

September 28, 2016

Mr. Hans Jensen  
Strategic Planning and Community Development  
City of Somerville  
93 Highland Avenue  
Somerville, MA 02143

RE: Environmental Studies  
Peer Review Status Report #2  
343 – 349, and 351 Summer Street  
Somerville, Massachusetts

Mr. Jensen,

On 12 September 2016, this office received a draft copy of the “Limited Subsurface Investigation Report” pertaining to completion of environmental studies at the 343-351 Summer Street subject property by the firm of EnviroTrac Ltd., (EnviroTrac). This document contains the results obtained from the field and laboratory characterization of soil and groundwater quality, identified as Task 03, within EnviroTrac’s original work plan, while the document itself is identified as Task 04 and represents the overall completion of proposed site activities. Accordingly, this second status report has been prepared to summarize our comments and recommendations pertaining to the conclusions and/or opinions presented within the draft findings report prepared by EnviroTrac.

As summarized in our 29 August 2016 interim Peer Review Status Report #1, Nangle Consulting Associates, Inc. (NCA) has observed the performance of field activities at the site, which included the placement of eight (8) test borings, five (5) of which were completed as groundwater monitoring wells; the excavation of exploratory trench/test pit excavations; removal of two (2) abandoned underground storage vessels; completion of a groundwater sampling event and performance of instrumental survey to support the determination of groundwater flow direction. Since our last correspondence, the results of the laboratory analyses performed on soil and groundwater samples collected by EnviroTrac during their field activities have been reviewed and the results of the EnviroTrac sampling program represent the primary focus of this submittal.

Following our initial review of the EnviroTrac draft report, a memorandum requesting clarification of several issues was sent to Mr. Robert Bird, the Licensed Site Professional (LSP) for EnviroTrac, on 16 September 2016. A copy of this document, as well as the response from Mr. Bird are presented in Attachment A. In addition, this information has been incorporated into the comments provided herein.

A review of Section 4.0 of EnviroTrac's *Draft Limited Subsurface Investigation Report*, (Attachment B) indicates that ten (10) findings and/or conclusions were presented as a part of their environmental studies. A review of these findings revealed that conclusions one (1) through four (4) and number ten (10) are statements for which we have no further comments. For the remaining points we have summarized our peer review according to each of the conclusions rendered by EnviroTrac as follows:

**EnviroTrac Conclusions: #5 & #6**

5. One of the tanks (Tank #1) was damaged during the test pitting activities, resulting in approximately 20-30 gallons of oily liquid being released to the soil in the vicinity of the tank. MassDEP-approved Immediate Response Actions (IRA) were completed on August 12, 2016, under Release Tracking Number 3-33735, including the removal of approximately 13 cubic yards of oil-impacted soil;
6. Based on the UST removal, impacted soil excavation and post-excavation soil data collected to date, the release of oil from the UST has been remediated to meet the MCP requirements for closure of the release with a Permanent Solution that should be submitted on or before October 7, 2016 to meet MCP regulatory deadlines.

As summarized above, during the placement of exploratory test pits, in the area of historic underground storage, a tank was "damaged" resulting in the release of petroleum and the need for Immediate Response Actions (IRA). This release condition was assigned Release Tracking Number (RTN) 3-33735 and EnviroTrac is of the opinion that the sampling of excavation boundaries is sufficient to support the achievement of a Permanent Solution (PS). A review of the results obtained from eight (8) boundary samples does suggest that if the data is averaged the performance standards of a PS could indeed be met. However, this assumes that each of the compounds detected in the boundary samples are attributable to the leakage/release of tank contents, which upon further review is not the case. Specifically, several of the compounds detected in soil sample S-3 are not consistent with waste oil, as described in the following excerpt from our September 14, 2016 memorandum to Mr. Robert Bird of EnviroTrac.

Sample S-3 contained several Polynuclear Aromatic Hydrocarbons (PAHs) above their respective Reportable Concentration (RC) values, and Massachusetts Department of Environmental Protection's (MDEP's) background standards. We understand that averaging the data could meet the requirements of a Permanent Solution for the petroleum release conditions; however, the PAH distribution detected in sample S-3 differs from what was observed in the stockpile sample associated with the spill. Further, several of the PAHs detected in sample S-3 and not in the stockpile would not be expected in a waste oil sample, nor were they detected at the additional seven (7) sampling locations (S series) above applicable RC values. Accordingly, we would appreciate clarification regarding the opinion that these exceedences are addressed by the two (2) hour notification.

In response to the above, Mr. Bird provided the following comment:

The elevated PAH in S-3 area not considered to have been addressed in the 2-hour notification for a sudden release of oil. A separate 120-day notification will be provided for the PAH and lead in soil.

It is to be noted that the presence of fill material and apparent building foundations were identified immediately adjacent to the former storage vessels during their removal. It is likely that Polynuclear Aromatic Hydrocarbons (PAHs) are associated with this fill condition and further investigation is necessary to confirm the source, nature and extent of what may not be an actual release of oil and/or hazardous materials (OHM). More specifically, several of the PAHs detected in sample S-3 may be attributable to contaminants in the fill unit, particularly asphalt fragments, which would not be considered as a Reportable Condition.

#### **EnviroTrac Conclusion: #7**

7. Soil samples collected from the soil borings were analyzed for EPH with target analytes and the MCP 14 metals. Only lead in the composite soil sample collected from B-102 at a depth of 0-10 feet, and benzo(a)pyrene in the 0-10 feet composite sample B-104 exceeded applicable MCP S-1 Reportable Concentrations;

Similar to the above described condition, asphalt was noted as being present within the shallow fill layer at B-102, where an exceedance of the RC standard for lead was identified. As stated in the EnviroTrac report, composite samples were collected from the 0-10' depth interval at borings B-101, B-102 and B-104. This sampling method and the corresponding depth interval of ten (10) feet were selected to enable the precharacterization of potential excess excavated material that will be generated during site redevelopment. While it is common within the industry to use composite sampling techniques, this is usually performed for homogeneous, or similar types of soil/fill. As evidenced from a review of Figure 1, asphalt was present within the shallow fill unit at approximately 2.5 to 3.3 feet from surface grade. This fill material was "composited" with underlying native soils and as such represents the mixing of distinctly different material in the sample. To determine if the exceedance of the lead standard was attributable to asphalt, EnviroTrac was asked if the samples from 0-5 feet and 5-10 feet were still available for further evaluation. This would enable the separate analysis of the upper fill unit to identify whether or not an actual Reportable Condition exists. If not, EnviroTrac was asked if they were planning to perform any further investigations of this potential source condition. In addition, it is customary to do a TCLP analyses if soil samples containing lead concentrations are above 100 mg/kg, as described in the following excerpt from our 12 September 2016 memorandum.

The 0-10 foot composite sample from B-102 where a lead concentration of 431 mg/kg was detected contains asphalt within the 2.7 - 3.3 depth interval. As the sample hold time has not been exceeded, do you still have soil samples in-house for the 0-5 and 5-10 foot depth intervals that could be run to isolate this potential reportable condition? In addition, is it planned to do TCLP analyses for the sample containing the lead exceedance for purposes of evaluating future soil management requirements?

EnviroTrac has indicated that these samples were not available and no further investigation would be undertaken at this time, however, TCLP analysis is being performed. It is our professional opinion that further investigation of this condition is warranted to determine whether or not an actual reporting condition exists at B-102.

Benzo(a)pyrene was detected in the 0-10 foot composite sample from B-104 at a concentration of 2.7 mg/kg, in comparison to the reporting standard of 2.0 mg/kg. This slight exceedance was detected during the analysis for MDEP Extractable Petroleum Hydrocarbons (EPH), which in part is comprised of PAH target compounds including Benzo(a)pyrene. A similar, though more comprehensive analysis

for PAHs, as semi-volatile organic compounds, was also performed upon the sample from B-104. This analysis did not reveal an exceedance for Benzo(a)pyrene, nor were any additional exceedances detected across the site. Similar to the issue involving the use of composite sampling over wide depth intervals, Mr. Bird was asked if further sampling was to be performed, as described in the 12 September 2016 memorandum excerpt, presented below.

It is noted that the Semi-Volatile analyses of the 0-10 foot composite sample from B-104 did not detect Benzo(a)pyrene above the applicable RC value, while the Extractable Petroleum Hydrocarbons (EPH) analysis did reveal a slight exceedance. As the sample hold time has passed and several additional sample analyses were below the RC value, is it planned to reevaluate this location to confirm the repeatability and representativeness of the single exceedance?

EnviroTrac has indicated that no further investigation of this issue is proposed at this time. As such, the representativeness and reportability of this data point does, in our professional opinion, warrant further investigation, to determine whether a Reportable Condition does indeed exist.

#### **EnviroTrac Conclusion: #8**

8. The owner of the Subject Property has a regulatory obligation to notify MassDEP of the two reportable conditions, i.e. lead in soil at 431 mg/kg at B-104 and benzo(a)pyrene at 2.7 mg/kg at B-102, within 120 days of receipt of knowledge of such; and,

For the reasons outlined under our response to Conclusion #7, the owner of this property may wish to further evaluate the PAH and lead exceedances detected within the composite samples to determine whether these conditions are subject to the 120-day reporting obligation.

#### **EnviroTrac Conclusion: #9**

9. Groundwater samples were collected from each of the five (5) newly installed monitoring wells and the five (5) existing monitoring wells and analyzed for VOC using EPA Method 8260C, EPH, VPH and dissolved MCP 14 Metals. None of the method analyte concentrations exceeded the applicable MCP GW-2 Reportable Concentrations.

We agree that the results of the groundwater sampling event did not reveal any exceedances of applicable regulatory standards. However, it is noted that the evaluation of site hydrology revealed very varied groundwater flow contours leading to an inability to accurately determine groundwater flow direction. This may be attributable, at least in part, to the penetration of several different perched, or seepage zones atop potentially confining strata. As shown on Figure 2, several of the well screen intervals were set across multiple seepage zones. This is a difficult condition to quantify, particularly during initial site investigations, due to the presence of semi confining silts and clays, at varied depth intervals. This is also likely attributable to the lack of sufficient groundwater recharge at MW-108 during the groundwater sampling event, that limited the extent of sample collection, as described by EnviroTrac on Page 3 of their report.

- Well MW-108 did not recharge sufficiently to allow for stabilization prior to sampling.
- Due to insufficient well volume, the groundwater sample from well MW-108 was submitted for EPH analysis only.

Mr. Hans Jensen  
September 28, 2016  
Page 5

As stated above, this hydrologic condition, while influencing the ability to determine groundwater flow direction, is not considered to be a concern with respect to the results of the laboratory analytical program for groundwater. Further, the potential influence of the subsurface MBTA utility corridor is also noted.

Upon your review of the summary correspondence please feel free to contact us at your convenience.

Very Truly Yours,

Nangle Consulting Associates, Inc.

Jeffrey A. Nangle, P.E., L.S.P.

# FIGURES

**Environmental Engineering and Land Use Planning**

LOG OF BORING: B-101


Date 8/8/2016	Drilling Company Technical Drilling Services	Monitoring Well Construction Details Boring was not completed as a monitoring well			
Client Maggiore Companies	Drilling Method Geoprobe				
Site Maggiore Wakefield 351 Summer Street Somerville, Massachusetts	Completion Depth 10 feet	Laboratory Samples B-101 (comp.) submitted for VOCs by 8260, VPH, EPH, and MCP 14 Metals			
		Geologist Frank Morrissey, Lauren Main			
	Drilling Data				SOIL DESCRIPTION
	Depth (feet)	Recovery (inches)	Blow Count (per 6')	PID (ppmv)	
	1	30	—	—	0-5' 0 - 3": Asphalt 0-2.5': no recovery
	2				2.5-3': Asphalt fragments
	3		—	BDL	3-3.3': Dry-moist, black-dk brown f-SAND, some gravel and organics
	4		—	BDL	3.3-5': Dry-moist, brown-tan f-SAND, some gravel, silt, and clay
	5	40	—	—	5-10' 5 - 6.7': no recovery
	6		—	BDL	6.7-8.9': Dry-moist, brown-tan f-SAND, some silt and gravel
	7		—	BDL	
	8				8.9-10': Moist, brown-gray m-c SAND, some gravel
	9				
	10				

Abbreviations


dk dark  
lt light  
sl slightly  
-- not applicable  
BDL below detection limit

Sand abbreviations


f fine  
m medium  
c coarse



LOG OF BORING: B-102

Date 8/8/2016	Drilling Company Technical Drilling Services	Monitoring Well Construction Details Boring was not completed as a monitoring well			
Client Maggiore Companies	Drilling Method Geoprobe				
Site Maggiore Wakefield 351 Summer Street Somerville, Massachusetts	Completion Depth 10 feet	Laboratory Samples B-102 (comp.) submitted for VOCs by 8260, VPH, EPH, and MCP 14 Metals			
		Geologist Frank Morrissey, Lauren Main			
	Drilling Data				SOIL DESCRIPTION
	Depth (feet)	Recovery (inches)	Blow Count (per 6')	PID (ppmv)	
	1	28	-	--	0-5' 0 - 3": Asphalt 0-2.7': no recovery
	2				2.7-3.3': Asphalt fragments
	3		-	BDL	3.3-3.4': Dry-moist, dk brown-black f-SAND, some organics
	4		-	BDL	3.4-4.6': Dry-moist, dk brown f-m SAND, some gravel
	5	30	-	BDL	4.6-4.7': Rock fragments
	6		-	--	4.7-5': Dry-moist, tan f-SAND, some gravel
	7		-	--	5-10' 5 - 7.5': no recovery
	8		-	BDL	7.5-7.8': Moist, dk brown f-SAND, some gravel
	9				7.8-8.3': Dry-moist, tan f-SAND, some rock fragments
	10				8.3-9.2': Moist, gray-tan silty CLAY 9.2-10': Moist, gray-tan CLAY
<div>Abbreviations</div> <div>dk    dark</div> <div>lt    light</div> <div>sl    slightly</div> <div>--    not applicable</div> <div>BDL   below detection limit</div> <div>Sand abbreviations</div> <div>f    fine</div> <div>m    medium</div> <div>c    coarse</div> <div></div>					

