaphthalene	ND (0.48)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Acenaphthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Naphthalene	ND (0.48)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Phenanthrene	ND (0.48)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Acenaphthylene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Benzo(a)anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Benzo(a)pyrene	ND (0.10)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Benzo(b)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Benzo(g,h,i)perylene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Benzo(k)fluoranthene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Chrysene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Dibenzo(a,h)Anthracene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Fluoranthene	0.26 (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Fluorene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Indeno(1,2,3-cd)Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Pyrene	ND (0.19)		EPH8270SIM		1	TAJ	10/26/21 10:56	D1J0404	DJ12004
Preservative:	pH <= 2		MADEP-EPH			IBM			DJ12004

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	64 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	103 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	109 %		40-140
<i>Surrogate: O-Terphenyl</i>	92 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-2-20211018
Date Sampled: 10/18/21 10:26
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3 μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: MEK
Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	10/19/21 19:02	D1J0288	DJ11940
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	10/19/21 19:02		[CALC]
C9-C12 Aliphatics2,3	ND (150)		MA-VPH-2.1		1	10/19/21 19:02		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DJ11940

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>90 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-3-20211018
Date Sampled: 10/18/21 11:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,1-Dichloroethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,1-Dichloroethene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,1-Dichloropropene	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2-Dibromoethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2-Dichloroethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,3-Dichlorobenzene	2.6 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,3-Dichloropropane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,4-Dichlorobenzene	6.5 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
1,4-Dioxane - Screen	ND (500)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
2,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
2-Butanone	ND (10.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
2-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
2-Hexanone	ND (10.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
4-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
4-Isopropyltoluene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Acetone	ND (10.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Benzene	23.2 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Bromobenzene	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Bromochloromethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-3-20211018
Date Sampled: 10/18/21 11:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Bromoform	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Bromomethane	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Carbon Disulfide	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Carbon Tetrachloride	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Chlorobenzene	1560 (50.0)		8260B		50	10/22/21 17:30	D1J0342	DJ12135
Chloroethane	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Chloroform	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Chloromethane	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Dibromochloromethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Dibromomethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Diethyl Ether	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Di-isopropyl ether	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Ethylbenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Hexachlorobutadiene	ND (0.6)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Hexachloroethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Isopropylbenzene	1.4 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Methylene Chloride	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Naphthalene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
n-Butylbenzene	1.3 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
n-Propylbenzene	2.3 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
sec-Butylbenzene	2.1 (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Styrene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
tert-Butylbenzene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Tetrachloroethene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Tetrahydrofuran	ND (5.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-3-20211018
Date Sampled: 10/18/21 11:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-06
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Trichloroethene	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Trichlorofluoromethane	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Vinyl Chloride	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Xylene O	ND (1.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Xylene P,M	ND (2.0)		8260B		1	10/21/21 17:02	D1J0342	DJ12135
Xylenes (Total)	ND (2.00)		8260B		1	10/21/21 17:02		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: MW-3-20211018
Date Sampled: 10/18/21 11:00
Percent Solids: N/A
Initial Volume: 1010
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-06
Sample Matrix: Ground Water
Units: ug/L

Prepared: 10/20/21 16:15

MADEP-EPH Extractable Petroleum Hydrocarbons

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C18 Aliphatics1	ND (99)		MADEP-EPH		1	MJV	10/21/21 22:44	D1J0334	DJ12004
C19-C36 Aliphatics1	ND (99)		MADEP-EPH		1	MJV	10/21/21 22:44	D1J0334	DJ12004
C11-C22 Unadjusted Aromatics1	ND (99.0)		EPH8270		1	MJV	10/22/21 4:35	D1J0331	DJ12004
C11-C22 Aromatics1,2	ND (99.0)		EPH8270			TAJ	10/26/21 11:43		[CALC]
2-Methylnaphthalene	ND (0.50)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Acenaphthene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Naphthalene	ND (0.50)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Phenanthrene	0.57 (0.50)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Acenaphthylene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Benzo(a)anthracene	0.22 (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Benzo(a)pyrene	0.23 (0.10)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Benzo(b)fluoranthene	0.28 (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Benzo(g,h,i)perylene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Benzo(k)fluoranthene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Chrysene	0.30 (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Dibenzo(a,h)Anthracene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Fluoranthene	0.60 (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Fluorene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Indeno(1,2,3-cd)Pyrene	ND (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Pyrene	0.53 (0.20)		EPH8270SIM		1	TAJ	10/26/21 11:43	D1J0404	DJ12004
Preservative:	pH <= 2		MADEP-EPH			IBM			DJ12004

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	63 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	101 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	106 %		40-140
<i>Surrogate: O-Terphenyl</i>	90 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

Client Sample ID: MW-3-20211018

Date Sampled: 10/18/21 11:00

Percent Solids: N/A

Initial Volume: 5

Final Volume: 5

Extraction Method: 5030B

Column Type: Restek RTX-502.2 - 3μ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 21J0596

ESS Laboratory Sample ID: 21J0596-06

Sample Matrix: Ground Water

Units: ug/L

Analyst: MEK

Trap Type: Supelco K Vocab 3000 Trap

MADEP-VPH Volatile Petroleum Hydrocarbon

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
C9-C10 Aromatics	ND (100)		MA-VPH-2.1		1	10/19/21 19:36	D1J0288	DJ11940
C5-C8 Aliphatics1,2	ND (150)		MA-VPH-2.1		1	10/19/21 19:36		[CALC]
C9-C12 Aliphatics2,3	1500 (150)		MA-VPH-2.1		1	10/19/21 19:36		[CALC]
Preservative:	pH <= 2		MA-VPH-2.1					DJ11940

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 2,5-Dibromotoluene - FID	104 %		70-130
Surrogate: 2,5-Dibromotoluene - PID	95 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: Trip Blank
Date Sampled: 10/18/21 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-07
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,1,1-Trichloroethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,1,2-Trichloroethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,1-Dichloroethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,1-Dichloroethene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,1-Dichloropropene	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2,3-Trichloropropane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2-Dibromoethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2-Dichloroethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,3-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,3-Dichloropropane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,4-Dichlorobenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
1,4-Dioxane - Screen	ND (500)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
2,2-Dichloropropane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
2-Butanone	ND (10.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
2-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
2-Hexanone	ND (10.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
4-Chlorotoluene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
4-Isopropyltoluene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Acetone	ND (10.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Benzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Bromobenzene	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Bromochloromethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: Trip Blank
Date Sampled: 10/18/21 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-07
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromodichloromethane	ND (0.6)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Bromoform	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Bromomethane	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Carbon Disulfide	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Carbon Tetrachloride	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Chlorobenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Chloroethane	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Chloroform	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Chloromethane	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Dibromochloromethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Dibromomethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Dichlorodifluoromethane	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Diethyl Ether	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Di-isopropyl ether	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Ethylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Hexachlorobutadiene	ND (0.6)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Hexachloroethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Isopropylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Methylene Chloride	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Naphthalene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
n-Butylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
n-Propylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
sec-Butylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Styrene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
tert-Butylbenzene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Tetrachloroethene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Tetrahydrofuran	ND (5.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA
Client Sample ID: Trip Blank
Date Sampled: 10/18/21 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 21J0596
ESS Laboratory Sample ID: 21J0596-07
Sample Matrix: Aqueous
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Toluene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Trichloroethene	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Trichlorofluoromethane	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Vinyl Chloride	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Xylene O	ND (1.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Xylene P,M	ND (2.0)		8260B		1	10/21/21 11:54	D1J0342	DJ12135
Xylenes (Total)	ND (2.00)		8260B		1	10/21/21 11:54		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12135 - 5030B

Blank

1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
1,1-Dichloropropene	ND	2.0	ug/L
1,2,3-Trichlorobenzene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
1,2,4-Trichlorobenzene	ND	1.0	ug/L
1,2,4-Trimethylbenzene	ND	1.0	ug/L
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L
1,2-Dibromoethane	ND	1.0	ug/L
1,2-Dichlorobenzene	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
1,3,5-Trimethylbenzene	ND	1.0	ug/L
1,3-Dichlorobenzene	ND	1.0	ug/L
1,3-Dichloropropane	ND	1.0	ug/L
1,4-Dichlorobenzene	ND	1.0	ug/L
1,4-Dioxane - Screen	ND	500	ug/L
2,2-Dichloropropane	ND	1.0	ug/L
2-Butanone	ND	10.0	ug/L
2-Chlorotoluene	ND	1.0	ug/L
2-Hexanone	ND	10.0	ug/L
4-Chlorotoluene	ND	1.0	ug/L
4-Isopropyltoluene	ND	1.0	ug/L
4-Methyl-2-Pentanone	ND	10.0	ug/L
Acetone	ND	10.0	ug/L
Benzene	ND	1.0	ug/L
Bromobenzene	ND	2.0	ug/L
Bromochloromethane	ND	1.0	ug/L
Bromodichloromethane	ND	0.6	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon Disulfide	ND	1.0	ug/L
Carbon Tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	0.4	ug/L
Dibromochloromethane	ND	1.0	ug/L





CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12135 - 5030B

Dibromomethane	ND	1.0	ug/L							
Dichlorodifluoromethane	ND	2.0	ug/L							
Diethyl Ether	ND	1.0	ug/L							
Di-isopropyl ether	ND	1.0	ug/L							
Ethyl tertiary-butyl ether	ND	1.0	ug/L							
Ethylbenzene	ND	1.0	ug/L							
Hexachlorobutadiene	ND	0.6	ug/L							
Hexachloroethane	ND	1.0	ug/L							
Isopropylbenzene	ND	1.0	ug/L							
Methyl tert-Butyl Ether	ND	1.0	ug/L							
Methylene Chloride	ND	2.0	ug/L							
Naphthalene	ND	1.0	ug/L							
n-Butylbenzene	ND	1.0	ug/L							
n-Propylbenzene	ND	1.0	ug/L							
sec-Butylbenzene	ND	1.0	ug/L							
Styrene	ND	1.0	ug/L							
tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
trans-1,3-Dichloropropene	ND	0.4	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	27.2		ug/L	25.00		109	70-130			
Surrogate: 4-Bromofluorobenzene	22.4		ug/L	25.00		90	70-130			
Surrogate: Dibromofluoromethane	25.3		ug/L	25.00		101	70-130			
Surrogate: Toluene-d8	25.0		ug/L	25.00		100	70-130			

LCS

1,1,1,2-Tetrachloroethane	8.7	1.0	ug/L	10.00		87	70-130			
1,1,1-Trichloroethane	9.7	1.0	ug/L	10.00		97	70-130			
1,1,2,2-Tetrachloroethane	10.4	0.5	ug/L	10.00		104	70-130			
1,1,2-Trichloroethane	10.0	1.0	ug/L	10.00		100	70-130			
1,1-Dichloroethane	10.3	1.0	ug/L	10.00		103	70-130			
1,1-Dichloroethene	10.9	1.0	ug/L	10.00		109	70-130			
1,1-Dichloropropene	10.4	2.0	ug/L	10.00		104	70-130			
1,2,3-Trichlorobenzene	9.7	1.0	ug/L	10.00		97	70-130			
1,2,3-Trichloropropane	8.9	1.0	ug/L	10.00		89	70-130			
1,2,4-Trichlorobenzene	9.6	1.0	ug/L	10.00		96	70-130			
1,2,4-Trimethylbenzene	9.6	1.0	ug/L	10.00		96	70-130			
1,2-Dibromo-3-Chloropropane	7.7	5.0	ug/L	10.00		77	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12135 - 5030B

1,2-Dibromoethane	9.8	1.0	ug/L	10.00		98	70-130			
1,2-Dichlorobenzene	10.0	1.0	ug/L	10.00		100	70-130			
1,2-Dichloroethane	10.4	1.0	ug/L	10.00		104	70-130			
1,2-Dichloropropane	9.7	1.0	ug/L	10.00		97	70-130			
1,3,5-Trimethylbenzene	9.9	1.0	ug/L	10.00		99	70-130			
1,3-Dichlorobenzene	10.2	1.0	ug/L	10.00		102	70-130			
1,3-Dichloropropane	10.4	1.0	ug/L	10.00		104	70-130			
1,4-Dichlorobenzene	10.2	1.0	ug/L	10.00		102	70-130			
1,4-Dioxane - Screen	195	500	ug/L	200.0		98	0-332			
2,2-Dichloropropane	9.4	1.0	ug/L	10.00		94	70-130			
2-Butanone	48.9	10.0	ug/L	50.00		98	70-130			
2-Chlorotoluene	10.2	1.0	ug/L	10.00		102	70-130			
2-Hexanone	45.2	10.0	ug/L	50.00		90	70-130			
4-Chlorotoluene	10.0	1.0	ug/L	10.00		100	70-130			
4-Isopropyltoluene	9.8	1.0	ug/L	10.00		98	70-130			
4-Methyl-2-Pentanone	47.2	10.0	ug/L	50.00		94	70-130			
Acetone	45.5	10.0	ug/L	50.00		91	70-130			
Benzene	10.1	1.0	ug/L	10.00		101	70-130			
Bromobenzene	10.1	2.0	ug/L	10.00		101	70-130			
Bromochloromethane	9.9	1.0	ug/L	10.00		99	70-130			
Bromodichloromethane	9.1	0.6	ug/L	10.00		91	70-130			
Bromoform	7.3	1.0	ug/L	10.00		73	70-130			
Bromomethane	14.9	2.0	ug/L	10.00		149	70-130			B+
Carbon Disulfide	9.7	1.0	ug/L	10.00		97	70-130			
Carbon Tetrachloride	9.2	1.0	ug/L	10.00		92	70-130			
Chlorobenzene	9.6	1.0	ug/L	10.00		96	70-130			
Chloroethane	12.9	2.0	ug/L	10.00		129	70-130			
Chloroform	10.2	1.0	ug/L	10.00		102	70-130			
Chloromethane	11.6	2.0	ug/L	10.00		116	70-130			
cis-1,2-Dichloroethene	10.2	1.0	ug/L	10.00		102	70-130			
cis-1,3-Dichloropropene	9.0	0.4	ug/L	10.00		90	70-130			
Dibromochloromethane	8.5	1.0	ug/L	10.00		85	70-130			
Dibromomethane	10.1	1.0	ug/L	10.00		101	70-130			
Dichlorodifluoromethane	10.7	2.0	ug/L	10.00		107	70-130			
Diethyl Ether	9.9	1.0	ug/L	10.00		99	70-130			
Di-isopropyl ether	9.9	1.0	ug/L	10.00		99	70-130			
Ethyl tertiary-butyl ether	9.4	1.0	ug/L	10.00		94	70-130			
Ethylbenzene	9.4	1.0	ug/L	10.00		94	70-130			
Hexachlorobutadiene	9.7	0.6	ug/L	10.00		97	70-130			
Hexachloroethane	7.0	1.0	ug/L	10.00		70	70-130			
Isopropylbenzene	10.2	1.0	ug/L	10.00		102	70-130			
Methyl tert-Butyl Ether	9.4	1.0	ug/L	10.00		94	70-130			
Methylene Chloride	11.1	2.0	ug/L	10.00		111	70-130			
Naphthalene	8.4	1.0	ug/L	10.00		84	70-130			
n-Butylbenzene	9.8	1.0	ug/L	10.00		98	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12135 - 5030B

