

Consulting
Engineers and
Scientists

Phase II Environmental Site Assessment

282-284 Washington Street
Boston (Dorchester), Massachusetts

Submitted to:

City of Boston
Mayor's Office of Housing
12 Channel Street, 9th Floor
Boston, MA 02108

Submitted by:

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801
781-721-4000

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Project 2301269



Christopher Ragnelli
Project Manager

Ryan S. Hoffman, P.G., LSP
Vice President

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Executive Summary

GEI Consultants, Inc. completed an ASTM Phase II Environmental Site Assessment (ESA), on behalf of the City of Boston Mayor's Office of Housing (MOH), for one vacant parcel at 282-284 Washington Street (Parcel ID 1401188000) in Boston (Dorchester), Massachusetts (referred to as the Property).

In May 2023, GEI prepared a Phase I ESA and identified three recognized environmental conditions (RECs). These RECs included:

- A Massachusetts Department of Environmental Protection (MassDEP) contaminated disposal site identified by release tracking number (RTN) 3-20710 at the adjacent property (285 Washington Street) that has been used as a gasoline service station since 1931 and has documented concentrations of dissolved-phase petroleum constituents in groundwater;
- A former Massachusetts Department of Environmental Quality and Engineering (MassDEQE; now referred to as MassDEP) disposal site formerly used as a sheet metal factory at 258-260 Washington Street (RTN 3-104) with residual petroleum impacts in soil and groundwater; and
- A potential historical drycleaner that operated between 1969 to 1974 at 66 Harvard Avenue, potentially directly across the street from the Property.

Based on the presence of the identified RECs, we recommended a Phase II ESA. The purpose and objective of the Phase II ESA was to evaluate whether contamination associated with the RECs have affected the Property.

In May 2023, GEI conducted a Phase II ESA subsurface investigation to evaluate the RECs. The subsurface investigation included the advancement of soil borings, installation of monitoring wells, and collection of soil and groundwater samples. Based on the results of the Phase II ESA, we have the following findings and conclusions:

- Fill was encountered to depths between 5 and 8 feet in the soil borings. The fill layer generally consisted of silty sand and contained brick and glass pieces. Till was encountered below the fill layer and was observed as deep as 20 feet, the deepest any of the soil borings were advanced. The till layer generally consisted of varying amounts of fine to coarse sand and non-plastic fines with some gravel.
- Soil samples collected from borings did not show visual or olfactory evidence of contamination. The maximum jar headspace screening result of 0.6 parts per million

(ppm) was observed in boring GEI101(MW) from approximately 4 to 6 feet in a fill layer containing brick and glass consistent with urban fill materials. This fill layer was above the estimated water table (approximately 10 feet below ground surface). For these reasons, we did not collect any soil samples for laboratory analysis.

- Volatile petroleum hydrocarbon (VPH) fraction C5 through C8 aliphatics was detected at the laboratory reporting limit in groundwater from monitoring well GEI101(MW) at a concentration of 158 micrograms per liter (ug/L). This concentration is below the Massachusetts Contingency Plan (MCP) reportable concentration for category GW-2 groundwater (RCGW-2 standard) of 3,000 ug/L. No other VPH fractions were detected in the groundwater samples.
- Based on the testing performed, conditions at the Property do not appear to have been affected by the gasoline service station, the sheet metal factory, or the historical drycleaner.

1. Introduction

GEI Consultants, Inc. completed an ASTM Phase II Environmental Site Assessment (ESA), on behalf of the City of Boston Mayor's Office of Housing (MOH), for one vacant parcel at 282-284 Washington Street (Parcel ID 1401188000) in Boston (Dorchester), Massachusetts (the Property; Figs. 1 and 2).

1.1 Purpose and Objective

We performed a Phase I ESA and issued the Phase I ESA report on May 5, 2023. We identified three RECs at the Property:

- There is a Massachusetts Department of Environmental Protection (MassDEP) disposal site at the adjacent property (285 Washington Street) approximately 100 feet south of the Property. This site has been used as a gasoline service station since at least 1931. In May 2001, a 72-hour reportable condition to MassDEP was discovered when organic vapors were detected in soil at concentrations exceeding 100 parts per million (ppm) by volume following the removal of seven underground storage tanks (USTs). This site is listed by MassDEP under Release Tracking Number (RTN) 3-20710.

After completing the remediation activities and post-remedial monitoring, the site achieved a condition of No Significant Risk based on a Method 3 Risk Characterization. The site was closed with a Class A-2 Response Action Outcome (RAO; now referred to as a Permanent Solution Statement) in June 2004. Given the proximity of this site to the Property and historical data showing elevated concentrations of dissolved-phase petroleum constituents in groundwater at the northern property line closest to the Property, this site has the potential to affect conditions at the Property. This site constitutes an REC.

- There is a former Massachusetts Department of Environmental Quality and Engineering (MassDEQE; now referred to as MassDEP) disposal site at 258-260 Washington Street (RTN 3-104) approximately 315 feet northwest of the Property. This site was historically used by Atlantic Metal Industries, Inc., which provided specialty sheet metal work for the fabrication of commercial kitchen equipment. No plating or machine work was reportedly conducted. This site is associated with an unknown quantity of fuel oil or gasoline released from a UST and reported as Spill No. N86-0200. Subsurface investigations determined that soil and groundwater downgradient of the former UST was impacted with petroleum products. In March 1986, the UST was removed, along with limited excavation of petroleum-impacted soil. As of May 9, 1996, the site was classified by MassDEP as

Not a Disposal Site, requiring no additional cleanup. Given the proximity of this site to the Property and residual petroleum impacts in soil and groundwater, this site has the potential to affect conditions at the Property. This site constitutes an REC.

- One historical dry cleaner was identified within 0.125 mile of the Property at 66 Harvard Avenue (Specialty Cleaners & Dyers). Based on information from EDR, the historical dry cleaner was approximately 70 feet from the Property and operated between 1969 to 1974. Based on our review of the location of the historical dry cleaner compared to what is shown in Sanborn Maps, it is possible that the dry cleaner has been incorrectly located by EDR at the intersection of Washington Street and Harvard Avenue. However, due to the uncertainty of the information provided, we are unable to definitively determine where the drycleaner was located. Therefore, due to the proximity to the Property, the historical dry cleaner constitutes an REC.

Based on the presence of the identified RECs, we recommended a Phase II ESA. The purpose and objective of the Phase II ESA was to evaluate whether contamination associated with the RECs have affected the Property.

1.2 Detailed Scope of Services

In accordance with our proposal dated May 11, 2023 and authorized on May 16, 2023, we:

- Performed a subsurface investigation, including boring advancement, monitoring well installation, and soil and groundwater sampling.
- Prepared this Phase II ESA.

This report summarizes the information that we gathered as part of the Phase II ESA.

1.3 Significant Assumptions

Our conclusions and recommendations are based on the information sources presented in this report and listed in Section 7 (References). GEI assumes that all available information obtained as part of this ESA is accurate and reliable.

1.4 Limitations and Exceptions

We performed a Phase II ESA at the Property in general conformance with the scope and limitations of ASTM Standard E1903-19 and for the objective of evaluating the identified RECs and whether releases of oil and hazardous materials (OHM) to the environment have affected the Property.

Our conclusions are based on the information reported in this report. Additional information not available to us at the time this report was prepared may result in a modification of the findings of this ESA.

1.5 Special Terms and Conditions

This Phase II ESA was performed with no Special Terms and Conditions.

1.6 User Reliance

This report was prepared for the use of the City of Boston exclusively. Reliance on this report by others is conditioned on acceptance of all of the terms and conditions contained in our “Standard Professional Services Agreement,” a copy of which is in Appendix A, and on the limitations in Section 1.4 of this report.

2. Property Description

2.1 Property Location and Description

A description of the Property is below. Fig. 1 is a Property location map and Fig. 2 is a Property plan showing the approximate limits of the Property and its abutters.

Property Ownership and Location	
Address	282-284 Washington Street, Boston, Massachusetts, 02121
Owner	City of Boston
Operator	City of Boston
Occupant(s)	Vacant
Current Use	Vacant
Size	9,920 square feet (0.23 acre)
Building Footprint	There are no structures or buildings on the Property.
Parcel Information / Legal Description	Parcel ID 1401188000
Zoning	Residential
County	Suffolk
Latitude/Longitude	42°18'3.54"N and 71°4'32.01"W
UTM Coordinates	4,685,067.0mN and 328,911.1mE
Property Vicinity	
General Area Description	The surrounding area is primarily residential with some commercial use.
Adjoining Properties and Current Uses	West: Residential (276 Washington Street)
	North: Residential (51-53 Bowdoin Avenue and 49 Bowdoin Avenue)
	East: Residential (55 Bowdoin Avenue and 288 Washington Street)
	South: A Gasoline service station (285 Washington Street) and a vacant parcel (36 Harvard Avenue)

2.2 Physical Setting

Natural resources and environmentally sensitive areas are summarized based on our review of the MassGIS Map (Fig. 3).

<i>Physical Setting</i>	
USGS 7.5 Minute Topographic Map	Boston South, Massachusetts Quadrangle
Surface Topography	Sloped downward towards the southwest
Elevation	Approximately 110 to 120 feet above the North American Vertical Datum (NAVD) of 1988, according to the U.S. Geological Survey Topographic map
Geology	Based on the Boston South, Massachusetts Quadrangle, the surficial geology of the area is mainly shallow bedrock, bedrock outcrops, or glacial till. Bedrock at the Property is Roxbury Conglomerate.
Bedrock Formation	Roxbury Conglomerate
Bedrock Depth	Unknown
Groundwater Depth	Approximately 10 to 13 feet below ground surface
Surface Water Flow Direction	Presumed west, based on topography
Regional Groundwater Flow Direction	Presumed east, towards Dorchester Bay and Neponset River
Nearest Surface Water Body	Dorchester Bay is about 1.3 miles to the east.
<i>Natural Resources and Environmental Sensitive Areas</i>	
Aquifer or Watershed Protection Area/District	The Property is not within a U.S. Environmental Protection Agency (EPA) Sole Source, Medium Yield, or High Yield Aquifer, Non-Potential Drinking Water Source Area, Public Water Supply Protection Area
Wetlands	The Property is not within a mapped wetland.
Floodplain	The Property is not within a Federal Emergency Management Agency (FEMA) Special Flood Hazard Area.
Natural Resource Protection District(s)	The Property is not within an Area of Critical Environmental Concern, Vernal Pool, or Habitat of Rare Wetland Wildlife.
Protected Open Space	The Property is not within Protected Open Space. However, the Property is within 0.5 mile of Protected Open Space.
MCP Reporting Categories	Groundwater: RCGW-2 Soil: RCS-1

3. Property History

3.1 Historical Use of the Property

Property history was obtained from the following:

- Sanborn Fire Insurance Maps (Sanborn Maps) dated between 1899 and 2002.
- Aerial photographs taken between 1938 and 2018.
- Topographical maps dated between 1893 and 2018.
- City directories listing the occupants of property on and near the Property between 1930 and 2017.

Dates	Description
1890s	The Property was occupied by two residential buildings with one two-story building in between them.
1900s	The Property was occupied by two residential buildings with one two-story building in between them and remained relatively unchanged since the 1890s.
1910s	The Property was occupied by two residential buildings with one two-story building in between them and remained relatively unchanged since the 1890s.
1920s	The Property was occupied by two residential buildings with one two-story building in between them and remained relatively unchanged since the 1890s.
1930s	The Property was occupied by two residential buildings with one two-story building in between them and remained relatively unchanged since the 1890s.
1940s	The Property was occupied by two residential buildings with one two-story building in between them and remained relatively unchanged since the 1890s.
1950s	The Property was occupied by two residential buildings with one two-story building in between them and remained relatively unchanged since the 1890s.
1960s	The two-story building in between the two residential buildings was razed by 1964.
1970s	The Property was occupied by two residential buildings and remained relatively unchanged since the 1960s.
1980s	The Property was occupied by two residential buildings and remained relatively unchanged since the 1960s.
1990s	The two residential buildings were razed by 1996 and the Property became vacant.
2000s	The Property was vacant.
2010s	The Property was vacant.

3.2 Historical Use of the Adjoining Properties

The historical use of adjoining properties is summarized below.

<i>Dates</i>	<i>Description</i>
1890s	The adjoining properties to the north, east and west were occupied by residential buildings. The properties to the south at 36 Harvard Avenue and 285 Washington Street were vacant.
1900s	The adjoining properties remained relatively unchanged from the 1890s.
1910s	The adjoining properties remained relatively unchanged from the 1890s.
1920s	The adjoining properties remained relatively unchanged from the 1890s.
1930s	By 1930, the property to the south at 285 Washington Street was occupied by a filling station and a store. The property at 36 Harvard Avenue was occupied by a residential building. Adjoining properties to the north, east and west remained relatively unchanged as residential properties.
1940s	The adjoining properties remained relatively unchanged from the 1930s.
1950s	The adjoining properties remained relatively unchanged from the 1930s. The filling station building at 285 Washington was expanded and gasoline storage tanks are noted on the Sanborn map on the northwest corner of the property.
1960s	The adjoining properties remained relatively unchanged from the 1950s.
1970s	The adjoining properties remained relatively unchanged from the 1950s.
1980s	The residential building at 36 Harvard Avenue was razed by 1989. At 285 Washington Street, the storage tanks were no longer shown on the Sanborn maps and the filling station is labeled as vacant. The other adjoining properties remained relatively unchanged from the 1950s.
1990s	The adjoining properties remained relatively unchanged from the 1980s.
2000s	By 2002, the filling station at 285 Washington Street was renovated to include a new canopy over the pump stations in the center of the property. The other adjoining properties remained relatively unchanged from the 1980s.
2010s	The adjoining properties remained relatively unchanged from the 1990s.

3.3 Historical Use Information for Surrounding Area

The historical use of the surrounding area is summarized below.

<i>Dates</i>	<i>Description</i>
1890s	In the 1890s, the surrounding area to the north, east and west was primarily residential with some commercial properties to the east along Washington Street. The properties to the south were vacant.

Dates	Description
1900s	The surrounding area remained relatively unchanged from the 1890s.
1910s	The surrounding area remained relatively unchanged from the 1890s.
1920s	The surrounding area remained relatively unchanged from the 1890s.
1930s	By 1931, several commercial businesses were established in the surrounding area south, east, and west of the Property which included parking garages, a public library, a battery shop, an auto repair shop, and a movie theater. The area to the north remained residential. The street geometry changed slightly where Faxon Street was renamed Vassar Street and Harvard Avenue was established in between Vassar Street and Washington Street.
1940s	The surrounding area remained relatively unchanged from the 1930s.
1950s	The surrounding area remained relatively unchanged from the 1930s.
1960s	By 1964, the movie theater along Washington Street became a grocery store and the auto repair shop at 269 Washington became a filling station. The surrounding area remained relatively unchanged from the 1930s.
1970s	The surrounding area remained relatively unchanged from the 1960s.
1980s	Between 1964 and 1989, the private garage at 260 Washington Street was occupied by a sheet metal shop, however by 1989 the shop is labeled as vacant. Several commercial businesses and residential properties east of the Property, along Washington became vacant. The surrounding area to the north remained residential.
1990s	The vacant properties to the east along Washington Street became parking areas. The surrounding area remained relatively unchanged from the 1980s.
2000s	The surrounding area remained relatively unchanged from the 1990s.
2010s	The surrounding area remained relatively unchanged from the 1990s with residential properties to the north, east and west, and several commercial businesses along Washington Street, to the south, east and west.