LOG OF BORING: B-104

Date 8/8/2016	Drilling Company Technical Drilling Services	Monitoring Well Construction Details Boring was not completed as a monitoring well			
Client Maggiore Companies	Drilling Method Geoprobe				
Site Maggiore Wakefield 351 Summer Street Somerville, Massachusetts	Completion Depth 10 feet	Laboratory Samples B-104 (comp.) submitted for VOCs by 8260, VPH, EPH, and MCP 14 Metals			
		Geologist Frank Morrissey, Lauren Main			
	Drilling Data				SOIL DESCRIPTION
	Depth (feet)	Recovery (inches)	Blow Count (per 6')	PID (ppmv)	
	1	27	--	--	0-5' 0-2.8': no recovery
	2				
	3		--	BDL	2.8-3.3': Dry, brown f-SAND, some rocks and roots
	4		--	5.0	3.3-5': Dry-moist, tan-gray f-SAND, some rocks
	5	38	--	BDL	
	6		--	--	5-10' 5 - 7.7': no recovery
	7				
	8		--	BDL	7.7-10': Dry-moist, tan-brown-tan f-m SAND, some gravel
	9				
	10				
	<div>Abbreviations</div> <div>dk dark</div> <div>lt light</div> <div>sl slightly</div> <div>-- not applicable</div> <div>BDL below detection limit</div> <div>Sand abbreviations</div> <div>f fine</div> <div>m medium</div> <div>c coarse</div> <div></div>				

ENVIROTRAC BORING LOG COMPARISON  
343 - 351 SUMMER STREET  
SOMERVILLE, MASSACHUSETTS

LEGEND

REFERENCE:  
Envirotrac Draft Limited Subsurface Investigation  
Report dated September 8, 2016

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

Date: SEPT 2016

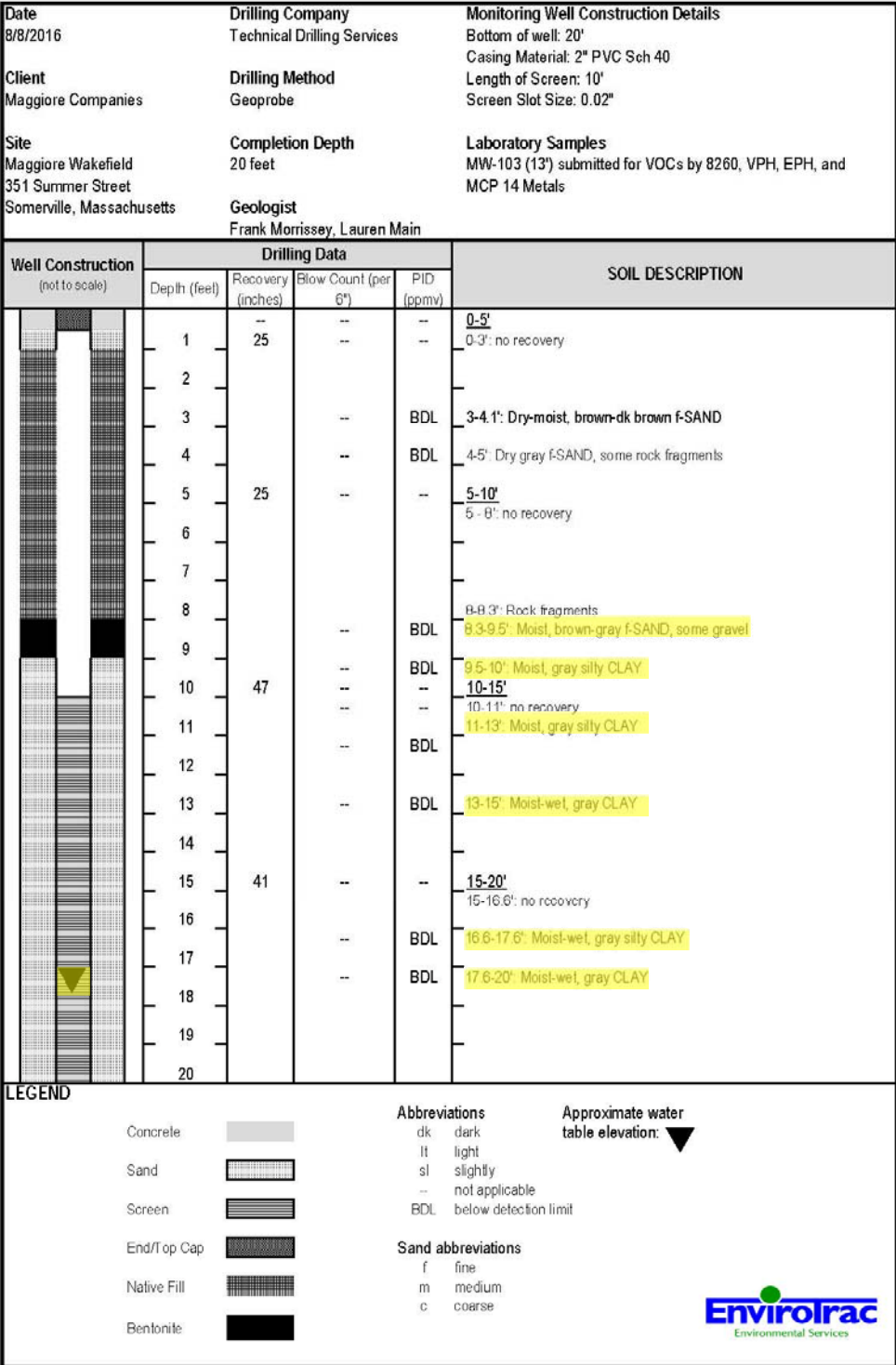
Job No: 778.02

Figure

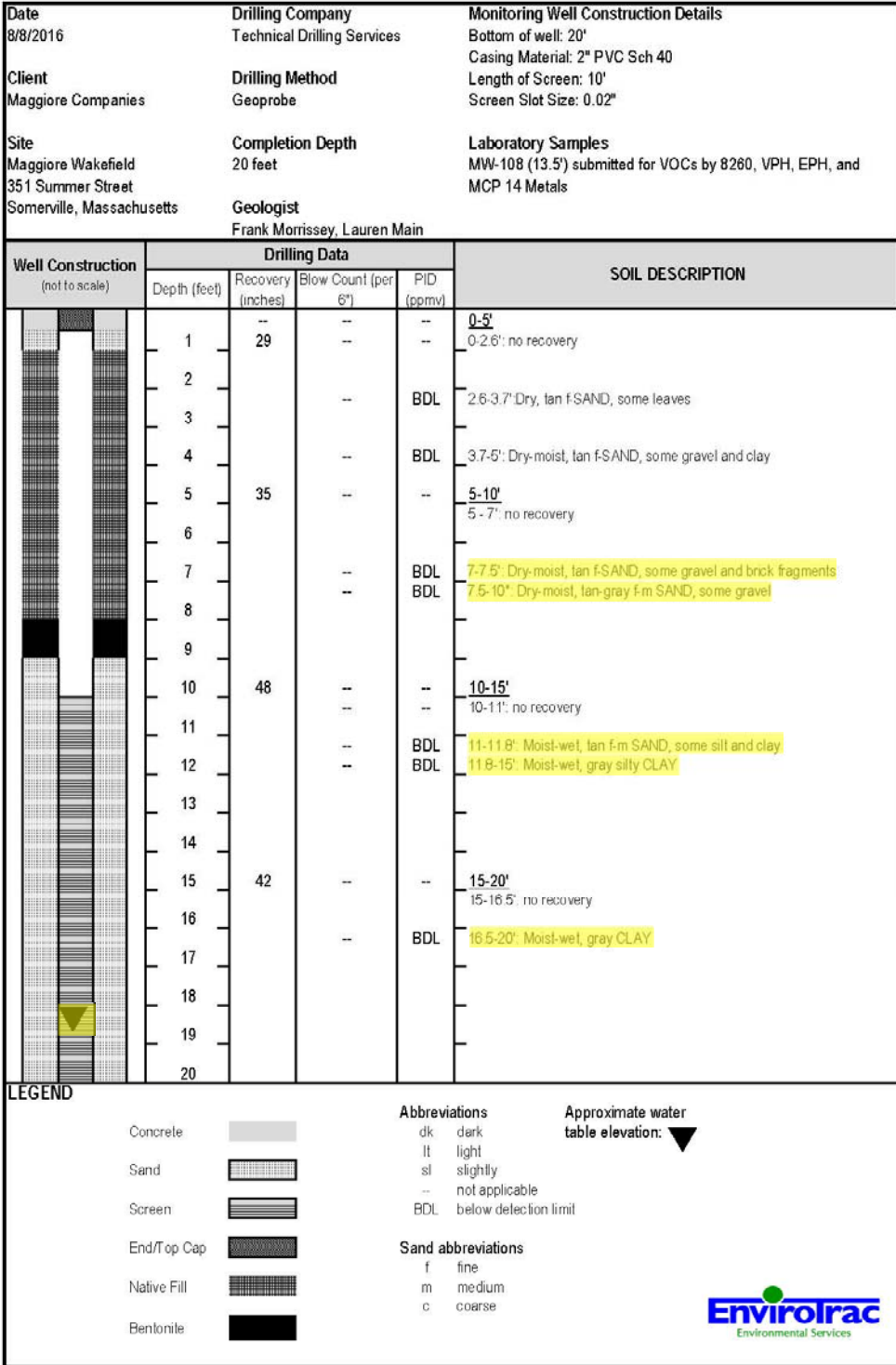
1



LOG OF BORING: MW-103



LOG OF BORING: MW-108



ENVIROTRAC MONITORING WELL COMPARISON  
343 - 351 SUMMER STREET  
SOMERVILLE, MASSACHUSETTS

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

LEGEND

REFERENCE:  
Envirotrac Draft Limited Subsurface Investigation  
Report dated September 8, 2016

Date: SEPT 2016

Job No: 778.02

Figure  
2



# ATTACHMENT A

**Environmental Engineering and Land Use Planning**

## **MEMORANDUM**

**TO:** Robert H. Bird, L.S.P. (EnviroTrac Ltd.)

**FROM:** Jeffrey A. Nangle, P.E., L.S.P

**DATE:** September 16, 2016

**SUBJECT:** Limited Subsurface Investigation  
343-351 Summer Street

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Before we prepare our final peer review comments for the Limited Subsurface Investigation Report, we would like to follow up on a few issues for your review and consideration.

1. The 0-10 foot composite sample from B-102 where a lead concentration of 400 mg/kg was detected contains asphalt within the 2.7 - 3.3 depth interval. As the sample hold time has not been exceeded, do you still have soil samples in-house for the 0-5 and 5-10 foot depth intervals that could be run to isolate this potential reportable condition? In addition, is it planned to do TCLP analyses for the sample containing the lead exceedance for purposes of evaluating future soil management requirements?
2. Sample S-3 contained several Polynuclear Aromatic Hydrocarbons (PAHs) above their respective Reportable Concentration (RC) values, and Massachusetts Department of Environmental Protection's (MDEP's) background standards. We understand that averaging the data could meet the requirements of a Permanent Solution for the petroleum release conditions; however, the PAH distribution detected in sample S-3 differs from what was observed in the stockpile sample associated with the spill. Further, several of the PAHs detected in sample S-3 and not in the stockpile would not be expected in a waste oil sample, nor were they detected at the additional seven (7) sampling locations (S series) above applicable RC values. Accordingly, we would appreciate clarification regarding the opinion that these exceedances are addressed by the two (2) hour notification.
3. Is it correct to assume that the sample from 13 feet at B-103 was analyzed in anticipation that this depth corresponded to the soil / groundwater interface, which was later determined to be at 16.81 feet after well stabilization? Similar consideration applies to the sampling depths for MW-105 and MW-108.
4. It is noted that the Semi-Volatile analyses of the 0-10 foot composite sample from B-104 did not detect Benzo(a)pyrene above the applicable RC value, while the Extractable Petroleum Hydrocarbons (EPH) analysis did reveal a slight exceedance. As the sample hold time has passed and several additional sample analyses were below

Memorandum  
September 16, 2016  
Page 2 of 2

the RC value, is it planned to reevaluate this location to confirm the repeatability and representativeness of the single exceedance?

**From:** [Robert H. Bird, LSP](#)  
**To:** [Matt Maggiore](#)  
**Subject:** FW: 343-351 Summer Street, Somerville, MA  
**Date:** Thursday, September 22, 2016 3:03:08 PM  
**Attachments:** [746.02 MM 2016 09 16.pdf](#)

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Matt,

Attached is the memo sent to me by Nangle and below are my responses to his questions.

Bob

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**From:** Robert H. Bird, LSP  
**Sent:** Tuesday, September 20, 2016 4:44 PM  
**To:** Jeffrey Nangle <jnangle@ncaenv.com>  
**Subject:** 343-351 Summer Street, Somerville, MA

Hi Jeff,

Provided below is additional information for the issues raised in your September 16, 2016 memo:

1. No additional samples are available for analyses. The TCLP analysis has been requested and the results are pending.
2. The elevated PAH in S-3 are not considered to have been addressed in the 2-hour notification for a sudden release of oil. A separate 120-day notification will be provided for the PAH and lead in soil.
3. Yes.
4. No.

We look forward to receiving your final comments and moving forward with redevelopment of the property.

Thanks...