n-Propylbenzene	10.2	1.0	ug/L	10.00		102	70-130			
sec-Butylbenzene	9.8	1.0	ug/L	10.00		98	70-130			
Styrene	8.5	1.0	ug/L	10.00		85	70-130			
tert-Butylbenzene	10.0	1.0	ug/L	10.00		100	70-130			
Tertiary-amyl methyl ether	9.1	1.0	ug/L	10.00		91	70-130			
Tetrachloroethene	7.8	1.0	ug/L	10.00		78	70-130			
Tetrahydrofuran	9.3	5.0	ug/L	10.00		93	70-130			
Toluene	9.9	1.0	ug/L	10.00		99	70-130			
trans-1,2-Dichloroethene	10.2	1.0	ug/L	10.00		102	70-130			
trans-1,3-Dichloropropene	8.2	0.4	ug/L	10.00		82	70-130			
Trichloroethene	10.0	1.0	ug/L	10.00		100	70-130			
Trichlorofluoromethane	10.3	1.0	ug/L	10.00		103	70-130			
Vinyl Chloride	11.8	1.0	ug/L	10.00		118	70-130			
Xylene O	9.3	1.0	ug/L	10.00		93	70-130			
Xylene P,M	18.9	2.0	ug/L	20.00		94	70-130			
Surrogate: 1,2-Dichloroethane-d4	26.5		ug/L	25.00		106	70-130			
Surrogate: 4-Bromofluorobenzene	23.4		ug/L	25.00		94	70-130			
Surrogate: Dibromofluoromethane	25.8		ug/L	25.00		103	70-130			
Surrogate: Toluene-d8	24.7		ug/L	25.00		99	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	8.7	1.0	ug/L	10.00		87	70-130	0.6	20	
1,1,1-Trichloroethane	9.8	1.0	ug/L	10.00		98	70-130	0.5	20	
1,1,2,2-Tetrachloroethane	10.2	0.5	ug/L	10.00		102	70-130	2	20	
1,1,2-Trichloroethane	9.8	1.0	ug/L	10.00		98	70-130	1	20	
1,1-Dichloroethane	10.3	1.0	ug/L	10.00		103	70-130	0	20	
1,1-Dichloroethene	10.9	1.0	ug/L	10.00		109	70-130	0.2	20	
1,1-Dichloropropene	10.2	2.0	ug/L	10.00		102	70-130	1	20	
1,2,3-Trichlorobenzene	9.3	1.0	ug/L	10.00		93	70-130	4	20	
1,2,3-Trichloropropane	8.9	1.0	ug/L	10.00		89	70-130	0.3	20	
1,2,4-Trichlorobenzene	9.4	1.0	ug/L	10.00		94	70-130	2	20	
1,2,4-Trimethylbenzene	9.5	1.0	ug/L	10.00		95	70-130	2	20	
1,2-Dibromo-3-Chloropropane	7.6	5.0	ug/L	10.00		76	70-130	1	20	
1,2-Dibromoethane	9.7	1.0	ug/L	10.00		97	70-130	2	20	
1,2-Dichlorobenzene	10.0	1.0	ug/L	10.00		100	70-130	0.6	20	
1,2-Dichloroethane	10.4	1.0	ug/L	10.00		104	70-130	0.1	20	
1,2-Dichloropropane	9.6	1.0	ug/L	10.00		96	70-130	0.6	20	
1,3,5-Trimethylbenzene	9.7	1.0	ug/L	10.00		97	70-130	2	20	
1,3-Dichlorobenzene	10.1	1.0	ug/L	10.00		101	70-130	1	20	
1,3-Dichloropropane	10.3	1.0	ug/L	10.00		103	70-130	0.4	20	
1,4-Dichlorobenzene	10.1	1.0	ug/L	10.00		101	70-130	1	20	
1,4-Dioxane - Screen	192	500	ug/L	200.0		96	0-332	1	200	
2,2-Dichloropropane	9.3	1.0	ug/L	10.00		93	70-130	1	20	
2-Butanone	49.4	10.0	ug/L	50.00		99	70-130	1	20	
2-Chlorotoluene	10.0	1.0	ug/L	10.00		100	70-130	1	20	
2-Hexanone	44.8	10.0	ug/L	50.00		90	70-130	0.7	20	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12135 - 5030B

4-Chlorotoluene	10.0	1.0	ug/L	10.00		100	70-130	0.6	20	
4-Isopropyltoluene	9.7	1.0	ug/L	10.00		97	70-130	1	20	
4-Methyl-2-Pentanone	46.8	10.0	ug/L	50.00		94	70-130	0.9	20	
Acetone	46.2	10.0	ug/L	50.00		92	70-130	2	20	
Benzene	10.2	1.0	ug/L	10.00		102	70-130	0.2	20	
Bromobenzene	10.2	2.0	ug/L	10.00		102	70-130	0.3	20	
Bromochloromethane	9.7	1.0	ug/L	10.00		97	70-130	2	20	
Bromodichloromethane	9.3	0.6	ug/L	10.00		93	70-130	2	20	
Bromoform	7.2	1.0	ug/L	10.00		72	70-130	0.6	20	
Bromomethane	14.6	2.0	ug/L	10.00		146	70-130	2	20	B+
Carbon Disulfide	9.6	1.0	ug/L	10.00		96	70-130	0.3	20	
Carbon Tetrachloride	9.2	1.0	ug/L	10.00		92	70-130	0	20	
Chlorobenzene	9.5	1.0	ug/L	10.00		95	70-130	0.6	20	
Chloroethane	12.7	2.0	ug/L	10.00		127	70-130	2	20	
Chloroform	10.2	1.0	ug/L	10.00		102	70-130	0.6	20	
Chloromethane	12.0	2.0	ug/L	10.00		120	70-130	4	20	
cis-1,2-Dichloroethene	10.2	1.0	ug/L	10.00		102	70-130	0.1	20	
cis-1,3-Dichloropropene	8.9	0.4	ug/L	10.00		89	70-130	1	20	
Dibromochloromethane	8.4	1.0	ug/L	10.00		84	70-130	0.9	20	
Dibromomethane	10.1	1.0	ug/L	10.00		101	70-130	0.6	20	
Dichlorodifluoromethane	10.4	2.0	ug/L	10.00		104	70-130	2	20	
Diethyl Ether	9.8	1.0	ug/L	10.00		98	70-130	0.9	20	
Di-isopropyl ether	9.9	1.0	ug/L	10.00		99	70-130	0.2	20	
Ethyl tertiary-butyl ether	9.3	1.0	ug/L	10.00		93	70-130	0.6	20	
Ethylbenzene	9.3	1.0	ug/L	10.00		93	70-130	0.6	20	
Hexachlorobutadiene	9.4	0.6	ug/L	10.00		94	70-130	3	20	
Hexachloroethane	7.0	1.0	ug/L	10.00		70	70-130	0.1	20	
Isopropylbenzene	10.0	1.0	ug/L	10.00		100	70-130	1	20	
Methyl tert-Butyl Ether	9.4	1.0	ug/L	10.00		94	70-130	0.6	20	
Methylene Chloride	11.1	2.0	ug/L	10.00		111	70-130	0.5	20	
Naphthalene	8.2	1.0	ug/L	10.00		82	70-130	2	20	
n-Butylbenzene	9.7	1.0	ug/L	10.00		97	70-130	0.9	20	
n-Propylbenzene	10.0	1.0	ug/L	10.00		100	70-130	1	20	
sec-Butylbenzene	9.6	1.0	ug/L	10.00		96	70-130	1	20	
Styrene	8.5	1.0	ug/L	10.00		85	70-130	0.5	20	
tert-Butylbenzene	9.9	1.0	ug/L	10.00		99	70-130	0.6	20	
Tertiary-amyl methyl ether	9.0	1.0	ug/L	10.00		90	70-130	0.9	20	
Tetrachloroethene	7.7	1.0	ug/L	10.00		77	70-130	0.4	20	
Tetrahydrofuran	10.0	5.0	ug/L	10.00		100	70-130	7	20	
Toluene	9.8	1.0	ug/L	10.00		98	70-130	0.8	20	
trans-1,2-Dichloroethene	10.0	1.0	ug/L	10.00		100	70-130	1	20	
trans-1,3-Dichloropropene	8.1	0.4	ug/L	10.00		81	70-130	0.4	20	
Trichloroethene	10.0	1.0	ug/L	10.00		100	70-130	0.8	20	
Trichlorofluoromethane	10.1	1.0	ug/L	10.00		101	70-130	2	20	
Vinyl Chloride	12.1	1.0	ug/L	10.00		121	70-130	2	20	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12135 - 5030B

Xylene O	9.3	1.0	ug/L	10.00		93	70-130	0.1	20	
Xylene P,M	18.8	2.0	ug/L	20.00		94	70-130	0.7	20	
Surrogate: 1,2-Dichloroethane-d4	26.4		ug/L	25.00		105	70-130			
Surrogate: 4-Bromofluorobenzene	23.4		ug/L	25.00		94	70-130			
Surrogate: Dibromofluoromethane	25.9		ug/L	25.00		104	70-130			
Surrogate: Toluene-d8	24.6		ug/L	25.00		98	70-130			

Batch DJ12241 - 5030B

Blank										
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L							
1,1,1-Trichloroethane	ND	1.0	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.5	ug/L							
1,1,2-Trichloroethane	ND	1.0	ug/L							
1,1-Dichloroethane	ND	1.0	ug/L							
1,1-Dichloroethene	ND	1.0	ug/L							
1,1-Dichloropropene	ND	2.0	ug/L							
1,2,3-Trichlorobenzene	ND	1.0	ug/L							
1,2,3-Trichloropropane	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	1.0	ug/L							
1,2,4-Trimethylbenzene	ND	1.0	ug/L							
1,2-Dibromo-3-Chloropropane	ND	5.0	ug/L							
1,2-Dibromoethane	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,2-Dichloroethane	ND	1.0	ug/L							
1,2-Dichloropropane	ND	1.0	ug/L							
1,3,5-Trimethylbenzene	ND	1.0	ug/L							
1,3-Dichlorobenzene	ND	1.0	ug/L							
1,3-Dichloropropane	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dioxane - Screen	ND	500	ug/L							
2,2-Dichloropropane	ND	1.0	ug/L							
2-Butanone	ND	10.0	ug/L							
2-Chlorotoluene	ND	1.0	ug/L							
2-Hexanone	ND	10.0	ug/L							
4-Chlorotoluene	ND	1.0	ug/L							
4-Isopropyltoluene	ND	1.0	ug/L							
4-Methyl-2-Pentanone	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.0	ug/L							
Bromobenzene	ND	2.0	ug/L							
Bromochloromethane	ND	1.0	ug/L							
Bromodichloromethane	ND	0.6	ug/L							
Bromoform	ND	1.0	ug/L							
Bromomethane	ND	2.0	ug/L							
Carbon Disulfide	ND	1.0	ug/L							
Carbon Tetrachloride	ND	1.0	ug/L							



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12241 - 5030B

Chlorobenzene	ND	1.0	ug/L							
Chloroethane	ND	2.0	ug/L							
Chloroform	ND	1.0	ug/L							
Chloromethane	ND	2.0	ug/L							
cis-1,2-Dichloroethene	ND	1.0	ug/L							
cis-1,3-Dichloropropene	ND	0.4	ug/L							
Dibromochloromethane	ND	1.0	ug/L							
Dibromomethane	ND	1.0	ug/L							
Dichlorodifluoromethane	ND	2.0	ug/L							
Diethyl Ether	ND	1.0	ug/L							
Di-isopropyl ether	ND	1.0	ug/L							
Ethyl tertiary-butyl ether	ND	1.0	ug/L							
Ethylbenzene	ND	1.0	ug/L							
Hexachlorobutadiene	ND	0.6	ug/L							
Hexachloroethane	ND	1.0	ug/L							
Isopropylbenzene	ND	1.0	ug/L							
Methyl tert-Butyl Ether	ND	1.0	ug/L							
Methylene Chloride	ND	2.0	ug/L							
Naphthalene	ND	1.0	ug/L							
n-Butylbenzene	ND	1.0	ug/L							
n-Propylbenzene	ND	1.0	ug/L							
sec-Butylbenzene	ND	1.0	ug/L							
Styrene	ND	1.0	ug/L							
tert-Butylbenzene	ND	1.0	ug/L							
Tertiary-amyl methyl ether	ND	1.0	ug/L							
Tetrachloroethene	ND	1.0	ug/L							
Tetrahydrofuran	ND	5.0	ug/L							
Toluene	ND	1.0	ug/L							
trans-1,2-Dichloroethene	ND	1.0	ug/L							
trans-1,3-Dichloropropene	ND	0.4	ug/L							
Trichloroethene	ND	1.0	ug/L							
Trichlorofluoromethane	ND	1.0	ug/L							
Vinyl Chloride	ND	1.0	ug/L							
Xylene O	ND	1.0	ug/L							
Xylene P,M	ND	2.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	28.5		ug/L	25.00		114	70-130			
Surrogate: 4-Bromofluorobenzene	22.4		ug/L	25.00		89	70-130			
Surrogate: Dibromofluoromethane	25.9		ug/L	25.00		104	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.00		99	70-130			

LCS

1,1,1,2-Tetrachloroethane	8.8	1.0	ug/L	10.00		88	70-130			
1,1,1-Trichloroethane	9.7	1.0	ug/L	10.00		97	70-130			
1,1,2,2-Tetrachloroethane	10.5	0.5	ug/L	10.00		105	70-130			
1,1,2-Trichloroethane	10.1	1.0	ug/L	10.00		101	70-130			
1,1-Dichloroethane	10.5	1.0	ug/L	10.00		105	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12241 - 5030B