4. Summary of Previous Environmental Reports

4.1 Phase I ESA - GEI, May 2023

We performed a Phase I ESA and issued the Phase I ESA report on May 5, 2023. We identified three RECs at the Property:

- There is a MassDEP disposal site at the adjacent property (285 Washington Street) approximately 100 feet south of the Property. This site has been used as a gasoline service station since at least 1931. In May 2001, a 72-hour reportable condition to MassDEP was discovered when organic vapors were detected in soil at concentrations exceeding 100 ppm by volume following the removal of seven USTs. This site is listed by MassDEP under RTN 3-20710.

After completing the remediation activities and post-remedial monitoring, the site achieved a condition of No Significant Risk based on a Method 3 Risk Characterization. The site was closed with a Class A-2 RAO (now referred to as a Permanent Solution Statement) in June 2004. Given the proximity of this site to the Property and historical data showing elevated concentrations of dissolved-phase petroleum constituents in groundwater at the northern property line closest to the Property, this site has the potential to affect conditions at the Property. This site constitutes an REC.

- There is a former MassDEQE (now referred to as MassDEP) disposal site at 258-260 Washington Street (RTN 3-104) approximately 315 feet northwest of the Property. This site was historically used by Atlantic Metal Industries, Inc., which provided specialty sheet metal work for the fabrication of commercial kitchen equipment. No plating or machine work was reportedly conducted. This site is associated with an unknown quantity of fuel oil or gasoline released from a UST and reported as Spill No. N86-0200. Subsurface investigations determined that soil and groundwater downgradient of the former UST was impacted with petroleum products. In March 1986, the UST was removed, along with limited excavation of petroleum-impacted soil. As of May 9, 1996, the site was classified by MassDEP as Not a Disposal Site, requiring no additional cleanup. Given the proximity of this site to the Property and residual petroleum impacts in soil and groundwater, this site has the potential to affect conditions at the Property. This site constitutes an REC.
- One historical dry cleaner was identified within 0.125 mile of the Property at 66 Harvard Avenue (Specialty Cleaners & Dyers). Based on information from EDR, the historical dry cleaner was approximately 70 feet from the Property and operated

between 1969 to 1974. Based on our review of the location of the historical dry cleaner compared to what is shown in Sanborn Maps, it is possible that the dry cleaner has been incorrectly located by EDR at the intersection of Washington Street and Harvard Avenue. However, due to the uncertainty of the information provided, we are unable to definitively determine where the drycleaner was located. Therefore, due to the proximity to the Property, the historical dry cleaner constitutes an REC.

5. Subsurface Investigation

5.1 Scope of Assessment

In May 2023, GEI performed a subsurface investigation to evaluate the RECs identified in Section 1.1. The subsurface investigation included:

- Boring advancement, soil sampling, and monitoring well installation (May 25 and 26, 2023).
- Groundwater sampling (June 6, 2023).

Each exploration location was used to evaluate soil and/or groundwater conditions associated with the identified contaminated MassDEP disposal sites and historical uses at the abutting and nearby properties including a gasoline service station, historical dry cleaner, and a sheet metal fabrication business.

5.2 Investigations

A description of our investigation is below. The sampling locations are shown on Fig. 2. A summary of geologic and hydrogeologic conditions is in Section 6.1.

During the subsurface investigations, we performed field screening of soil samples to evaluate the potential for contamination, and we collected groundwater samples for chemical testing.

5.2.1 Boring Advancement and Soil Sampling

On May 25 and 26, 2023, we observed G&M Subsurface, Inc. of West Dighton, Massachusetts (G&M) advanced three soil borings which were completed as monitoring wells. The borings were advanced using a Geoprobe rig fitted with hollow stem augers to depths between 19 to 20 feet below ground surface. Borings included GEI101, GEI102, and GEI103. Additional boring information is summarized in Table 1. The soil boring locations are shown in Fig. 2.

GEI was on site full time to log the borings and to screen soil samples for volatile organic compounds (VOCs) using the jar headspace method and a photoionization detector (PID). Jar headspace screening results are summarized on the boring logs in Appendix B, and boring stratigraphy is discussed in Section 6.1.1. Jar headspace screening results ranged from 0.0 to 0.6 ppm. The maximum jar headspace screening result of 0.6 ppm was observed in boring GEI101 from approximately 4 to 6 feet in a fill layer containing brick and glass

consistent with urban fill materials. This fill layer was above the observed estimated water table (approximately 10 feet below ground surface).

Because we did not observe visual or olfactory evidence of contamination in any of the soil samples, we did not submit any soil samples for laboratory analysis.

5.2.2 Monitoring Well Installation

Three soil borings were completed as 2-inch-diameter polyvinyl chloride (PVC) monitoring wells (GEI101(MW), GEI102(MW), and GEI103(MW)). The monitoring well locations are shown on Fig. 2 and 4, and the well installation logs are in Appendix B. The wells were screened across the estimated water table, where encountered, and each was finished with a steel road box mounted flush with the ground surface and surrounded by a concrete pad. Monitoring wells GEI101(MW) and GEI102(MW) are screened from 10 to 20 feet, and GEI103(MW) is screened from 6 to 16 feet. While the soil boring for GEI103(MW) was advanced to 19 feet below ground surface, the monitoring well could only be installed to a depth of 16 feet due to an obstruction in the borehole or possible cave-in.

The monitoring wells were developed on June 1, 2023. Each well was considered developed when water removed from the well was relatively free of fine-grained material, or until the well ran dry.

5.2.3 Groundwater Sampling

On June 6, 2023, GEI collected groundwater samples from newly installed monitoring wells. Monitoring wells GEI101(MW) and GEI102(MW) were sampled using a peristaltic pump and low-flow sampling techniques. Monitoring well GEI103(MW) was sampled using a peristaltic pump as grab samples since low flow purging could not be sustained. No evidence of olfactory or visual contamination was observed during groundwater sampling.

The groundwater samples were submitted to ESS Laboratory of Cranston, Rhode Island (ESS) for analysis of VOCs and volatile petroleum hydrocarbons (VPH). The samples from GEI101(MW) and GEI102(MW) were submitted for extractable petroleum hydrocarbon (EPH) fractions and target analytes. An EPH sample could not be collected from GEI103(MW) due to insufficient volume of groundwater in the well. The groundwater chemical testing results are summarized in Table 2 and the laboratory data report is in Appendix C.

6. Subsurface Investigation Results

6.1 Subsurface Conditions

6.1.1 Geology

The general shallow soil conditions encountered in the borings advanced at the Property as part of our subsurface investigation are summarized below starting at the ground surface. The soil conditions are known only at the boring locations. Conditions between borings may differ significantly from those described below.

- Topsoil: Approximately 6 to 12 inches of topsoil was present at in all boring locations.
- Fill: Fill was encountered in all boring locations to depths between 5 and 8 feet. The fill layer generally consisted of silty sand and contained brick and glass pieces.
- Till: Till was encountered below the fill layer in the soil borings. The till layer was observed as deep as 20 feet, the deepest any of the borings were advanced. The till layer generally consisted of varying amounts of fine to coarse sand and non-plastic fines with some gravel.

Bedrock was not encountered in the borings at the Property. However, bedrock at the Property is likely Roxbury Conglomerate based on the Bedrock Geologic Map of Massachusetts.

6.1.2 Hydrogeology

During our subsurface investigation, we measured the groundwater depths in the three newly installed monitoring wells (GEI101(MW) through GEI103(MW)). Groundwater depths from the top of the PVC wells ranged from 10.61 feet in GEI102(MW) to 13.73 feet in GEI103(MW). The measured groundwater depths and calculated elevations are summarized in Table 1. Groundwater elevation contours from our investigation are shown in Fig. 4.

Based on the groundwater elevation contours, groundwater flow at the Property is generally to the south-southwest, towards Washington Street.

6.2 Analytical Results

6.2.1 Soil

Soil samples were not collected for laboratory analysis.

6.2.2 Groundwater

The groundwater chemical testing results and comparisons to the applicable MCP GW-2 reportable concentrations in groundwater (RCGW-2) standards are summarized in Table 2. A summary of the groundwater testing results is below:

- VOCs: VOCs were not detected above laboratory reporting limits.
- VPH: C5 through C8 Aliphatics were detected in GEI101(MW) at a concentration of 158 micrograms per liter (ug/L), which is equal to the laboratory reporting limit and below the RCGW-2 standard of 3,000 ug/L. No other VPH fractions were detected above laboratory reporting limits.
- EPH: EPH fractions and target analytes were not detected above laboratory reporting limits.

6.3 Data Usability

It is our opinion that the appropriate environmental media were sampled from the appropriate locations and tested for the appropriate target analytes to meet the objective of the assessment. Therefore, the data collected during this Phase II ESA are usable for their intended objective.

7. Findings and Conclusions

Based on the results of our subsurface investigation, we have the following findings associated with the investigated RECs:

- Fill was encountered to depths between 5 and 8 feet in the soil borings. The fill layer generally consisted of silty sand and contained brick and glass pieces. Till was encountered below the fill layer and was observed as deep as 20 feet, the deepest any of the soil borings were advanced. The till layer generally consisted of varying amounts of fine to coarse sand and non-plastic fines with some gravel.
- Soil samples collected from borings did not show visual or olfactory evidence of contamination. The maximum jar headspace screening result of 0.6 ppm was observed in boring GEI101(MW) from approximately 4 to 6 feet in a fill layer containing brick and glass consistent with urban fill materials. This fill layer was above the estimated water table (approximately 10 feet below ground surface). For these reasons, we did not collect any soil samples for laboratory analysis.
- VPH fraction C5 through C8 aliphatics was detected at the laboratory reporting limit in groundwater from monitoring well GEI101(MW) at a concentration of 158 ug/L. This concentration is below the MassDEP RCGW-2 standard of 3,000 ug/L. No other VPH fractions were detected in the groundwater samples.
- Based on the testing performed, conditions at the Property do not appear to have been affected by the gasoline service station, the sheet metal factory, or the historical drycleaner.

8. References

EDR (2023). Certified Sanborn® Map Report, 282 284 Washington Street, Boston, MA 02108, Inquiry Number 7291456.3. Environmental Data Resources Inc., Shelton, Connecticut. March 28, 2023.

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EDR (2023). The EDR Historical Topo Map Report, 282 284 Washington Street, Boston, MA 02108, Inquiry Number 7291456.4. Environmental Data Resources Inc., Shelton, Connecticut. March 27, 2023.

GEI (2023). “Phase I Environmental Site Assessment, 282-284 Washington Street, Boston (Dorchester), Massachusetts,” May 5, 2023.

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Tables

Table 1. Boring and Monitoring Well Information
Phase II Environmental Site Assessment
282-284 Washington Street
Boston, Massachusetts

Boring or Monitoring Well ID	Drilling Method	Boring or Monitoring Well	Installation Date	Boring Depth (ft)	Ground Surface Elevation (ft)	Top of PVC Elevation (ft)	Depth to Groundwater (Top of PVC)	Groundwater Elevation (ft)	Well Screen Depth Interval (ft)
GEI101(MW)	Geoprobe rig fitted with HSA	Monitoring Well	5/25/2023	20	100	99.63	10.8	88.83	10-20
GEI102(MW)	Geoprobe rig fitted with HSA	Monitoring Well	5/26/2023	20	100.47	100.24	10.61	89.63	10-20
GEI103(MW)	Geoprobe rig fitted with HSA	Monitoring Well	5/26/2023	19	110.78	110.59	13.73	96.86	6-16

General Notes:

1. bgs = Below ground surface
2. Depth to groundwater measured on June 6, 2023.
3. Elevations are based on an arbitrary site datum of 100 feet.
4. HSA = Hollow Stem Augers

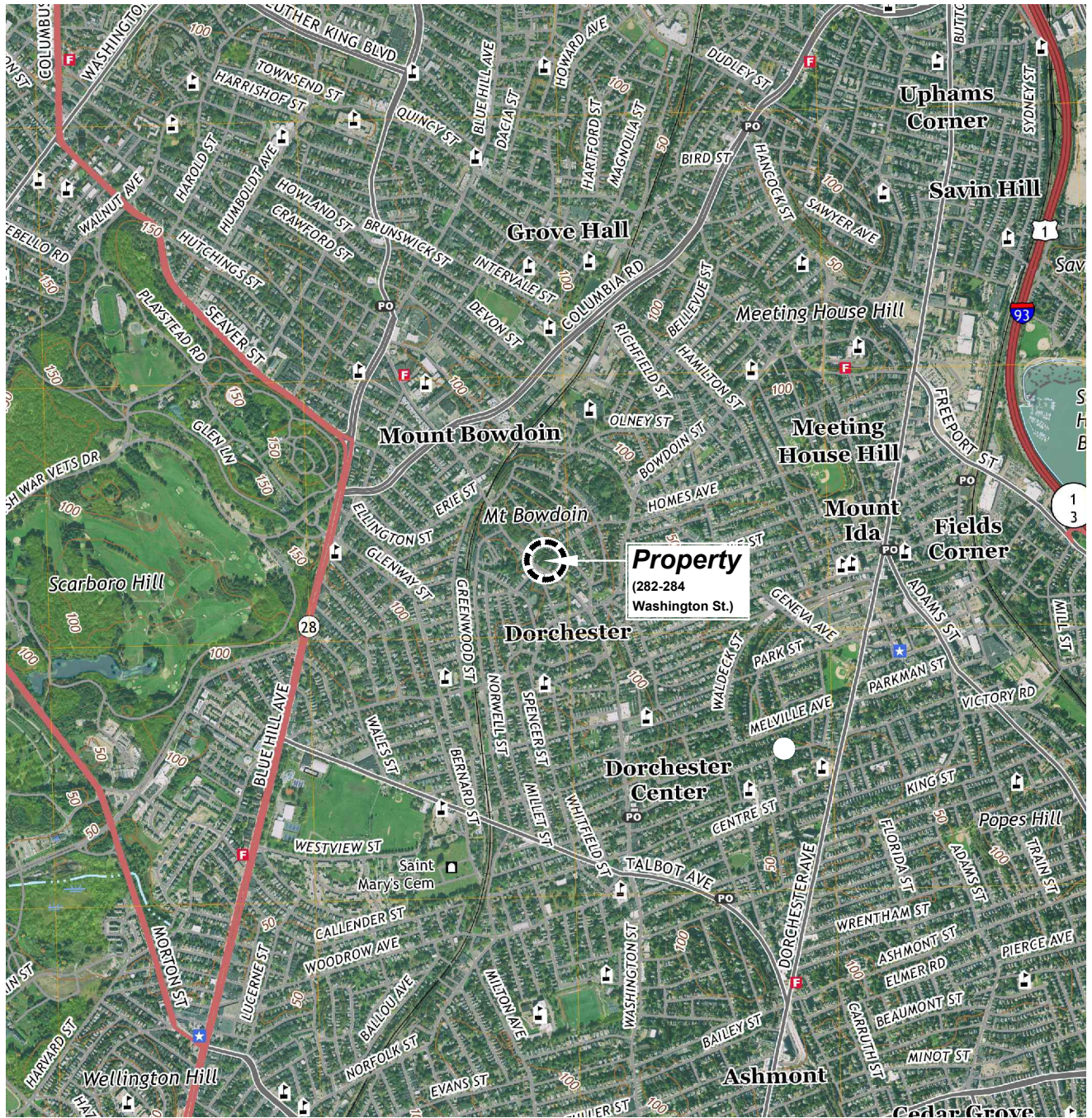
Table 2. Chemical Testing Results - Groundwater
Phase II Environmental Site Assessment
282-284 Washington Street
Boston, Massachusetts

						Sample Location:	GEI101(MW)	GEI102(MW)	GEI103(MW)
						Sample ID:	2301269-GEI101-MW	2301269-GEI102-MW	2301269-GEI103-MW
						Screened Interval (feet):	10-20	10-20	6-16
						Sample Date:	6/6/2023	6/6/2023	6/6/2023
Analyte	Method	Units	MCP RCGW-2	Method 1 GW-2 Standards	Method 1 GW-3 Standards				
Volatile Organic Compounds (VOCs)	8260B	ug/L							
Total VOCs			NS	NS	NS	ND	ND	ND	
Volatile Petroleum Hydrocarbons (VPH)	MAVPH	ug/L							
C5-C8 Aliphatics			3,000	3,000	50,000	158	<158	<158	
C9-C12 Aliphatics			5,000	5,000	50,000	<270	<270	<270	
C9-C10 Aromatics			4,000	4,000	50,000	<100	<100	<100	
Extractable Petroleum Hydrocarbons (EPH)	MAEPH	ug/L						NT	
C9-C18 Aliphatics			5,000	5,000	50,000	<93	<93		
C19-C36 Aliphatics			50,000	NS	50,000	<93	<93		
C11-C22 Aromatics			5,000	50,000	5,000	<93.5	<93.5		

General Notes:

1. In general, analytes detected in at least one sample are reported here. For a complete list of analytes see the laboratory data sheets.
2. "<" = The analyte was not detected at a concentration above the specified laboratory reporting limit.
3. MCP = 310 CMR 40.0000 Massachusetts Contingency Plan with revisions effective December 27, 2019.
4. NS = No standard or criteria has been established for this analyte.
5. ND = Not detected.
6. NT = Not tested
7. ug/L= micrograms per liter

Figures



This Image is from U.S.G.S. Topographic 7.5 Minute Series Boston South, MA Quadrangle, 2021.
Datum is North American Vertical Datum of 1988 (NAVD88).
Contour Interval is 10 Feet.