Bob

---

Robert H. Bird, LSP | Principal Hydrogeologist | EnviroTrac Ltd. | 2 Merchant Street Suite 2, Sharon MA 02067  
781.793.0074 (Office) | 781.793.7877 (Fax) | 508.244.7111 (Cell) | robertb@envirotrac.com | [vCard](#)

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Solutions in Action - <http://www.envirotrac.com>



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# ATTACHMENT B

**Environmental Engineering and Land Use Planning**

# LIMITED SUBSURFACE INVESTIGATION REPORT

Vacant Property  
343-351 Summer Street  
Somerville, Massachusetts

September 8, 2016

DRAFT

## Prepared for:

The Maggiore Companies  
13 Wheeling Avenue  
Woburn, Massachusetts 01801

## Prepared by:

EnviroTrac Ltd.  
2 Merchant Street, Suite 2  
Sharon, Massachusetts 02067

*A Full Service Environmental Consulting  
and Contracting Firm*



## TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Site Description.....	1
<b>2.0</b>	<b>SUBSURFACE INVESTIGATIONS .....</b>	<b>1</b>
2.1	Subsurface Soil Investigation .....	1
2.2	Test Pit Soil Investigation.....	2
2.3	Groundwater Sampling and Analyses .....	3
2.4	Hydrogeologic Conditions .....	3
<b>3.0</b>	<b>DISCUSSION OF ANALYTICAL DATA .....</b>	<b>4</b>
3.1	Soil Data .....	4
3.2	Groundwater Data.....	4
3.3	Groundwater Flow.....	4
<b>4.0</b>	<b>CONCLUSIONS .....</b>	<b>5</b>

## FIGURES

Figure 1	Locus Map
Figure 2	Site Plan
Figure 3	UST Excavation and Sample Location Detail
Figure 4	Water Table Elevation Contour Plan – August 17, 2016

## TABLES

Table 1	Summary of Soil Boring Analytical Data
Table 2	Summary of UST Area Soil Analytical Data
Table 3	Summary of Soil Stockpile Analytical Data
Table 4	Summary of Groundwater Analytical Data
Table 5	Summary of Monitoring Well Gauging Data
Table 6	Summary of Groundwater Geochemical Data

## APPENDICES

Appendix A	Boring Logs
Appendix B	Soil Laboratory Reports
Appendix C	Groundwater Laboratory Report



## 1.0 INTRODUCTION

At the request of The Maggiore Companies (Maggiore), EnviroTrac Ltd. (EnviroTrac) has prepared this Limited Subsurface Investigation Report to document the methods and results of subsurface investigations conducted at 343-351 Summer Street (Subject Property) in Somerville, Massachusetts. The location of the property is depicted on the Locus Map (**Figure 1**). A Site Plan is provided as **Figure 2**.

### 1.1 Site Description

The Subject Property is comprised of four (4) parcels of land identified by the City of Somerville Assessor's office as Map #25, Block D, Lots #33 (343 Summer Street), #34 (345 Summer Street), #35 (349 Summer Street) and #36 (351 Summer Street). The four parcels total approximately 0.93 acres in a mixed-use commercial/residential section of Somerville. The parcels identified as 343-349 Summer Street are currently undeveloped but contain an air vent for the MBTA Red Line which runs beneath the southwestern portion of the parcels. The parcel at 351 Summer Street is currently used as a paved parking lot for the adjacent George Dilboy VFW Post #529.

Historically, the 351 Summer Street parcel was used as a gasoline filling station prior to the parcel being vacated to facilitate the construction of the MBTA Red Line beneath the property in the 1980s. The 343-395 Summer Street parcels had been the location of residential dwellings and associated parking.

## 2.0 SUBSURFACE INVESTIGATIONS

To document current environmental conditions in support of property acquisition and redevelopment, subsurface investigations were initiated on August 8, 2016. These investigations are documented in the following sections.

### 2.1 Subsurface Soil Investigation

On August 8, 2016, Technical Drilling Services, Inc. (TDS) of Leominster, Massachusetts advanced eight (8) soil borings (B-101 through B-1045, and MW-105 through MW-108) under the supervision of EnviroTrac personnel. All borings were advanced utilizing direct push methods with a Geoprobe™ rig. As shown in **Figure 2**, soil borings B-101, B-102, B-105, MW-106 and MW-107 were advanced in the paved parking area of the 351 Summer Street portion of the Subject Property. Borings B-101, B-102 and B-104 were advanced to a maximum explored depth of approximately 10 feet below ground surface (bgs) to assist in characterizing soil to be excavated during the anticipated construction activities. Borings MW-103, MW-105, MW-106, MW-107 and MW-108 were advanced to a depth of approximately 20 feet and were completed as two-inch diameter groundwater monitoring wells with 10 feet of well screen.

During the advancement of the soil borings, select soil samples were screened with a photoionization detector (PID) in accordance with the MassDEP jar headspace method. PID readings ranged from below the instrument detection limit (BDL) of 0.5 parts per million by volume (ppmv) to 5.0 ppmv.

Soil boring logs, which include lithologic and stratigraphic descriptions, PID results and monitoring well construction details, are included as **Appendix A**. Lithologic and stratigraphic descriptions

were based on soil samples collected from each boring at five-foot intervals using dedicated acetate soil sampling liners. The soil boring and monitoring wells locations are depicted on the Site Plan (**Figure 2**).

### 2.1.1 Soil Sampling and Analyses

Soil conditions encountered during soil boring activities were primarily sand, with traces of silt and gravel, overlying a gray clay. The sandy layer varied in thickness by boring location from 8 to 16.7 feet bgs.

Based on field observations and headspace screening results, a selected soil sample was obtained from each boring, placed into clean, appropriately preserved glassware and transported under a chain of custody to SGS Accutest Laboratories (SGS) of Marlborough, Massachusetts. Each soil sample was analyzed for extractable petroleum hydrocarbons (EPH) with target polycyclic aromatic hydrocarbons (PAHs) and the MCP 14 metals. Composite (0-10 feet bgs) soil samples from B-101, B-102 and B-104 were also analyzed for volatile organic compounds (VOC) by EPA Method 8260, semi-volatile organic compounds by EPA Method 8270, volatile petroleum hydrocarbons (VPH) with target analytes, polychlorinated biphenyls (PCB) by EPA Method 8082, specific conductivity, flashpoint, pH and reactivity.

Soil laboratory analytical results are summarized in **Table 1**. A copy of the soil sample laboratory report is included in **Appendix B**.

## 2.2 **Test Pit Soil Investigation**

On August 8, 2016, EnviroTrac monitored the completion of test pits as completed by Koster and Sons Construction, Inc. The test pits were completed to investigate the potential existence of an underground storage tank (UST) on the 349 Summer Street parcel. A historical (1934-1950) Sanborn Insurance Map showed the existence of a “gas tank” on the property and there was no available documentation that the UST had been removed from the property.

A series of trenches, approximately 5 feet wide and 7-8 feet deep were excavated using a backhoe. The locations of the test pit trenches are shown on **Figure 2**.

During the test pit activities, a UST was encountered and damaged by the backhoe. The top of the UST was approximately 2.5 feet bgs. The UST was 30 inches in diameter and 24 inches in length with a volume capacity of approximately 60 gallons. As the result of the UST containing oily liquid, approximately 20-30 gallons of liquid were released to the adjacent soil when the UST was damaged.

In response to the release, both the Massachusetts Department of Environmental Protection (MassDEP) and the Somerville Fire Department were notified. MassDEP assigned Release Tracking Number (RTN) 3-33735 to the Site. In accordance with a MassDEP-approved Immediate Response Action (IRA), approximately 13 cubic yards of oil-impacted soil was excavated by Strategic Environmental Services, LLC (SES) on August 12, 2016, from the vicinity of the damaged UST. The impacted soil was stockpiled on-site, awaiting disposal characterization and off-site disposal.

On August 12, 2016, during the excavation of impacted soil associated with the UST encountered on August 8, 2016, two small diameter buried pipes were observed exiting the excavation. Further excavation in the area of the piping identified a second small UST (Tank #2) approximately 6 feet

west of the first UST (Tank #1). Tank #2 was confirmed to be approximately the same size as Tank #1 with no evidence of releases or leaks from the UST observed. The contents of both tanks were removed and placed in two (2) 55-gallon drums for off-site disposal. After cleaning, the tanks were removed from the excavation and transported to the James G. Grant Co. tank yard for disposal.

On August 12, 2016, eight (8) soil samples, representative of the extent of the excavation in the vicinity of the two USTs, were obtained by EnviroTrac. The soil samples, identified as S-1 through S-8, as shown on **Figure 3**, were submitted to SGS for EPH and VPH analysis. A composite sample, representative of the stockpiled oil-impacted soil, was also obtained and submitted for analysis for soil disposal parameters. A sample of the contents of Tank #1 was also submitted to SGS for forensic fingerprint analysis. The laboratory results are summarized in **Table 2**. Copies of the UST soil laboratory reports are included in **Appendix B**.

### 2.3 Groundwater Sampling and Analyses

On August 17, 2016, groundwater samples were collected by EnviroTrac from the ten on-site monitoring wells (MW-1, MW-2, MW-3, MW-103, MW-105, MW-106, MW-107, MW-108, B-2/MW, and B-3/MW) using low-flow methodology with dedicated, disposable tubing. Prior to sample collection, each well, with the exception of well MW-108, was purged until groundwater geochemical parameters (temperature, pH, dissolved oxygen, oxidation-reduction potential, and conductivity) stabilized to facilitate collection of a representative sample. Well MW-108 did not recharge sufficiently to allow for stabilization prior to sampling.

Groundwater samples were field filtered and collected in pre-preserved containers provided by the laboratory. All groundwater samples were labeled in the field and transported to SGS under standard chain-of-custody protocol. Groundwater samples were analyzed for volatile organic compounds (VOCs) by EPA Method 8260, VPH, EPH and dissolved 14 MCP Metals. Due to insufficient well volume, the groundwater sample from well MW-108 was submitted for EPH analysis only. Groundwater data is summarized in **Table 4**. A copy of the groundwater laboratory report is included as **Appendix C**.

### 2.4 Hydrogeologic Conditions

Based on gauging data obtained by EnviroTrac personnel on August 17, 2016, the depth to water was measured to range from 10.41 feet below grade at MW-106 to 19.50 feet below grade at MW-108. Groundwater gauging data is summarized in **Table 5**.

A wellhead elevation survey was conducted on August 17, 2016 utilizing an assumed benchmark of 100 feet at the northeast corner of the MBTA vent pad. Utilizing the August 17, 2016 depth to water measurements and the top of casing elevations, relative water table elevations were calculated for each monitoring well. Water table elevation contours were modeled using the August 17, 2016 water table elevations. The water table elevation for monitoring well MW-108 was not utilized in calculating the contours due to limited recharge. The top of casing elevations are summarized in **Table 5** and a water table elevation contour map is presented as **Figure 4**.

### **3.0 DISCUSSION OF ANALYTICAL DATA**

#### **3.1 Soil Data**

##### **3.1.1 Soil Borings**

The laboratory analysis of the soil samples obtained during the August 8, 2016 advancement of eight (8) soil borings on the Subject Property, as summarized in **Table 1**, report that the composite soil samples obtained for pre-disposal characterization (B-101, B-102 and B-104) contained no detectable concentrations of VOC, other than benzene at 0.001 milligram/kilogram (mg/kg) at B-102 and acetone (0.02 mg/kg) at B-104. No detectable VPH or PCB concentrations were reported in the pre-disposal characterization samples.

Pyrogenic polynuclear aromatic hydrocarbons were reported in each of the eight (8) soil samples, with the benzo(a)pyrene concentration (2.7 mg/kg) at B-104 in excess of the applicable MCP Reportable Concentration (RCS-1) of 2 mg/kg.

Metals were present in all collected soil samples, with the reported lead concentration at B-102 (431 mg/kg) the only metal reported in excess of the metal-specific RCS-1 reportable concentration. The RCS-1 concentration for lead is 200 mg/kg.

##### **3.1.2 UST Area**

The soil samples obtained to represent the extent of the excavation completed to remove the two USTs and soil impacted by the release of oily liquid from Tank #1 contained no detectable VPH concentrations. Extractable petroleum hydrocarbons were detected in seven of the eight UST excavation soil samples, with benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene and phenanthrene reported at concentrations that exceeded applicable MCP Method 1 Soil Standards.

#### **3.2 Groundwater Data**

The groundwater samples collected on August 17, 2016, contained no detectable VPH or EPH concentrations. The only detected VOC was acetone which was detected at 14.5 micrograms/liter (ug/l) in well MW-103. Dissolved arsenic, selenium and zinc were reported in the groundwater at concentrations significantly below the applicable RCGW-2 Reportable Concentrations for the Subject Property.

#### **3.3 Groundwater Flow**

Based on the water table elevation contours depicted on **Figure 4**, no clearly discernable groundwater flow direction is evident. This is likely due to a number of factors, including observed site lithology comprised of shallow sandy fill overlying clay, which results in an apparent “semi-perched” water table. In addition, historical subsurface disturbance associated with the installation of the MBTA vent is likely.

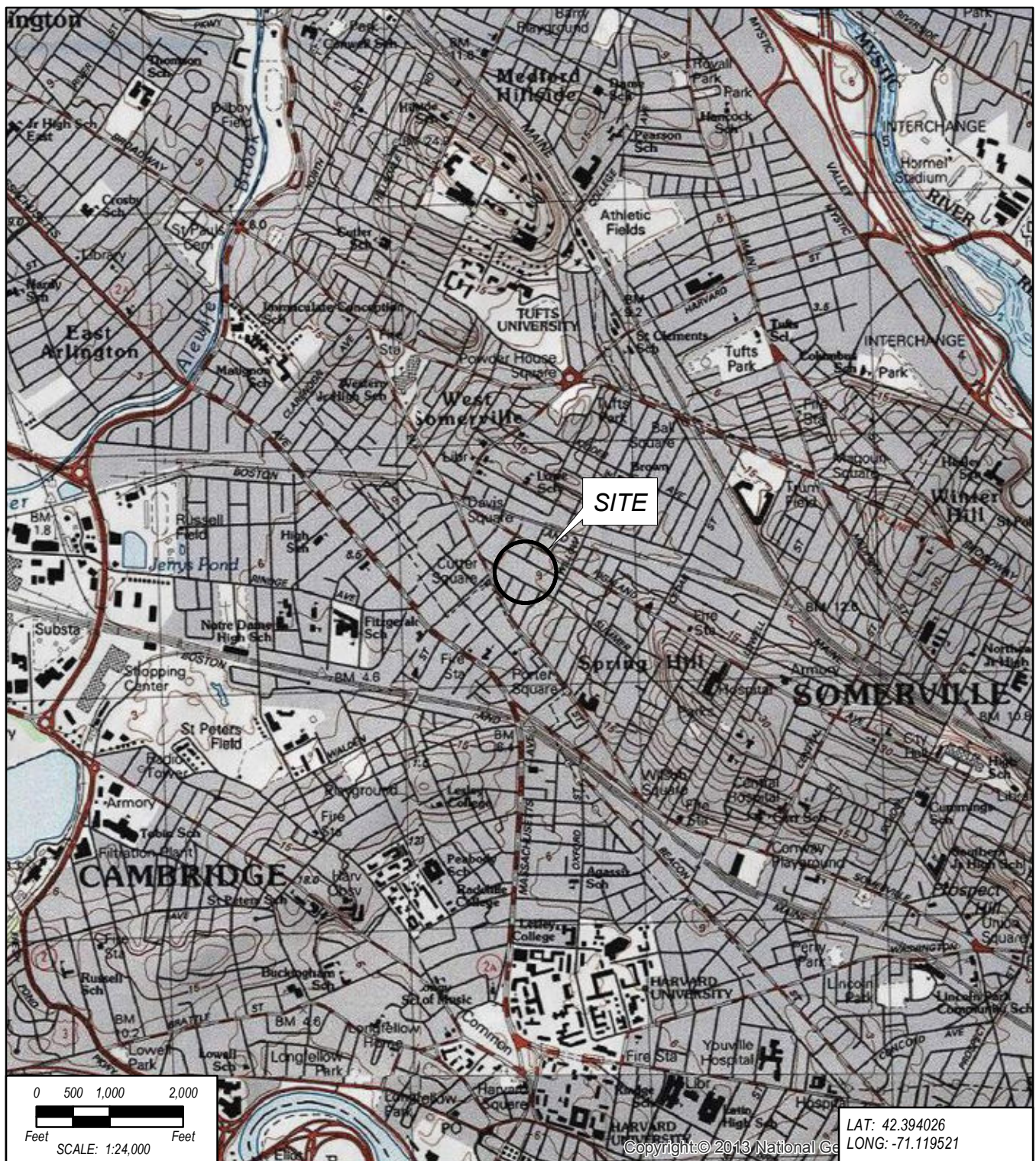
## 4.0 CONCLUSIONS

Based on the information presented herein, the following findings and/or conclusions are presented:

- Eight (8) soil borings were installed on the Subject Property identified as 343-351 Summer Street. Five (5) of the soil borings were completed as groundwater monitoring wells;
- Soil conditions encountered during the advancement of the soil borings were primarily sand, with traces of silt and gravel overlying a gray clay layer;
- Depth to groundwater ranged from 10.41 to 19.50 feet below grade on August 17, 2016;
- Two small (approximately 60 gallons) USTs were encountered and removed during test pitting activity at the parcel identified as 349 Summer Street.
- One of the tanks (Tank #1) was damaged during the test pitting activities, resulting in approximately 20-30 gallons of oily liquid being released to the soil in the vicinity of the tank. MassDEP-approved Immediate Response Actions (IRA) were completed on August 12, 2016, under Release Tracking Number 3-33735, including the removal of approximately 13 cubic yards of oil-impacted soil;
- Based on the UST removal, impacted soil excavation and post-excavation soil data collected to date, the release of oil from the UST has been remediated to meet the MCP requirements for closure of the release with a Permanent Solution that should be submitted on or before October 7, 2016 to meet MCP regulatory deadlines.
- Soil samples collected from the soil borings were analyzed for EPH with target analytes and the MCP 14 metals. Only lead in the composite soil sample collected from B-102 at a depth of 0-10 feet, and benzo(a)pyrene in the 0-10 feet composite sample B-104 exceeded applicable MCP S-1 Reportable Concentrations;
- The owner of the Subject Property has a regulatory obligation to notify MassDEP of the two reportable conditions, i.e. lead in soil at 431 mg/kg at B-104 and benzo(a)pyrene at 2.7 mg/kg at B-102, within 120 days of receipt of knowledge of such; and,
- Groundwater samples were collected from each of the five (5) newly installed monitoring wells and the five (5) existing monitoring wells and analyzed for VOC using EPA Method 8260C, EPH, VPH and dissolved MC P 14 Metals. None of the method analyte concentrations exceeded the applicable MCP GW-2 Reportable Concentrations.
- Forensic analysis of an oil sample collected from UST-1 suggests that the tank content characteristics are consistent with those of a used motor oil waste stream from gasoline powered combustion engines.

## FIGURES





SOURCE: OFFICE OF GEOGRAPHIC INFORMATION (MassGIS), COMMONWEALTH OF MASSACHUSETTS, MassIT.  
USGS TOPOGRAPHIC MAPS: BOSTON NORTH AND BOSTON SOUTH, MA QUADRANGLES



2 Merchant Street, Suite 2 P: (781) 793-0074  
Sharon, Massachusetts 02067 F: (781) 793-7877

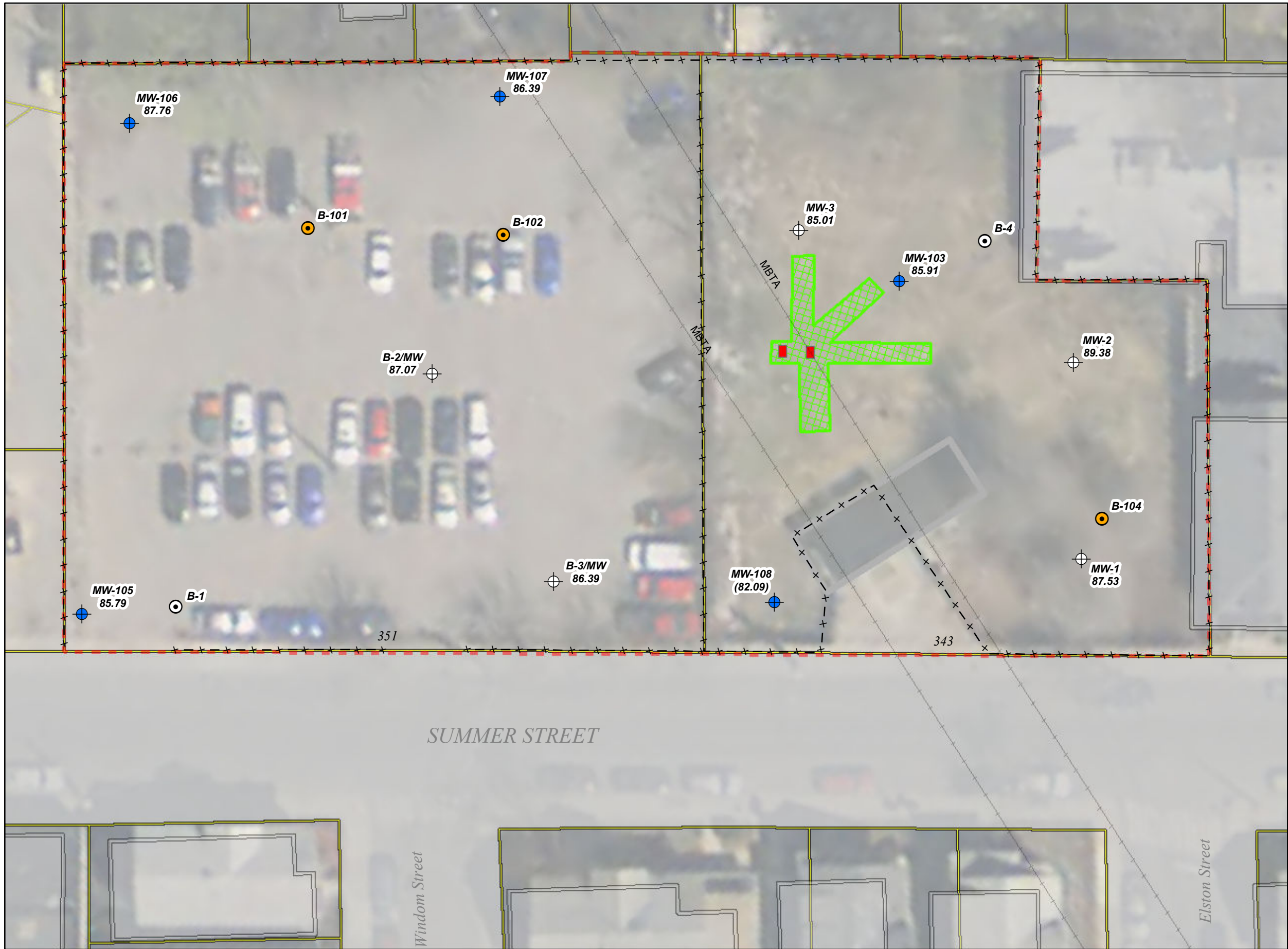
[www.EnviroTrac.com](http://www.EnviroTrac.com)

## LOCUS MAP

343 - 351 SUMMER STREET  
SOMERVILLE, MASSACHUSETTS

DRAWN BY	PROJECT	DATE	FIGURE
RHB	03.990202.00	9/1/2016	1





- LEGEND**
- 343-351 PROPERTY BOUNDARY
  - Fence
  - MBTA VENT
  - UST
  - TEST PITS
  - SOIL BORING
  - MONITORING WELL
  - HISTORIC SOIL BORING
  - EXISTING MONITORING WELL

0 25 50  
Feet  
APPROXIMATE SCALE

REVISOR: RHB  
REVISION DATE: 9/8/2016

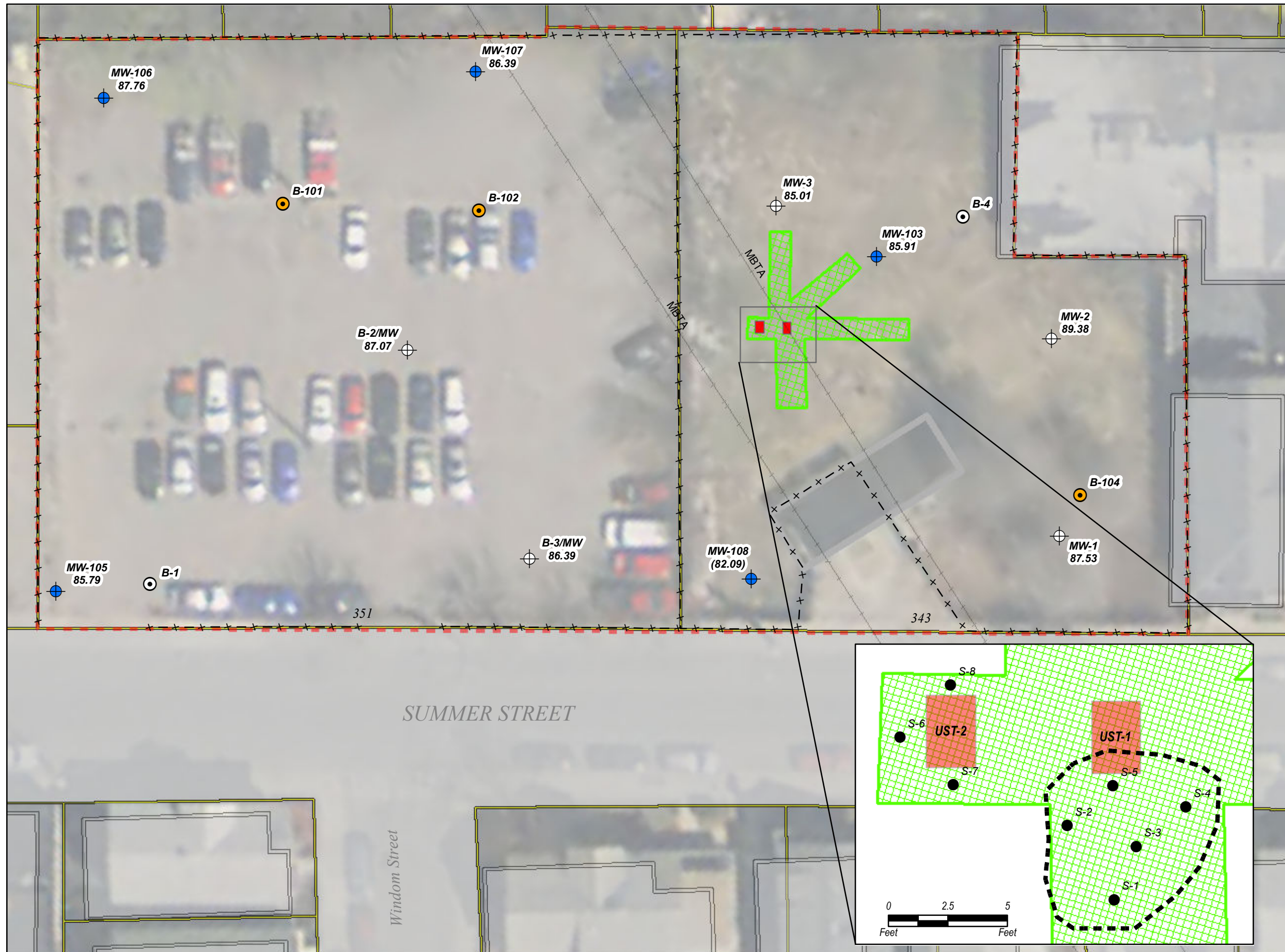
FIGURE  
2

**SITE PLAN**

343-351 SUMMER STREET  
SOMERVILLE, MASSACHUSETTS

**EnviroTrac**  
Environmental Services





Document Path: C:\GIS Projects\Somerville\343 Summer St\_UST Detail\_09072016.mxd

# LEGEND

- 343-351 PROPERTY BOUNDARY
- Fence
- MBTA VENT
- UST
- TEST PITS
- SOIL BORING
- MONITORING WELL
- HISTORIC SOIL BORING
- EXISTING MONITORING WELL
- UST SOIL SAMPLES
- UST EXCAVATION



Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, MassIT.