1,1-Dichloroethene	11.2	1.0	ug/L	10.00		112	70-130			
1,1-Dichloropropene	10.5	2.0	ug/L	10.00		105	70-130			
1,2,3-Trichlorobenzene	10.1	1.0	ug/L	10.00		101	70-130			
1,2,3-Trichloropropane	8.8	1.0	ug/L	10.00		88	70-130			
1,2,4-Trichlorobenzene	9.9	1.0	ug/L	10.00		99	70-130			
1,2,4-Trimethylbenzene	9.9	1.0	ug/L	10.00		99	70-130			
1,2-Dibromo-3-Chloropropane	7.6	5.0	ug/L	10.00		76	70-130			
1,2-Dibromoethane	9.8	1.0	ug/L	10.00		98	70-130			
1,2-Dichlorobenzene	10.4	1.0	ug/L	10.00		104	70-130			
1,2-Dichloroethane	10.7	1.0	ug/L	10.00		107	70-130			
1,2-Dichloropropane	9.9	1.0	ug/L	10.00		99	70-130			
1,3,5-Trimethylbenzene	10.2	1.0	ug/L	10.00		102	70-130			
1,3-Dichlorobenzene	10.6	1.0	ug/L	10.00		106	70-130			
1,3-Dichloropropane	10.5	1.0	ug/L	10.00		105	70-130			
1,4-Dichlorobenzene	10.5	1.0	ug/L	10.00		105	70-130			
1,4-Dioxane - Screen	195	500	ug/L	200.0		97	0-332			
2,2-Dichloropropane	9.2	1.0	ug/L	10.00		92	70-130			
2-Butanone	49.7	10.0	ug/L	50.00		99	70-130			
2-Chlorotoluene	10.5	1.0	ug/L	10.00		105	70-130			
2-Hexanone	45.0	10.0	ug/L	50.00		90	70-130			
4-Chlorotoluene	10.3	1.0	ug/L	10.00		103	70-130			
4-Isopropyltoluene	10.1	1.0	ug/L	10.00		101	70-130			
4-Methyl-2-Pentanone	47.0	10.0	ug/L	50.00		94	70-130			
Acetone	45.1	10.0	ug/L	50.00		90	70-130			
Benzene	10.6	1.0	ug/L	10.00		106	70-130			
Bromobenzene	10.3	2.0	ug/L	10.00		103	70-130			
Bromochloromethane	10.0	1.0	ug/L	10.00		100	70-130			
Bromodichloromethane	9.3	0.6	ug/L	10.00		93	70-130			
Bromoform	7.0	1.0	ug/L	10.00		70	70-130			
Bromomethane	13.7	2.0	ug/L	10.00		137	70-130			B+
Carbon Disulfide	9.7	1.0	ug/L	10.00		97	70-130			
Carbon Tetrachloride	9.1	1.0	ug/L	10.00		91	70-130			
Chlorobenzene	9.7	1.0	ug/L	10.00		97	70-130			
Chloroethane	13.5	2.0	ug/L	10.00		135	70-130			B+
Chloroform	10.5	1.0	ug/L	10.00		105	70-130			
Chloromethane	12.4	2.0	ug/L	10.00		124	70-130			
cis-1,2-Dichloroethene	10.6	1.0	ug/L	10.00		106	70-130			
cis-1,3-Dichloropropene	8.9	0.4	ug/L	10.00		89	70-130			
Dibromochloromethane	8.3	1.0	ug/L	10.00		83	70-130			
Dibromomethane	10.3	1.0	ug/L	10.00		103	70-130			
Dichlorodifluoromethane	10.6	2.0	ug/L	10.00		106	70-130			
Diethyl Ether	10.0	1.0	ug/L	10.00		100	70-130			
Di-isopropyl ether	10.1	1.0	ug/L	10.00		101	70-130			
Ethyl tertiary-butyl ether	9.4	1.0	ug/L	10.00		94	70-130			
Ethylbenzene	9.6	1.0	ug/L	10.00		96	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12241 - 5030B

Hexachlorobutadiene	10.0	0.6	ug/L	10.00		100	70-130			
Hexachloroethane	6.7	1.0	ug/L	10.00		67	70-130			B-
Isopropylbenzene	10.4	1.0	ug/L	10.00		104	70-130			
Methyl tert-Butyl Ether	9.5	1.0	ug/L	10.00		95	70-130			
Methylene Chloride	11.0	2.0	ug/L	10.00		110	70-130			
Naphthalene	9.7	1.0	ug/L	10.00		97	70-130			
n-Butylbenzene	10.2	1.0	ug/L	10.00		102	70-130			
n-Propylbenzene	10.4	1.0	ug/L	10.00		104	70-130			
sec-Butylbenzene	10.1	1.0	ug/L	10.00		101	70-130			
Styrene	8.8	1.0	ug/L	10.00		88	70-130			
tert-Butylbenzene	10.3	1.0	ug/L	10.00		103	70-130			
Tertiary-amyl methyl ether	8.9	1.0	ug/L	10.00		89	70-130			
Tetrachloroethene	8.1	1.0	ug/L	10.00		81	70-130			
Tetrahydrofuran	9.6	5.0	ug/L	10.00		96	70-130			
Toluene	10.6	1.0	ug/L	10.00		106	70-130			
trans-1,2-Dichloroethene	10.4	1.0	ug/L	10.00		104	70-130			
trans-1,3-Dichloropropene	8.0	0.4	ug/L	10.00		80	70-130			
Trichloroethene	10.4	1.0	ug/L	10.00		104	70-130			
Trichlorofluoromethane	10.7	1.0	ug/L	10.00		107	70-130			
Vinyl Chloride	12.4	1.0	ug/L	10.00		124	70-130			
Xylene O	9.6	1.0	ug/L	10.00		96	70-130			
Xylene P,M	19.6	2.0	ug/L	20.00		98	70-130			
Surrogate: 1,2-Dichloroethane-d4	26.8		ug/L	25.00		107	70-130			
Surrogate: 4-Bromofluorobenzene	23.4		ug/L	25.00		93	70-130			
Surrogate: Dibromofluoromethane	26.2		ug/L	25.00		105	70-130			
Surrogate: Toluene-d8	24.5		ug/L	25.00		98	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	8.8	1.0	ug/L	10.00		88	70-130	0.2	20	
1,1,1-Trichloroethane	10.0	1.0	ug/L	10.00		100	70-130	3	20	
1,1,2,2-Tetrachloroethane	10.4	0.5	ug/L	10.00		104	70-130	0.7	20	
1,1,2-Trichloroethane	10.4	1.0	ug/L	10.00		104	70-130	2	20	
1,1-Dichloroethane	10.6	1.0	ug/L	10.00		106	70-130	1	20	
1,1-Dichloroethene	11.3	1.0	ug/L	10.00		113	70-130	1	20	
1,1-Dichloropropene	10.7	2.0	ug/L	10.00		107	70-130	2	20	
1,2,3-Trichlorobenzene	9.7	1.0	ug/L	10.00		97	70-130	3	20	
1,2,3-Trichloropropane	8.8	1.0	ug/L	10.00		88	70-130	0.5	20	
1,2,4-Trichlorobenzene	9.6	1.0	ug/L	10.00		96	70-130	3	20	
1,2,4-Trimethylbenzene	9.9	1.0	ug/L	10.00		99	70-130	0.1	20	
1,2-Dibromo-3-Chloropropane	7.7	5.0	ug/L	10.00		77	70-130	0.4	20	
1,2-Dibromoethane	9.8	1.0	ug/L	10.00		98	70-130	0.4	20	
1,2-Dichlorobenzene	10.3	1.0	ug/L	10.00		103	70-130	1	20	
1,2-Dichloroethane	10.9	1.0	ug/L	10.00		109	70-130	2	20	
1,2-Dichloropropane	10.2	1.0	ug/L	10.00		102	70-130	3	20	
1,3,5-Trimethylbenzene	10.2	1.0	ug/L	10.00		102	70-130	0.2	20	
1,3-Dichlorobenzene	10.4	1.0	ug/L	10.00		104	70-130	2	20	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12241 - 5030B

1,3-Dichloropropane	10.6	1.0	ug/L	10.00		106	70-130	0.9	20	
1,4-Dichlorobenzene	10.6	1.0	ug/L	10.00		106	70-130	0.8	20	
1,4-Dioxane - Screen	204	500	ug/L	200.0		102	0-332	5	200	
2,2-Dichloropropane	9.3	1.0	ug/L	10.00		93	70-130	0.8	20	
2-Butanone	50.4	10.0	ug/L	50.00		101	70-130	1	20	
2-Chlorotoluene	10.4	1.0	ug/L	10.00		104	70-130	0.4	20	
2-Hexanone	46.2	10.0	ug/L	50.00		92	70-130	3	20	
4-Chlorotoluene	10.2	1.0	ug/L	10.00		102	70-130	0.9	20	
4-Isopropyltoluene	10.0	1.0	ug/L	10.00		100	70-130	1	20	
4-Methyl-2-Pentanone	48.7	10.0	ug/L	50.00		97	70-130	4	20	
Acetone	45.1	10.0	ug/L	50.00		90	70-130	0.09	20	
Benzene	10.8	1.0	ug/L	10.00		108	70-130	2	20	
Bromobenzene	10.3	2.0	ug/L	10.00		103	70-130	0.2	20	
Bromochloromethane	10.0	1.0	ug/L	10.00		100	70-130	0	20	
Bromodichloromethane	9.6	0.6	ug/L	10.00		96	70-130	2	20	
Bromoform	7.1	1.0	ug/L	10.00		71	70-130	2	20	
Bromomethane	13.8	2.0	ug/L	10.00		138	70-130	0.4	20	B+
Carbon Disulfide	9.8	1.0	ug/L	10.00		98	70-130	1	20	
Carbon Tetrachloride	9.4	1.0	ug/L	10.00		94	70-130	3	20	
Chlorobenzene	9.8	1.0	ug/L	10.00		98	70-130	0.8	20	
Chloroethane	13.8	2.0	ug/L	10.00		138	70-130	3	20	B+
Chloroform	10.7	1.0	ug/L	10.00		107	70-130	2	20	
Chloromethane	12.5	2.0	ug/L	10.00		125	70-130	1	20	
cis-1,2-Dichloroethene	10.7	1.0	ug/L	10.00		107	70-130	2	20	
cis-1,3-Dichloropropene	8.9	0.4	ug/L	10.00		89	70-130	0.4	20	
Dibromochloromethane	8.3	1.0	ug/L	10.00		83	70-130	0.5	20	
Dibromomethane	10.4	1.0	ug/L	10.00		104	70-130	1	20	
Dichlorodifluoromethane	10.9	2.0	ug/L	10.00		109	70-130	2	20	
Diethyl Ether	10.2	1.0	ug/L	10.00		102	70-130	1	20	
Di-isopropyl ether	10.2	1.0	ug/L	10.00		102	70-130	1	20	
Ethyl tertiary-butyl ether	9.6	1.0	ug/L	10.00		96	70-130	3	20	
Ethylbenzene	9.6	1.0	ug/L	10.00		96	70-130	0.1	20	
Hexachlorobutadiene	9.6	0.6	ug/L	10.00		96	70-130	4	20	
Hexachloroethane	6.5	1.0	ug/L	10.00		65	70-130	3	20	B-
Isopropylbenzene	10.3	1.0	ug/L	10.00		103	70-130	1	20	
Methyl tert-Butyl Ether	9.7	1.0	ug/L	10.00		97	70-130	2	20	
Methylene Chloride	11.4	2.0	ug/L	10.00		114	70-130	3	20	
Naphthalene	9.4	1.0	ug/L	10.00		94	70-130	3	20	
n-Butylbenzene	10.0	1.0	ug/L	10.00		100	70-130	2	20	
n-Propylbenzene	10.4	1.0	ug/L	10.00		104	70-130	0.6	20	
sec-Butylbenzene	9.9	1.0	ug/L	10.00		99	70-130	2	20	
Styrene	8.9	1.0	ug/L	10.00		89	70-130	1	20	
tert-Butylbenzene	10.2	1.0	ug/L	10.00		102	70-130	0.9	20	
Tertiary-amyl methyl ether	9.2	1.0	ug/L	10.00		92	70-130	3	20	
Tetrachloroethene	8.3	1.0	ug/L	10.00		83	70-130	2	20	



CERTIFICATE OF ANALYSIS

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch DJ12241 - 5030B

Tetrahydrofuran	10.3	5.0	ug/L	10.00		103	70-130	6	20	
Toluene	10.8	1.0	ug/L	10.00		108	70-130	2	20	
trans-1,2-Dichloroethene	10.6	1.0	ug/L	10.00		106	70-130	2	20	
trans-1,3-Dichloropropene	8.0	0.4	ug/L	10.00		80	70-130	0.4	20	
Trichloroethene	10.4	1.0	ug/L	10.00		104	70-130	0.4	20	
Trichlorofluoromethane	10.7	1.0	ug/L	10.00		107	70-130	0.2	20	
Vinyl Chloride	12.6	1.0	ug/L	10.00		126	70-130	2	20	
Xylene O	9.6	1.0	ug/L	10.00		96	70-130	0.1	20	
Xylene P,M	19.7	2.0	ug/L	20.00		98	70-130	0.6	20	
Surrogate: 1,2-Dichloroethane-d4	27.1		ug/L	25.00		108	70-130			
Surrogate: 4-Bromofluorobenzene	23.3		ug/L	25.00		93	70-130			
Surrogate: Dibromofluoromethane	26.3		ug/L	25.00		105	70-130			
Surrogate: Toluene-d8	24.3		ug/L	25.00		97	70-130			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch DJ12004 - 3510C

Blank

C19-C36 Aliphatics1	ND	100	ug/L							
C9-C18 Aliphatics1	ND	100	ug/L							

Surrogate: 1-Chlorooctadecane	33.0		ug/L	50.00		66	40-140			
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Blank

C11-C22 Unadjusted Aromatics1	ND	100	ug/L							
Surrogate: 2-Bromonaphthalene	50.4		ug/L	50.00		101	40-140			
Surrogate: 2-Fluorobiphenyl	51.2		ug/L	50.00		102	40-140			
Surrogate: O-Terphenyl	44.3		ug/L	50.00		89	40-140			

Blank

2-Methylnaphthalene	ND	0.50	ug/L							
Acenaphthene	ND	0.20	ug/L							
Acenaphthylene	ND	0.20	ug/L							
Anthracene	ND	0.20	ug/L							
Benzo(a)anthracene	ND	0.20	ug/L							
Benzo(a)pyrene	ND	0.10	ug/L							
Benzo(b)fluoranthene	ND	0.20	ug/L							
Benzo(g,h,i)perylene	ND	0.20	ug/L							
Benzo(k)fluoranthene	ND	0.20	ug/L							
Chrysene	ND	0.20	ug/L							
Dibenzo(a,h)Anthracene	ND	0.20	ug/L							
Fluoranthene	ND	0.20	ug/L							
Fluorene	ND	0.20	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	0.20	ug/L							
Naphthalene	ND	0.50	ug/L							
Phenanthrene	ND	0.50	ug/L							
Pyrene	ND	0.20	ug/L							

