NOTICE OF INTENT FOR DISCHARGE PURSUANT TO MASSACHUSETTS DEWATERING GENERAL PERMIT MAG070000

40 STOW STREET
CONCORD, MASSACHUSETTS

NOVEMBER 28, 2017

Prepared For:
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY DEWATERING GP PROCESSING INDUSTRIAL PERMIT UNIT (OEP 06-4) 5 POST OFFICE SQUARE, SUITE 100 BOSTON, MA 02109-3912

On Behalf Of:
The Umbrella Community Arts Center 40 Stow Street Concord, MA 01742

PROJECT NO. 6180
United States Environmental Protection Agency
Dewatering GP Processing
Industrial Permit Unit (OEP 06-4)
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Attention: To Whom It May Concern

Reference: 40 Stow Street; Concord, Massachusetts
Notice of Intent for Temporary Construction Dewatering Discharge;
Massachusetts Dewatering General Permit MAG070000

Ladies and Gentlemen:

In accordance with the provisions of the Dewatering General Permit MAG070000 (DGP) that was issued to the Commonwealth of Massachusetts by the US EPA, the following is a summary of the site and groundwater quality information in support of a Notice of Intent (NOI) for the discharge of construction dewatering into Mill Brook via the Town of Concord storm drain system. The temporary discharge of construction dewatering will occur during redevelopment of the 40 Stow Street property in Concord, Massachusetts (the “subject site”). Refer to Figure 1, Project Location Plan for the general site locus.

These services were performed and this permit application was prepared in accordance with our proposal dated March 13, 2017, and the subsequent authorization of The Umbrella Community Arts Center. These services are subject to the limitations contained in Appendix A.

The applicable DGP Notice of Intent (NOI) Form is included in Appendix B.

**Applicant/Operator**

The applicant for the Notice of Intent-Dewatering General Permit is:

C.E. Floyd Company, Inc.
135 South Road
Bedford, MA 01730

Attention: Mr. Chris Merrick
Email: cmerrick@cefloyd.com

Telephone: (781)-271-9006
**Existing Conditions**

The 40 Stow Street property is an approximate 3-acre, L-shaped parcel. Fronting onto Stow Street to the northeast, the subject site is generally bounded by residential property on the remaining sides with the exception of the northwest corner which is bound by Sudbury Road. The existing Umbrella Community Arts Center building is located in the central portion of the property. The building is a 2 to 3-story, T-shaped structure with a partial below grade basement which occupies a footprint of approximately 18,000 square feet. The structure has two (2) wings: the Main Wing which runs parallel to Stow Street and the West Wing which runs perpendicular to Stow Street. The remainder of the property is occupied by paved parking and landscaped spaces.

The existing ground surface across the property is understood to be generally level, with elevations ranging from approximately Elevation +133 to +136. The existing floor slab in the partial basement area in the West Wing is understood to be located at approximately Elevation +128.3 and the first floor across the remainder of the building is at approximately Elevation +138.8.

The approximate location of the subject site is indicated on Figure 2.

**Proposed Scope of Site Development**

The proposed building renovations are understood to include the demolition of the West Wing and the construction of a new two (2) story addition with one (1) level of below grade space in its place. The new addition will occupy a footprint of approximately 11,000 square-feet. The lowest level slab within the new wing will be at approximately Elevation +127, with the exception of a depressed seating pit which will have a lowest level slab at Elevation +124.

The Main Wing will also be renovated during the proposed construction. The renovations within the Main Wing will include the installation of a new elevator.

Additional site improvements will include installation of new utilities and repaving of the parking areas.

**Site Environmental Setting, Review of MA DEP-listed Disposal Sites, Endangered Species and Surrounding Historical Places**

Based on an on-line edition of the Massachusetts Geographic Information Systems MassDEP Phase I Site Assessment Map (GIS Map) viewed on September 8, 2017 the subject site is not located within the boundaries of a Sole Source Aquifer, Potentially Productive Aquifer or within a Zone II Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection (MA DEP). Further, there are no public drinking water supply wells, no Areas of Critical Environmental Concern, no fish habitats, no habitats of Species of Special Concern or Threatened or Endangered Species within specified
distances of the subject site. The site is not located within the limits of the 100-year flood plain.