REVISED BY: RHB  
REVISION DATE: 9/8/2016

FIGURE

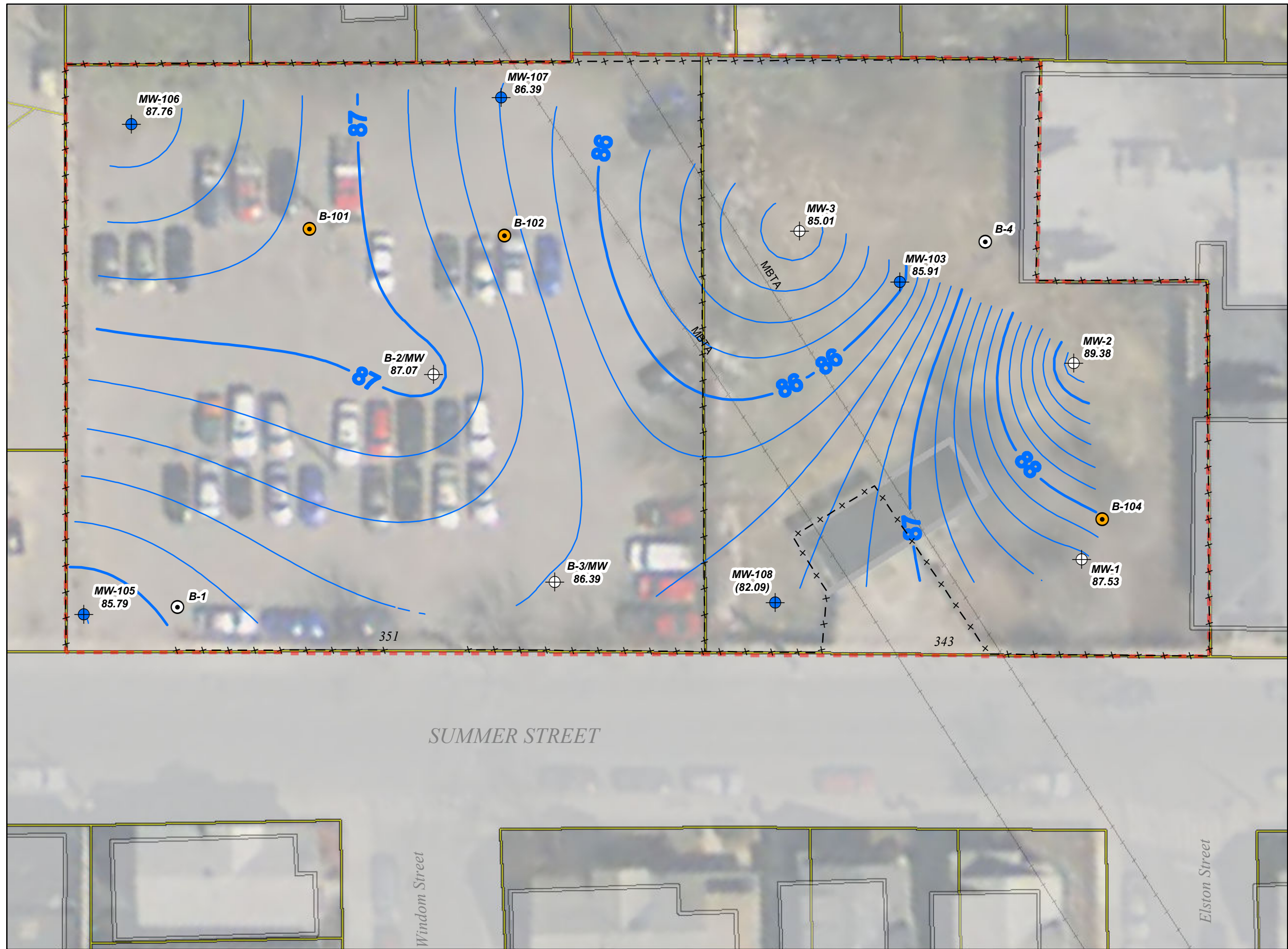
3

UST EXCAVATION AND  
SAMPLE LOCATION DETAIL

343-351 SUMMER STREET  
SOMERVILLE, MASSACHUSETTS







**LEGEND**

343-351 PROPERTY BOUNDARY

FENCE

MBTA VENT

SOIL BORING

MONITORING WELL

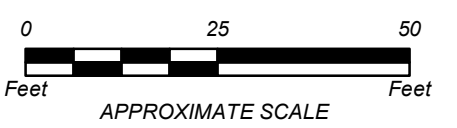
HISTORIC SOIL BORING

EXISTING MONITORING WELL

**MW-100 - WELL ID**  
132.68 - WATER TABLE ELEVATION (FT. MSL)  
(132.68) - WATER TABLE ELEVATION NOT USED

LINE OF INTERPOLATED EQUAL WATER TABLE ELEVATION

Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, MassIT.



REVISED BY: RHB  
REVISION DATE: 9/8/2016

FIGURE  
**4**

**WATER TABLE ELEVATION  
CONTOUR PLAN**  
GAUGING DATE: AUGUST 17, 2016

**343-351 SUMMER STREET  
SOMERVILLE, MASSACHUSETTS**



## TABLES

TABLE 1  
SUMMARY OF SOIL BORING ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date Sample ID Depth (feet) PID (ppmv)	August 8, 2016									MCP Reportable Concentrations (mg/kg)
	B-101	B-102	B-103	B-104	MW-105	MW-106	MW-107	MW-108	RCS-1	
	0-10	0-10	13	0-10	13.5	9	13	13.5		
VOLATILE ORGANIC COMPOUNDS (mg/kg)										
Acetone	0.02	ND (0.012)	--	0.02	--	--	--	--	6	
Benzene	<0.00050	0.001	--	<0.00042	--	--	--	--	2	
Bromobenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	100	
Bromochloromethane	<0.0050	<0.0061	--	<0.0042	--	--	--	--	--	
Bromodichloromethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.1	
Bromoform	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.1	
Bromomethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.5	
2-Butanone (MEK)	<0.010	<0.012	--	<0.0085	--	--	--	--	4	
n-Butylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	--	
sec-Butylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	--	
tert-Butylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	100	
Carbon disulfide	<0.0050	<0.0061	--	<0.0042	--	--	--	--	100	
Carbon tetrachloride	<0.0020	<0.0024	--	<0.0017	--	--	--	--	5	
Chlorobenzene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	1	
Chloroethane	<0.0050	<0.0061	--	<0.0042	--	--	--	--	100	
Chloroform	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.2	
Chloromethane	<0.0050	<0.0061	--	<0.0042	--	--	--	--	100	
o-Chlorotoluene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	100	
p-Chlorotoluene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	--	
Di-Isopropyl ether	<0.0020	<0.0024	--	<0.0017	--	--	--	--	100	
1,2-Dibromo-3-chloropropane	<0.0050	<0.0061	--	<0.0042	--	--	--	--	10	
Dibromochloromethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.005	
1,2-Dibromoethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.1	
1,2-Dichlorobenzene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	9	
1,3-Dichlorobenzene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	3	
1,4-Dichlorobenzene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.7	
Dichlorodifluoromethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	1,000	
1,1-Dichloroethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.4	
1,2-Dichloroethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.1	
1,1-Dichloroethene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	3	
cis-1,2-Dichloroethene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.1	
trans-1,2-Dichloroethene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	1	
1,2-Dichloropropane	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.1	
1,3-Dichloropropane	<0.0050	<0.0061	--	<0.0042	--	--	--	--	500	
2,2-Dichloropropane	<0.0050	<0.0061	--	<0.0042	--	--	--	--	--	
1,1-Dichloropropene	<0.0050	<0.0061	--	<0.0042	--	--	--	--	--	
cis-1,3-Dichloropropene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.01	
trans-1,3-Dichloropropene	<0.0020	<0.0024	--	<0.0017	--	--	--	--	0.01	

NOTES:

-- is analysis not performed.  
NE is not established.  
ND is not detected.  
su is standard units.  
°F is degrees Fahrenheit.

mg/kg is milligrams per kilogram.  
mg/L is milligrams per liter.  
PID is photoionization detector.  
ppmv is parts per million by volume.  
µmhos/cm is micromhos per centimeter.

VOC is volatile organic compound.  
SVOC is semi-volatile organic compound.  
<2.0 indicates not detected at or above the laboratory reporting limit of 2.0 mg/kg.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above MCP Reportable Concentrations are in **Red**.

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Sample Date Sample ID Depth (feet) PID (ppmv)	August 8, 2016									MCP Reportable Concentrations (mg/kg)
	B-101	B-102	B-103	B-104	MW-105	MW-106	MW-107	MW-108	RCS-1	
	0-10	0-10	13	0-10	13.5	9	13	13.5		
	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
VOLATILE ORGANIC COMPOUNDS (mg/kg)										
1,4-Dioxane	<0.13	<0.15	--	<0.11	--	--	--	--		0.2
Ethyl Ether	<0.0050	<0.0061	--	<0.0042	--	--	--	--		100
Ethylbenzene	<0.0020	<0.0024	--	<0.0017	--	--	--	--		40
Hexachlorobutadiene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		30
2-Hexanone	<0.010	<0.012	--	<0.0085	--	--	--	--		100
Isopropylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		1,000
p-Isopropyltoluene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		100
Methyl Tert Butyl Ether	<0.0020	<0.0024	--	<0.0017	--	--	--	--		0.1
4-Methyl-2-pentanone (MIBK)	<0.0050	<0.0061	--	<0.0042	--	--	--	--		0.4
Methylene bromide	<0.0050	<0.0061	--	<0.0042	--	--	--	--		500
Methylene chloride	<0.0020	<0.0024	--	<0.0017	--	--	--	--		0.1
Naphthalene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		4
n-Propylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		100
Styrene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		3
tert-Amyl Methyl Ether	<0.0050	<0.0061	--	<0.0042	--	--	--	--		--
tert-Butyl Ethyl Ether	<0.0020	<0.0024	--	<0.0017	--	--	--	--		--
1,1,1,2-Tetrachloroethane	<0.0050	<0.0061	--	<0.0042	--	--	--	--		0.1
1,1,2,2-Tetrachloroethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--		0.005
Tetrachloroethene	<0.0020	<0.0024	--	<0.0017	--	--	--	--		1
Tetrahydrofuran	<0.010	<0.012	--	<0.0085	--	--	--	--		500
Toluene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		30
1,2,3-Trichlorobenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		--
1,2,4-Trichlorobenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		2
1,1,1-Trichloroethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--		30
1,1,2-Trichloroethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--		0.1
Trichloroethene	<0.0020	<0.0024	--	<0.0017	--	--	--	--		0.3
Trichlorofluoromethane	<0.0020	<0.0024	--	<0.0017	--	--	--	--		1,000
1,2,3-Trichloropropane	<0.0050	<0.0061	--	<0.0042	--	--	--	--		100
1,2,4-Trimethylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		1,000
1,3,5-Trimethylbenzene	<0.0050	<0.0061	--	<0.0042	--	--	--	--		10
Vinyl chloride	<0.0020	<0.0024	--	<0.0017	--	--	--	--		0.7
m,p-Xylene	<0.0020	<0.0024	--	<0.0017	--	--	--	--		100
o-Xylene	<0.0020	<0.0024	--	<0.0017	--	--	--	--		100
Xylene (total)	<0.0020	<0.0024	--	<0.0017	--	--	--	--		100
Total VOCs			--		--	--	--	--		NE

NOTES:

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	0-10	0-10	13	0-10	13.5	9	13	13.5		
	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL		
SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)										
Benzoic acid	<0.51	<0.62	--	<0.51	--	--	--	--	1,000	
2-Chlorophenol	<0.25	<0.31	--	<0.25	--	--	--	--	0.7	
4-Chloro-3-methyl phenol	<0.51	<0.62	--	<0.51	--	--	--	--	1,000	
2,4-Dichlorophenol	<0.51	<0.62	--	<0.51	--	--	--	--	0.7	
2,4-Dimethylphenol	<0.51	<0.62	--	<0.51	--	--	--	--	0.7	
2,4-Dinitrophenol	<0.51	<0.62	--	<0.51	--	--	--	--	3	
2-Methylphenol	<0.51	<0.62	--	<0.51	--	--	--	--	500	
3&4-Methylphenol	<0.51	<0.62	--	<0.51	--	--	--	--	500	
2-Nitrophenol	<0.51	<0.62	--	<0.51	--	--	--	--	100	
4-Nitrophenol	<0.51	<0.62	--	<0.51	--	--	--	--	100	
Pentachlorophenol	<0.51	<0.62	--	<0.51	--	--	--	--	3	
Phenol	<0.25	<0.31	--	<0.25	--	--	--	--	1	
2,4,5-Trichlorophenol	<0.51	<0.62	--	<0.51	--	--	--	--	4	
2,4,6-Trichlorophenol	<0.51	<0.62	--	<0.51	--	--	--	--	0.7	
Acenaphthene	<0.10	<0.12	--	0.2	--	--	--	--	4	
Acenaphthylene	0.1	0.3	--	0.2	--	--	--	--	1	
Acetophenone	<0.51	<0.62	--	<0.51	--	--	--	--	1,000	
Aniline	<0.51	<0.62	--	<0.51	--	--	--	--	1,000	
Anthracene	<0.10	0.4	--	0.8	--	--	--	--	1,000	
Benzo(a)anthracene	0.6	2.0	--	2.3	--	--	--	--	7	
Benzo(a)pyrene	0.9	1.6	--	1.9	--	--	--	--	2	
Benzo(b)fluoranthene	0.8	1.5	--	1.7	--	--	--	--	7	
Benzo(g,h,i)perylene	0.7	1.1	--	1.1	--	--	--	--	1,000	
Benzo(k)fluoranthene	0.7	1.6	--	1.6	--	--	--	--	70	
4-Bromophenyl phenyl ether	<0.25	<0.31	--	<0.25	--	--	--	--	100	
Butyl benzyl phthalate	<0.25	<0.31	--	<0.25	--	--	--	--	100	
2-Chloronaphthalene	<0.25	<0.31	--	<0.25	--	--	--	--	1,000	
4-Chloroaniline	<0.51	<0.62	--	<0.51	--	--	--	--	1	
Chrysene	0.6	1.9	--	2.1	--	--	--	--	70	
bis(2-Chloroethoxy)methane	<0.25	<0.31	--	<0.25	--	--	--	--	500	
bis(2-Chloroethyl)ether	<0.25	<0.31	--	<0.25	--	--	--	--	0.7	
bis(2-Chloroisopropyl)ether	<0.25	<0.31	--	<0.25	--	--	--	--	0.7	
1,2-Dichlorobenzene	<0.25	<0.31	--	<0.25	--	--	--	--	9	
1,2-Diphenylhydrazine	<0.25	<0.31	--	<0.25	--	--	--	--	50	
1,3-Dichlorobenzene	<0.25	<0.31	--	<0.25	--	--	--	--	3	
1,4-Dichlorobenzene	<0.25	<0.31	--	<0.25	--	--	--	--	0.7	
2,4-Dinitrotoluene	<0.51	<0.62	--	<0.51	--	--	--	--	0.7	
2,6-Dinitrotoluene	<0.51	<0.62	--	<0.51	--	--	--	--	100	
3,3'-Dichlorobenzidine	<0.51	<0.62	--	<0.51	--	--	--	--	3	
Dibenzo(a,h)anthracene	0.2	0.3	--	0.3	--	--	--	--	0.7	
Dibenzofuran	<0.10	<0.12	--	0.2	--	--	--	--	100	
Di-n-butyl phthalate	<0.25	<0.31	--	<0.25	--	--	--	--	50	
Di-n-octyl phthalate	<0.25	<0.31	--	<0.25	--	--	--	--	1,000	

NOTES:

-- is analysis not performed.