LCS



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
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ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-EPH Extractable Petroleum Hydrocarbons										
Batch DJ12004 - 3510C										
C19-C36 Aliphatics1	371	100	ug/L	400.0		93	40-140			
C9-C18 Aliphatics1	208	100	ug/L	300.0		69	40-140			
<i>Surrogate: 1-Chlorooctadecane</i>	<i>33.0</i>		ug/L	<i>50.00</i>		<i>66</i>	<i>40-140</i>			
LCS										
C11-C22 Unadjusted Aromatics1	796	100	ug/L	850.0		94	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>49.9</i>		ug/L	<i>50.00</i>		<i>100</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>53.8</i>		ug/L	<i>50.00</i>		<i>108</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>47.4</i>		ug/L	<i>50.00</i>		<i>95</i>	<i>40-140</i>			
LCS										
2-Methylnaphthalene Breakthrough	0.0		%				0-5			
Naphthalene Breakthrough	0.0		%				0-5			
LCS										
2-Methylnaphthalene	3.33	0.50	ug/L	5.000		67	40-140			
Acenaphthene	4.22	0.20	ug/L	5.000		84	40-140			
Acenaphthylene	4.16	0.20	ug/L	5.000		83	40-140			
Anthracene	4.54	0.20	ug/L	5.000		91	40-140			
Benzo(a)anthracene	4.65	0.20	ug/L	5.000		93	40-140			
Benzo(a)pyrene	4.57	0.10	ug/L	5.000		91	40-140			
Benzo(b)fluoranthene	5.61	0.20	ug/L	5.000		112	40-140			
Benzo(g,h,i)perylene	5.72	0.20	ug/L	5.000		114	40-140			
Benzo(k)fluoranthene	3.72	0.20	ug/L	5.000		74	40-140			
Chrysene	4.93	0.20	ug/L	5.000		99	40-140			
Dibenzo(a,h)Anthracene	5.09	0.20	ug/L	5.000		102	40-140			
Fluoranthene	4.54	0.20	ug/L	5.000		91	40-140			
Fluorene	3.94	0.20	ug/L	5.000		79	40-140			
Indeno(1,2,3-cd)Pyrene	5.28	0.20	ug/L	5.000		106	40-140			
Naphthalene	3.44	0.50	ug/L	5.000		69	40-140			
Phenanthrene	4.55	0.50	ug/L	5.000		91	40-140			
Pyrene	4.93	0.20	ug/L	5.000		99	40-140			
LCS Dup										
C19-C36 Aliphatics1	379	100	ug/L	400.0		95	40-140	2	25	
C9-C18 Aliphatics1	214	100	ug/L	300.0		71	40-140	3	25	
<i>Surrogate: 1-Chlorooctadecane</i>	<i>34.1</i>		ug/L	<i>50.00</i>		<i>68</i>	<i>40-140</i>			
LCS Dup										
C11-C22 Unadjusted Aromatics1	836	100	ug/L	850.0		98	40-140	5	25	
<i>Surrogate: 2-Bromonaphthalene</i>	<i>50.4</i>		ug/L	<i>50.00</i>		<i>101</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>56.0</i>		ug/L	<i>50.00</i>		<i>112</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>46.7</i>		ug/L	<i>50.00</i>		<i>93</i>	<i>40-140</i>			
LCS Dup										
2-Methylnaphthalene Breakthrough	0.0		%				0-5		200	
Naphthalene Breakthrough	0.0		%				0-5		200	
LCS Dup										
2-Methylnaphthalene	3.32	0.50	ug/L	5.000		66	40-140	0.5	20	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-EPH Extractable Petroleum Hydrocarbons

Batch DJ12004 - 3510C

Acenaphthene	4.33	0.20	ug/L	5.000		87	40-140	2	20	
Acenaphthylene	4.22	0.20	ug/L	5.000		84	40-140	1	20	
Anthracene	4.35	0.20	ug/L	5.000		87	40-140	4	20	
Benzo(a)anthracene	4.38	0.20	ug/L	5.000		88	40-140	6	20	
Benzo(a)pyrene	4.50	0.10	ug/L	5.000		90	40-140	2	20	
Benzo(b)fluoranthene	5.41	0.20	ug/L	5.000		108	40-140	4	20	
Benzo(g,h,i)perylene	5.34	0.20	ug/L	5.000		107	40-140	7	20	
Benzo(k)fluoranthene	4.07	0.20	ug/L	5.000		81	40-140	9	20	
Chrysene	4.71	0.20	ug/L	5.000		94	40-140	5	20	
Dibenzo(a,h)Anthracene	4.96	0.20	ug/L	5.000		99	40-140	3	20	
Fluoranthene	4.37	0.20	ug/L	5.000		87	40-140	4	20	
Fluorene	3.93	0.20	ug/L	5.000		79	40-140	0.4	20	
Indeno(1,2,3-cd)Pyrene	5.15	0.20	ug/L	5.000		103	40-140	3	20	
Naphthalene	3.45	0.50	ug/L	5.000		69	40-140	0.5	20	
Phenanthrene	4.32	0.50	ug/L	5.000		86	40-140	5	20	
Pyrene	4.83	0.20	ug/L	5.000		97	40-140	2	20	

MADEP-VPH Volatile Petroleum Hydrocarbon

Batch DJ11840 - 5030B

Blank

1,2,4-Trimethylbenzene	ND	5.0	ug/L							
2,2,4-Trimethylpentane	ND	5.0	ug/L							
2-Methylpentane	ND	5.0	ug/L							
Benzene	ND	1.5	ug/L							
C5-C8 Unadjusted Aliphatics	ND	150	ug/L							
C9-C10 Aromatics	ND	100	ug/L							
C9-C12 Unadjusted Aliphatics	ND	150	ug/L							
Ethylbenzene	ND	5.0	ug/L							
Methyl tert-Butyl Ether	ND	1.5	ug/L							
Naphthalene	ND	5.0	ug/L							
n-Butylcyclohexane	ND	5.0	ug/L							
n-Decane	ND	5.0	ug/L							
Nonane (C9)	ND	5.0	ug/L							
Pentane	ND	5.0	ug/L							
Toluene	ND	5.0	ug/L							
Xylene O	ND	5.0	ug/L							
Xylene P,M	ND	10.0	ug/L							

Surrogate: 2,5-Dibromotoluene - FID	49.3		ug/L	50.00		99	70-130			
Surrogate: 2,5-Dibromotoluene - PID	44.1		ug/L	50.00		88	70-130			

LCS

1,2,4-Trimethylbenzene	87.6	5.0	ug/L	100.0		88	70-130			
2,2,4-Trimethylpentane	159	5.0	ug/L	150.0		106	70-130			
2-Methylpentane	166	5.0	ug/L	150.0		111	70-130			
Benzene	45.4	1.5	ug/L	50.00		91	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-VPH Volatile Petroleum Hydrocarbon

Batch DJ11840 - 5030B

C5-C8 Unadjusted Aliphatics	432	150	ug/L	400.0		108	70-130			
C9-C10 Aromatics	87.6	100	ug/L	100.0		88	70-130			
C9-C12 Unadjusted Aliphatics	248	150	ug/L	300.0		83	70-130			
Ethylbenzene	44.7	5.0	ug/L	50.00		89	70-130			
Methyl tert-Butyl Ether	139	1.5	ug/L	150.0		93	70-130			
Naphthalene	94.7	5.0	ug/L	100.0		95	70-130			
n-Butylcyclohexane	98.0	5.0	ug/L	100.0		98	70-130			
n-Decane	87.8	5.0	ug/L	100.0		88	70-130			
Nonane (C9)	93.1	5.0	ug/L	100.0		93	30-130			
Pentane	110	5.0	ug/L	100.0		110	70-130			
Toluene	130	5.0	ug/L	150.0		86	70-130			
Xylene O	82.2	5.0	ug/L	100.0		82	70-130			
Xylene P,M	174	10.0	ug/L	200.0		87	70-130			

Surrogate: 2,5-Dibromotoluene - FID	54.7		ug/L	50.00		109	70-130			
Surrogate: 2,5-Dibromotoluene - PID	47.9		ug/L	50.00		96	70-130			

LCS Dup

1,2,4-Trimethylbenzene	ND	5.0	ug/L	100.0		0	70-130	200	25	
2,2,4-Trimethylpentane	162	5.0	ug/L	150.0		108	70-130	2	25	
2-Methylpentane	168	5.0	ug/L	150.0		112	70-130	1	25	
Benzene	46.2	1.5	ug/L	50.00		92	70-130	2	25	
C5-C8 Unadjusted Aliphatics	441	150	ug/L	400.0		110	70-130	2	25	
C9-C10 Aromatics	88.9	100	ug/L	100.0		89	70-130	1	25	
C9-C12 Unadjusted Aliphatics	330	150	ug/L	300.0		110	70-130	28	25	
Ethylbenzene	45.3	5.0	ug/L	50.00		91	70-130	1	25	
Methyl tert-Butyl Ether	144	1.5	ug/L	150.0		96	70-130	3	25	
Naphthalene	99.3	5.0	ug/L	100.0		99	70-130	5	25	
n-Butylcyclohexane	114	5.0	ug/L	100.0		114	70-130	15	25	
n-Decane	104	5.0	ug/L	100.0		104	70-130	17	25	
Nonane (C9)	112	5.0	ug/L	100.0		112	30-130	18	25	
Pentane	111	5.0	ug/L	100.0		111	70-130	0.6	25	
Toluene	132	5.0	ug/L	150.0		88	70-130	2	25	
Xylene O	83.4	5.0	ug/L	100.0		83	70-130	1	25	
Xylene P,M	176	10.0	ug/L	200.0		88	70-130	1	25	

Surrogate: 2,5-Dibromotoluene - FID	54.2		ug/L	50.00		108	70-130			
Surrogate: 2,5-Dibromotoluene - PID	49.2		ug/L	50.00		98	70-130			

Batch DJ11940 - 5030B

Blank

1,2,4-Trimethylbenzene	ND	5.0	ug/L							
2,2,4-Trimethylpentane	ND	5.0	ug/L							
2-Methylpentane	ND	5.0	ug/L							
Benzene	ND	1.5	ug/L							
C5-C8 Unadjusted Aliphatics	ND	150	ug/L							
C9-C10 Aromatics	ND	100	ug/L							



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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MADEP-VPH Volatile Petroleum Hydrocarbon

Batch DJ11940 - 5030B

C9-C12 Unadjusted Aliphatics	ND	150	ug/L							
Ethylbenzene	ND	5.0	ug/L							
Methyl tert-Butyl Ether	ND	1.5	ug/L							
Naphthalene	ND	5.0	ug/L							
n-Butylcyclohexane	ND	5.0	ug/L							
n-Decane	ND	5.0	ug/L							
Nonane (C9)	ND	5.0	ug/L							
Pentane	ND	5.0	ug/L							
Toluene	ND	5.0	ug/L							
Xylene O	ND	5.0	ug/L							
Xylene P,M	ND	10.0	ug/L							
Surrogate: 2,5-Dibromotoluene - FID	52.9		ug/L	50.00		106	70-130			
Surrogate: 2,5-Dibromotoluene - PID	46.7		ug/L	50.00		93	70-130			

LCS

1,2,4-Trimethylbenzene	85.6	5.0	ug/L	100.0		86	70-130			
2,2,4-Trimethylpentane	156	5.0	ug/L	150.0		104	70-130			
2-Methylpentane	166	5.0	ug/L	150.0		111	70-130			
Benzene	44.9	1.5	ug/L	50.00		90	70-130			
C5-C8 Unadjusted Aliphatics	428	150	ug/L	400.0		107	70-130			
C9-C10 Aromatics	85.6	100	ug/L	100.0		86	70-130			
C9-C12 Unadjusted Aliphatics	239	150	ug/L	300.0		80	70-130			
Ethylbenzene	43.8	5.0	ug/L	50.00		88	70-130			
Methyl tert-Butyl Ether	140	1.5	ug/L	150.0		93	70-130			
Naphthalene	95.0	5.0	ug/L	100.0		95	70-130			
n-Butylcyclohexane	95.0	5.0	ug/L	100.0		95	70-130			
n-Decane	84.0	5.0	ug/L	100.0		84	70-130			
Nonane (C9)	89.6	5.0	ug/L	100.0		90	30-130			
Pentane	109	5.0	ug/L	100.0		109	70-130			
Toluene	127	5.0	ug/L	150.0		85	70-130			
Xylene O	80.2	5.0	ug/L	100.0		80	70-130			
Xylene P,M	169	10.0	ug/L	200.0		85	70-130			
Surrogate: 2,5-Dibromotoluene - FID	54.7		ug/L	50.00		109	70-130			
Surrogate: 2,5-Dibromotoluene - PID	48.6		ug/L	50.00		97	70-130			

LCS Dup

1,2,4-Trimethylbenzene	87.7	5.0	ug/L	100.0		88	70-130	2	25	
2,2,4-Trimethylpentane	161	5.0	ug/L	150.0		107	70-130	3	25	
2-Methylpentane	165	5.0	ug/L	150.0		110	70-130	0.8	25	
Benzene	45.7	1.5	ug/L	50.00		91	70-130	2	25	
C5-C8 Unadjusted Aliphatics	431	150	ug/L	400.0		108	70-130	0.7	25	
C9-C10 Aromatics	87.7	100	ug/L	100.0		88	70-130	2	25	
C9-C12 Unadjusted Aliphatics	301	150	ug/L	300.0		100	70-130	23	25	
Ethylbenzene	44.8	5.0	ug/L	50.00		90	70-130	2	25	
Methyl tert-Butyl Ether	140	1.5	ug/L	150.0		93	70-130	0.2	25	
Naphthalene	95.7	5.0	ug/L	100.0		96	70-130	0.7	25	



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-VPH Volatile Petroleum Hydrocarbon										
Batch DJ11940 - 5030B										
n-Butylcyclohexane	116	5.0	ug/L	100.0		116	70-130	19	25	
n-Decane	106	5.0	ug/L	100.0		106	70-130	23	25	
Nonane (C9)	114	5.0	ug/L	100.0		114	30-130	24	25	
Pentane	109	5.0	ug/L	100.0		109	70-130	0.5	25	
Toluene	130	5.0	ug/L	150.0		87	70-130	3	25	
Xylene O	82.4	5.0	ug/L	100.0		82	70-130	3	25	
Xylene P,M	174	10.0	ug/L	200.0		87	70-130	2	25	
Surrogate: 2,5-Dibromotoluene - FID	55.2		ug/L	50.00		110	70-130			
Surrogate: 2,5-Dibromotoluene - PID	50.0		ug/L	50.00		100	70-130			