Phase II Environmental Site Assessment
282-284 Washington Street
Boston (Dorchester), Massachusetts



PROPERTY LOCATION MAP

Boston Mayor's Office of Housing
Boston, Massachusetts

Project 2301269

June 2023

Fig. 1



Phase II Environmental Site Assessment
282-284 Washington Street
Boston (Dorchester), Massachusetts

Boston Mayor's Office of Housing
Boston, Massachusetts



EXPLORATION LOCATION
PLAN

Project 2301269

June 2023

Fig. 2

MassDEP - Bureau of Waste Site Cleanup

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

Site Information:
282-284 WASHINGTON STREET
282-284 WASHINGTON STREET BOSTON, MA

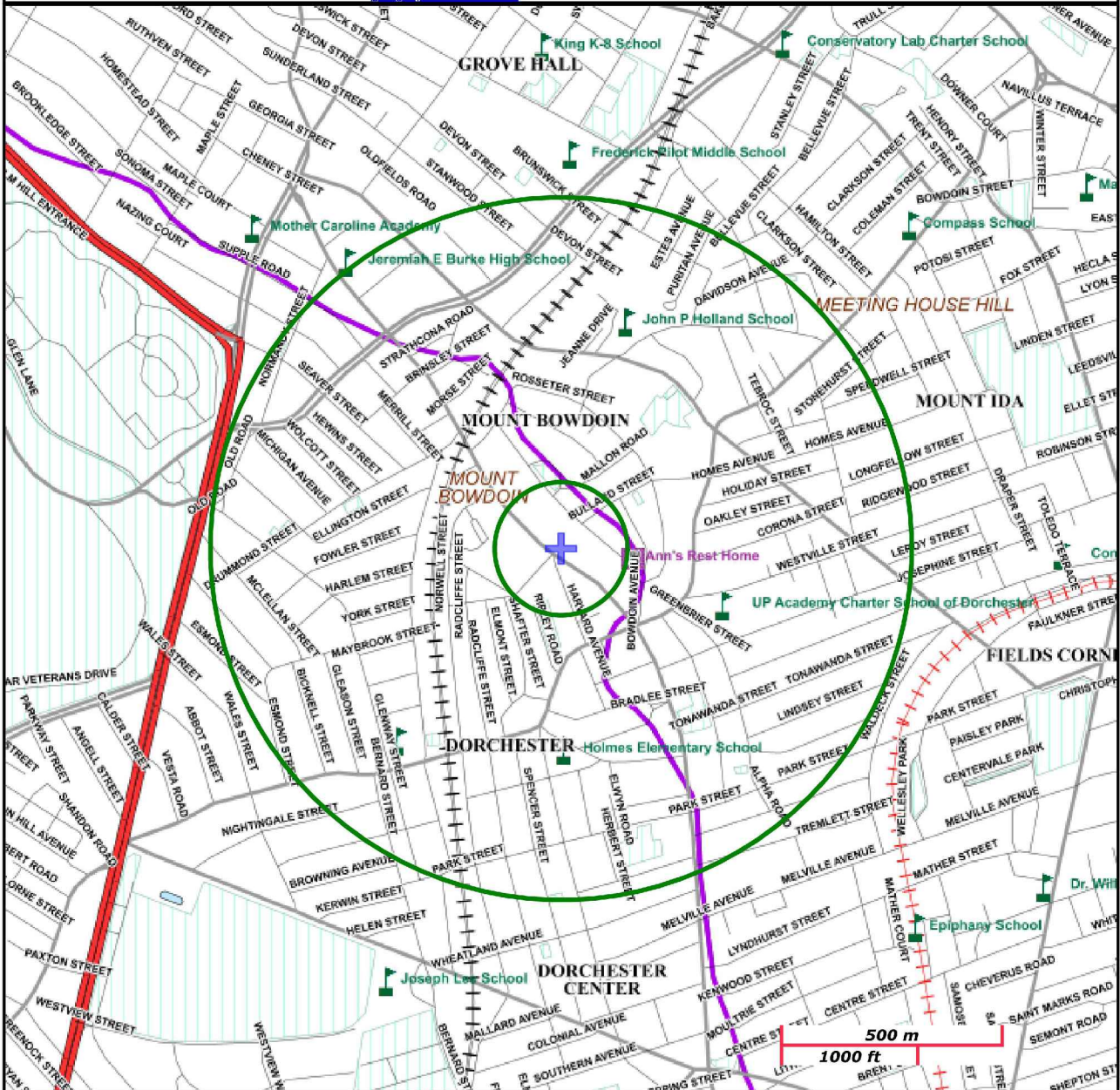
NAD83 UTM Meters:
4685278mN , 328903mE (Zone: 19)
April 13, 2023

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

Phase II Environmental Site Assessment
282-284 Washington Street
Boston (Dorchester), Massachusetts

Boston Mayor's Office of Housing
Boston, Massachusetts

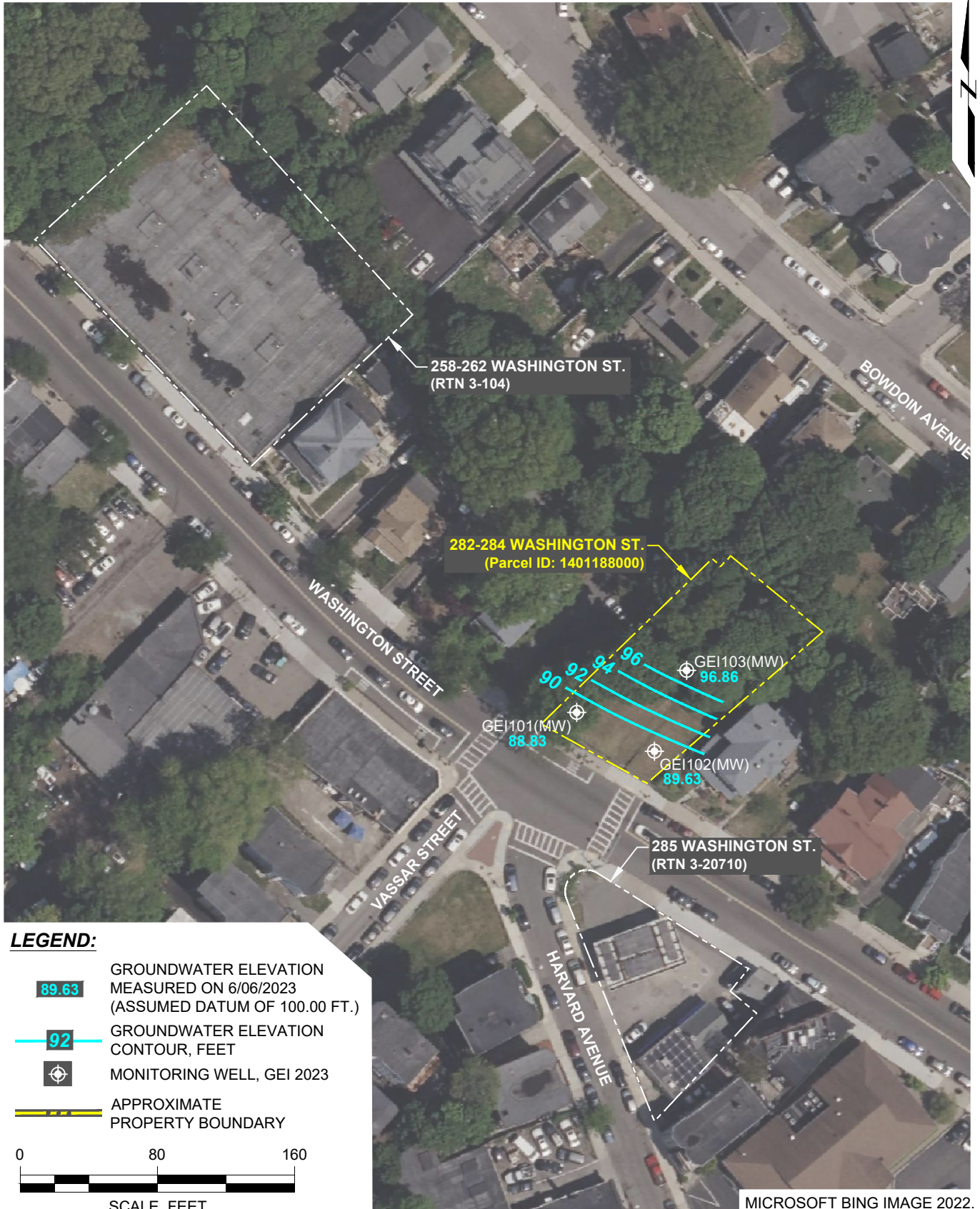


Project 2301269

MASSGIS MAP


June 2023

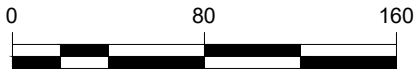
Fig. 3



MICROSOFT BING IMAGE 2022.

LEGEND:

- 89.63 GROUNDWATER ELEVATION MEASURED ON 6/06/2023 (ASSUMED DATUM OF 100.00 FT.)
- GROUNDWATER ELEVATION CONTOUR, FEET
-  MONITORING WELL, GEI 2023
- APPROXIMATE PROPERTY BOUNDARY



SCALE, FEET

Phase II Environmental Site Assessment
282-284 Washington Street
Boston (Dorchester), Massachusetts

Boston Mayor's Office of Housing
Boston, Massachusetts



GROUNDWATER ELEVATION
CONTOUR PLAN

Project 2301269

June 2023

Fig. 4

Appendix A

Standard Professional Services Agreement



STANDARD PROFESSIONAL SERVICES AGREEMENT

1. AGREEMENT

This Agreement is made and entered into by and between

GEI Consultants, Inc.

400 Unicorn Park Drive, Woburn, MA 01801

and

By this Agreement, the parties do mutually agree as follows:

2. SCOPE OF SERVICES

GEI shall perform the services described herein and in **Exhibit A**.

3. EFFECTIVE DATE

The effective date of this Agreement shall be the latter of the acceptance dates indicated in Article 16, Acceptance. Acceptance of this Agreement by both parties shall serve as GEI's Notice to Proceed with the services described in **Exhibit A**.

4. FORCE MAJEURE

- a) Force Majeure "Event of Force Majeure" means an event beyond the control of GEI and CLIENT, which prevents a Party from complying with any of its obligations under this Agreement, including but not limited to, acts of God (such as, but not limited to, fires, explosions, earthquakes, drought, tidal waves and floods, epidemics, war, hostilities, acts of terrorism, riot, commotion, strikes, go slows, lock outs or disorder, unless solely restricted to employees of GEI or its subcontractors.
- b) Neither CLIENT nor GEI shall be considered in breach of this Agreement to the extent that performance of their respective obligations (excluding payment obligations) is prevented by an event of Force Majeure. Either CLIENT or GEI shall give written notice to the other upon becoming aware of an Event of Force Majeure.

5. COMPENSATION

- a) CLIENT agrees to pay GEI in accordance with the payment terms provided in **Exhibit B** but in no event later than thirty (30) days of CLIENT's receipt of invoice.
- b) GEI will submit invoices monthly or upon completion of a specified scope of service in accordance with GEI's standard invoicing practices, or as otherwise provided in **Exhibit B**.
- c) Payment is due upon receipt of the invoice. Payments will be made by either check or electronic transfer to the address specified by GEI, and will reference GEI's invoice number.
- d) Interest will accrue at the rate of 1% per month of the invoiced amount in excess of thirty (30) days past the invoice date, or as otherwise provided in **Exhibit B**.
- e) In the event of a disputed or contested invoice, only that portion so contested will be withheld from payment, and the undisputed amounts will be paid.

6. PERFORMANCE STANDARDS

- a) GEI will perform its services under this Agreement in a manner consistent with that degree of skill and care ordinarily exercised by members of GEI's profession currently practicing in the same locality under similar conditions. GEI makes no other representations and no warranties, either express or implied, regarding the services provided hereunder.
- b) GEI shall correct deficiencies in services or documents provided under this Agreement without additional cost to CLIENT; except to the extent that such deficiencies are directly attributable to deficiencies in CLIENT-furnished information.

STANDARD PROFESSIONAL SERVICES AGREEMENT

- c) Unless otherwise specifically indicated in writing, GEI shall be entitled to rely, without liability, on the accuracy and completeness of information provided by CLIENT, CLIENT's consultants and contractors, and information from public records, without the need for independent verification.
- d) CLIENT agrees to look solely to the manufacturer or provider to enforce any warranty claims arising from any equipment, materials or other goods provided as a component of GEI's services.

7. INSURANCE

- a) GEI will carry the types and amounts of insurance in the usual form as provided in **Exhibit C**.
- b) Upon written request of CLIENT, GEI will furnish Certificates of Insurance indicating the required coverages and conditions.

8. ALLOCATION OF RISKS

- a) Indemnification. To the fullest extent permitted by law, GEI agrees to indemnify and hold CLIENT harmless from and against liabilities, claims, damages, and costs (including reasonable attorney's fees) to the extent caused by the negligence or willful misconduct of GEI in the performance of services under this Agreement.
- b) Limitation of Liability. To the fullest extent permitted by law, the total liability, in the aggregate, of GEI and its officers, directors, employees, agents, and independent professional associates and consultants, and any of them, to CLIENT and any one claiming by, through or under CLIENT, for any and all injuries, claims, losses, expenses, or damages whatsoever arising out of or in any way related to GEI's services, the project, or this Agreement, will not exceed the total compensation received by GEI under the specific applicable project and/or task order, or Fifty Thousand Dollars (\$50,000) whichever is less. This limitation will apply regardless of legal theory, and includes but is not limited to claims or actions alleging negligence, errors, omissions, strict liability, breach of contract, breach of warranty of GEI or its officers, directors, employees, agents, or independent professional associates or consultants, or any of them. CLIENT further agrees to require that all contractors and subcontractors agree that this limitation of GEI's liability extends to include any claims or actions that they might bring in any forum.
- c) Consequential Damages. GEI and CLIENT waive consequential damages, including but not limited to damages for loss of profits, loss of revenues, and loss of business or business opportunities, for claims, disputes, or other matters in question arising out of or relating to this Agreement.