NE is not established.

ND is not detected.

su is standard units.

°F is degrees Fahrenheit.

mg/kg is milligrams per kilogram.

mg/L is milligrams per liter.

PID is photoionization detector.

ppmv is parts per million by volume.

µmhos/cm is micromhos per centimeter.

VOC is volatile organic compound.

SVOC is semi-volatile organic compound.

<2.0 indicates not detected at or above the laboratory reporting limit of 2.0 mg/kg.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Reportable Concentrations are in **Red**.



TABLE 1  
SUMMARY OF SOIL BORING ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date Sample ID Depth (feet) PID (ppmv)	August 8, 2016								MCP Reportable Concentrations (mg/kg)
	B-101	B-102	B-103	B-104	MW-105	MW-106	MW-107	MW-108	RCS-1
	0-10	0-10	13	0-10	13.5	9	13	13.5	
	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)									
Diethyl phthalate	<0.25	<0.31	--	<0.25	--	--	--	--	10
Dimethyl phthalate	<0.25	<0.31	--	<0.25	--	--	--	--	0.7
bis(2-Ethylhexyl)phthalate	<0.25	<0.31	--	<0.25	--	--	--	--	90
Fluoranthene	1.0	3.6	--	5.7	--	--	--	--	1,000
Fluorene	<0.10	<0.12	--	0.2	--	--	--	--	1,000
Hexachlorobenzene	<0.25	<0.31	--	<0.25	--	--	--	--	0.7
Hexachlorobutadiene	<0.25	<0.31	--	<0.25	--	--	--	--	30
Hexachlorocyclopentadiene	<0.51	<0.62	--	<0.51	--	--	--	--	50
Hexachloroethane	<0.25	<0.31	--	<0.25	--	--	--	--	0.7
Indeno(1,2,3-cd)pyrene	0.7	1.1	--	1.1	--	--	--	--	7
Isophorone	<0.25	<0.31	--	<0.25	--	--	--	--	100
2-Methylnaphthalene	<0.10	<0.12	--	<0.10	--	--	--	--	0.7
Naphthalene	<0.10	<0.12	--	0.2	--	--	--	--	4
Nitrobenzene	<0.25	<0.31	--	<0.25	--	--	--	--	500
N-Nitroso-di-n-propylamine	<0.25	<0.31	--	<0.25	--	--	--	--	50
N-Nitrosodiphenylamine	<0.25	<0.31	--	<0.25	--	--	--	--	100
Phenanthrene	0.3	1.3	--	3.4	--	--	--	--	10
Pyrene	1.1	3.5	--	5.4	--	--	--	--	1,000
1,2,4-Trichlorobenzene	<0.25	<0.31	--	<0.25	--	--	--	--	2
POLYCHLORINATED BIPHENYLS (mg/kg)									
Aroclor 1016	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1221	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1232	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1242	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1248	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1254	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1260	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1262	<0.034	<0.040	--	<0.033	--	--	--	--	1
Aroclor 1268	<0.034	<0.040	--	<0.033	--	--	--	--	1
Total PCBs	<0.30	<0.36	--	<0.30	--	--	--	--	1

NOTES:

-- is analysis not performed.  
NE is not established.  
ND is not detected.  
su is standard units.  
°F is degrees Fahrenheit.

mg/kg is milligrams per kilogram.  
mg/L is milligrams per liter.  
PID is photoionization detector.  
ppmv is parts per million by volume.  
µmhos/cm is micromhos per centimeter.

VOC is volatile organic compound.  
SVOC is semi-volatile organic compound.  
<2.0 indicates not detected at or above the laboratory reporting limit of 2.0 mg/kg.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above MCP Reportable Concentrations are in **Red**.

TABLE 1  
SUMMARY OF SOIL BORING ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date Sample ID Depth (feet) PID (ppmv)	August 8, 2016								MCP Reportable Concentrations (mg/kg)
	B-101	B-102	B-103	B-104	MW-105	MW-106	MW-107	MW-108	RCS-1
	0-10	0-10	13	0-10	13.5	9	13	13.5	
	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)									
C9-C18 Aliphatics	<9.3	<11	<12	<9.2	<11	<9.7	<11	<11	1,000
C19-C36 Aliphatics	<19	<23	<23	21.4	<21	<19	<22	<22	3,000
C11-C22 Aromatics	26.7	<23	<23	63.3	<21	<19	<22	<22	1,000
Acenaphthene	<0.46	<0.57	<0.58	0.5	<0.54	<0.49	<0.55	<0.54	4
Acenaphthylene	<0.46	<0.57	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	1
Anthracene	<0.46	<0.57	<0.58	1.1	<0.54	<0.49	<0.55	<0.54	1,000
Benzo(a)anthracene	0.8	1.2	<0.58	3.1	<0.54	<0.49	<0.55	<0.54	7
Benzo(a)pyrene	1.3	1.0	<0.58	2.7	<0.54	<0.49	<0.55	<0.54	2
Benzo(b)fluoranthene	2.2	1.93	<0.58	4.7	<0.54	<0.49	<0.55	<0.54	7
Benzo(g,h,i)perylene	1.0	0.6	<0.58	1.5	<0.54	<0.49	<0.55	<0.54	1,000
Benzo(k)fluoranthene	<0.46	1.6	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	70
Chrysene	0.7	1.1	<0.58	2.7	<0.54	<0.49	<0.55	<0.54	70
Dibenz(a,h)anthracene	<0.46	<0.57	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	0.7
Fluoranthene	1.1	1.7	<0.58	6.6	<0.54	<0.49	<0.55	<0.54	1,000
Fluorene	<0.46	<0.57	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	1,000
Indeno(1,2,3-cd)pyrene	<0.46	<0.57	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	7
2-Methylnaphthalene	<0.46	<0.57	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	0.7
Naphthalene	<0.46	<0.57	<0.58	<0.46	<0.54	<0.49	<0.55	<0.54	4
Phenanthrene	<0.46	0.6	<0.58	4.2	<0.54	<0.49	<0.55	<0.54	10
Pyrene	1.1	1.5	<0.58	5.1	<0.54	<0.49	<0.55	<0.54	1,000
VOLATILE PETROLEUM HYDROCARBONS (mg/kg)									
C5- C8 Aliphatics	<6.3	<8.6	--	<5.0	--	--	--	--	100
C9- C12 Aliphatics	<6.3	<8.6	--	<5.0	--	--	--	--	1,000
C9- C10 Aromatics	<6.3	<8.6	--	<5.0	--	--	--	--	100
Benzene	<0.31	<0.43	--	<0.25	--	--	--	--	2
Ethylbenzene	<0.31	<0.43	--	<0.25	--	--	--	--	40
Methyl Tert Butyl Ether	<0.063	<0.086	--	<0.050	--	--	--	--	0.1
Naphthalene	<0.31	<0.43	--	<0.25	--	--	--	--	4
Toluene	<0.31	<0.43	--	<0.25	--	--	--	--	30
m,p-Xylene	<0.31	<0.43	--	<0.25	--	--	--	--	100
o-Xylene	<0.31	<0.43	--	<0.25	--	--	--	--	100
Total Xylenes	<0.62	<0.86	--	<0.50	--	--	--	--	

NOTES:

-- is analysis not performed.  
NE is not established.  
ND is not detected.  
su is standard units.  
°F is degrees Fahrenheit.

mg/kg is milligrams per kilogram.  
mg/L is milligrams per liter.  
PID is photoionization detector.  
ppmv is parts per million by volume.  
µmhos/cm is micromhos per centimeter.

VOC is volatile organic compound.  
SVOC is semi-volatile organic compound.  
<2.0 indicates not detected at or above the laboratory reporting limit of 2.0 mg/kg.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above MCP Reportable Concentrations are in **Red**.

TABLE 1  
SUMMARY OF SOIL BORING ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 8, 2016								MCP Reportable
	Sample ID	B-101	B-102	B-103	B-104	MW-105	MW-106	MW-107	MW-108	Concentrations (mg/kg)
	Depth (feet)	0-10	0-10	13	0-10	13.5	9	13	13.5	RCS-1
	PID (ppmv)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
<b>TOTAL METALS (mg/kg)</b>										
Antimony		<0.88	<0.95	<0.99	<0.83	<0.96	<0.90	<0.96	<0.95	20
Arsenic		5.7	13.5	15.9	5.9	1.5	2.2	12.9	12	20
Barium		21.8	195	169	20.7	11.6	22.9	95.3	121	1,000
Beryllium		0.4	0.9	1.2	<0.33	<0.38	<0.36	0.8	0.8	90
Cadmium		<0.35	0.5	<0.40	<0.33	<0.38	<0.36	<0.38	<0.38	70
Chromium		12.9	40.4	77.2	9.9	9.7	13.5	46.5	53.5	100
Lead		9.1	431	16.1	28.3	2.6	4.1	11.4	12.8	200
Mercury		<0.033	3.0	<0.038	<0.031	<0.033	<0.034	<0.035	<0.035	20
Nickel		10.7	30.0	54.3	7.8	7.5	11.5	33.5	39.6	600
Selenium		<0.88	<0.95	<2.0	<0.83	<0.96	<0.90	<0.96	<0.95	400
Silver		<0.44	<0.48	<0.99	<0.41	<0.48	<0.45	<0.48	<0.48	100
Thallium		<0.88	<0.95	<0.99	<0.83	<0.96	<0.90	<0.96	<0.95	8
Vanadium		18.8	50.0	75.2	14.5	14.0	18.5	55.6	61.8	400
Zinc		25.9	245	96.2	35.4	25.9	28.3	68.5	78.0	1,000
<b>GENERAL CHEMISTRY</b>										
Ignitability (°F)		>230	>230	--	>230	--	--	--	--	NE
Specific Conductivity (µmhos/cm)		160	376	--	255	--	--	--	--	NE
Cyanide Reactivity (mg/kg)		<1.6	<1.9	--	<1.5	--	--	--	--	NE
Sulfide Reactivity (mg/kg)		<53	<62	--	<51	--	--	--	--	NE
pH		7.1	10.0	--	8.6	--	--	--	--	NE
Percent Solids (%)		94.4	80	74	97.6	84.1	87.2	79.9	79.4	NE

NOTES:

mg/kg is milligrams per kilogram.

NE is not established.

ND is not detected.

PID is photoionization detector.

**TABLE 2**  
**SUMMARY OF UST AREA SOIL ANALYTICAL DATA**

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date Sample ID Depth (feet) PID (ppmv)	August 12, 2016									MCP Method 1 Soil Standard (mg/kg)
	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	Stockpile	
	8-9	8	8.5	7-8	7	5	6	6	NA	
	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	225.1	S-1 GW-2/GW-3
<b>EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)</b>										
C9-C18 Aliphatics	<8.8	<9.5	<b>11.7</b>	<8.9	<9.1	<b>13.4</b>	<b>10.3</b>	<9.4	<b>1,390</b>	1,000
C19-C36 Aliphatics	<b>76.6</b>	<19	<b>95.3</b>	<18	<b>64.9</b>	<b>488</b>	<b>380</b>	<b>226</b>	<b>5,850</b>	3,000
C11-C22 Aromatics	<b>142</b>	<19	<b>655</b>	<18	<b>161</b>	<b>294</b>	<b>171</b>	<b>128</b>	<b>2,350</b>	1,000
Acenaphthene	<b>0.6</b>	<0.47	<b>1.7</b>	<0.44	<b>0.7</b>	<0.46	<0.46	<0.47	<b>2.6</b>	1,000
Acenaphthylene	<0.44	<0.47	<b>2.5</b>	<0.44	<0.45	<0.46	<0.46	<0.47	<0.50	600/10
Anthracene	<b>1.7</b>	<0.47	<b>11.9</b>	<0.44	<b>1.9</b>	<0.46	<0.46	<0.47	<b>0.9</b>	1,000
Benzo(a)anthracene	<b>5.2</b>	<0.47	<b>28.1</b>	<0.44	<b>6.2</b>	<0.46	<0.46	<b>0.7</b>	<b>3.3</b>	7
Benzo(a)pyrene	<b>4.8</b>	<0.47	<b>19.2</b>	<0.44	<b>5.5</b>	<0.46	<0.46	<b>0.9</b>	<0.50	2
Benzo(b)fluoranthene	<b>4.5</b>	<0.47	<b>28.2</b>	<0.44	<b>5.9</b>	<0.46	<0.46	<b>0.6</b>	<0.50	7
Benzo(g,h,i)perylene	<b>2.9</b>	<0.47	<b>9.6</b>	<0.44	<b>3.4</b>	<0.46	<0.46	<b>0.8</b>	<0.50	1,000
Benzo(k)fluoranthene	<b>3.9</b>	<0.47	<b>10.8</b>	<0.44	<b>2.9</b>	<0.46	<0.46	<b>0.6</b>	<0.50	70
Chrysene	<b>5.0</b>	<0.47	<b>23.6</b>	<0.44	<b>5.5</b>	<0.46	<0.46	<b>0.7</b>	<b>3.3</b>	70
Dibenz(a,h)anthracene	<b>1.0</b>	<0.47	<b>3.8</b>	<0.44	<b>1.2</b>	<0.46	<0.46	<0.47	<0.50	0.7
Fluoranthene	<b>10.5</b>	<0.47	<b>55.7</b>	<0.44	<b>12.5</b>	<0.46	<0.46	<b>1.4</b>	<b>5.3</b>	1,000
Fluorene	<b>0.7</b>	<0.47	<b>4.7</b>	<0.44	<b>0.8</b>	<0.46	<0.46	<0.47	<b>2.8</b>	1,000
Indeno(1,2,3-cd)pyrene	<b>2.9</b>	<0.47	<b>11.4</b>	<0.44	<b>3.4</b>	<0.46	<0.46	<0.47	<0.50	7
2-Methylnaphthalene	<0.44	<0.47	<0.47	<0.44	<0.45	<0.46	<0.46	<0.47	<b>41.4</b>	80/300
Naphthalene	<0.44	<0.47	<0.47	<0.44	<0.45	<0.46	<0.46	<0.47	<b>24.1</b>	20/500
Phenanthrene	<b>6.7</b>	<0.47	<b>44.5</b>	<0.44	<b>9.1</b>	<0.46	<0.46	<b>0.8</b>	<b>4.6</b>	10
Pyrene	<b>7.9</b>	<0.47	<b>39.2</b>	<0.44	<b>9.5</b>	<0.46	<0.46	<b>1.1</b>	<b>4.6</b>	1,000
<b>VOLATILE PETROLEUM HYDROCARBONS (mg/kg)</b>										
C5- C8 Aliphatics	<5.7	<5.4	<5.0	<5.1	<5.7	<5.8	<9.1	<5.2	<b>118</b>	100
C9- C12 Aliphatics	<5.7	<5.4	<5.0	<5.1	<5.7	<5.8	<9.1	<5.2	<b>398</b>	1,000
C9- C10 Aromatics	<5.7	<5.4	<5.0	<5.1	<5.7	<5.8	<9.1	<5.2	<b>566</b>	100
Benzene	<0.28	<0.27	<0.25	<0.26	<0.29	<0.29	<0.46	<0.26	0.4	40
Ethylbenzene	<0.28	<0.27	<0.25	<0.26	<0.29	<0.29	<0.46	<0.26	13.6	500
Methyl Tert Butyl Ether	<0.057	<0.054	<0.050	<0.051	<0.057	<0.058	<0.091	<0.052	<0.063	100
Naphthalene	<0.28	<0.27	<0.25	<0.26	<0.29	<0.29	<0.46	<0.26	<b>23.3</b>	20/500
Toluene	<0.28	<0.27	<0.25	<0.26	<0.29	<0.29	<0.46	<0.26	<b>11.0</b>	500
Total Xylenes	<0.56	<0.54	<0.50	<0.52	<0.58	<0.58	<0.92	<0.52	<b>63.1</b>	100/500

**NOTES:**

mg/kg is milligrams per kilogram.  
PID is photoionization detector.  
ppmv is parts per million by volume.