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies

Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

Notes and Definitions

Z-06	pH <= 2
U	Analyte included in the analysis, but not detected
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
ND	Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
MDL	Method Detection Limit
MRL	Method Reporting Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DL	Detection Limit
I/V	Initial Volume
F/V	Final Volume
§	Subcontracted analysis; see attached report
1	Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
2	Range result excludes concentrations of target analytes eluting in that range.
3	Range result excludes the concentration of the C9-C10 aromatic range.
Avg	Results reported as a mathematical average.
NR	No Recovery
[CALC]	Calculated Analyte
SUB	Subcontracted analysis; see attached report
RL	Reporting Limit
EDL	Estimated Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
TNTC	Too numerous to Count
CFU	Colony Forming Units



CERTIFICATE OF ANALYSIS

Client Name: The Vertex Companies
Client Project ID: Lawless Jeep Woburn MA

ESS Laboratory Work Order: 21J0596

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: The Vertex Companies - TB

ESS Project ID: 21J0596

Shipped/Delivered Via: ESS Courier

Date Received: 10/18/2021

Project Due Date: 10/25/2021

Days for Project: 5 Day

1. Air bill manifest present? ☐ No

Air No.: NA

2. Were custody seals present? ☐ No

3. Is radiation count <100 CPM? ☐ Yes

4. Is a Cooler Present? ☐ Yes

Temp: 5.5 Iced with: Ice

5. Was COC signed and dated by client? ☐ Yes

6. Does COC match bottles? ☐ Yes

7. Is COC complete and correct? ☐ Yes

8. Were samples received intact? ☐ Yes

9. Were labs informed about short holds & rushes? ☐ Yes / ☐ No / ☐ NA

10. Were any analyses received outside of hold time? ☐ Yes / ☐ No

11. Any Subcontracting needed? ☐ Yes ☒ No

ESS Sample IDs: _____

Analysis: _____

TAT: _____

12. Were VOAs received? ☐ Yes / ☒ No

a. Air bubbles in aqueous VOAs? ☐ Yes / ☒ No

b. Does methanol cover soil completely? ☐ Yes / ☐ No / ☐ NA

13. Are the samples properly preserved? ☒ Yes ☐ No

a. If metals preserved upon receipt: Date: _____

Time: _____

By: _____

b. Low Level VOA vials frozen: Date: _____

Time: _____

By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? ☐ Yes ☒ No

a. Was there a need to contact the client? ☐ Yes ☒ No

Who was contacted? _____

Date: _____

Time: _____

By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	219478	Yes	No	Yes	VOA Vial	HCl	
1	219479	Yes	No	Yes	VOA Vial	HCl	
1	219480	Yes	No	Yes	VOA Vial	HCl	
1	219481	Yes	No	Yes	VOA Vial	HCl	
1	219482	Yes	No	Yes	VOA Vial	HCl	
1	219483	Yes	No	Yes	VOA Vial	HCl	
1	219520	Yes	N/A	Yes	1L Amber	HCl	
1	219521	Yes	N/A	Yes	1L Amber	HCl	
2	219484	Yes	No	Yes	VOA Vial	HCl	
2	219485	Yes	No	Yes	VOA Vial	HCl	
2	219486	Yes	No	Yes	VOA Vial	HCl	
2	219487	Yes	No	Yes	VOA Vial	HCl	
2	219488	Yes	No	Yes	VOA Vial	HCl	
2	219489	Yes	No	Yes	VOA Vial	HCl	
2	219522	Yes	N/A	Yes	1L Amber	HCl	
2	219523	Yes	N/A	Yes	1L Amber	HCl	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: The Vertex Companies - TB

ESS Project ID: 21J0596

Date Received: 10/18/2021

3	219490	Yes	No	Yes	VOA Vial	HCI
3	219491	Yes	No	Yes	VOA Vial	HCI
3	219492	Yes	No	Yes	VOA Vial	HCI
3	219493	Yes	No	Yes	VOA Vial	HCI
3	219494	Yes	No	Yes	VOA Vial	HCI
3	219495	Yes	No	Yes	VOA Vial	HCI
3	219524	Yes	N/A	Yes	1L Amber	HCI
3	219525	Yes	N/A	Yes	1L Amber	HCI
4	219496	Yes	No	Yes	VOA Vial	HCI
4	219497	Yes	No	Yes	VOA Vial	HCI
4	219498	Yes	No	Yes	VOA Vial	HCI
4	219499	Yes	No	Yes	VOA Vial	HCI
4	219500	Yes	No	Yes	VOA Vial	HCI
4	219501	Yes	No	Yes	VOA Vial	HCI
4	219526	Yes	N/A	Yes	1L Amber	HCI
4	219527	Yes	N/A	Yes	1L Amber	HCI
5	219502	Yes	No	Yes	VOA Vial	HCI
5	219503	Yes	No	Yes	VOA Vial	HCI
5	219504	Yes	No	Yes	VOA Vial	HCI
5	219505	Yes	No	Yes	VOA Vial	HCI
5	219506	Yes	No	Yes	VOA Vial	HCI
5	219507	Yes	No	Yes	VOA Vial	HCI
5	219528	Yes	N/A	Yes	1L Amber	HCI
5	219529	Yes	N/A	Yes	1L Amber	HCI
6	219508	Yes	No	Yes	VOA Vial	HCI
6	219509	Yes	No	Yes	VOA Vial	HCI
6	219510	Yes	No	Yes	VOA Vial	HCI
6	219511	Yes	No	Yes	VOA Vial	HCI
6	219512	Yes	No	Yes	VOA Vial	HCI
6	219513	Yes	No	Yes	VOA Vial	HCI
6	219530	Yes	N/A	Yes	1L Amber	HCI
6	219531	Yes	N/A	Yes	1L Amber	HCI
7	219518	Yes	No	Yes	VOA Vial	HCI

2nd Review

Were all containers scanned into storage/lab?

Are barcode labels on correct containers?

Are all Flashpoint stickers attached/container ID # circled?

Are all Hex Chrome stickers attached?

Are all QC stickers attached?

Are VOA stickers attached if bubbles noted?

Initials

KL

Yes / No
Yes / No / NA
Yes / No / NA
Yes / No / NA
Yes / No / NA

Completed

By:

WZ

Date & Time:

10.18.21 18:33

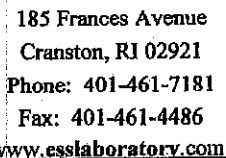
Reviewed

By:

QHA

Date & Time:

10/18/21 1844



ESS Lab # <u>2150596</u>	Page <u>1</u> of <u>1</u>
ELECTRONIC DELIVERABLES (Final Reports are PDF)	
☒ Limit Checker	☐ State Forms
☒ Excel	☐ Hard Copy
☐ CLP-Like Package	☐ Other (Specify) →
☒ EQuIS	☐ Enviro Data

PROJECT INFORMATION

REQUESTED ANALYSES

Page 59 of 59



ANALYTICAL REPORT

Lab Number:	L2203801
Client:	Vertex Environmental Services, Inc. 400 Libbey Industrial Parkway Weymouth, MA 02189
ATTN:	Patty Plante
Phone:	(781) 952-6000
Project Name:	LAWLESS JEEP WOBURN
Project Number:	72475
Report Date:	01/27/22

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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: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2203801-01	SG BROOK_NPDES_NOI_2022.01. 24	WATER	WOBURN, MA	01/24/22 12:30	01/24/22
L2203801-02	MW- 3_NPDES_NOI_2022.01.24	WATER	WOBURN, MA	01/24/22 13:45	01/24/22

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

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: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Case Narrative (continued)

Report Submission

January 27, 2022: This final report includes the results of all requested analyses.

January 27, 2022: This is a preliminary report.

The analysis of Ethanol was subcontracted. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

Volatile Organics by Method 624

L2203801-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Volatile Organics by SIM

L2203801-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Total Metals

The WG1597848-7 MS recoveries for iron (0%) and hardness (68%), performed on L2203801-02, do not apply because the sample concentrations are greater than four times the spike amounts added.

Nitrogen, Ammonia

The WG1597610-3 Laboratory Duplicate RPD for nitrogen, ammonia (25%), performed on L2203801-01, is above the acceptance criteria; however, the sample and duplicate results are less than five times the reporting limit. Therefore, the RPD is valid.

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: 01/27/22

ORGANICS

VOLATILES

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-01
 Client ID: SG BROOK_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 128,624.1
 Analytical Date: 01/25/22 13:33
 Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethane	ND		ug/l	1.5	--	1
Carbon tetrachloride	ND		ug/l	1.0	--	1
1,1,2-Trichloroethane	ND		ug/l	1.5	--	1
Tetrachloroethene	ND		ug/l	1.0	--	1
1,2-Dichloroethane	ND		ug/l	1.5	--	1
1,1,1-Trichloroethane	ND		ug/l	2.0	--	1
Benzene	ND		ug/l	1.0	--	1
Toluene	ND		ug/l	1.0	--	1
Ethylbenzene	ND		ug/l	1.0	--	1
Vinyl chloride	ND		ug/l	1.0	--	1
1,1-Dichloroethene	ND		ug/l	1.0	--	1
cis-1,2-Dichloroethene	ND		ug/l	1.0	--	1
Trichloroethene	ND		ug/l	1.0	--	1
1,2-Dichlorobenzene	ND		ug/l	5.0	--	1
1,3-Dichlorobenzene	ND		ug/l	5.0	--	1
1,4-Dichlorobenzene	ND		ug/l	5.0	--	1
p/m-Xylene	ND		ug/l	2.0	--	1
o-xylene	ND		ug/l	1.0	--	1
Xylenes, Total	ND		ug/l	1.0	--	1
Acetone	ND		ug/l	10	--	1
Methyl tert butyl ether	ND		ug/l	10	--	1
Tert-Butyl Alcohol	ND		ug/l	100	--	1
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--	1

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-01

Date Collected: 01/24/22 12:30

Client ID: SG BROOK_NPDES_NOI_2022.01.24

Date Received: 01/24/22

Sample Location: WOBURN, MA

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	96		60-140
Fluorobenzene	92		60-140
4-Bromofluorobenzene	111		60-140

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-01
Client ID: SG BROOK_NPDES_NOI_2022.01.24
Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30
Date Received: 01/24/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 128,624.1-SIM
Analytical Date: 01/25/22 13:33
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS-SIM - Westborough Lab						
1,4-Dioxane	ND		ug/l	5.0	--	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
Fluorobenzene	98			60-140		
4-Bromofluorobenzene	104			60-140		

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-01
Client ID: SG BROOK_NPDES_NOI_2022.01.24
Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30
Date Received: 01/24/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 14,504.1
Analytical Date: 01/25/22 14:08
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 01/25/22 12:33

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water

Extraction Method: EPA 504.1

Analytical Method: 14,504.1

Extraction Date: 01/25/22 12:33

Analytical Date: 01/25/22 14:14

Analyst: AMM

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	--	1	A

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02 D
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 128,624.1
 Analytical Date: 01/25/22 14:07
 Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	10	--	10
1,1-Dichloroethane	ND		ug/l	15	--	10
Carbon tetrachloride	ND		ug/l	10	--	10
1,1,2-Trichloroethane	ND		ug/l	15	--	10
Tetrachloroethene	ND		ug/l	10	--	10
1,2-Dichloroethane	ND		ug/l	15	--	10
1,1,1-Trichloroethane	ND		ug/l	20	--	10
Benzene	50		ug/l	10	--	10
Toluene	ND		ug/l	10	--	10
Ethylbenzene	ND		ug/l	10	--	10
Vinyl chloride	ND		ug/l	10	--	10
1,1-Dichloroethene	ND		ug/l	10	--	10
cis-1,2-Dichloroethene	ND		ug/l	10	--	10
Trichloroethene	ND		ug/l	10	--	10
1,2-Dichlorobenzene	ND		ug/l	50	--	10
1,3-Dichlorobenzene	ND		ug/l	50	--	10
1,4-Dichlorobenzene	ND		ug/l	50	--	10
p/m-Xylene	ND		ug/l	20	--	10
o-xylene	ND		ug/l	10	--	10
Xylenes, Total	ND		ug/l	10	--	10
Acetone	ND		ug/l	100	--	10
Methyl tert butyl ether	ND		ug/l	100	--	10
Tert-Butyl Alcohol	ND		ug/l	1000	--	10
Tertiary-Amyl Methyl Ether	ND		ug/l	200	--	10

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02 D
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	99		60-140
Fluorobenzene	93		60-140
4-Bromofluorobenzene	112		60-140

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02 D
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 128,624.1-SIM
 Analytical Date: 01/25/22 14:07
 Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
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Volatile Organics by GC/MS-SIM - Westborough Lab

1,4-Dioxane	ND		ug/l	50	--	10
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Surrogate	% Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	99		60-140
4-Bromofluorobenzene	106		60-140

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 14,504.1
Analytical Date: 01/25/22 13:28
Analyst: AMM

Extraction Method: EPA 504.1
Extraction Date: 01/25/22 12:33

Parameter	Result	Qualifier	Units	RL	MDL
Microextractables by GC - Westborough Lab for sample(s): 01-02 Batch: WG1597840-1					
1,2-Dibromoethane	ND		ug/l	0.010	-- A

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
 Analytical Date: 01/25/22 10:42
 Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1597887-4					
Methylene chloride	ND		ug/l	1.0	--
1,1-Dichloroethane	ND		ug/l	1.5	--
Carbon tetrachloride	ND		ug/l	1.0	--
1,1,2-Trichloroethane	ND		ug/l	1.5	--
Tetrachloroethene	ND		ug/l	1.0	--
1,2-Dichloroethane	ND		ug/l	1.5	--
1,1,1-Trichloroethane	ND		ug/l	2.0	--
Benzene	ND		ug/l	1.0	--
Toluene	ND		ug/l	1.0	--
Ethylbenzene	ND		ug/l	1.0	--
Vinyl chloride	ND		ug/l	1.0	--
1,1-Dichloroethene	ND		ug/l	1.0	--
cis-1,2-Dichloroethene	ND		ug/l	1.0	--
Trichloroethene	ND		ug/l	1.0	--
1,2-Dichlorobenzene	ND		ug/l	5.0	--
1,3-Dichlorobenzene	ND		ug/l	5.0	--
1,4-Dichlorobenzene	ND		ug/l	5.0	--
p/m-Xylene	ND		ug/l	2.0	--
o-xylene	ND		ug/l	1.0	--
Xylenes, Total	ND		ug/l	1.0	--
Acetone	ND		ug/l	10	--
Methyl tert butyl ether	ND		ug/l	10	--
Tert-Butyl Alcohol	ND		ug/l	100	--
Tertiary-Amyl Methyl Ether	ND		ug/l	20	--