9. CONFIDENTIALITY

- a) Unless compelled by law, governmental agency or authority, or order of a court of competent jurisdiction, or unless required pursuant to a subpoena deemed by GEI to be duly issued, or unless requested to do so in writing by CLIENT, GEI agrees it will not convey to others any proprietary non-public information, knowledge, data, or property relating to the business or affairs of CLIENT or of any of its affiliates, which is in any way obtained by GEI during its association with CLIENT. GEI further agrees to strive to limit, to a "need to know" basis, access by its employees to information referred to above.
- b) Unless compelled by law, governmental agency or authority, or order of a court of competent jurisdiction, or unless required pursuant to a subpoena deemed by CLIENT to be duly issued, CLIENT will not release to its employees or any other parties any concepts, materials, or procedures of GEI deemed by GEI to be proprietary and so explained to CLIENT.

10. OWNERSHIP OF DOCUMENTS

Drawings, diagrams, specifications, calculations, reports, processes, computer processes and software, operational and design data, and all other documents and information produced in connection with the project as instruments of service (Project Documents), regardless of form, will be confidential and the proprietary information of GEI, and will remain the sole and exclusive property of GEI whether the project for which they are made is executed or not. CLIENT retains the right to use Project Documents for the



STANDARD PROFESSIONAL SERVICES AGREEMENT

furtherance of the project consistent with the express purpose(s) of the Project Documents, and for CLIENT's information and reference in connection with CLIENT's use and occupancy of the project. Any use of Project Documents for purposes other than those for which they were explicitly prepared shall be at CLIENT's sole risk and liability. CLIENT agrees to defend, indemnify, and hold GEI harmless from and against any claims, losses, liabilities, and damages arising out of or resulting from the unauthorized use of Project Documents.

11. TERMINATION AND SUSPENSION

- a) This Agreement may be terminated by CLIENT for any reason upon ten (10) days written notice to GEI.
- b) This Agreement may be terminated by GEI for cause upon thirty (30) days written notice to CLIENT.
- c) In the event that this Agreement is terminated for any reason, CLIENT agrees to remit just and equitable compensation to GEI for services already performed in accordance with this Agreement, subject to the limitations given in this Article 11, Termination and Suspension.
- d) In the event Client terminates this Agreement for cause, in determining just and equitable compensation to GEI for work already performed, CLIENT may reduce amounts due to GEI by amounts equal to additional costs incurred by CLIENT to complete the Agreement scope. Such additional costs incurred by CLIENT may include but are not limited to: (1) the additional costs incurred by CLIENT to engage another qualified consultant to complete the unfinished scope; and (2) CLIENT's labor costs and expenses to demobilize and remobilize its personnel to the site to coordinate with the new consultant.
- e) GEI may suspend any or all services under this Agreement if CLIENT fails to pay undisputed invoice amounts within sixty (60) days following invoice date, by providing written notice to CLIENT, until payments are restored to a current basis. In the event GEI engages counsel to enforce overdue payments, CLIENT will reimburse GEI for all reasonable attorney's fees and court costs related to enforcement of overdue payments, provided that CLIENT does not have a good faith dispute with the invoice. CLIENT will indemnify and save GEI harmless from any claim or liability resulting from suspension of the work due to non-current, undisputed payments.

12. DISPUTE RESOLUTION

Both parties agree to submit any claims, disputes, or controversies arising out of or in relation to the interpretation, application, or enforcement of this Agreement to non-binding mediation pursuant to the Rules for Commercial Mediation of the American Arbitration Association, as a condition precedent to litigation or any other form of dispute resolution.

13. GENERAL CONSIDERATIONS

- a) Authorized Representatives. The following individuals are authorized to act as CLIENT's and GEI's representatives with respect to the services provided under this Agreement:

For CLIENT:

For GEI:

400 Unicorn Park Drive, Woburn, MA 01801

- b) Nothing in this Agreement shall be construed as establishing a fiduciary relationship between CLIENT and GEI.
- c) Notices. Any notice required under this Agreement will be in writing, submitted to the respective party's Authorized Representative at the address provided in this Article 13, General Considerations. Notices shall be delivered by registered or certified mail postage prepaid, or by commercial courier service. All notices shall be effective upon the date of receipt.

STANDARD PROFESSIONAL SERVICES AGREEMENT

- d) Controlling Law. This Agreement is to be governed by the laws of the Commonwealth of Massachusetts.
- e) Survival. All express representations, indemnifications, or limitations of liability included in the Agreement will survive its completion or termination for any reason. However, in no event shall indemnification obligations extend beyond the date when the institution of legal or equitable proceedings for professional negligence would be barred by an applicable statute of repose or statute of limitations.
- f) Severability. Any provision or part of this Agreement held to be void or unenforceable under any law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon GEI and CLIENT.
- g) Waiver. Non-enforcement of any provision by either party shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement.
- h) Headings. The headings used in this Agreement are for general reference only and do not have special significance.
- i) Certifications. GEI shall not be required to sign any documents, no matter by whom requested, that would result in GEI having to certify, guaranty, or warrant the existence of conditions or the suitability or performance of GEI's services or the project, that would require knowledge, services or responsibilities beyond the scope of this Agreement.
- j) Third Parties. Nothing contained in this Agreement shall create a contractual relationship with, or a cause of action in favor of, a third party against either CLIENT or GEI. GEI's services hereunder are being performed solely for the benefit of CLIENT, and no other entity shall have any claim against GEI because of this Agreement or GEI's performance of services hereunder. CLIENT shall indemnify and hold GEI harmless from any claims by any third parties that arise from the CLIENT's release of any Project Documents by CLIENT.

14. ADDITIONAL PROVISIONS

- a) If Field Services are provided under this Agreement, the additional provisions included in **Exhibit D** shall apply. Field Services are defined as services performed on property owned or controlled by CLIENT, any federal, state, or local government or governmental agency, or other third party, and include, but are not limited to: site inspection, site investigation, subsurface investigation, sample collection, or sample testing.
- b) If the services of a Licensed Site Professional (LSP), a Licensed Environmental Professional (LEP), or a Licensed Site Remediation Professional (LSRP) are provided under this Agreement, the additional provisions included in **Exhibit E** shall apply.
- c) If Engineering Design Services are provided under this Agreement, the additional provisions included in **Exhibit F** shall apply.
- d) If Opinions of Probable Construction Cost are provided under this Agreement, the additional provisions included in **Exhibit G** shall apply.
- e) If Construction Services are provided under this Agreement, the additional provisions included in **Exhibit H** shall apply.
- f) If applicable, all samples collected will be retained for a period of **60 days**, after which time they will be discarded unless other specific instructions as to their disposition are received from the client

15. EXHIBITS

The following Exhibits are attached to and made a part of this Agreement:

- Exhibit A, Scope of Services and Schedule
- Exhibit B, Payment Terms
- Exhibit C, Insurance
- Exhibit D, Special Provisions for Field Services
- Exhibit E, Special Provisions for Services of Licensed Site/Environmental/Remediation Professionals



STANDARD PROFESSIONAL SERVICES AGREEMENT

- Exhibit F, Special Provisions for Engineering Design Services
- Exhibit G, Special Provisions for Opinions of Probable Construction Costs
- Exhibit H, Special Provisions for Construction Services

(Check all that apply; strike all that do not apply)

16. ACCEPTANCE

The parties hereto have executed this Agreement as of the dates shown below.

For CLIENT:

For GEI:

By: _____

By: _____

(Signature)

(Signature)

(Print Name)

(Print Name)

(Title)

(Title)

(Date)

(Date)

EXHIBIT A

Scope of Services and Schedule

See Attached Letter Proposal Dated _____.

EXHIBIT B

Payment Terms

See Attached Letter Proposal Dated _____.

EXHIBIT C

Insurance

GEI will carry the following types and amounts of insurance:

A. Worker's Compensation and Employer's Liability (statutory):

1. In accordance with the laws of the state(s) in which services are performed.

B. Commercial General Liability (CGL) Insurance:

1. Bodily Injury and Property Damage Combined: \$1,000,000 per occurrence and in aggregate.
2. Including explosion, underground drilling excavation, and collapse hazards.
3. Including an endorsement providing Additional Insured Status to CLIENT under the policy.

- C. Comprehensive Automobile Insurance:
 - 1. Bodily Injury and Property Damage Combined: \$1,000,000 per accident.
 - 2. Includes all owned, nonowned, and hired vehicles used in connection with the services under this Agreement.
- D. Professional Liability Insurance:
 - 1. \$1,000,000 per claim and in aggregate.

EXHIBIT D

Special Provisions for Field Services

- A. Right of Entry. CLIENT agrees to furnish GEI with right-of-entry and a plan of boundaries of the site where GEI will perform its services. If CLIENT does not own the site, CLIENT represents and warrants that it will obtain permission for GEI's access to the site to conduct site reconnaissance, surveys, borings, and other explorations of the site pursuant to the scope of services in the Agreement. GEI will take reasonable precautions to minimize damage to the site from use of equipment, but GEI is not responsible for damage to the site caused by normal and customary use of equipment. The cost for restoration of damage that may result from GEI's operations has not been included in GEI's fee, unless specifically stated in **Exhibit B**.
- B. Underground structures. CLIENT will identify locations of buried utilities and other underground structures in areas of subsurface exploration. GEI will take reasonable precautions to avoid damage to the buried utilities and other underground structures noted. If locations are not known or cannot be confirmed by CLIENT, then there will be a degree of risk to CLIENT associated with conducting the exploration. In the absence of confirmed underground structure locations, CLIENT agrees to accept the risk of any damages and losses resulting from the exploration work and shall indemnify and hold GEI, its subconsultants and employees harmless from all claims, losses or damages arising from GEI's services involving subsurface exploration.
- C. Presence of Hazardous Materials. If unanticipated hazardous waste, oil, asbestos, or other hazardous materials, as defined by federal, state, or local laws or regulations, and if such materials are discovered during GEI's work, CLIENT agrees to negotiate appropriate revisions to the scope, schedule, budget, and terms and conditions of this Agreement. When such hazardous materials are suspected, GEI will have the option to stop work, without financial penalty, until a modification to this Agreement is made or a new Agreement is reached. If a mutually satisfactory Agreement cannot be reached between both parties, this Agreement will be terminated without cause and CLIENT agrees to pay GEI for all services rendered up to the date of termination, including any costs associated with termination.
- D. Disposal of Samples and Wastes Containing Regulated Contaminants. In the event that samples collected by GEI or provided by CLIENT, or wastes generated as a result of site investigation activities, contain or potentially contain substances or constituents which are or may be regulated contaminants as defined by federal, state, or local statutes, regulations, or ordinances, including but not limited to samples or wastes containing hazardous materials, said samples or wastes remain the property of CLIENT and CLIENT will have responsibility for them as a generator. If set forth in the Agreement, GEI will, at CLIENT's expense and as CLIENT's appointed agent, perform necessary testing, and either (a) return said samples and wastes to CLIENT, or (b) using a manifest signed by CLIENT as generator, have said samples and/or wastes transported to a location selected by CLIENT for disposal. CLIENT agrees to pay all costs associated with the storage, transport and disposal of said samples and/or wastes. Unless otherwise provided in the Agreement, GEI will not transport, handle, store, or dispose of waste or samples or arrange or subcontract for waste or sample transport, handling, storage, or disposal. CLIENT recognizes and agrees that GEI is working as a bailee and/or agent and at no time

STANDARD PROFESSIONAL SERVICES AGREEMENT

assumes title to said waste or samples or any responsibility as generator of said waste or samples. Further, CLIENT agrees to look solely to any transport or disposal entity in the event any claim, cause of action or damages arise from GEI's activities as a bailee or agent of CLIENT under this provision.

- E. Contribution of Hazardous Materials. CLIENT agrees that GEI has not contributed to the presence of hazardous wastes, oils, asbestos, biological pollutants such as molds, fungi, spores, bacteria and viruses, and by-products of any such biological organisms, or other hazardous materials that may exist or be discovered in the future at the site. GEI does not assume any liability for the known or unknown presence of such materials. GEI's scope of services does not include the investigation or detection of biological pollutants such as molds, fungi, spores, bacteria and viruses, and by-products of any such biological organisms. CLIENT agrees to indemnify and hold harmless GEI, its subconsultants, subcontractors, agents, and employees from and against all claims, damages, losses, and costs (including reasonable attorneys' fees) that may result from the detection, failure to detect, or from the actual, alleged, or threatened discharge, dispersal, release, escape, or exposure to any solid, liquid, gaseous, or thermal irritant, asbestos in any form, or contaminants including smoke, vapor, soot, fumes, acids, alkalies, chemicals, waste, oil, hazardous materials, or biological pollutants. CLIENT's obligations under this paragraph apply unless such claims, damages, losses, and expenses are caused by GEI's sole negligence or willful misconduct.

EXHIBIT E

Special Provisions for Services of Licensed Site/Environmental Professionals

For services under this Agreement that require the engagement of a Licensed Site Professional (LSP), a Licensed Environmental Professional (LEP), or a Licensed Site Remediation Professional (LSRP) registered with and subject to the laws and regulations promulgated by the state in which the services are provided (collectively the LSP/LEP/LSRP Program), the following will apply:

- A. Under the LSP/LEP/LSRP Program, the LSP/LEP/LSRP owes professional obligations to the public, including, in some instances, a duty to disclose the existence of certain contaminants to the state in which the services are provided.
- B. CLIENT understands and acknowledges that in the event that the licensed professional's obligations under the LSP/LEP/LSRP Program conflict in any way with the terms and conditions of this Agreement or the wishes or intentions of CLIENT, the licensed professional is bound by law to comply with the requirements of the LSP/LEP/LSRP Program. CLIENT recognizes that the licensed professional is immune from civil liability resulting from any such actual or alleged conflict.
- C. CLIENT agrees to indemnify and hold GEI harmless from any claims, losses, damages, fines, or administrative, civil, or criminal penalties resulting from the licensed professional's fulfillment of the licensed professional's obligations under the LSP/LEP/LSRP Program.

EXHIBIT F

Special Provisions for Engineering Design Services

- A. Design Without Construction Phase Services. CLIENT understands and agrees that if GEI's services under this Agreement include engineering design and do not include Construction-Related Services, then CLIENT:
 - 1. Assumes all responsibility for interpretation of the construction Contract Documents.
 - 2. Assumes all responsibility for construction observation and review.
 - 3. Waives any claims against GEI that may be in any way connected thereto.

STANDARD PROFESSIONAL SERVICES AGREEMENT

For purposes of this Agreement, Construction-Related Services include, but are not limited to: construction observation; review of the construction contractor's technical submittals; review of the construction contractor's progress; or other construction-phase services.