BDL is below the instrument detection limit of 0.5 ppmv.  
<2.0 indicates not detected at or above the laboratory reporting limit of 2.0 mg/kg.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above MCP Method 1 Soil Standards are in **Red**.

TABLE 3  
SUMMARY OF SOIL STOCKPILE ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 12, 2016	MCP Method 1 Soil Standard
	Sample ID	Stockpile	(mg/kg)
	Depth (feet)	NA	
	PID (ppmv)	225.1	S-1-GW-2/GW-3
<b>VOLATILE ORGANIC COMPOUNDS (mg/kg)</b>			
Acetone		<3.3	50/400
Benzene		<b>0.5</b>	40
Bromobenzene		<1.7	NE
Bromochloromethane		<1.7	NE
Bromodichloromethane		<0.66	0.13
Bromoform		<0.66	1/300
Bromomethane		<0.66	0.5/30
2-Butanone (MEK)		<3.3	50/400
n-Butylbenzene		<b>8.8</b>	NE
sec-Butylbenzene		<b>2.6</b>	NE
tert-Butylbenzene		<1.7	NE
Carbon disulfide		<1.7	NE
Carbon tetrachloride		<0.66	5/30
Chlorobenzene		<0.66	3/100
Chloroethane		<1.7	NE
Chloroform		<0.66	3/100
Chloromethane		<1.7	NE
o-Chlorotoluene		<1.7	NE
p-Chlorotoluene		<1.7	NE
Di-Isopropyl ether		<0.66	NE
1,2-Dibromo-3-chloropropane		<1.7	NE
Dibromochloromethane		<0.66	0.03/20
1,2-Dibromoethane		<0.66	NE
1,2-Dichlorobenzene		<b>0.9</b>	100/300
1,3-Dichlorobenzene		<0.66	100
1,4-Dichlorobenzene		<0.66	1/80
Dichlorodifluoromethane		<0.66	NE
1,1-Dichloroethane		<0.66	9/500
1,2-Dichloroethane		<0.66	0.1/20
1,1-Dichloroethene		<0.66	40/500
cis-1,2-Dichloroethene		<0.66	0.1/100
trans-1,2-Dichloroethene		<0.66	1/500
1,2-Dichloropropane		<0.66	0.1/30
1,3-Dichloropropane		<1.7	NE
2,2-Dichloropropane		<1.7	NE
1,1-Dichloropropene		<1.7	NE
cis-1,3-Dichloropropene		<0.66	0.4/20
trans-1,3-Dichloropropene		<0.66	NE

NOTES:

mg/kg is milligrams per kilogram.

PID is photoionization detector.

NE is not established.

ppmv is parts per million by volume.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Method 1 Soil Standards are in **Red**.

TABLE 3  
SUMMARY OF SOIL STOCKPILE ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 12, 2016	MCP Method 1 Soil Standard
	Sample ID	Stockpile	(mg/kg)
	Depth (feet)	NA	
	PID (ppmv)	225.1	S-1-GW-2/GW-3
<b>VOLATILE ORGANIC COMPOUNDS (mg/kg)</b>			
1,4-Dioxane		<41	6/20
Ethyl Ether		<1.7	NE
Ethylbenzene		<b>13.1</b>	500
Hexachlorobutadiene		<1.7	30
2-Hexanone		<3.3	NE
Isopropylbenzene		<b>3.5</b>	NE
p-Isopropyltoluene		<b>2.2</b>	NE
Methyl Tert Butyl Ether		<0.66	100
4-Methyl-2-pentanone (MIBK)		<1.7	50/400
Methylene bromide		<1.7	NE
Methylene chloride		<0.66	NE
Naphthalene		<b>48.7</b>	20/500
n-Propylbenzene		<b>13.5</b>	NE
Styrene		<b>1.9</b>	4/70
tert-Amyl Methyl Ether		<1.7	NE
tert-Butyl Ethyl Ether		<0.66	NE
1,1,1,2-Tetrachloroethane		<1.7	0.1/80
1,1,2,2-Tetrachloroethane		<0.66	0.02/10
Tetrachloroethene		<0.66	10/30
Tetrahydrofuran		<3.3	NE
Toluene		<b>13.5</b>	500
1,2,3-Trichlorobenzene		<1.7	NE
1,2,4-Trichlorobenzene		<1.7	6/700
1,1,1-Trichloroethane		<0.66	500
1,1,2-Trichloroethane		<0.66	2/40
Trichloroethene		<0.66	0.3/30
Trichlorofluoromethane		<0.66	NE
1,2,3-Trichloropropane		<1.7	NE
1,2,4-Trimethylbenzene		<b>127</b>	NE
1,3,5-Trimethylbenzene		<b>29.9</b>	NE
Vinyl chloride		<0.66	0.7/1
m,p-Xylene		<b>61</b>	100/500
o-Xylene		<b>30</b>	100/500
Xylene (total)		<b>91</b>	100/500
Total VOCs		<b>447.1</b>	NE

NOTES:

mg/kg is milligrams per kilogram.

PID is photoionization detector.

NE is not established.

ppmv is parts per million by volume.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Method 1 Soil Standards are in **Red**.

TABLE 3  
SUMMARY OF SOIL STOCKPILE ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 12, 2016	MCP Method 1 Soil Standard
	Sample ID	Stockpile	(mg/kg)
	Depth (feet)	NA	
	PID (ppmv)	225.1	S-1-GW-2/GW-3
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)</b>			
Benzoic acid		<16	NE
2-Chlorophenol		<8.0	100
4-Chloro-3-methyl phenol		<16	NE
2,4-Dichlorophenol		<16	NE
2,4-Dimethylphenol		<16	100/500
2,4-Dinitrophenol		<16	50
2-Methylphenol		<16	NE
3&4-Methylphenol		<16	NE
2-Nitrophenol		<16	NE
4-Nitrophenol		<16	NE
Pentachlorophenol		<16	3
Phenol		<8.0	50/20
2,4,5-Trichlorophenol		<16	1,000/600
2,4,6-Trichlorophenol		<16	20
Acenaphthene		<3.2	1000
Acenaphthylene		<3.2	600/10
Acetophenone		<16	NE
Aniline		<16	NE
Anthracene		5.4	1,000
Benzo(a)anthracene		<b>14.9</b>	7
Benzo(a)pyrene		<b>13.8</b>	2
Benzo(b)fluoranthene		<b>11.7</b>	7
Benzo(g,h,i)perylene		9.2	1,000
Benzo(k)fluoranthene		10.9	70
4-Bromophenyl phenyl ether		<8.0	NE
Butyl benzyl phthalate		<8.0	NE
2-Chloronaphthalene		<8.0	NE
4-Chloroaniline		<16	7/3
Chrysene		13.8	70
bis(2-Chloroethoxy)methane		<8.0	NE
bis(2-Chloroethyl)ether		<8.0	NE
bis(2-Chloroisopropyl)ether		<8.0	NE
1,2-Dichlorobenzene		<8.0	100/300
1,2-Diphenylhydrazine		<8.0	NE
1,3-Dichlorobenzene		<8.0	100
1,4-Dichlorobenzene		<8.0	1/80
2,4-Dinitrotoluene		<16	2
2,6-Dinitrotoluene		<16	NE
3,3'-Dichlorobenzidine		<16	3
Dibenzo(a,h)anthracene		<b>3.5</b>	0.7
Dibenzofuran		<3.2	NE
Di-n-butyl phthalate		<8.0	NE
Di-n-octyl phthalate		<8.0	NE

NOTES:

mg/kg is milligrams per kilogram.

PID is photoionization detector.

NE is not established.

ppmv is parts per million by volume.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Method 1 Soil Standards are in **Red**.



TABLE 3  
SUMMARY OF SOIL STOCKPILE ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 12, 2016	MCP Method 1 Soil Standard
	Sample ID	Stockpile	(mg/kg)
	Depth (feet)	NA	
	PID (ppmv)	225.1	S-1-GW-2/GW-3
<b>SEMI-VOLATILE ORGANIC COMPOUNDS (mg/kg)</b>			
Diethyl phthalate		<8.0	200/300
Dimethyl phthalate		<8.0	50/600
bis(2-Ethylhexyl)phthalate		<8.0	NE
Fluoranthene		<b>33.8</b>	1,000
Fluorene		<3.2	1,000
Hexachlorobenzene		<8.0	0.7
Hexachlorobutadiene		<8.0	30
Hexachlorocyclopentadiene		<16	NE
Hexachloroethane		<8.0	3/50
Indeno(1,2,3-cd)pyrene		<b>9.6</b>	7
Isophorone		<8.0	NE
2-Methylnaphthalene		<b>59.4</b>	80/300
Naphthalene		<b>46.3</b>	20/500
Nitrobenzene		<8.0	NE
N-Nitroso-di-n-propylamine		<8.0	NE
N-Nitrosodiphenylamine		<8.0	NE
Phenanthrene		<b>18.9</b>	500
Pyrene		<b>28</b>	1,000
1,2,4-Trichlorobenzene		<8.0	6/700
<b>POLYCHLORINATED BIPHENYLS (mg/kg)</b>			
Aroclor 1016		<0.035	1
Aroclor 1221		<0.035	1
Aroclor 1232		<0.035	1
Aroclor 1242		<0.035	1
Aroclor 1248		<0.035	1
Aroclor 1254		<0.035	1
Aroclor 1260		<b>0.1</b>	1
Aroclor 1262		<0.035	1
Aroclor 1268		<0.035	1
Total PCBs		<b>0.1</b>	1

NOTES:

mg/kg is milligrams per kilogram.

PID is photoionization detector.

NE is not established.

ppmv is parts per million by volume.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Method 1 Soil Standards are in **Red**.

TABLE 3  
SUMMARY OF SOIL STOCKPILE ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 12, 2016	MCP Method 1 Soil Standard
	Sample ID	Stockpile	(mg/kg)
	Depth (feet)	NA	
	PID (ppmv)	225.1	S-1-GW-2/GW-3
<b>EXTRACTABLE PETROLEUM HYDROCARBONS (mg/kg)</b>			
C9-C18 Aliphatics		<b>1,390</b>	1,000
C19-C36 Aliphatics		<b>5,850</b>	3,000
C11-C22 Aromatics		<b>2,350</b>	1,000
Acenaphthene		2.6	1,000
Acenaphthylene		<0.50	600/10
Anthracene		0.9	1,000
Benzo(a)anthracene		3.3	7
Benzo(a)pyrene		<0.50	2
Benzo(b)fluoranthene		<0.50	7
Benzo(g,h,i)perylene		<0.50	1,000
Benzo(k)fluoranthene		<0.50	70
Chrysene		3.3	70
Dibenz(a,h)anthracene		<0.50	0.7
Fluoranthene		5.3	1,000
Fluorene		2.8	1,000
Indeno(1,2,3-cd)pyrene		<0.50	7
2-Methylnaphthalene		41.4	80/300
Naphthalene		<b>24.1</b>	20/500
Phenanthrene		4.6	10
Pyrene		4.6	1,000
<b>VOLATILE PETROLEUM HYDROCARBONS (mg/kg)</b>			
C5- C8 Aliphatics		<b>118</b>	100
C9- C12 Aliphatics		<b>398</b>	1,000
C9- C10 Aromatics		<b>566</b>	100
Benzene		0.4	40
Ethylbenzene		13.6	500
Methyl Tert Butyl Ether		<0.063	100
Naphthalene		<b>23.3</b>	20/500
Toluene		11.0	500
m,p-Xylene		<b>39.4</b>	100/500
o-Xylene		<b>23.7</b>	100/500
Total Xylenes		<b>63.1</b>	100/500

NOTES:

mg/kg is milligrams per kilogram.

PID is photoionization detector.

NE is not established.

ppmv is parts per million by volume.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Method 1 Soil Standards are in **Red**.

TABLE 3  
SUMMARY OF SOIL STOCKPILE ANALYTICAL DATA

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

	Sample Date	August 12, 2016	MCP Method 1 Soil Standard
	Sample ID	Stockpile	(mg/kg)
	Depth (feet)	NA	S-1-GW-2/GW-3
	PID (ppmv)	225.1	
TOTAL METALS (mg/kg)			
Antimony		<0.88	20
Arsenic		12.0	20
Barium		100	1,000
Beryllium		0.6	90
Cadmium		0.7	70
Chromium		22.6	100
Lead		350	200
Mercury		<0.032	20
Nickel		16.1	600
Selenium		<0.88	400
Silver		<0.88	100
Thallium		<0.88	8
Vanadium		32.8	400
Zinc		186	1,000
GENERAL CHEMISTRY			
Ignitability (°F)		>230	NE
Specific Conductivity (µmhos/cm)		260	NE
Cyanide Reactivity (mg/kg)		<1.6	NE
Sulfide Reactivity (mg/kg)		<54	NE
pH (su)		7.8	NE
Percent Solids (%)		90.9	NE

NOTES:

mg/kg is milligrams per kilogram.