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1
Analytical Date: 01/25/22 10:42
Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1597887-4					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Pentafluorobenzene	96		60-140
Fluorobenzene	93		60-140
4-Bromofluorobenzene	108		60-140

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 128,624.1-SIM
 Analytical Date: 01/25/22 10:42
 Analyst: GT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1598443-4					
1,4-Dioxane	ND		ug/l	5.0	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Fluorobenzene	100		60-140
4-Bromofluorobenzene	105		60-140

Lab Control Sample Analysis Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-02 Batch: WG1597840-2									
1,2-Dibromoethane	86		-		80-120	-			A

Lab Control Sample Analysis Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1597887-3								
Methylene chloride	90		-		60-140	-		28
1,1-Dichloroethane	105		-		50-150	-		49
Carbon tetrachloride	110		-		70-130	-		41
1,1,2-Trichloroethane	100		-		70-130	-		45
Tetrachloroethene	120		-		70-130	-		39
1,2-Dichloroethane	100		-		70-130	-		49
1,1,1-Trichloroethane	110		-		70-130	-		36
Benzene	100		-		65-135	-		61
Toluene	110		-		70-130	-		41
Ethylbenzene	125		-		60-140	-		63
Vinyl chloride	75		-		5-195	-		66
1,1-Dichloroethene	100		-		50-150	-		32
cis-1,2-Dichloroethene	100		-		60-140	-		30
Trichloroethene	105		-		65-135	-		48
1,2-Dichlorobenzene	120		-		65-135	-		57
1,3-Dichlorobenzene	130		-		70-130	-		43
1,4-Dichlorobenzene	130		-		65-135	-		57
p/m-Xylene	118		-		60-140	-		30
o-xylene	110		-		60-140	-		30
Acetone	76		-		40-160	-		30
Methyl tert butyl ether	85		-		60-140	-		30
Tert-Butyl Alcohol	81		-		60-140	-		30
Tertiary-Amyl Methyl Ether	80		-		60-140	-		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1597887-3

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Pentafluorobenzene	98				60-140
Fluorobenzene	96				60-140
4-Bromofluorobenzene	112				60-140

Lab Control Sample Analysis**Batch Quality Control****Project Name:** LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1598443-3								
1,4-Dioxane	112		-		60-140	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Fluorobenzene	102				60-140
4-Bromofluorobenzene	102				60-140

Matrix Spike Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597840-3 QC Sample: L2203263-02 Client ID: MS Sample													
1,2-Dibromoethane	ND	0.251	0.239	95		-	-		80-120	-		20	A
1,2-Dibromo-3-chloropropane	ND	0.251	0.236	94		-	-		80-120	-		20	A
1,2,3-Trichloropropane	ND	0.251	0.283	113		-	-		80-120	-		20	A

SEMIVOLATILES

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-01
Client ID: SG BROOK_NPDES_NOI_2022.01.24
Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30
Date Received: 01/24/22
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 129,625.1
Analytical Date: 01/25/22 13:16
Analyst: SZ

Extraction Method: EPA 625.1
Extraction Date: 01/24/22 19:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--	1
Butyl benzyl phthalate	ND		ug/l	5.00	--	1
Di-n-butylphthalate	ND		ug/l	5.00	--	1
Di-n-octylphthalate	ND		ug/l	5.00	--	1
Diethyl phthalate	ND		ug/l	5.00	--	1
Dimethyl phthalate	ND		ug/l	5.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		42-122
2-Fluorobiphenyl	66		46-121
4-Terphenyl-d14	78		47-138

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-01
Client ID: SG BROOK_NPDES_NOI_2022.01.24
Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30
Date Received: 01/24/22
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 129,625.1-SIM
Analytical Date: 01/25/22 13:30
Analyst: JJW

Extraction Method: EPA 625.1
Extraction Date: 01/24/22 19:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.123		ug/l	0.100	--	1
Fluoranthene	4.35		ug/l	0.100	--	1
Naphthalene	ND		ug/l	0.100	--	1
Benzo(a)anthracene	1.12		ug/l	0.100	--	1
Benzo(a)pyrene	1.45		ug/l	0.100	--	1
Benzo(b)fluoranthene	2.46		ug/l	0.100	--	1
Benzo(k)fluoranthene	0.616		ug/l	0.100	--	1
Chrysene	1.75		ug/l	0.100	--	1
Acenaphthylene	ND		ug/l	0.100	--	1
Anthracene	0.186		ug/l	0.100	--	1
Benzo(ghi)perylene	1.17		ug/l	0.100	--	1
Fluorene	0.165		ug/l	0.100	--	1
Phenanthrene	2.34		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	0.236		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	1.34		ug/l	0.100	--	1
Pyrene	3.13		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	41		25-87
Phenol-d6	30		16-65
Nitrobenzene-d5	75		42-122
2-Fluorobiphenyl	66		46-121
2,4,6-Tribromophenol	101		45-128
4-Terphenyl-d14	62		47-138

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 129,625.1
 Analytical Date: 01/25/22 13:41
 Analyst: SZ

Extraction Method: EPA 625.1
 Extraction Date: 01/24/22 19:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--	1
Butyl benzyl phthalate	ND		ug/l	5.00	--	1
Di-n-butylphthalate	ND		ug/l	5.00	--	1
Di-n-octylphthalate	ND		ug/l	5.00	--	1
Diethyl phthalate	ND		ug/l	5.00	--	1
Dimethyl phthalate	ND		ug/l	5.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		42-122
2-Fluorobiphenyl	66		46-121
4-Terphenyl-d14	81		47-138

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 129,625.1-SIM
 Analytical Date: 01/25/22 13:47
 Analyst: JJW

Extraction Method: EPA 625.1
 Extraction Date: 01/24/22 19:44

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	0.140		ug/l	0.100	--	1
Fluoranthene	0.396		ug/l	0.100	--	1
Naphthalene	1.63		ug/l	0.100	--	1
Benzo(a)anthracene	ND		ug/l	0.100	--	1
Benzo(a)pyrene	ND		ug/l	0.100	--	1
Benzo(b)fluoranthene	0.171		ug/l	0.100	--	1
Benzo(k)fluoranthene	ND		ug/l	0.100	--	1
Chrysene	0.119		ug/l	0.100	--	1
Acenaphthylene	ND		ug/l	0.100	--	1
Anthracene	ND		ug/l	0.100	--	1
Benzo(ghi)perylene	ND		ug/l	0.100	--	1
Fluorene	ND		ug/l	0.100	--	1
Phenanthrene	0.469		ug/l	0.100	--	1
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.100	--	1
Pyrene	0.292		ug/l	0.100	--	1
Pentachlorophenol	ND		ug/l	1.00	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		25-87
Phenol-d6	34		16-65
Nitrobenzene-d5	78		42-122
2-Fluorobiphenyl	70		46-121
2,4,6-Tribromophenol	105		45-128
4-Terphenyl-d14	66		47-138

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1
 Analytical Date: 01/25/22 09:48
 Analyst: SZ

Extraction Method: EPA 625.1
 Extraction Date: 01/24/22 16:06

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1597526-1					
Bis(2-ethylhexyl)phthalate	ND		ug/l	2.20	--
Butyl benzyl phthalate	ND		ug/l	5.00	--
Di-n-butylphthalate	ND		ug/l	5.00	--
Di-n-octylphthalate	ND		ug/l	5.00	--
Diethyl phthalate	ND		ug/l	5.00	--
Dimethyl phthalate	ND		ug/l	5.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		42-122
2-Fluorobiphenyl	75		46-121
4-Terphenyl-d14	90		47-138

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 129,625.1-SIM
Analytical Date: 01/25/22 08:24
Analyst: JJW

Extraction Method: EPA 625.1
Extraction Date: 01/24/22 16:07

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02 Batch: WG1597527-1					
Acenaphthene	ND		ug/l	0.100	--
Fluoranthene	ND		ug/l	0.100	--
Naphthalene	ND		ug/l	0.100	--
Benzo(a)anthracene	ND		ug/l	0.100	--
Benzo(a)pyrene	ND		ug/l	0.100	--
Benzo(b)fluoranthene	ND		ug/l	0.100	--
Benzo(k)fluoranthene	ND		ug/l	0.100	--
Chrysene	ND		ug/l	0.100	--
Acenaphthylene	ND		ug/l	0.100	--
Anthracene	ND		ug/l	0.100	--
Benzo(ghi)perylene	ND		ug/l	0.100	--
Fluorene	ND		ug/l	0.100	--
Phenanthrene	ND		ug/l	0.100	--
Dibenzo(a,h)anthracene	ND		ug/l	0.100	--
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.100	--
Pyrene	ND		ug/l	0.100	--
Pentachlorophenol	ND		ug/l	1.00	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		25-87
Phenol-d6	34		16-65
Nitrobenzene-d5	78		42-122
2-Fluorobiphenyl	72		46-121
2,4,6-Tribromophenol	82		45-128
4-Terphenyl-d14	81		47-138

Lab Control Sample Analysis**Batch Quality Control****Project Name:** LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1597526-2								
Bis(2-ethylhexyl)phthalate	93		-		29-137	-		82
Butyl benzyl phthalate	89		-		1-140	-		60
Di-n-butylphthalate	89		-		8-120	-		47
Di-n-octylphthalate	94		-		19-132	-		69
Diethyl phthalate	85		-		1-120	-		100
Dimethyl phthalate	81		-		1-120	-		183

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88				42-122
2-Fluorobiphenyl	77				46-121
4-Terphenyl-d14	87				47-138

Lab Control Sample Analysis Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1597527-2								
Acenaphthene	81		-		60-132	-		30
Fluoranthene	88		-		43-121	-		30
Naphthalene	79		-		36-120	-		30
Benzo(a)anthracene	92		-		42-133	-		30
Benzo(a)pyrene	93		-		32-148	-		30
Benzo(b)fluoranthene	92		-		42-140	-		30
Benzo(k)fluoranthene	87		-		25-146	-		30
Chrysene	78		-		44-140	-		30
Acenaphthylene	86		-		54-126	-		30
Anthracene	84		-		43-120	-		30
Benzo(ghi)perylene	94		-		1-195	-		30
Fluorene	84		-		70-120	-		30
Phenanthrene	80		-		65-120	-		30
Dibenzo(a,h)anthracene	102		-		1-200	-		30
Indeno(1,2,3-cd)pyrene	93		-		1-151	-		30
Pyrene	89		-		70-120	-		30
Pentachlorophenol	80		-		38-152	-		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02 Batch: WG1597527-2

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	57				25-87
Phenol-d6	39				16-65
Nitrobenzene-d5	84				42-122
2-Fluorobiphenyl	77				46-121
2,4,6-Tribromophenol	96				45-128
4-Terphenyl-d14	85				47-138

PCBS

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-01
Client ID: SG BROOK_NPDES_NOI_2022.01.24
Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30
Date Received: 01/24/22
Field Prep: Not Specified

Sample Depth:

Matrix: Water
Analytical Method: 127,608.3
Analytical Date: 01/25/22 13:25
Analyst: JWL

Extraction Method: EPA 608.3
Extraction Date: 01/24/22 20:48
Cleanup Method: EPA 3665A
Cleanup Date: 01/25/22
Cleanup Method: EPA 3660B
Cleanup Date: 01/25/22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	B
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	63		37-123	B
Decachlorobiphenyl	61		38-114	B
2,4,5,6-Tetrachloro-m-xylene	64		37-123	A
Decachlorobiphenyl	61		38-114	A

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 127,608.3
 Analytical Date: 01/25/22 13:34
 Analyst: JWL

Extraction Method: EPA 608.3
 Extraction Date: 01/24/22 20:48
 Cleanup Method: EPA 3665A
 Cleanup Date: 01/25/22
 Cleanup Method: EPA 3660B
 Cleanup Date: 01/25/22

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		ug/l	0.250	--	1	A
Aroclor 1221	ND		ug/l	0.250	--	1	A
Aroclor 1232	ND		ug/l	0.250	--	1	A
Aroclor 1242	ND		ug/l	0.250	--	1	A
Aroclor 1248	ND		ug/l	0.250	--	1	A
Aroclor 1254	ND		ug/l	0.250	--	1	A
Aroclor 1260	ND		ug/l	0.200	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		37-123	B
Decachlorobiphenyl	57		38-114	B
2,4,5,6-Tetrachloro-m-xylene	66		37-123	A
Decachlorobiphenyl	55		38-114	A

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 127,608.3
 Analytical Date: 01/24/22 08:14
 Analyst: JWL

Extraction Method: EPA 608.3
 Extraction Date: 01/23/22 23:32
 Cleanup Method: EPA 3665A
 Cleanup Date: 01/24/22
 Cleanup Method: EPA 3660B
 Cleanup Date: 01/24/22

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-02 Batch: WG1597193-1						
Aroclor 1016	ND		ug/l	0.250	--	A
Aroclor 1221	ND		ug/l	0.250	--	A
Aroclor 1232	ND		ug/l	0.250	--	A
Aroclor 1242	ND		ug/l	0.250	--	A
Aroclor 1248	ND		ug/l	0.250	--	A
Aroclor 1254	ND		ug/l	0.250	--	A
Aroclor 1260	ND		ug/l	0.200	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	72		37-123	B
Decachlorobiphenyl	81		38-114	B
2,4,5,6-Tetrachloro-m-xylene	72		37-123	A
Decachlorobiphenyl	80		38-114	A

Lab Control Sample Analysis**Batch Quality Control****Project Name:** LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-02 Batch: WG1597193-2									
Aroclor 1016	85		-		50-140	-		36	A
Aroclor 1260	82		-		8-140	-		38	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	76				37-123	B
Decachlorobiphenyl	87				38-114	B
2,4,5,6-Tetrachloro-m-xylene	78				37-123	A
Decachlorobiphenyl	86				38-114	A