B. Use of Documents.

1. The actual signed and sealed hardcopy construction Contract Documents including stamped drawings, together with any addenda or revisions, are and will remain the official copies of all documents.
2. All documents including drawings, data, plans, specifications, reports, or other information recorded on or transmitted as Electronic Files are subject to undetectable alteration, either intentional or unintentional, due to transmission, conversion, media degradation, software error, human alteration, or other causes.
3. Electronic Files are provided for convenience and informational purposes only and are not a finished product or Contract Document. GEI makes no representation regarding the accuracy or completeness of any accompanying Electronic Files. GEI may, at its sole discretion, add wording to this effect on electronic file submissions.
4. CLIENT waives any and all claims against GEI that may result in any way from the use or misuse, unauthorized reuse, alteration, addition to, or transfer of the electronic files. CLIENT agrees to indemnify and hold harmless GEI, its officers, directors, employees, agents, or subconsultants, from any claims, losses, damages, or costs (including reasonable attorney's fees) which may arise out of the use or misuse, unauthorized reuse, alteration, addition to, or transfer of electronic files.

EXHIBIT G

Special Provisions for Opinions of Probable Construction Costs

GEI's Opinions of Probable Construction Cost provided under this Agreement are made on the basis of GEI's experience and qualifications, and represent GEI's best judgment as an experienced and qualified professional generally familiar with the industry. However, since GEI has no control over the cost of labor, materials, equipment, or services furnished by others, or over a contractor's methods of determining prices, or over competitive bidding or market conditions, GEI cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from Opinions of Probable Construction Cost prepared by GEI.

If CLIENT wishes greater assurance as to probable construction costs, CLIENT agrees to employ an independent cost estimator.

EXHIBIT H

Special Provisions for Construction Services

In accordance with the scope of services under this Agreement, GEI will provide personnel to observe the specific aspects of construction stated in the Agreement and to ascertain that construction is being performed, in general, in accordance with the approved construction Contract Documents.

- A. GEI cannot provide its opinion on the suitability of any part of the work performed unless GEI's personnel make measurements and observations of that part of the construction. By performing construction observation services, GEI does not guarantee the contractor's work. The contractor will remain solely responsible for the accuracy and adequacy of all construction or other activities performed by the contractor,

STANDARD PROFESSIONAL SERVICES AGREEMENT

including: methods of construction; supervision of personnel and construction; control of machinery; false work, scaffolding, or other temporary construction aids; safety in, on, or about the job site; and compliance with OSHA and construction safety regulations and any other applicable federal, state, or local laws or regulations.

- B. In consideration of any review or evaluation by GEI of the various bidders and bid submissions, and to make recommendations to CLIENT regarding the award of the construction Contract, CLIENT agrees to hold harmless and indemnify GEI for all costs, expenses, damages, and attorneys' fees incurred by GEI as a result of any claims, allegations, administrative proceedings, or court proceedings arising out of or relating to any bid protest or such other action taken by any person or entity with respect to the review and evaluation of bidders and bid submissions or recommendations concerning the award of the construction Contract. This paragraph will not apply if GEI is adjudicated by a court to have been solely negligent or to have actually engaged in intentional and willful misconduct without legitimate justification, privilege, or immunity; however, CLIENT will be obligated to indemnify GEI until any such final adjudication by a court of competent jurisdiction.

Appendix B

Boring Logs and Monitoring Well Installation Logs

BORING INFORMATION

LOCATION: 282-284 Washington Street
 GROUND SURFACE EL. (ft): 100 DATE START/END: 5/25/2023 - 5/25/2023
 VERTICAL DATUM: Arbitrary DRILLING COMPANY: G&M
 TOTAL DEPTH (ft): 20.0 DRILLER NAME: B. Wilson
 LOGGED BY: A. Bilas RIG TYPE: Geoprobe

**BORING
 GEI101(MW)**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic CASING I.D./O.D.: 2 inch / 2.125 inch CORE BARREL TYPE:
 AUGER I.D./O.D.: 4.25 inch / 7.625 inch DRILL ROD O.D.: NM CORE BARREL I.D./O.D. NA / NA
 DRILLING METHOD: Geoprobe then Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): 10.8 6/6/2023 11:23 am

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
95	5	S1	0 to 2	24/11	1-1-1-1	0.0 ppm (from 0-5") 0.0 ppm (from 5-11")	FILL	S1 (0-5"): SILTY SAND (SM); ~70% fine sand, ~25% nonplastic fines, ~5% subrounded gravel up to 0.5", dry, brown, contains roots. TOPSOIL. S1 (5-11"): SILTY SAND (SM); ~70% fine sand, ~25% nonplastic fines, ~5% subrounded gravel up to 0.5", dry, brown, contains brick and glass. S2 (0-5"): Similar to S2 (5-11"). S2 (5-12"): SILTY SAND (SM); ~60% fine sand, ~40% nonplastic fines, <5% subrounded gravel up to 0.5", light brown, dry. S3 (0-6"): Similar to S2 (0-5").
		S2	2 to 4	24/12	3-1-1-2	0.0 ppm (from 0-5") 0.0 ppm (from 5-12")		
		S3	4 to 6	24/12	3-3-7-15	0.6 ppm (from 0-6") 0.0 ppm (from 6-12")		
		S4	6 to 8	24/0	24-28-33-31			S3 (6-12"): SILTY SAND WITH GRAVEL (SM); ~50% fine sand, ~35% nonplastic fines, ~15% angular gravel up to 1.25", light brown, dry. S4: No recovery.
		S5	8 to 10	24/21	22-25-30-34	0.0 ppm		S5 (0-21"): SILTY SAND WITH GRAVEL (SM); ~45% fine sand, ~35% nonplastic fines, ~20% subrounded to subangular gravel up to 1", light brown, dry.
	10	S6	10 to 12	24/24	16-24-2-16	0.0 ppm	TILL	S6 (0-24"): SILTY SAND WITH GRAVEL (SM); ~55% fine to course sand, ~30% nonplastic fines, ~15% subangular to subrounded gravel, light brown, dry.
		S7	12 to 14	24/19	20-16-15-13	0.0 ppm		S7 (0-19"): NARROWLY GRADED SAND WITH SILT (SP-SM); ~80% fine to medium sand (some course sand grains), ~10% nonplastic fines, ~10% subangular to subrounded gravel up to 0.5", light brown. From 0-6" material is dry, from 6-17" material is moist, from 17-19" material is wet.
		S8	14 to 16	24/19	12-14-18-23	0.0 ppm		S8 (0-19"): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% fine to medium sand (some course sand grains), ~15% subangular gravel, ~10% nonplastic fines, light brown. From 0-9", material is moist, from 9-19" material is wet.
		S9	16 to 18	24/24	22-30-32-41	0.0 ppm		S9 (0-24"): Similar to S8, light brown, wet.
		S10	18 to 20	24/19	28-29-25-23	0.0 ppm		S10 (0-19"): SILTY SAND (SM); ~65% fine to coarse sand, ~25% subangular to subrounded gravel up to 1", ~10% nonplastic fines, brown, wet.
80	20						End of boring at 20 ft below ground surface.	

NOTES: No environmental samples collected.

PROJECT NAME: 282-284 Washington Street Phase II
 ESA

CITY/STATE: Boston, Massachusetts
 GEI PROJECT NUMBER: 2301269



GEI WOBURN STD 1-LOCATION-LAYER NAME_BORING LOGS.GPJ 6/27/23

BORING INFORMATION

LOCATION: 282-284 Washington Street
 GROUND SURFACE EL. (ft): 100.47 DATE START/END: 5/25/2023 - 5/26/2023
 VERTICAL DATUM: Arbitrary DRILLING COMPANY: G&M
 TOTAL DEPTH (ft): 20.0 DRILLER NAME: B. Wilson
 LOGGED BY: A. Bilas RIG TYPE: Geoprobe

**BORING
 GEI102(MW)**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic CASING I.D./O.D.: 2 inch / 2.125 inch CORE BARREL TYPE:
 AUGER I.D./O.D.: 4.25 inch / 7.625 inch DRILL ROD O.D.: NM CORE BARREL I.D./O.D. NA / NA
 DRILLING METHOD: Geoprobe then Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): 10.6 6/6/2023 9:25 am

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./Rec. (in)	Blows per 6 in. or RQD			
100		S1	0 to 2	24/9	1-1-1-1	0.0 ppm	FILL	S1 (0-4"): SILTY SAND (SM); ~70% fine sand, ~25% nonplastic fines, ~5% subrounded gravel up to 0.5", dry, dark brown, contains roots. TOPSOIL. S1 (4-9"): Similar to S1 (0-4"), medium brown.
	5							
		S2	7 to 9	24/22	10-22-24-20	0.0 ppm (from 0-9") 0.0 ppm (from 9-22")	TILL	S2 (0-9"): Similar to S1 (0-9"). S2 (9-22"): SILTY SAND WITH GRAVEL (SM); ~60% fine sand, ~20% subangular gravel up to 2", ~15% nonplastic fines, medium to light brown, dry.
	10							
		S3	10 to 15	60/44	NA	0.0 ppm (from 0-4") 0.1 ppm (from 4-44")	TILL	S3 (0-4"): NARROWLY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% fine to medium sand (some coarse sand grains), ~15% subrounded to subangular gravel up to 0.5", ~10% nonplastic fines, medium brown, moist. S3 (4-44"): SILTY SAND WITH GRAVEL (SM); ~70% fine to coarse sand, ~20% subrounded to subangular gravel up to 2", ~15% nonplastic fines, light brown, wet.
	15							
		S4	15 to 20	60/48	NA	0.0 ppm	TILL	S4 (0-48"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SP-SM); ~75% fine to coarse sand, ~15% gravel up to 0.5", 10% nonplastic fines, light brown, fully saturated.
	20							
								End of boring at 20 ft below ground surface.

NOTES: No environmental samples collected.

PROJECT NAME: 282-284 Washington Street Phase II
 ESA

CITY/STATE: Boston, Massachusetts
 GEI PROJECT NUMBER: 2301269



GEI WOBURN STD 1-LOCATION-LAYER NAME_BORING LOGS.GPJ_6/27/23

BORING INFORMATION

LOCATION: 282-284 Washington Street
 GROUND SURFACE EL. (ft): 110.78 DATE START/END: 5/26/2023 - 5/26/2023
 VERTICAL DATUM: Arbitrary DRILLING COMPANY: G&M
 TOTAL DEPTH (ft): 19.0 DRILLER NAME: B. Wilson
 LOGGED BY: A. Bilas RIG TYPE: Geoprobe

**BORING
 GEI103(MW)**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic CASING I.D./O.D.: 2 inch / 2.125 inch CORE BARREL TYPE:
 AUGER I.D./O.D.: 4.25 inch / 7.625 inch DRILL ROD O.D.: NM CORE BARREL I.D./O.D.: NA / NA
 DRILLING METHOD: Geoprobe then Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): 13.7 6/6/2023 12:00 pm

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./Rec. (in)	Blows per 6 in. or RQD			
110		S1	0 to 2	24/12	1-1-2-3	0.0 ppm	FILL	S1 (0-3"): SILTY SAND (SM); ~80% fine sand, ~15% nonplastic fines, ~5% subrounded gravel up to 0.5", dark brown, dry. TOPSOIL. S1 (3-12"): SILTY SAND (SM); ~70% fine sand, ~20% nonplastic fines, ~10% subrounded gravel up to 0.5", medium brown, dry.
105	5	S2	5 to 7	24/23	11-18-2-24	0.0 ppm (from 0-6") 0.0 ppm (from 6-23")	TILL	S2 (0-6"): NARROWLY GRADED SAND WITH SILT (SP-SM); ~80% fine to medium sand (some coarse sand grains), ~10% nonplastic fines, ~10% subrounded gravel up to 1", dark brown, dry. S2 (6-23"): SILTY SAND WITH GRAVEL (SM); ~55% fine sand, ~30% subrounded to subangular gravel up to 2", ~15% nonplastic fines, medium to light brown, dry.
100	10	S3	10 to 12	24/22	14-19-26-23	0.0 ppm		S3 (0-22"): Similar to S2 (6-23").
95	15	S4	12 to 17	60/56	NA	0.0 ppm		S4 (0-31"): SILTY SAND WITH GRAVEL (SM); ~70% fine to coarse sand, ~15% subrounded to subangular gravel up to 1.5", ~15% nonplastic fines, light brown, moist. S4 (31-56"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SP); ~70% fine to coarse sand, ~20% subrounded to subangular gravel up to 1.5", ~10% nonplastic fines, medium brown, wet.
90	20	S5	17 to 19	24/24	NA	0.0 ppm		S5 (0-24"): WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% fine to coarse sand, ~25% subrounded to subangular gravel up to 2", ~10% nonplastic fines, light brown, wet. End of boring at 19 ft below ground surface.

NOTES: No environmental samples collected.

PROJECT NAME: 282-284 Washington Street Phase II
 ESA

CITY/STATE: Boston, Massachusetts
 GEI PROJECT NUMBER: 2301269



GEI WOBURN STD 1-LOCATION-LAYER NAME_BORING LOGS.GPJ_6/27/23

Groundwater Well Installation Log

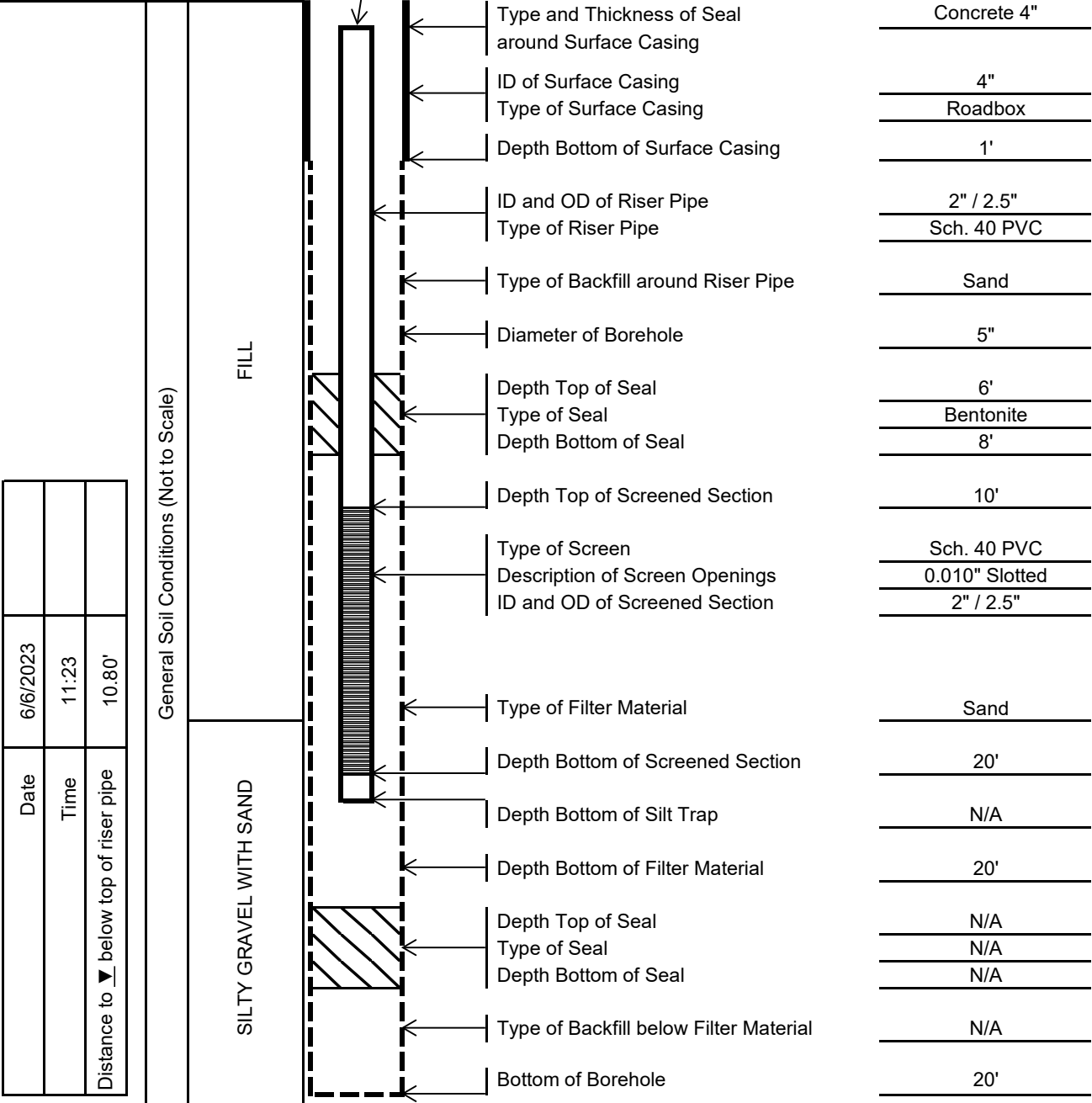
GEI101(MW)