The GIS Map indicates that there are no water bodies or wetland areas at the subject site. The nearest water body is Mill Brook which is located approximately 1,100 feet northeast of the subject site. No areas designated as solid waste sites (landfills) are noted as being located within 1,000 feet of the site. According to the GIS Map, the nearest protected open space is located about 1,500 to the southwest of the project site. A copy of the GIS Map is included in Appendix C.

Based on our review, the project site is not listed on the MA DEP on-line data base of listed DEP release sites.

Based upon a review of information provided in an Information for Planning and Conservation Trust Resource Report (IPaC Report) prepared by the U.S. Fish and Wildlife Service for the subject site, the proposed discharge site is located within the territory of the Northern Long-eared Bat which is a threatened species in the northeastern portions of the United States. However, the Long-eared Bat is not a species of concern under the Endangered Species Act and the DGP, and therefore the proposed discharge is not considered likely to adversely affect the species. In addition, the IPaC Report did not identify the presence of a critical habitat in the vicinity of the discharge. Based upon the above, the site is considered a Criterion C pursuant to Appendix IV of the DGP. A copy of the IPaC Report is included in Appendix C.

A review of the Massachusetts Cultural Resource Information System (MACRIS) identified the existing site structure as a state historic place. A copy of the MACRIS report is included in Appendix C. However, additional research indicated the property is not listed as a national historical structure. A list of the National Register of Historic Places located in Concord, Massachusetts is also included in Appendix C. The purpose of the dewatering is to allow for improvements and renovations to the existing site structure. Therefore, the dewatering activities will not negatively impact a historic place.

**Construction Site Dewatering**

Stabilized groundwater levels observed within the groundwater monitoring wells installed at the site ranged from about Elevation +123.4 to Elevation +126.7. It is anticipated that excavation for the lowest level floor slabs and depressed portions within the lowest level floor slab, such as elevator pits and pile caps, will extend up to about 8 feet below the observed groundwater level. In order to facilitate construction of the basement levels, a wellpoint system will be installed around the applicable portions of the site for the purpose of temporarily lowering the groundwater table to allow for the new construction.

It is anticipated that construction dewatering discharge during could be as high as 200 gallons per minute (gpm) during initial dewatering operations. It is anticipated that these flows would be reduced as the groundwater level stabilizes below the bottom of the
excavation. These estimates do not include surface water run-off which will be removed from the excavation during and following precipitation events.

Given that the subsurface conditions consist of highly permeable outwash sand and gravel, temporary on-site collection and recharge of groundwater is not feasible. As a result, construction dewatering will require the discharge of collected groundwater into the storm drain system.

A review of stormwater and sewer plans provided by the Town of Concord Water Department of Public Works indicates catch basins adjacent to the site located within Stow Street flow to a dedicated storm drain. The storm drain system ultimately discharges at an outfall location within Mill Brook. The location of the discharge locations in relation to the subject site are indicated on Figure 2. The flow path of the discharge is shown on Figure 3.

**Summary of Groundwater Analysis**

On May 17, 2017 a groundwater sample was obtained from monitoring well B-4(OW) that was installed at the subject site as part of our geotechnical related assessment of the site for foundation design recommendations. The purpose of the groundwater sample was to characterize the groundwater for off-site discharge in anticipation of construction dewatering activities. The pH of the groundwater was measured using a YSI meter.

The sample was submitted for chemical testing for the Dewatering General Permit (DGP) parameters which included chemical testing for presence of Total Petroleum hydrocarbons (TPH), cyanide, DGP Total Metals, Hexavalent Chromium (Hex-Cr), Total Suspended Solids (TSS), and Total Residual Chlorine.

Cyanide was detected at a concentration of 6 micrograms per liter (ug/l) in the sample obtained in May 2017. A second sample of groundwater was collected from the site on September 12, 2017 and tested for cyanide, and the results indicated cyanide was not detected above the laboratory reporting limits. Given the lack of a historical release at the subject site and the fact that the site has been occupied by a school since 1929, the initial detection of cyanide is considered to be an anomaly and cyanide is not considered to be present in the groundwater.