METALS

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-01

Date Collected: 01/24/22 12:30

Client ID: SG BROOK_NPDES_NOI_2022.01.24

Date Received: 01/24/22

Sample Location: WOBURN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Arsenic, Total	ND		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Cadmium, Total	ND		mg/l	0.00020	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Chromium, Total	ND		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Copper, Total	0.00167		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Iron, Total	0.450		mg/l	0.050	--	1	01/25/22 15:46	01/27/22 11:34	EPA 3005A	19,200.7	AC
Lead, Total	0.00183		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Mercury, Total	ND		mg/l	0.00020	--	1	01/25/22 16:35	01/26/22 06:14	EPA 245.1	3,245.1	AC
Nickel, Total	ND		mg/l	0.00200	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Silver, Total	ND		mg/l	0.00040	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Zinc, Total	ND		mg/l	0.01000	--	1	01/25/22 15:46	01/25/22 22:49	EPA 3005A	3,200.8	SV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	73.2		mg/l	0.660	NA	1	01/25/22 15:46	01/27/22 11:34	EPA 3005A	19,200.7	AC

General Chemistry - Mansfield Lab

Chromium, Trivalent	ND		mg/l	0.010	--	1	01/25/22 22:49	NA	107,-
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Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**SAMPLE RESULTS**

Lab ID: L2203801-02

Date Collected: 01/24/22 13:45

Client ID: MW-3_NPDES_NOI_2022.01.24

Date Received: 01/24/22

Sample Location: WOBURN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Antimony, Total	ND		mg/l	0.00400	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Arsenic, Total	0.00882		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Cadmium, Total	0.00034		mg/l	0.00020	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Chromium, Total	0.1164		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Copper, Total	0.1225		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Iron, Total	114		mg/l	0.050	--	1	01/25/22 15:46	01/27/22 12:29	EPA 3005A	19,200.7	AC
Lead, Total	0.05625		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Mercury, Total	ND		mg/l	0.00020	--	1	01/25/22 16:35	01/26/22 06:17	EPA 245.1	3,245.1	AC
Nickel, Total	0.05924		mg/l	0.00200	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Silver, Total	0.00390		mg/l	0.00040	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Zinc, Total	0.2304		mg/l	0.01000	--	1	01/25/22 15:46	01/25/22 23:09	EPA 3005A	3,200.8	SV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	394		mg/l	0.660	NA	1	01/25/22 15:46	01/27/22 12:29	EPA 3005A	19,200.7	AC

General Chemistry - Mansfield Lab

Chromium, Trivalent	0.116		mg/l	0.010	--	1	01/25/22 23:09	NA	107,-
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Project Name: LAWLESS JEEP WOBURN

Lab Number: L2203801

Project Number: 72475

Report Date: 01/27/22

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1597848-1										
Iron, Total	ND		mg/l	0.050	--	1	01/25/22 15:46	01/27/22 11:11	19,200.7	AC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-02 Batch: WG1597848-1										
Hardness	ND		mg/l	0.660	NA	1	01/25/22 15:46	01/27/22 11:11	19,200.7	AC

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1597851-1										
Antimony, Total	ND		mg/l	0.00400	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Arsenic, Total	ND		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Cadmium, Total	ND		mg/l	0.00020	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Chromium, Total	ND		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Copper, Total	ND		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Lead, Total	ND		mg/l	0.00100	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Nickel, Total	ND		mg/l	0.00200	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Selenium, Total	ND		mg/l	0.00500	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Silver, Total	ND		mg/l	0.00040	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV
Zinc, Total	ND		mg/l	0.01000	--	1	01/25/22 15:46	01/25/22 22:37	3,200.8	SV

Prep Information

Digestion Method: EPA 3005A



Project Name: LAWLESS JEEP WOBURN

Lab Number: L2203801

Project Number: 72475

Report Date: 01/27/22

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1597852-1										
Mercury, Total	ND		mg/l	0.00020	--	1	01/25/22 16:35	01/26/22 05:54	3,245.1	AC

Prep Information

Digestion Method: EPA 245.1



Lab Control Sample Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1597848-2								
Iron, Total	102		-		85-115	-		
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 Batch: WG1597848-2								
Hardness	105		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1597851-2								
Antimony, Total	90		-		85-115	-		
Arsenic, Total	99		-		85-115	-		
Cadmium, Total	99		-		85-115	-		
Chromium, Total	104		-		85-115	-		
Copper, Total	101		-		85-115	-		
Lead, Total	98		-		85-115	-		
Nickel, Total	100		-		85-115	-		
Selenium, Total	94		-		85-115	-		
Silver, Total	104		-		85-115	-		
Zinc, Total	101		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1597852-2								
Mercury, Total	97		-		85-115	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-3 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24												
Iron, Total	0.450	1	1.46	101		-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-3 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24												
Hardness	73.2	66.2	140	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-7 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24												
Iron, Total	114	1	111	0	Q	-	-		75-125	-		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-7 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24												
Hardness	394	66.2	439	68	Q	-	-		75-125	-		20

Matrix Spike Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597851-3 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24									
Antimony, Total	ND	0.5	0.3628	72	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1194	100	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.05062	96	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.1986	99	-	-	70-130	-	20
Copper, Total	0.00167	0.25	0.2479	98	-	-	70-130	-	20
Lead, Total	0.00183	0.53	0.5004	94	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.4849	97	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1132	94	-	-	70-130	-	20
Silver, Total	ND	0.05	0.04999	100	-	-	70-130	-	20
Zinc, Total	ND	0.5	0.5042	101	-	-	70-130	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597852-3 QC Sample: L2203823-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00478	96	-	-	70-130	-	20

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L2203801
Report Date: 01/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-4 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24						
Iron, Total	0.450	0.443	mg/l	2		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-4 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24						
Hardness	73.2	73.8	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-8 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24						
Iron, Total	114	113	mg/l	1		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597848-8 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24						
Hardness	394	394	mg/l	0		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597851-4 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	ND	ND	mg/l	NC	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	ND	ND	mg/l	NC	20
Copper, Total	0.00167	0.00181	mg/l	8	20
Lead, Total	0.00183	0.00178	mg/l	3	20
Nickel, Total	ND	ND	mg/l	NC	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1597852-4 QC Sample: L2203823-01 Client ID: DUP Sample					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS & MISCELLANEOUS

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-01

Client ID: SG BROOK_NPDES_NOI_2022.01.24

Sample Location: WOBURN, MA

Date Collected: 01/24/22 12:30

Date Received: 01/24/22

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	14.		mg/l	5.0	NA	1	-	01/25/22 21:15	121,2540D	JW
Cyanide, Total	ND		mg/l	0.005	--	1	01/25/22 06:50	01/25/22 11:06	121,4500CN-CE	CS
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	01/24/22 22:54	121,4500CL-D	AS
Nitrogen, Ammonia	0.118		mg/l	0.075	--	1	01/25/22 00:35	01/25/22 20:08	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.40	--	1.1	01/25/22 18:45	01/25/22 21:00	140,1664B	TL
Phenolics, Total	ND		mg/l	0.030	--	1	01/25/22 07:02	01/25/22 11:34	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	01/25/22 01:50	01/25/22 02:00	1,7196A	KA
Anions by Ion Chromatography - Westborough Lab										
Chloride	172.		mg/l	12.5	--	25	-	01/25/22 17:05	44,300.0	SH



Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

SAMPLE RESULTS

Lab ID: L2203801-02
 Client ID: MW-3_NPDES_NOI_2022.01.24
 Sample Location: WOBURN, MA

Date Collected: 01/24/22 13:45
 Date Received: 01/24/22
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total Suspended	2300		mg/l	50	NA	10	-	01/25/22 21:15	121,2540D	JW
Cyanide, Total	ND		mg/l	0.005	--	1	01/25/22 06:50	01/25/22 11:07	121,4500CN-CE	CS
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	01/24/22 22:54	121,4500CL-D	AS
Nitrogen, Ammonia	1.90		mg/l	0.375	--	5	01/25/22 00:35	01/25/22 20:10	121,4500NH3-BH	AT
TPH, SGT-HEM	ND		mg/l	4.00	--	1	01/25/22 18:45	01/25/22 21:00	140,1664B	TL
Phenolics, Total	0.033		mg/l	0.030	--	1	01/25/22 07:02	01/25/22 11:36	4,420.1	KP
Chromium, Hexavalent	ND		mg/l	0.010	--	1	01/25/22 01:50	01/25/22 02:00	1,7196A	KA
Anions by Ion Chromatography - Westborough Lab										
Chloride	564.		mg/l	12.5	--	25	-	01/25/22 17:16	44,300.0	SH



Project Name: LAWLESS JEEP WOBURN

Lab Number: L2203801

Project Number: 72475

Report Date: 01/27/22

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1597607-1										
Chlorine, Total Residual	ND		mg/l	0.02	--	1	-	01/24/22 22:54	121,4500CL-D	AS
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1597610-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	01/25/22 00:35	01/25/22 20:05	121,4500NH3-BH	AT
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1597649-1										
Chromium, Hexavalent	ND		mg/l	0.010	--	1	01/25/22 01:50	01/25/22 01:57	1,7196A	KA
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1597655-1										
Cyanide, Total	ND		mg/l	0.005	--	1	01/25/22 06:50	01/25/22 10:54	121,4500CN-CE	CS
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1597705-1										
Phenolics, Total	ND		mg/l	0.030	--	1	01/25/22 07:02	01/25/22 11:32	4,420.1	KP
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1597977-1										
TPH, SGT-HEM	ND		mg/l	4.00	--	1	01/25/22 18:45	01/25/22 21:00	140,1664B	TL
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1598072-1										
Solids, Total Suspended	ND		mg/l	5.0	NA	1	-	01/25/22 21:15	121,2540D	JW
Anions by Ion Chromatography - Westborough Lab for sample(s): 01-02 Batch: WG1598079-1										
Chloride	ND		mg/l	0.500	--	1	-	01/25/22 16:21	44,300.0	SH



Lab Control Sample Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1597607-2								
Chlorine, Total Residual	104		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1597610-2								
Nitrogen, Ammonia	98		-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1597649-2								
Chromium, Hexavalent	106		-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1597655-2								
Cyanide, Total	95		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1597705-2								
Phenolics, Total	112		-		70-130	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1597977-2								
TPH	83		-		64-132	-		34
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1598072-2								
Solids, Total Suspended	96		-		80-120	-		

Lab Control Sample Analysis
Batch Quality Control**Project Name:** LAWLESS JEEP WOBURN**Project Number:** 72475**Lab Number:** L2203801**Report Date:** 01/27/22

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 Batch: WG1598079-2					
Chloride	101	-	90-110	-	

Matrix Spike Analysis **Batch Quality Control**

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597607-4 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24												
Chlorine, Total Residual	ND	0.25	0.22	88		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597610-4 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24												
Nitrogen, Ammonia	0.118	4	3.61	87		-	-		80-120	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597649-4 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24												
Chromium, Hexavalent	ND	0.1	0.103	103		-	-		85-115	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597655-4 QC Sample: L2202488-03 Client ID: MS Sample												
Cyanide, Total	0.008	0.2	0.190	91		-	-		90-110	-		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597705-4 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24												
Phenolics, Total	ND	0.4	0.41	102		-	-		70-130	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597977-4 QC Sample: L2203865-02 Client ID: MS Sample												
TPH	ND	18.9	17.4	92		-	-		64-132	-		34
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1598079-3 QC Sample: L2203862-02 Client ID: MS Sample												
Chloride	349	100	428	79	Q	-	-		90-110	-		18

Lab Duplicate Analysis

Batch Quality Control

Project Name: LAWLESS JEEP WOBURN

Project Number: 72475

Lab Number: L2203801

Report Date: 01/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597607-3 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24						
Chlorine, Total Residual	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597610-3 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24						
Nitrogen, Ammonia	0.118	0.152	mg/l	25	Q	20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597649-3 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24						
Chromium, Hexavalent	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597655-3 QC Sample: L2202488-02 Client ID: DUP Sample						
Cyanide, Total	ND	ND	mg/l	NC		30
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597705-3 QC Sample: L2203801-01 Client ID: SG BROOK_NPDES_NOI_2022.01.24						
Phenolics, Total	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1597977-3 QC Sample: L2203865-01 Client ID: DUP Sample						
TPH	ND	ND	mg/l	NC		34
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1598072-3 QC Sample: L2203801-02 Client ID: MW-3_NPDES_NOI_2022.01.24						
Solids, Total Suspended	2300	2400	mg/l	4		29

Project Name: LAWLESS JEEP WOBURN**Project Number:** 72475**Lab Duplicate Analysis***Batch Quality Control***Lab Number:** L2203801**Report Date:** 01/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1598079-5 QC Sample: L2203862-02 Client ID: DUP Sample					
Chloride	349	334	mg/l	4	18

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Serial_No:01272216:54
Lab Number: L2203801
Report Date: 01/27/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2203801-01A	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L2203801-01A1	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L2203801-01B	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L2203801-01B1	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L2203801-01C	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		624.1-SIM-RGP(7),624.1-RGP(7)
L2203801-01D	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		504(14)
L2203801-01E	Vial Na2S2O3 preserved	A	NA		5.6	Y	Absent		504(14)
L2203801-01F	Vial unpreserved	A	NA		5.6	Y	Absent		SUB-ETHANOL(14)
L2203801-01G	Vial unpreserved	A	NA		5.6	Y	Absent		SUB-ETHANOL(14)
L2203801-01H	Vial unpreserved	A	NA		5.6	Y	Absent		SUB-ETHANOL(14)
L2203801-01I	Plastic 250ml HNO3 preserved	A	<2	<2	5.6	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),HARDU(180),FE-UI(180),AG-2008T(180),AS-2008T(180),HG-U(28),SE-2008T(180),SB-2008T(180),PB-2008T(180),CR-2008T(180)
L2203801-01J	Plastic 250ml NaOH preserved	A	>12	>12	5.6	Y	Absent		TCN-4500(14)
L2203801-01K	Plastic 500ml H2SO4 preserved	A	<2	<2	5.6	Y	Absent		NH3-4500(28)
L2203801-01L	Plastic 950ml unpreserved	A	7	7	5.6	Y	Absent		HEXCR-7196(1),CL-300(28),TRC-4500(1)
L2203801-01M	Plastic 950ml unpreserved	A	7	7	5.6	Y	Absent		TSS-2540(7)
L2203801-01N	Amber 950ml H2SO4 preserved	A	<2	<2	5.6	Y	Absent		TPHENOL-420(28)
L2203801-01O	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		PCB-608.3(365)
L2203801-01P	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		PCB-608.3(365)
L2203801-01Q	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		625.1-RGP(7)
L2203801-01R	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		625.1-RGP(7)

Project Name: LAWLESS JEEP WOBURN**Lab Number:** L2203801**Project Number:** 72475**Report Date:** 01/27/22**Container Information**