Project 282-284 Washington Street Phase II ESA
City / Town Boston (Dorchester), MA
Client Boston MOH
Contractor G&M Subsurface
Driller Brandon Wilson **GEI Rep.** A. Bilas

GEI Proj. No. 2301269
Location Southwest corner of the Property
Install Date May 26, 2023

Survey Datum: 100 ft (Arbitrary) Length of Surface Casing above Ground 0"

Ground Elevation: 102.61 ft Dist. Top of Surf. Casing to Top of Riser Pipe 4.5"



Date	6/6/2023	11:23
Time		10.80'
Distance to ▼ below top of riser pipe		

General Soil Conditions (Not to Scale)

FILL

SILTY GRAVEL WITH SAND

Notes:



Groundwater Well Installation Log

GEI102(MW)

Project 282-284 Washington Street Phase II ESA
City / Town Boston (Dorchester), MA
Client Boston MOH
Contractor G&M Subsurface
Driller Brandon Wilson **GEI Rep.** A. Bilas

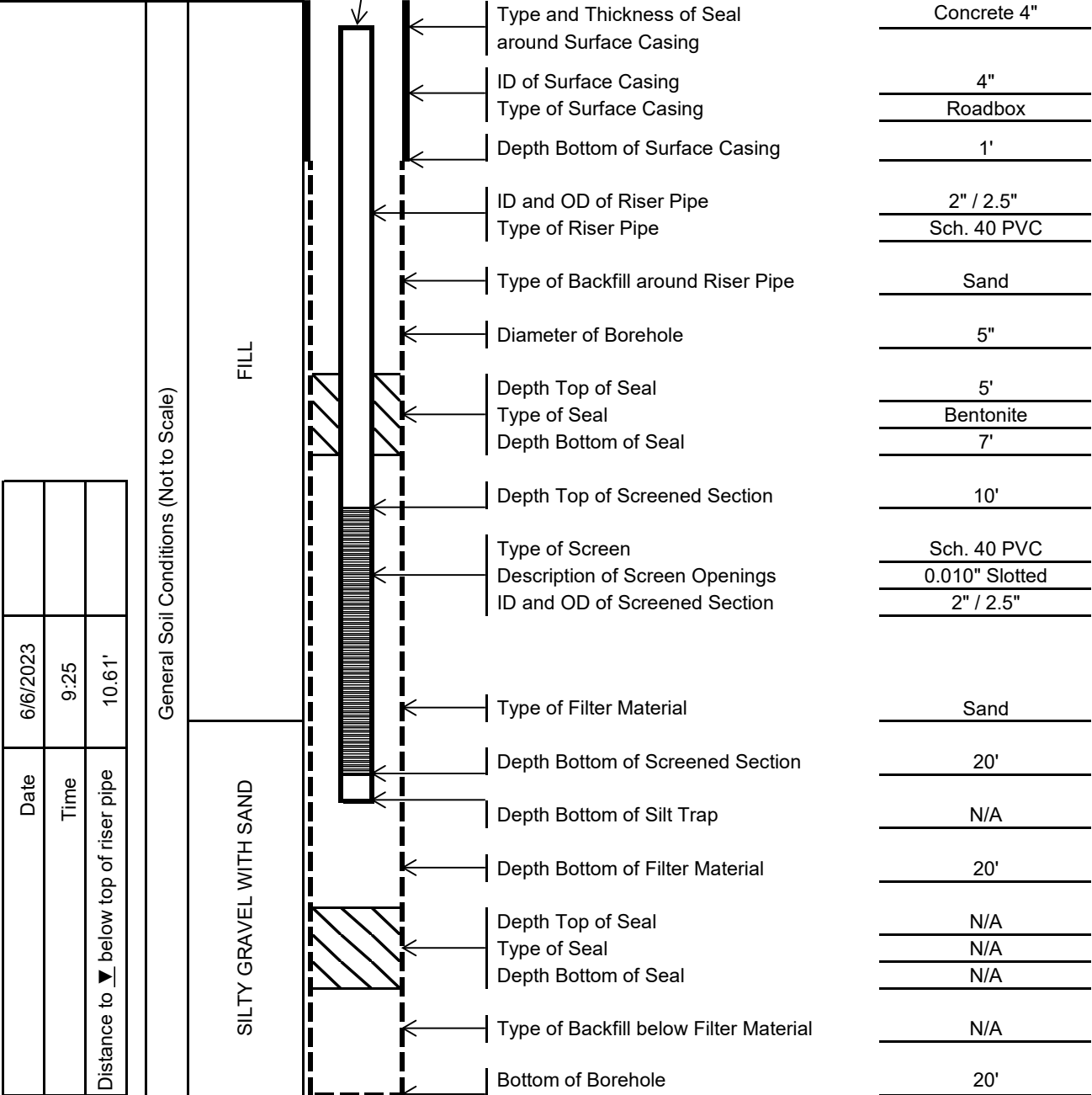
GEI Proj. No. 2301269
Location Southwest corner of the Property
Install Date May 26, 2023

Survey

Datum: 100 ft (Arbitrary) Length of Surface Casing above Ground 2"

Ground Elevation:

102.61 ft Dist. Top of Surf. Casing to Top of Riser Pipe 4.5"



Notes:



Appendix C

Laboratory Data Report – Groundwater

CERTIFICATE OF ANALYSIS

Chris Ragnelli
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

RE: Washington Street (2301269)
ESS Laboratory Work Order Number: 23F0193

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 3:50 pm, Jun 14, 2023****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: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

SAMPLE RECEIPT

The following samples were received on June 07, 2023 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>
23F0193-01	2301269-GEI101-MW	Ground Water	8260B, EPH8270, MADEP-EPH, MA-VPH-2.1
23F0193-02	2301269-GEI102-MW	Ground Water	8260B, EPH8270, MADEP-EPH, MA-VPH-2.1
23F0193-03	2301269-GEI103-MW	Ground Water	8260B, MA-VPH-2.1



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

PROJECT NARRATIVE

8260B Volatile Organic Compounds

D3F0137-CCV1 [Calibration required quadratic regression \(O\).](#)
1,2,3-Trichlorobenzene (103% @ 80-120%), Naphthalene (101% @ 80-120%)

MADEP-EPH Extractable Petroleum Hydrocarbons

DF30901-BSD2 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)
Acenaphthylene (21% @ 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: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **23F0193-01 through 23F0193-03**

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

CAM Protocol (check all that apply below):

- | | | | | | |
|--|--|---|---|--|---|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input checked="" type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV C | <input type="checkbox"/> 8081 Pesticides
CAM V B | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input checked="" type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>
Yes <input type="checkbox"/> No <input type="checkbox"/> |
| 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 <input checked="" type="checkbox"/> No <input type="checkbox"/> |

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)?
<i>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.</i> | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> * |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> * |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> * |

***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: June 14, 2023
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI101-MW
Date Sampled: 06/06/23 13:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-01
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	06/08/23 13:20	D3F0137	DF30840
1,1,1-Trichloroethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,1,2-Trichloroethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,1-Dichloroethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,1-Dichloroethene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,1-Dichloropropene	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2,3-Trichloropropane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2-Dibromoethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2-Dichloroethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,2-Dichloropropane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,3-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,3-Dichloropropane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,4-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
1,4-Dioxane - Screen	ND (500)		8260B		1	06/08/23 13:20	D3F0137	DF30840
2,2-Dichloropropane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
2-Butanone	ND (10.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
2-Chlorotoluene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
2-Hexanone	ND (10.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
4-Chlorotoluene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
4-Isopropyltoluene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Acetone	ND (10.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Benzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Bromobenzene	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Bromochloromethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI101-MW
Date Sampled: 06/06/23 13:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-01
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	06/08/23 13:20	D3F0137	DF30840
Bromoform	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Bromomethane	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Carbon Disulfide	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Carbon Tetrachloride	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Chlorobenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Chloroethane	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Chloroform	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Chloromethane	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Dibromochloromethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Dibromomethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Dichlorodifluoromethane	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Diethyl Ether	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Di-isopropyl ether	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Ethylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Hexachlorobutadiene	ND (0.6)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Hexachloroethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Isopropylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Methylene Chloride	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Naphthalene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
n-Butylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
n-Propylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
sec-Butylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Styrene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
tert-Butylbenzene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Tetrachloroethene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Tetrahydrofuran	ND (5.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI101-MW
Date Sampled: 06/06/23 13:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-01
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	06/08/23 13:20	D3F0137	DF30840
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Trichloroethene	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Trichlorofluoromethane	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Vinyl Chloride	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Xylene O	ND (1.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Xylene P,M	ND (2.0)		8260B		1	06/08/23 13:20	D3F0137	DF30840
Xylenes (Total)	ND (2.00)		8260B		1	06/08/23 13:20		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	96 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	101 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI101-MW
Date Sampled: 06/06/23 13:00
Percent Solids: N/A
Initial Volume: 1070ml
Final Volume: 1ml
Extraction Method: 3510C

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-01
Sample Matrix: Ground Water
Units: ug/L

Prepared: 6/9/23 13:05

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 (93)		MADEP-EPH		1	MJV	06/13/23 9:47	D3F0206	DF30901
C19-C36 Aliphatics1	ND (93)		MADEP-EPH		1	MJV	06/13/23 9:47	D3F0206	DF30901
C11-C22 Unadjusted Aromatics1	ND (93.5)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
C11-C22 Aromatics1,2	ND (93.5)		EPH8270			MJV	06/13/23 9:37		[CALC]
2-Methylnaphthalene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Acenaphthene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Naphthalene	ND (9.3)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Phenanthrene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Acenaphthylene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Anthracene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Benzo(a)anthracene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Benzo(a)pyrene	ND (9.3)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Benzo(b)fluoranthene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Benzo(g,h,i)perylene	ND (9.3)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Benzo(k)fluoranthene	ND (9.3)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Chrysene	ND (9.3)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Dibenzo(a,h)Anthracene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Fluoranthene	ND (9.3)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Fluorene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Indeno(1,2,3-cd)Pyrene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Pyrene	ND (4.7)		EPH8270		1	MJV	06/13/23 9:37	D3F0208	DF30901
Preservative:	pH <= 2		MADEP-EPH			MJV			DF30901

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	72 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	91 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	100 %		40-140
<i>Surrogate: O-Terphenyl</i>	97 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI101-MW
Date Sampled: 06/06/23 13:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B
Column Type: Restek RTX-502.2 - 3µ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-01
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	06/08/23 8:00	D3F0116	DF30727
C5-C8 Aliphatics^{1,2}	158 (158)		MA-VPH-2.1		1	06/08/23 8:00		[CALC]
C9-C12 Aliphatics ^{2,3}	ND (270)		MA-VPH-2.1		1	06/08/23 8:00		[CALC]
Benzene	ND (1.5)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Ethylbenzene	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Methyl tert-Butyl Ether	ND (1.5)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Naphthalene	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Toluene	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Xylene O	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Xylene P,M	ND (10.0)		MA-VPH-2.1		1	06/08/23 8:00	D3F0116	DF30727
Preservative:	pH <= 2		MA-VPH-2.1					DF30727

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>88 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI102-MW
Date Sampled: 06/06/23 10:50
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-02
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	06/08/23 13:46	D3F0137	DF30840
1,1,1-Trichloroethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,1,2-Trichloroethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,1-Dichloroethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,1-Dichloroethene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,1-Dichloropropene	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2,3-Trichloropropane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2-Dibromoethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2-Dichloroethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,2-Dichloropropane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,3-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,3-Dichloropropane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,4-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
1,4-Dioxane - Screen	ND (500)		8260B		1	06/08/23 13:46	D3F0137	DF30840
2,2-Dichloropropane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
2-Butanone	ND (10.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
2-Chlorotoluene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
2-Hexanone	ND (10.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
4-Chlorotoluene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
4-Isopropyltoluene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Acetone	ND (10.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Benzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Bromobenzene	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Bromochloromethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI102-MW
Date Sampled: 06/06/23 10:50
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-02
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	06/08/23 13:46	D3F0137	DF30840
Bromoform	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Bromomethane	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Carbon Disulfide	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Carbon Tetrachloride	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Chlorobenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Chloroethane	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Chloroform	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Chloromethane	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Dibromochloromethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Dibromomethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Dichlorodifluoromethane	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Diethyl Ether	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Di-isopropyl ether	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Ethylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Hexachlorobutadiene	ND (0.6)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Hexachloroethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Isopropylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Methylene Chloride	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Naphthalene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
n-Butylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
n-Propylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
sec-Butylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Styrene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
tert-Butylbenzene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Tetrachloroethene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Tetrahydrofuran	ND (5.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI102-MW
Date Sampled: 06/06/23 10:50
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-02
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	06/08/23 13:46	D3F0137	DF30840
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Trichloroethene	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Trichlorofluoromethane	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Vinyl Chloride	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Xylene O	ND (1.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Xylene P,M	ND (2.0)		8260B		1	06/08/23 13:46	D3F0137	DF30840
Xylenes (Total)	ND (2.00)		8260B		1	06/08/23 13:46		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	96 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	99 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI102-MW
Date Sampled: 06/06/23 10:50
Percent Solids: N/A
Initial Volume: 1070ml
Final Volume: 1ml
Extraction Method: 3510C

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-02
Sample Matrix: Ground Water
Units: ug/L

Prepared: 6/9/23 13:05

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 (93)		MADEP-EPH		1	MJV	06/13/23 10:21	D3F0206	DF30901
C19-C36 Aliphatics1	ND (93)		MADEP-EPH		1	MJV	06/13/23 10:21	D3F0206	DF30901
C11-C22 Unadjusted Aromatics1	ND (93.5)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
C11-C22 Aromatics1,2	ND (93.5)		EPH8270			MJV	06/13/23 10:16		[CALC]
2-Methylnaphthalene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Acenaphthene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Naphthalene	ND (9.3)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Phenanthrene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Acenaphthylene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Anthracene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Benzo(a)anthracene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Benzo(a)pyrene	ND (9.3)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Benzo(b)fluoranthene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Benzo(g,h,i)perylene	ND (9.3)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Benzo(k)fluoranthene	ND (9.3)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Chrysene	ND (9.3)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Dibenzo(a,h)Anthracene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Fluoranthene	ND (9.3)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Fluorene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Indeno(1,2,3-cd)Pyrene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Pyrene	ND (4.7)		EPH8270		1	MJV	06/13/23 10:16	D3F0208	DF30901
Preservative:	pH <= 2		MADEP-EPH			MJV			DF30901