NE is not established.

su is standard units.

°F is degrees Fahrenheit.

Analytes detected above the method reporting limit are in **Bold**.

Analytes detected above MCP Method 1 Soil Standards are in **Red**.

PID is photoionization detector.

ppmv is parts per million by volume.

µmhos/cm is micromhos per centimeter.

**TABLE 4**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date	August 17, 2016										MCP Reportable Concentrations (µg/L)	MCP Method 1		
Monitoring Well ID	MW-1	MW-2	MW-3	MW-103	MW-105	MW-106	MW-107	MW-108	B-2/MW	B-3/MW		Groundwater Standards (µg/L)	GW-2	GW-3
Depth to Groundwater (feet)	14.30	12.60	16.58	16.81	11.31	10.41	13.17	19.50	12.22	11.97				
Screen Interval BGS (feet)	9-19	9-19	9-19	10-20	10-20	8-18	10-20	10-20	UNK	UNK				
Depth of Well (feet)	22	22	22	20	20	18	20	20	15	15				
VOLATILE ORGANIC COMPOUNDS by 8260 (µg/L)														
Acetone	<10	<10	<10	14.5	<10	<10	<10	--	<10	<10	50,000	50,000	50,000	
Benzene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	1,000	1,000	10,000	
Bromobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10,000	NE	NE	
Bromochloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
Bromodichloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	6	6	50,000	
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	700	700	50,000	
Bromomethane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	7	7	800	
2-Butanone (MEK)	<10	<10	<10	<10	<10	<10	<10	--	<10	<10	50,000	50,000	50,000	
n-Butylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
sec-Butylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
tert-Butylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
Carbon disulfide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10,000	NE	NE	
Carbon tetrachloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	2	2	5,000	
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	200	200	1,000	
Chloroethane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	10,000	NE	NE	
Chloroform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	50	50	20,000	
Chloromethane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	10,000	NE	NE	
o-Chlorotoluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10,000	NE	NE	
p-Chlorotoluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
Di-Isopropyl ether	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	10,000	NE	NE	
1,2-Dibromo-3-chloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	1,000	NE	NE	
Dibromochloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	20	20	50,000	
1,2-Dibromoethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	2	2	50,000	
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	2,000	8,000	2,000	
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	6,000	6,000	50,000	
1,4-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	60	60	8,000	
Dichlorodifluoromethane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	100,000	NE	NE	
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	2,000	2,000	20,000	
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	5	5	20,000	
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	80	80	30,000	
cis-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	20	20	50,000	
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	80	80	50,000	
1,2-Dichloropropane	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	3	3	50,000	
1,3-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	50,000	NE	NE	
2,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
1,1-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
cis-1,3-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	5	NE	NE	
trans-1,3-Dichloropropene	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	5	NE	NE	

**NOTES:**

-- is not applicable or not analyzed.  
µg/L is micrograms per liter.  
NE is not established.  
BGS is below ground surface.

MTBE is methyl tert butyl ether.  
<2.0 is not detected at or above the laboratory reporting limit of 2.0 µg/L.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above applicable MCP groundwater standards are in **Red**.

**TABLE 4**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date	August 17, 2016										MCP Reportable Concentrations (µg/L)	MCP Method 1 Groundwater Standards (µg/L)		
Monitoring Well ID	MW-1	MW-2	MW-3	MW-103	MW-105	MW-106	MW-107	MW-108	B-2/MW	B-3/MW		RCGW-2	GW-2	GW-3
Depth to Groundwater (feet)	14.30	12.60	16.58	16.81	11.31	10.41	13.17	19.50	12.22	11.97				
Screen Interval BGS (feet)	9-19	9-19	9-19	10-20	10-20	8-18	10-20	10-20	UNK	UNK				
Depth of Well (feet)	22	22	22	20	20	18	20	20	15	15				
1,4-Dioxane	<25	<25	<25	<25	<25	<25	<25	--	<25	<25	6,000	6,000	50,000	
Ethyl Ether	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10,000	NE	NE	
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	5,000	20,000	5,000	
Hexachlorobutadiene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	50	50	3,000	
2-Hexanone	<10	<10	<10	<10	<10	<10	<10	--	<10	<10	10,000	NE	NE	
Isopropylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	100,000	NE	NE	
p-Isopropyltoluene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
Methyl Tert Butyl Ether	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	5,000	50,000	50,000	
4-Methyl-2-pentanone (MIBK)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	50,000	50,000	50,000	
Methylene bromide	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	50,000	NE	NE	
Methylene chloride	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	2,000	2,000	50,000	
Naphthalene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	700	700	20,000	
n-Propylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10,000	NE	NE	
Styrene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	100	100	6,000	
tert-Amyl Methyl Ether	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	NE	NE	NE	
tert-Butyl Ethyl Ether	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	NE	NE	NE	
1,1,1,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	100	10	50,000	
1,1,2,2-Tetrachloroethane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.50	9	9	50,000	
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	50	50	30,000	
Tetrahydrofuran	<10	<10	<10	<10	<10	<10	<10	--	<10	<10	50,000	NE	NE	
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	40,000	50,000	40,000	
1,2,3-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	NE	NE	NE	
1,2,4-Trichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	200	200	50,000	
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	4,000	4,000	20,000	
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	900	900	50,000	
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	5	5	5,000	
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	100,000	NE	NE	
1,2,3-Trichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10,000	NE	NE	
1,2,4-Trimethylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	100,000	NE	NE	
1,3,5-Trimethylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	1,000	NE	NE	
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	2	2	50,000	
m,p-Xylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	3,000	3,000	5,000	
o-Xylene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	3,000	3,000	5,000	
Xylene (total)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	3,000	3,000	5,000	

**NOTES:**

-- is not applicable or not analyzed.  
µg/L is micrograms per liter.  
NE is not established.  
BGS is below ground surface.

MTBE is methyl tert butyl ether.  
<2.0 is not detected at or above the laboratory reporting limit of 2.0 µg/L.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above applicable MCP groundwater standards are in **Red**.

**TABLE 4**  
**SUMMARY OF GROUNDWATER ANALYTICAL RESULTS**

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Sample Date	August 17, 2016										MCP Reportable Concentrations (µg/L)	MCP Method 1 Groundwater Standards (µg/L)		
Monitoring Well ID	MW-1	MW-2	MW-3	MW-103	MW-105	MW-106	MW-107	MW-108	B-2/MW	B-3/MW		RCGW-2	GW-2	GW-3
Depth to Groundwater (feet)	14.30	12.60	16.58	16.81	11.31	10.41	13.17	19.50	12.22	11.97				
Screen Interval BGS (feet)	9-19	9-19	9-19	10-20	10-20	8-18	10-20	10-20	UNK	UNK				
Depth of Well (feet)	22	22	22	20	20	18	20	20	15	15				
VOLATILE PETROLEUM HYDROCARBONS (µg/L)														
C5-C8 Aliphatics	<50	<50	<50	<50	<50	<50	<50	--	<50	<50	3,000	3,000	50,000	
C9-C12 Aliphatics	<50	<50	<50	<50	<50	<50	<50	--	<50	<50	5,000	5,000	50,000	
C9-C10 Aromatics	<50	<50	<50	<50	<50	<50	<50	--	<50	<50	4,000	4,000	50,000	
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	1,000	1,000	10,000	
Ethylbenzene	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	5,000	20,000	5,000	
MTBE	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0	<1.0	5,000	50,000	50,000	
Naphthalene	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	--	<3.0	<3.0	700	700	20,000	
Toluene	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0	<2.0	40,000	50,000	40,000	
Xylenes (total)	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	<4.0	<4.0	3,000	3,000	5,000	
EXTRACTABLE PETROLEUM HYDROCARBONS (µg/L)														
C9-C18 Aliphatics	<110	<110	<120	<120	<110	<120	<130	<100	<110	<110	5,000	5,000	50,000	
C19-C36 Aliphatics	<110	362	<120	<120	<110	<120	<130	<100	<110	<110	50,000	NE	50,000	
C11-C22 Aromatics	<110	<110	<120	<120	<110	<120	<130	<100	<110	<110	5,000	50,000	5,000	
Acenaphthene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	600	NE	10,000	
Acenaphthylene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	40	10,000	40	
Anthracene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	30	NE	30	
Benzo(a)anthracene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	1,000	NE	1,000	
Benzo(a)pyrene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	500	NE	500	
Benzo(b)fluoranthene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	400	NE	400	
Benzo(g,h,i)perylene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	20	NE	20	
Benzo(k)fluoranthene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	100	NE	100	
Chrysene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	70	NE	70	
Dibenz(a,h)anthracene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	40	NE	40	
Fluoranthene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	200	NE	200	
Fluorene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	40	NE	40	
Indeno(1,2,3-cd)pyrene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	100	NE	100	
2-Methylnaphthalene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	2,000	2,000	20,000	
Naphthalene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	700	700	20,000	
Phenanthrene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	10,000	NE	10,000	
Pyrene	<5.5	<5.6	<5.9	<6.1	<5.6	<5.8	<6.3	<5.1	<5.6	<5.6	20	NE	20	
METALS (µg/L)														
Antimony	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	--	<6.0	<6.0	8,000	NE	8,000	
Arsenic	29.5	4.4	<4.0	24.3	<4.0	6	<4.0	--	<4.0	5.7	900	NE	900	
Barium	<50	<50	<50	<50	<50	<50	<50	--	<50	<50	50,000	NE	50,000	
Beryllium	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	<4.0	<4.0	200	NE	200	
Cadmium	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	<4.0	<4.0	4	NE	4	
Chromium	<10	<10	<10	<10	<10	<10	<10	--	<10	<10	300	NE	300	
Lead	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	10	NE	10	
Mercury	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	--	<0.20	<0.20	20	NE	20	
Nickel	<40	<40	<40	<40	<40	<40	<40	--	<40	<40	200	NE	200	
Selenium	<10	<10	<10	<10	11.6	<10	11.3	--	<10	<10	100	NE	100	
Silver	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	7	NE	7	
Thallium	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0	<5.0	3,000	NE	3,000	
Vanadium	<10	<10	<10	<10	<10	<10	<10	--	<10	<10	4,000	NE	4,000	
Zinc	<20	<20	<20	<20	26.1	<20	<20	--	<20	<20	900	NE	900	

**NOTES:**

-- is not applicable or not analyzed.  
µg/L is micrograms per liter.  
NE is not established.  
BGS is below ground surface.

MTBE is methyl tert butyl ether.  
<2.0 is not detected at or above the laboratory reporting limit of 2.0 µg/L.  
Analytes detected above the method reporting limit are in **Bold**.  
Analytes detected above applicable MCP groundwater standards are in **Red**.

**TABLE 5**  
**SUMMARY OF MONITORING WELL GAUGING DATA**

Maggiore Somerville  
343-351 Summer Street  
Somerville, Massachusetts

Monitoring Well ID	Gauging Date	Top of Casing Elevation <sup>1</sup> (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Water Table Elevation (feet)
MW-1	8/8/2016 8/17/2016	101.83	-- 14.30	-- 22.05	87.53
MW-2	8/8/2016 8/17/2016	101.98	-- 12.60	-- 22.21	89.38
MW-3	8/8/2016 8/17/2016	101.59	-- 16.58	-- 22	85.01
MW-103	8/8/2016 8/17/2016	102.72	20.12 16.81	23.13 23.25	85.91
MW-108	8/8/2016 8/17/2016	101.59	21.00 19.50	22.85 22.70	82.09
B-2/MW	8/8/2016 8/17/2016	99.29	-- 12.22	-- 14.85	87.07
B-3/MW	8/8/2016 8/17/2016	98.36	-- 11.97	-- 14.35	86.39
MW-105	8/8/2016 8/17/2016	97.10	11.27 11.31	20.04 19.71	85.79
MW-106	8/8/2016 8/17/2016	98.17	12.90 10.41	17.80 17.80	87.76
MW-107	8/8/2016 8/17/2016	99.56	17.81 13.17	19.70 19.82	86.39

**NOTES:**

-- is not measured

Latest Top of Casing survey performed was on August 17, 2016.

<sup>1</sup>Based on assumed benchmark = 100.00' Northeast corner of MBTA Vent Pad.



**TABLE 6**  
**SUMMARY OF GROUNDWATER GEOCHEMICAL DATA**

Maggiore Somerville  
 343-351 Summer Street  
 Somerville, Massachusetts

Well ID	Date	Depth to Groundwater (feet)	FIELD PARAMETERS				
			Dissolved Oxygen (mg/L)	Temperature (°C)	pH	Oxidation/Reduction Potential (mV)	Conductivity (µS)
MW-1	8/17/2016	14.30	0.49	17.5	6.84	100.3	622
MW-2	8/17/2016	12.60	1.12	16.1	7.47	83.6	639
MW-3	8/17/2016	16.58	1.50	16.1	6.74	87.2	670
MW-103	8/17/2016	16.81	0.42	18.3	8.31	-238.1	740
MW-108	8/17/2016	19.50	--	--	--	--	--
B-2/MW	8/17/2016	12.22	2.21	20.4	6.48	70.1	1,034
B-3/MW	8/17/2016	11.97	1.08	19.2	6.22	13.0	1,159
MW-105	8/17/2016	11.31	0.43	18.7	6.75	-170.1	1,176
MW-106	8/17/2016	10.41	0.31	16.5	7.09	-259.0	754
MW-107	8/17/2016	13.17	0.07	17.9	7.71	-360.4	1,302

**NOTES:**

-- is not measured  
 mV is millivolts  
 µS is microsiemens  
 mg/L is milligrams per liter

°C is degrees Celsius  
 <2.0 is not detected at or above the laboratory reporting limit of 2.0 mg/L  
 Field parameters measured using a YSI 556 MPS meter

**APPENDIX A**  
**SOIL BORING LOGS**

**APPENDIX B**  
**SOIL ANALYTICAL REPORTS**

**APPENDIX C**  
**GROUNDWATER ANALYTICAL REPORT**