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2203801-01S	Amber 1000ml Na2S2O3	A	7	7	5.6	Y	Absent		625.1-SIM-RGP(7)
L2203801-01U	Amber 1000ml HCl preserved	A	NA		5.6	Y	Absent		TPH-1664(28)
L2203801-01V	Amber 1000ml HCl preserved	A	NA		5.6	Y	Absent		TPH-1664(28)
L2203801-02A	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2203801-02A1	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2203801-02B	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2203801-02B1	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2203801-02C	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2203801-02C1	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		624.1-RGP(7),624.1-SIM-RGP(7)
L2203801-02D	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		504(14)
L2203801-02E	Vial Na2S2O3 preserved	B	NA		4.1	Y	Absent		504(14)
L2203801-02F	Vial unpreserved	B	NA		4.1	Y	Absent		SUB-ETHANOL(14)
L2203801-02G	Vial unpreserved	B	NA		4.1	Y	Absent		SUB-ETHANOL(14)
L2203801-02H	Vial unpreserved	B	NA		4.1	Y	Absent		SUB-ETHANOL(14)
L2203801-02I	Plastic 250ml HNO3 preserved	B	<2	<2	4.1	Y	Absent		CD-2008T(180),NI-2008T(180),ZN-2008T(180),CU-2008T(180),HARDU(180),FE-UI(180),HG-U(28),SE-2008T(180),AG-2008T(180),AS-2008T(180),PB-2008T(180),SB-2008T(180),CR-2008T(180)
L2203801-02J	Plastic 250ml NaOH preserved	B	>12	>12	4.1	Y	Absent		TCN-4500(14)
L2203801-02K	Plastic 500ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		NH3-4500(28)
L2203801-02L	Plastic 950ml unpreserved	B	7	7	4.1	Y	Absent		CL-300(28),HEXCR-7196(1),TRC-4500(1)
L2203801-02M	Plastic 950ml unpreserved	B	7	7	4.1	Y	Absent		TSS-2540(7)
L2203801-02N	Amber 950ml H2SO4 preserved	B	<2	<2	4.1	Y	Absent		TPHENOL-420(28)
L2203801-02O	Amber 1000ml Na2S2O3	B	7	7	4.1	Y	Absent		PCB-608.3(365)
L2203801-02P	Amber 1000ml Na2S2O3	B	7	7	4.1	Y	Absent		PCB-608.3(365)
L2203801-02Q	Amber 1000ml Na2S2O3	B	7	7	4.1	Y	Absent		625.1-RGP(7)
L2203801-02R	Amber 1000ml Na2S2O3	B	7	7	4.1	Y	Absent		625.1-RGP(7)
L2203801-02S	Amber 1000ml Na2S2O3	B	7	7	4.1	Y	Absent		625.1-SIM-RGP(7)
L2203801-02T	Amber 1000ml Na2S2O3	B	7	7	4.1	Y	Absent		625.1-SIM-RGP(7)

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Serial_No:01272216:54
Lab Number: L2203801
Report Date: 01/27/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2203801-02U	Amber 1000ml HCl preserved	B	NA		4.1	Y	Absent		TPH-1664(28)
L2203801-02V	Amber 1000ml HCl preserved	B	NA		4.1	Y	Absent		TPH-1664(28)

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
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.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
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.

Report Format: Data Usability Report



Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

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.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

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.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- 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.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Report Format: Data Usability Report



Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

Data Qualifiers

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.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: LAWLESS JEEP WOBURN
Project Number: 72475

Lab Number: L2203801
Report Date: 01/27/22

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
- 14 Methods for the Determination of Organic Compounds in Finished Drinking Water and Raw Source Water. EPA/600/4-88/039, Revised July 1991.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 107 Alpha Analytical - In-house calculation method.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 127 Method 608.3: Organochlorine Pesticides and PCBs by GC/HSD, EPA 821-R-16-009, December 2016.
- 128 Method 624.1: Purgeables by GC/MS, EPA 821-R-16-008, December 2016.
- 129 Method 625.1: Base/Neutrals and Acids by GC/MS, EPA 821-R-16-007, December 2016.
- 140 Method 1664, Revision B: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-10-001, February 2010.

LIMITATION OF LIABILITIES

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

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



Certification Information

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

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

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, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-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, SM9222D.**

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, EPA 537.1.

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.



8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 1/24/22

ALPHA Job #: L2203801

Project Information

Project Name: Lawless Deep Woburn.

Project Location: Woburn, MA.

Project #: 72475

Project Manager: Patty Plante.

ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)

Date Due: 3 - DAY TAT

Report Information - Data Deliverables

☒ ADEX ☒ EMAIL

Billing Information

☒ Same as Client Info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☒ No MA MCP Analytical Methods ☐ Yes ☒ No CT RCP Analytical Methods
☐ Yes ☒ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☒ No GW1 Standards (Info Required for Metals & EPH with Targets)
☒ Yes ☐ No NPDES RGP
☐ Other State /Fed Program Criteria

Client Information

Client: VERTEX

Address: 400 Liberty Industrial
Plym, Woburn, MA 02139

Phone: 781-952-6000

Email: p.plante@vertexeng.com

Additional Project Information:

ALPHA Lab ID
(Lab Use Only)

Sample ID

Collection

Date

Time

Sample
Matrix

Sampler
Initials

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 534.2

SVOC: ☐ ABN ☐ PAH

METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15

METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13

EPH: ☐ Ranges & Targets ☐ Ranges Only

VPH: ☐ Ranges & Targets ☐ Ranges Only

PCB ☐ PEST

TPH: ☐ Quant Only ☐ Fingerprint

NPDES RGP Permits

Total Hardness

SAMPLE INFO

Filtration

☐ Field

☐ Lab to do

Preservation

☐ Lab to do

Sample Comments

TOTAL # BOTTLES

05801-1 SG Brook NPDES NOI 2022.01.24 1/24/22 1230 GW TP

X X

25

X X

25

MW-3 NPDES NOI 2022.01.24 1/24/22 1345 GW TP

Container Type

P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative

A= None
B= HCl
C= HNO₃
D= H₂SO₄
E= NaOH
F= MeOH
G= NaHSO₄
H= Na₂S₂O₃
I= Ascorbic Acid
J= NH₄Cl
K= Zn Acetate
O= Other

Container Type

Preservative

50

Relinquished By:

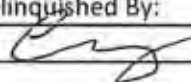
Date/Time

Received By:

Date/Time

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

		Subcontract Chain of Custody Tek Lab, Inc. 5445 Horsehoe Lake Road Collinsville, IL 62234-7425		Alpha Job Number L2203801	
Client Information		Project Information		Regulatory Requirements/Report Limits	
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 603.319.5010 Email: mgulli@alphalab.com		Project Location: MA Project Manager: Melissa Gulli Turnaround & Deliverables Information Due Date: 01/28/22 (RUSH) Deliverables:		State/Federal Program: Regulatory Criteria:	
Project Specific Requirements and/or Report Requirements					
Reference following Alpha Job Number on final report/deliverables: L2203801				Report to include Method Blank, LCS/LCSD:	
Additional Comments: Send all results/reports to subreports@alphalab.com Ethanol via 1671					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	SG BROOK_NPDES_NOI_2022.01.24	01-24-22 12:30	WATER	Ethanol by EPA 1671 Revision A	
	MW-3_NPDES_NOI_2022.01.24	01-24-22 13:45	WATER	Ethanol by EPA 1671 Revision A	
		Relinquished By:	Date/Time:	Received By:	Date/Time:
			1/25/22		
Form No: AL_subcoc					

January 27, 2022

Melissa Gulli
Alpha Analytical
145 Flanders Road
Westborough, MA 01581
TEL: (603) 319-5010
FAX:

Illinois	100226
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: L2203801

WorkOrder: 22011325

Dear Melissa Gulli:

TEKLAB, INC received 2 samples on 1/26/2022 10:10:00 AM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Marvin L. Darling
Project Manager
(618)344-1004 ex 41
mdarling@teklabinc.com

Report Contents

<http://www.teklabinc.com/>**Client:** Alpha Analytical**Work Order:** 22011325**Client Project:** L2203801**Report Date:** 27-Jan-22**This reporting package includes the following:**

Cover Letter	1
Report Contents	2
Definitions	3
Case Narrative	5
Accreditations	6
Laboratory Results	7
Quality Control Results	9
Receiving Check List	10
Chain of Custody	Appended

Definitions

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 22011325

Client Project: L2203801

Report Date: 27-Jan-22

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

NC Data is not acceptable for compliance purposes

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Definitions

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 22011325

Client Project: L2203801

Report Date: 27-Jan-22

Qualifiers

# - Unknown hydrocarbon	B - Analyte detected in associated Method Blank
C - RL shown is a Client Requested Quantitation Limit	E - Value above quantitation range
H - Holding times exceeded	I - Associated internal standard was outside method criteria
J - Analyte detected below quantitation limits	M - Manual Integration used to determine area response
ND - Not Detected at the Reporting Limit	R - RPD outside accepted recovery limits
S - Spike Recovery outside recovery limits	T - TIC(Tentatively identified compound)
X - Value exceeds Maximum Contaminant Level	

Case Narrative

<http://www.teklabinc.com/>
Client: Alpha Analytical**Work Order:** 22011325**Client Project:** L2203801**Report Date:** 27-Jan-22**Cooler Receipt Temp:** 0.8 °C

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email jhriley@teklabinc.com

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Accreditations

<http://www.teklabinc.com/>

Client: Alpha Analytical
Client Project: L2203801

Work Order: 22011325
Report Date: 27-Jan-22

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2023	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2022	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2022	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2022	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2022	Collinsville
Arkansas	ADEQ	88-0966		3/14/2022	Collinsville
Illinois	IDPH	17584		5/31/2023	Collinsville
Kentucky	UST	0073		1/31/2022	Collinsville
Missouri	MDNR	00930		5/31/2023	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville

Laboratory Results

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 22011325

Client Project: L2203801

Report Date: 27-Jan-22

Lab ID: 22011325-001

Client Sample ID: SG BROOK_NPDES_NOI_2022.01.24

Matrix: AQUEOUS

Collection Date: 01/24/2022 12:30

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORGANICS								
Ethanol	*	20		ND	mg/L	1	01/26/2022 15:10	R306391

Laboratory Results

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 22011325

Client Project: L2203801

Report Date: 27-Jan-22

Lab ID: 22011325-002

Client Sample ID: MW-3_NPDES_NOI_2022.01.24

Matrix: AQUEOUS

Collection Date: 01/24/2022 13:45

Analyses	Certification	RL	Qual	Result	Units	DF	Date Analyzed	Batch
EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE ORGANICS								
Ethanol	*	20		ND	mg/L	1	01/26/2022 17:03	R306391

Quality Control Results

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 22011325

Client Project: L2203801

Report Date: 27-Jan-22

EPA 600 1671A, PHARMACEUTICAL MANUFACTURING INDUSTRY NON-PURGEABLE VOLATILE OR

Batch R306391 SampType: MBLK Units mg/L

SampID: MBLK-012622

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		ND						01/26/2022

Batch R306391 SampType: LCS Units mg/L

SampID: LCS-012622

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		250	250.0	0	99.0	70	132	01/26/2022

Batch R306391 SampType: MS Units mg/L

SampID: 22011325-001AMS

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	Low Limit	High Limit	Date Analyzed
Ethanol	*	20		240	250.0	0	94.4	70	132	01/26/2022

Batch R306391 SampType: MSD Units mg/L

RPD Limit: 30

SampID: 22011325-001AMSD

Analyses	Cert	RL	Qual	Result	Spike	SPK Ref Val	%REC	RPD Ref Val	%RPD	Date Analyzed
Ethanol	*	20		230	250.0	0	92.5	236.0	2.01	01/26/2022

Receiving Check List

<http://www.teklabinc.com/>

Client: Alpha Analytical

Work Order: 22011325

Client Project: L2203801

Report Date: 27-Jan-22

Carrier: UPS

Received By: PWR

Completed by:

Reviewed by:

On:

On:

26-Jan-22

26-Jan-22

Mary E. Kemp

Marvin L. Darling

Pages to follow:

Chain of custody

1

Extra pages included

0

Shipping container/cooler in good condition?

Yes ☒No ☐Not Present ☐Temp °C **0.8**

Type of thermal preservation?

None ☐Ice ☒Blue Ice ☐Dry Ice ☐

Chain of custody present?

Yes ☒No ☐

Chain of custody signed when relinquished and received?

Yes ☒No ☐

Chain of custody agrees with sample labels?

Yes ☒No ☐

Samples in proper container/bottle?

Yes ☒No ☐

Sample containers intact?

Yes ☒No ☐

Sufficient sample volume for indicated test?

Yes ☒No ☐

All samples received within holding time?

Yes ☒No ☐

Reported field parameters measured:

Field ☐Lab ☐NA ☒

Container/Temp Blank temperature in compliance?

Yes ☒No ☐

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

Water – at least one vial per sample has zero headspace?

Yes ☒No ☐No VOA vials ☐

Water - TOX containers have zero headspace?

Yes ☐No ☐No TOX containers ☒

Water - pH acceptable upon receipt?

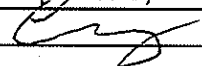
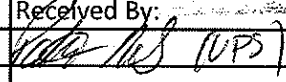
Yes ☒No ☐NA ☐

NPDES/CWA TCN interferences checked/treated in the field?

Yes ☐No ☐NA ☒

Any No responses must be detailed below or on the COC.

22011325

		Subcontract Chain of Custody Tek Lab, Inc. 5445 Horsehoe Lake Road Collinsville, IL 62234-7425		Alpha Job Number L2203801	
Client Information		Project Information		Regulatory Requirements/Report Limits	
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 603.319.5010 Email: mgulli@alphalab.com		Project Location: MA Project Manager: Melissa Gulli Turnaround & Deliverables Information Due Date: 01/28/22 (RUSH) Deliverables:		State/Federal Program: Regulatory Criteria:	
Project Specific Requirements and/or Report Requirements					
Reference following Alpha Job Number on final report/deliverables: L2203801				Report to include Method Blank, LCS/LCSD:	
Additional Comments: Send all results/reports to subreports@alphalab.com Ethanol via 1671					
Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
22011325 -001 ↓ 002	SG BROOK_NPDES_NOI_2022.01.24 MW-3_NPDES_NOI_2022.01.24	01-24-22 12:30 01-24-22 13:45	WATER WATER	Ethanol by EPA 1671 Revision A Ethanol by EPA 1671 Revision A 0.8⁰⁰ LTR 1 0 HS PK 1/26/22 ONE DAY TAT	
Relinquished By:		Date/Time:	Received By:	Date/Time:	
		1/25/22	 (UPS)	1/26/22 1010	
Form No: AL_subcoc					

Serial_No:01272216:54

 PR
 1/26/22