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1-Chlorooctadecane</i>	80 %		40-140
<i>Surrogate: 2-Bromonaphthalene</i>	100 %		40-140
<i>Surrogate: 2-Fluorobiphenyl</i>	102 %		40-140
<i>Surrogate: O-Terphenyl</i>	107 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Washington Street
 Client Sample ID: 2301269-GEI102-MW
 Date Sampled: 06/06/23 10:50
 Percent Solids: N/A
 Initial Volume: 5ml
 Final Volume: 5ml
 Extraction Method: 5030B
 Column Type: Restek RTX-502.2 - 3µ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 23F0193
 ESS Laboratory Sample ID: 23F0193-02
 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	06/08/23 8:34	D3F0116	DF30727
C5-C8 Aliphatics 1,2	ND (158)		MA-VPH-2.1		1	06/08/23 8:34		[CALC]
C9-C12 Aliphatics 2,3	ND (270)		MA-VPH-2.1		1	06/08/23 8:34		[CALC]
Benzene	ND (1.5)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Ethylbenzene	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Methyl tert-Butyl Ether	ND (1.5)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Naphthalene	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Toluene	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Xylene O	ND (5.0)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Xylene P,M	ND (10.0)		MA-VPH-2.1		1	06/08/23 8:34	D3F0116	DF30727
Preservative:	pH <= 2		MA-VPH-2.1					DF30727

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>92 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>92 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI103-MW
Date Sampled: 06/06/23 14:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-03
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	06/08/23 14:12	D3F0137	DF30840
1,1,1-Trichloroethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,1,2,2-Tetrachloroethane	ND (0.5)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,1,2-Trichloroethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,1-Dichloroethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,1-Dichloroethene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,1-Dichloropropene	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2,3-Trichloropropane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2,4-Trimethylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2-Dibromo-3-Chloropropane	ND (5.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2-Dibromoethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2-Dichloroethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,2-Dichloropropane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,3,5-Trimethylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,3-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,3-Dichloropropane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,4-Dichlorobenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
1,4-Dioxane - Screen	ND (500)		8260B		1	06/08/23 14:12	D3F0137	DF30840
2,2-Dichloropropane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
2-Butanone	ND (10.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
2-Chlorotoluene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
2-Hexanone	ND (10.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
4-Chlorotoluene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
4-Isopropyltoluene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
4-Methyl-2-Pentanone	ND (10.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Acetone	ND (10.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Benzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Bromobenzene	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Bromochloromethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI103-MW
Date Sampled: 06/06/23 14:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-03
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	06/08/23 14:12	D3F0137	DF30840
Bromoform	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Bromomethane	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Carbon Disulfide	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Carbon Tetrachloride	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Chlorobenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Chloroethane	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Chloroform	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Chloromethane	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
cis-1,2-Dichloroethene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
cis-1,3-Dichloropropene	ND (0.4)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Dibromochloromethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Dibromomethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Dichlorodifluoromethane	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Diethyl Ether	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Di-isopropyl ether	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Ethyl tertiary-butyl ether	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Ethylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Hexachlorobutadiene	ND (0.6)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Hexachloroethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Isopropylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Methyl tert-Butyl Ether	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Methylene Chloride	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Naphthalene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
n-Butylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
n-Propylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
sec-Butylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Styrene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
tert-Butylbenzene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Tertiary-amyl methyl ether	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Tetrachloroethene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Tetrahydrofuran	ND (5.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street
Client Sample ID: 2301269-GEI103-MW
Date Sampled: 06/06/23 14:00
Percent Solids: N/A
Initial Volume: 5ml
Final Volume: 5ml
Extraction Method: 5030B

ESS Laboratory Work Order: 23F0193
ESS Laboratory Sample ID: 23F0193-03
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	06/08/23 14:12	D3F0137	DF30840
trans-1,2-Dichloroethene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
trans-1,3-Dichloropropene	ND (0.4)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Trichloroethene	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Trichlorofluoromethane	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Vinyl Chloride	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Xylene O	ND (1.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Xylene P,M	ND (2.0)		8260B		1	06/08/23 14:12	D3F0137	DF30840
Xylenes (Total)	ND (2.00)		8260B		1	06/08/23 14:12		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
 Client Project ID: Washington Street
 Client Sample ID: 2301269-GEI103-MW
 Date Sampled: 06/06/23 14:00
 Percent Solids: N/A
 Initial Volume: 5ml
 Final Volume: 5ml
 Extraction Method: 5030B
 Column Type: Restek RTX-502.2 - 3µ film thickness 0.53mm X 105m

ESS Laboratory Work Order: 23F0193
 ESS Laboratory Sample ID: 23F0193-03
 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	06/08/23 9:08	D3F0116	DF30727
C5-C8 Aliphatics 1,2	ND (158)		MA-VPH-2.1		1	06/08/23 9:08		[CALC]
C9-C12 Aliphatics 2,3	ND (270)		MA-VPH-2.1		1	06/08/23 9:08		[CALC]
Benzene	ND (1.5)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Ethylbenzene	ND (5.0)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Methyl tert-Butyl Ether	ND (1.5)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Naphthalene	ND (5.0)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Toluene	ND (5.0)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Xylene O	ND (5.0)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Xylene P,M	ND (10.0)		MA-VPH-2.1		1	06/08/23 9:08	D3F0116	DF30727
Preservative:	pH <= 2		MA-VPH-2.1					DF30727

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>89 %</i>		<i>70-130</i>
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>89 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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 DF30840 - 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: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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 DF30840 - 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	24.6		ug/L	25.00		98	70-130			
Surrogate: 4-Bromofluorobenzene	24.0		ug/L	25.00		96	70-130			
Surrogate: Dibromofluoromethane	24.5		ug/L	25.00		98	70-130			
Surrogate: Toluene-d8	25.2		ug/L	25.00		101	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.2	1.0	ug/L	10.00		102	70-130			
1,1,1-Trichloroethane	9.5	1.0	ug/L	10.00		95	70-130			
1,1,2,2-Tetrachloroethane	9.6	0.5	ug/L	10.00		96	70-130			
1,1,2-Trichloroethane	9.8	1.0	ug/L	10.00		98	70-130			
1,1-Dichloroethane	9.9	1.0	ug/L	10.00		99	70-130			
1,1-Dichloroethene	10.0	1.0	ug/L	10.00		100	70-130			
1,1-Dichloropropene	10.1	2.0	ug/L	10.00		101	70-130			
1,2,3-Trichlorobenzene	9.3	1.0	ug/L	10.00		93	70-130			
1,2,3-Trichloropropane	9.6	1.0	ug/L	10.00		96	70-130			
1,2,4-Trichlorobenzene	10.0	1.0	ug/L	10.00		100	70-130			
1,2,4-Trimethylbenzene	9.6	1.0	ug/L	10.00		96	70-130			
1,2-Dibromo-3-Chloropropane	9.0	5.0	ug/L	10.00		90	70-130			



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 DF30840 - 5030B

1,2-Dibromoethane	9.8	1.0	ug/L	10.00		98	70-130			
1,2-Dichlorobenzene	9.8	1.0	ug/L	10.00		98	70-130			
1,2-Dichloroethane	9.4	1.0	ug/L	10.00		94	70-130			
1,2-Dichloropropane	9.8	1.0	ug/L	10.00		98	70-130			
1,3,5-Trimethylbenzene	10.0	1.0	ug/L	10.00		100	70-130			
1,3-Dichlorobenzene	9.7	1.0	ug/L	10.00		97	70-130			
1,3-Dichloropropane	10.3	1.0	ug/L	10.00		103	70-130			
1,4-Dichlorobenzene	10.2	1.0	ug/L	10.00		102	70-130			
1,4-Dioxane - Screen	217	500	ug/L	200.0		108	0-332			
2,2-Dichloropropane	10.0	1.0	ug/L	10.00		100	70-130			
2-Butanone	52.5	10.0	ug/L	50.00		105	70-130			
2-Chlorotoluene	9.9	1.0	ug/L	10.00		99	70-130			
2-Hexanone	55.7	10.0	ug/L	50.00		111	70-130			
4-Chlorotoluene	9.8	1.0	ug/L	10.00		98	70-130			
4-Isopropyltoluene	9.6	1.0	ug/L	10.00		96	70-130			
4-Methyl-2-Pentanone	53.3	10.0	ug/L	50.00		107	70-130			
Acetone	57.3	10.0	ug/L	50.00		115	70-130			
Benzene	9.9	1.0	ug/L	10.00		99	70-130			
Bromobenzene	9.7	2.0	ug/L	10.00		97	70-130			
Bromochloromethane	9.8	1.0	ug/L	10.00		98	70-130			
Bromodichloromethane	9.6	0.6	ug/L	10.00		96	70-130			
Bromoform	10.0	1.0	ug/L	10.00		100	70-130			
Bromomethane	9.5	2.0	ug/L	10.00		95	70-130			
Carbon Disulfide	10.8	1.0	ug/L	10.00		108	70-130			
Carbon Tetrachloride	9.7	1.0	ug/L	10.00		97	70-130			
Chlorobenzene	9.6	1.0	ug/L	10.00		96	70-130			
Chloroethane	10.6	2.0	ug/L	10.00		106	70-130			
Chloroform	9.7	1.0	ug/L	10.00		97	70-130			
Chloromethane	8.6	2.0	ug/L	10.00		86	70-130			
cis-1,2-Dichloroethene	10.0	1.0	ug/L	10.00		100	70-130			
cis-1,3-Dichloropropene	9.7	0.4	ug/L	10.00		97	70-130			
Dibromochloromethane	9.9	1.0	ug/L	10.00		99	70-130			
Dibromomethane	10.0	1.0	ug/L	10.00		100	70-130			
Dichlorodifluoromethane	8.1	2.0	ug/L	10.00		81	70-130			
Diethyl Ether	11.5	1.0	ug/L	10.00		115	70-130			
Di-isopropyl ether	10.2	1.0	ug/L	10.00		102	70-130			
Ethyl tertiary-butyl ether	10.5	1.0	ug/L	10.00		105	70-130			
Ethylbenzene	9.7	1.0	ug/L	10.00		97	70-130			
Hexachlorobutadiene	10.6	0.6	ug/L	10.00		106	70-130			
Hexachloroethane	10.6	1.0	ug/L	10.00		106	70-130			
Isopropylbenzene	9.8	1.0	ug/L	10.00		98	70-130			
Methyl tert-Butyl Ether	10.3	1.0	ug/L	10.00		103	70-130			
Methylene Chloride	9.8	2.0	ug/L	10.00		98	70-130			
Naphthalene	9.1	1.0	ug/L	10.00		91	70-130			
n-Butylbenzene	9.7	1.0	ug/L	10.00		97	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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 DF30840 - 5030B

n-Propylbenzene	9.7	1.0	ug/L	10.00		97	70-130			
sec-Butylbenzene	9.4	1.0	ug/L	10.00		94	70-130			
Styrene	9.9	1.0	ug/L	10.00		99	70-130			
tert-Butylbenzene	9.8	1.0	ug/L	10.00		98	70-130			
Tertiary-amyl methyl ether	9.9	1.0	ug/L	10.00		99	70-130			
Tetrachloroethene	9.5	1.0	ug/L	10.00		95	70-130			
Tetrahydrofuran	9.1	5.0	ug/L	10.00		91	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	8.9	0.4	ug/L	10.00		89	70-130			
Trichloroethene	10.0	1.0	ug/L	10.00		100	70-130			
Trichlorofluoromethane	9.2	1.0	ug/L	10.00		92	70-130			
Vinyl Chloride	10.3	1.0	ug/L	10.00		103	70-130			
Xylene O	10.0	1.0	ug/L	10.00		100	70-130			
Xylene P,M	20.0	2.0	ug/L	20.00		100	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>24.5</i>		ug/L	<i>25.00</i>		<i>98</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>24.4</i>		ug/L	<i>25.00</i>		<i>98</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>25.0</i>		ug/L	<i>25.00</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>24.8</i>		ug/L	<i>25.00</i>		<i>99</i>	<i>70-130</i>			

LCS Dup

1,1,1,2-Tetrachloroethane	10.1	1.0	ug/L	10.00		101	70-130	1	20	
1,1,1-Trichloroethane	9.6	1.0	ug/L	10.00		96	70-130	1	20	
1,1,2,2-Tetrachloroethane	9.8	0.5	ug/L	10.00		98	70-130	2	20	
1,1,2-Trichloroethane	9.8	1.0	ug/L	10.00		98	70-130	0.8	20	
1,1-Dichloroethane	9.7	1.0	ug/L	10.00		97	70-130	2	20	
1,1-Dichloroethene	9.3	1.0	ug/L	10.00		93	70-130	7	20	
1,1-Dichloropropene	10.2	2.0	ug/L	10.00		102	70-130	1	20	
1,2,3-Trichlorobenzene	9.4	1.0	ug/L	10.00		94	70-130	0.6	20	
1,2,3-Trichloropropane	9.6	1.0	ug/L	10.00		96	70-130	0.5	20	
1,2,4-Trichlorobenzene	9.7	1.0	ug/L	10.00		97	70-130	3	20	
1,2,4-Trimethylbenzene	9.5	1.0	ug/L	10.00		95	70-130	2	20	
1,2-Dibromo-3-Chloropropane	9.2	5.0	ug/L	10.00		92	70-130	2	20	
1,2-Dibromoethane	9.7	1.0	ug/L	10.00		97	70-130	0.9	20	
1,2-Dichlorobenzene	9.6	1.0	ug/L	10.00		96	70-130	2	20	
1,2-Dichloroethane	9.2	1.0	ug/L	10.00		92	70-130	2	20	
1,2-Dichloropropane	9.6	1.0	ug/L	10.00		96	70-130	2	20	
1,3,5-Trimethylbenzene	9.9	1.0	ug/L	10.00		99	70-130	1	20	
1,3-Dichlorobenzene	9.6	1.0	ug/L	10.00		96	70-130	0.8	20	
1,3-Dichloropropane	10.1	1.0	ug/L	10.00		101	70-130	2	20	
1,4-Dichlorobenzene	10.2	1.0	ug/L	10.00		102	70-130	0	20	
1,4-Dioxane - Screen	213	500	ug/L	200.0		106	0-332	2	200	
2,2-Dichloropropane	9.8	1.0	ug/L	10.00		98	70-130	2	20	
2-Butanone	53.8	10.0	ug/L	50.00		108	70-130	2	20	
2-Chlorotoluene	9.7	1.0	ug/L	10.00		97	70-130	2	20	
2-Hexanone	56.3	10.0	ug/L	50.00		113	70-130	1	20	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
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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 DF30840 - 5030B

4-Chlorotoluene	9.8	1.0	ug/L	10.00		98	70-130	0	20	
4-Isopropyltoluene	9.4	1.0	ug/L	10.00		94	70-130	2	20	
4-Methyl-2-Pentanone	55.1	10.0	ug/L	50.00		110	70-130	3	20	
Acetone	58.3	10.0	ug/L	50.00		117	70-130	2	20	
Benzene	9.8	1.0	ug/L	10.00		98	70-130	0.7	20	
Bromobenzene	9.8	2.0	ug/L	10.00		98	70-130	0.6	20	
Bromochloromethane	9.4	1.0	ug/L	10.00		94	70-130	4	20	
Bromodichloromethane	9.9	0.6	ug/L	10.00		99	70-130	4	20	
Bromoform	10.1	1.0	ug/L	10.00		101	70-130	1	20	
Bromomethane	9.9	2.0	ug/L	10.00		99	70-130	5	20	
Carbon Disulfide	10.8	1.0	ug/L	10.00		108	70-130	0.5	20	
Carbon Tetrachloride	9.7	1.0	ug/L	10.00		97	70-130	0	20	
Chlorobenzene	9.6	1.0	ug/L	10.00		96	70-130	0.2	20	
Chloroethane	10.3	2.0	ug/L	10.00		103	70-130	4	20	
Chloroform	9.6	1.0	ug/L	10.00		96	70-130	1	20	
Chloromethane	8.9	2.0	ug/L	10.00		89	70-130	3	20	
cis-1,2-Dichloroethene	10.0	1.0	ug/L	10.00		100	70-130	0.1	20	
cis-1,3-Dichloropropene	9.6	0.4	ug/L	10.00		96	70-130	1	20	
Dibromochloromethane	9.9	1.0	ug/L	10.00		99	70-130	0	20	
Dibromomethane	9.7	1.0	ug/L	10.00		97	70-130	3	20	
Dichlorodifluoromethane	8.1	2.0	ug/L	10.00		81	70-130	0.9	20	
Diethyl Ether	11.0	1.0	ug/L	10.00		110	70-130	5	20	
Di-isopropyl ether	9.9	1.0	ug/L	10.00		99	70-130	3	20	
Ethyl tertiary-butyl ether	10.5	1.0	ug/L	10.00		105	70-130	0.5	20	
Ethylbenzene	9.6	1.0	ug/L	10.00		96	70-130	1	20	
Hexachlorobutadiene	10.0	0.6	ug/L	10.00		100	70-130	6	20	
Hexachloroethane	10.4	1.0	ug/L	10.00		104	70-130	1	20	
Isopropylbenzene	9.8	1.0	ug/L	10.00		98	70-130	0.8	20	
Methyl tert-Butyl Ether	10.6	1.0	ug/L	10.00		106	70-130	3	20	
Methylene Chloride	9.6	2.0	ug/L	10.00		96	70-130	2	20	
Naphthalene	9.2	1.0	ug/L	10.00		92	70-130	0.9	20	
n-Butylbenzene	9.6	1.0	ug/L	10.00		96	70-130	1	20	
n-Propylbenzene	9.6	1.0	ug/L	10.00		96	70-130	0.8	20	
sec-Butylbenzene	9.1	1.0	ug/L	10.00		91	70-130	2	20	
Styrene	9.8	1.0	ug/L	10.00		98	70-130	0.8	20	
tert-Butylbenzene	9.7	1.0	ug/L	10.00		97	70-130	0.7	20	
Tertiary-amyl methyl ether	10.2	1.0	ug/L	10.00		102	70-130	2	20	
Tetrachloroethene	9.5	1.0	ug/L	10.00		95	70-130	0.2	20	
Tetrahydrofuran	10.2	5.0	ug/L	10.00		102	70-130	11	20	
Toluene	9.8	1.0	ug/L	10.00		98	70-130	0.6	20	
trans-1,2-Dichloroethene	9.4	1.0	ug/L	10.00		94	70-130	8	20	
trans-1,3-Dichloropropene	8.8	0.4	ug/L	10.00		88	70-130	1	20	
Trichloroethene	9.8	1.0	ug/L	10.00		98	70-130	1	20	
Trichlorofluoromethane	9.4	1.0	ug/L	10.00		94	70-130	2	20	
Vinyl Chloride	10.5	1.0	ug/L	10.00		105	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 DF30840 - 5030B

Xylene O	9.8	1.0	ug/L	10.00		98	70-130	3	20	
Xylene P,M	19.9	2.0	ug/L	20.00		99	70-130	0.8	20	
Surrogate: 1,2-Dichloroethane-d4	24.4		ug/L	25.00		97	70-130			
Surrogate: 4-Bromofluorobenzene	24.6		ug/L	25.00		98	70-130			
Surrogate: Dibromofluoromethane	24.8		ug/L	25.00		99	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.00		99	70-130			

MADEP-EPH Extractable Petroleum Hydrocarbons

Batch DF30901 - 3510C

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

Surrogate: 1-Chlorooctadecane	41.4		ug/L	50.00		83	40-140			
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Blank										
2-Methylnaphthalene	ND	5.0	ug/L							
Acenaphthene	ND	5.0	ug/L							
Acenaphthylene	ND	5.0	ug/L							
Anthracene	ND	5.0	ug/L							
Benzo(a)anthracene	ND	5.0	ug/L							
Benzo(a)pyrene	ND	10.0	ug/L							
Benzo(b)fluoranthene	ND	5.0	ug/L							
Benzo(g,h,i)perylene	ND	10.0	ug/L							
Benzo(k)fluoranthene	ND	10.0	ug/L							
C11-C22 Unadjusted Aromatics1	ND	100	ug/L							
Chrysene	ND	10.0	ug/L							
Dibenzo(a,h)Anthracene	ND	5.0	ug/L							
Fluoranthene	ND	10.0	ug/L							
Fluorene	ND	5.0	ug/L							
Indeno(1,2,3-cd)Pyrene	ND	5.0	ug/L							
Naphthalene	ND	10.0	ug/L							
Phenanthrene	ND	5.0	ug/L							
Pyrene	ND	5.0	ug/L							
Surrogate: 2-Bromonaphthalene	44.5		ug/L	50.00		89	40-140			
Surrogate: 2-Fluorobiphenyl	46.0		ug/L	50.00		92	40-140			
Surrogate: O-Terphenyl	43.1		ug/L	50.00		86	40-140			

LCS										
C19-C36 Aliphatics1	422	100	ug/L	400.0		105	40-140			
C9-C18 Aliphatics1	238	100	ug/L	300.0		79	40-140			

Surrogate: 1-Chlorooctadecane	46.3		ug/L	50.00		93	40-140			
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LCS										
2-Methylnaphthalene	33.3	5.0	ug/L	50.00		67	40-140			
Acenaphthene	36.2	5.0	ug/L	50.00		72	40-140			
Acenaphthylene	34.9	5.0	ug/L	50.00		70	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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 DF30901 - 3510C

Anthracene	45.7	5.0	ug/L	50.00		91	40-140			
Benzo(a)anthracene	43.9	5.0	ug/L	50.00		88	40-140			
Benzo(a)pyrene	45.5	10.0	ug/L	50.00		91	40-140			
Benzo(b)fluoranthene	42.6	5.0	ug/L	50.00		85	40-140			
Benzo(g,h,i)perylene	51.7	10.0	ug/L	50.00		103	40-140			
Benzo(k)fluoranthene	50.6	10.0	ug/L	50.00		101	40-140			
C11-C22 Unadjusted Aromatics1	759	100	ug/L	850.0		89	40-140			
Chrysene	45.4	10.0	ug/L	50.00		91	40-140			
Dibenzo(a,h)Anthracene	48.4	5.0	ug/L	50.00		97	40-140			
Fluoranthene	42.5	10.0	ug/L	50.00		85	40-140			
Fluorene	37.4	5.0	ug/L	50.00		75	40-140			
Indeno(1,2,3-cd)Pyrene	49.0	5.0	ug/L	50.00		98	40-140			
Naphthalene	33.1	10.0	ug/L	50.00		66	40-140			
Phenanthrene	40.8	5.0	ug/L	50.00		82	40-140			
Pyrene	40.9	5.0	ug/L	50.00		82	40-140			
<i>Surrogate: 2-Bromonaphthalene</i>	<i>47.8</i>		ug/L	<i>50.00</i>		<i>96</i>	<i>40-140</i>			
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>48.1</i>		ug/L	<i>50.00</i>		<i>96</i>	<i>40-140</i>			
<i>Surrogate: O-Terphenyl</i>	<i>49.7</i>		ug/L	<i>50.00</i>		<i>99</i>	<i>40-140</i>			

LCS

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

LCS Dup

C19-C36 Aliphatics1	375	100	ug/L	400.0		94	40-140	12	25	
C9-C18 Aliphatics1	230	100	ug/L	300.0		77	40-140	3	25	

<i>Surrogate: 1-Chlorooctadecane</i>	<i>41.3</i>		ug/L	<i>50.00</i>		<i>83</i>	<i>40-140</i>			
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LCS Dup

2-Methylnaphthalene	38.7	5.0	ug/L	50.00		77	40-140	15	20	
Acenaphthene	42.6	5.0	ug/L	50.00		85	40-140	16	20	
Acenaphthylene	42.9	5.0	ug/L	50.00		86	40-140	21	20	D+
Anthracene	47.4	5.0	ug/L	50.00		95	40-140	4	20	
Benzo(a)anthracene	41.6	5.0	ug/L	50.00		83	40-140	5	20	
Benzo(a)pyrene	43.2	10.0	ug/L	50.00		86	40-140	5	20	
Benzo(b)fluoranthene	38.8	5.0	ug/L	50.00		78	40-140	9	20	
Benzo(g,h,i)perylene	50.2	10.0	ug/L	50.00		100	40-140	3	20	
Benzo(k)fluoranthene	48.8	10.0	ug/L	50.00		98	40-140	4	20	
C11-C22 Unadjusted Aromatics1	782	100	ug/L	850.0		92	40-140	3	25	
Chrysene	45.6	10.0	ug/L	50.00		91	40-140	0.4	20	
Dibenzo(a,h)Anthracene	48.0	5.0	ug/L	50.00		96	40-140	0.9	20	
Fluoranthene	42.8	10.0	ug/L	50.00		86	40-140	0.7	20	
Fluorene	44.3	5.0	ug/L	50.00		89	40-140	17	20	
Indeno(1,2,3-cd)Pyrene	48.8	5.0	ug/L	50.00		98	40-140	0.3	20	
Naphthalene	40.3	10.0	ug/L	50.00		81	40-140	20	20	
Phenanthrene	43.9	5.0	ug/L	50.00		88	40-140	7	20	
Pyrene	42.4	5.0	ug/L	50.00		85	40-140	4	20	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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 DF30901 - 3510C

Surrogate: 2-Bromonaphthalene	48.1		ug/L	50.00		96	40-140			
Surrogate: 2-Fluorobiphenyl	51.8		ug/L	50.00		104	40-140			
Surrogate: O-Terphenyl	52.8		ug/L	50.00		106	40-140			

LCS Dup

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

MADEP-VPH Volatile Petroleum Hydrocarbon

Batch DF30727 - 5030B

Blank

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							
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	45.2		ug/L	50.00		90	70-130			
Surrogate: 2,5-Dibromotoluene - PID	43.6		ug/L	50.00		87	70-130			

LCS

Benzene	48.1	1.5	ug/L	50.00		96	70-130			
C5-C8 Unadjusted Aliphatics	466	150	ug/L	400.0		117	70-130			
C9-C10 Aromatics	92.1	100	ug/L	100.0		92	70-130			
C9-C12 Unadjusted Aliphatics	311	150	ug/L	300.0		104	70-130			
Ethylbenzene	48.7	5.0	ug/L	50.00		97	70-130			
Methyl tert-Butyl Ether	147	1.5	ug/L	150.0		98	70-130			
Naphthalene	98.7	5.0	ug/L	100.0		99	70-130			
Toluene	139	5.0	ug/L	150.0		93	70-130			
Xylene O	89.5	5.0	ug/L	100.0		90	70-130			
Xylene P,M	188	10.0	ug/L	200.0		94	70-130			

Surrogate: 2,5-Dibromotoluene - FID	50.6		ug/L	50.00		101	70-130			
Surrogate: 2,5-Dibromotoluene - PID	47.7		ug/L	50.00		95	70-130			

LCS Dup

Benzene	49.5	1.5	ug/L	50.00		99	70-130	3	25	
C5-C8 Unadjusted Aliphatics	460	150	ug/L	400.0		115	70-130	1	25	
C9-C10 Aromatics	93.4	100	ug/L	100.0		93	70-130	1	25	
C9-C12 Unadjusted Aliphatics	329	150	ug/L	300.0		110	70-130	6	25	
Ethylbenzene	49.2	5.0	ug/L	50.00		98	70-130	1	25	
Methyl tert-Butyl Ether	151	1.5	ug/L	150.0		101	70-130	3	25	



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
MADEP-VPH Volatile Petroleum Hydrocarbon										
Batch DF30727 - 5030B										
Naphthalene	99.5	5.0	ug/L	100.0		100	70-130	0.8	25	
Toluene	142	5.0	ug/L	150.0		94	70-130	2	25	
Xylene O	91.0	5.0	ug/L	100.0		91	70-130	2	25	
Xylene P,M	190	10.0	ug/L	200.0		95	70-130	1	25	
<i>Surrogate: 2,5-Dibromotoluene - FID</i>	<i>45.8</i>		<i>ug/L</i>	<i>50.00</i>		<i>92</i>	<i>70-130</i>			
<i>Surrogate: 2,5-Dibromotoluene - PID</i>	<i>45.3</i>		<i>ug/L</i>	<i>50.00</i>		<i>91</i>	<i>70-130</i>			



CERTIFICATE OF ANALYSIS

Client Name: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

Notes and Definitions

- Z-06 pH <= 2
- U Analyte included in the analysis, but not detected
- Q Calibration required quadratic regression (Q).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- 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: GEI Consultants, Inc.
Client Project ID: Washington Street

ESS Laboratory Work Order: 23F0193

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: GEI Consultants, Inc. - TB
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 23F0193
 Date Received: 6/7/2023
 Project Due Date: 6/14/2023
 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: 1.1 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/Acid Lot#: _____
 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: _____

Resolution: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	438762	Yes	No	Yes	VOA Vial	HCl	
1	438763	Yes	No	Yes	VOA Vial	HCl	
1	438764	Yes	No	Yes	VOA Vial	HCl	
1	438765	Yes	No	Yes	VOA Vial	HCl	
1	438766	Yes	No	Yes	VOA Vial	HCl	
1	438767	Yes	No	Yes	VOA Vial	HCl	
1	438780	Yes	N/A	Yes	1L Amber	HCl	
1	438781	Yes	N/A	Yes	1L Amber	HCl	
2	438768	Yes	No	Yes	VOA Vial	HCl	
2	438769	Yes	No	Yes	VOA Vial	HCl	
2	438770	Yes	No	Yes	VOA Vial	HCl	
2	438771	Yes	No	Yes	VOA Vial	HCl	
2	438772	Yes	No	Yes	VOA Vial	HCl	
2	438773	Yes	No	Yes	VOA Vial	HCl	
2	438782	Yes	N/A	Yes	1L Amber	HCl	
2	438783	Yes	N/A	Yes	1L Amber	HCl	
3	438774	Yes	No	Yes	VOA Vial	HCl	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GEI Consultants, Inc. - TB

ESS Project ID: 23F0193
 Date Received: 6/7/2023

3	438775	Yes	No	Yes	VOA Vial	HCI
3	438776	Yes	No	Yes	VOA Vial	HCI
3	438777	Yes	No	Yes	VOA Vial	HCI
3	438778	Yes	No	Yes	VOA Vial	HCI
3	438779	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 TB

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

Completed
 By: _____

[Handwritten Signature]

Date & Time: _____

6/7/23. 1812.

Reviewed
 By: _____

Date & Time: _____

6/7/23 1836