The results of the laboratory analysis did not detect the presence of the remaining constituents tested for at concentrations in excess of the applicable RGP effluent limits or in excess of the applicable Massachusetts Department of Environmental Protection (MA DEP) RCGW-2 reporting standards. Furthermore, the results of the chemical testing for the presence of TSS, TPH, Total Residual Chlorine, Hexavalent Chromium, lead, mercury, selenium, silver, and zinc were not detected above the laboratory detection limits. A summary of the chemical test results is provided in Table 1 and chemical test data is included in Appendix D.
**Groundwater Treatment**

Based on the results of the above referenced groundwater analyses, it is recommended that an 18,000-gallon capacity settling tank and bag filters in series be utilized to settle out suspended particulates in the discharge during construction dewatering to meet applicable effluent limits established by the US EPA prior to off-site discharge. A schematic of the treatment system is shown on Figure 4.

**Summary and Conclusions**

The purpose of this report is to assess site environmental conditions and groundwater data to support an application for a Massachusetts Dewatering General Permit (DGP) for off-site discharge of dewatered groundwater which will be encountered during redevelopment of the project site located at 40 Stow Street in Concord, Massachusetts.

Based on the results of the above referenced groundwater analyses, it is recommended that treatment of construction dewatering will be utilized which consists of one 18,000-gallon capacity settling tank and bag filters in series to meet the applicable discharge limits of TSS. However, should the effluent monitoring results indicate levels of TSS in excess of the limits established in the Massachusetts DGP, additional mitigative measures will be implemented to meet the allowable discharge limits.

We trust that the above satisfies your present requirements. Should you have any questions or comments concerning the above, please do not hesitate to contact us.

Very truly yours,

McPHAIL ASSOCIATES, LLC

Benjamin E. Downing, P.E.

Ambrose J. Donovan, P.E., L.S.P.

BED/ajd

N:\Working Documents\Reports\6180_DGP_112817.docx
REFERENCE: THIS PLAN WAS PREPARED FROM A 20-SCALE DRAWING ENTITLED "TOPOGRAPHIC AND UTILITY SURVEY" DATED AUGUST 8, 2016 BY NITSCHE ENGINEERING, INC.
APPROXIMATE LOCATION OF DISCHARGE

APPROXIMATE LOCATION OF OUTFALL INTO MILL BROOK

UMBRELLA COMMUNITY ARTS CENTER
CONCORD
MASSACHUSETTS

DISCHARGE LOCATION PLAN
FOR
UMBRELLA COMMUNITY ARTS CENTER
BY
McPHAIL ASSOCIATES, LLC

REFERENCE: THIS PLAN WAS PREPARED FROM A 400-SCALE GIS MAP PROVIDED ON SEPTEMBER 8, 2017 BY THE CITY OF CONCORD, MASSACHUSETTS
UMBRELLA COMMUNITY ARTS CENTER
CONCORD, MASSACHUSETTS

SCHEMATIC OF TREATMENT SYSTEM
FOR
UMBRELLA COMMUNITY ARTS CENTER
BY
McPHAIL ASSOCIATES, LLC
CONSULTING GEOENGINEERS

Date: NOVEMBER 2017
Owner: M.S.S.
Client: B.E.D.
Scale: N.T.S.
Project No.: G180

MILL BROOK
INFLUENT FLOW FROM DEWATERING PUMP
SETTLING TANK 18,000 GALLON CAPACITY
BAG FILTERS
FLOW METER
CATCH BASIN
WELLPOINT SYSTEM
SAMPLING PORTS
FLOW METER
STORM DRAIN
OUTFALL

FILE NAME: N:\Acad\JOBS\6180\DGP\6180-F04.dwg

UMBRELLA COMMUNITY ARTS CENTER
CONCORD, MASSACHUSETTS
SCHEMATIC OF TREATMENT SYSTEM
FOR
UMBRELLA COMMUNITY ARTS CENTER
BY
McPHAIL ASSOCIATES, LLC
CONSULTING GEOENGINEERS

Date: NOVEMBER 2017
Owner: M.S.S.
Client: B.E.D.
Scale: N.T.S.
Project No.: G180

FILE NAME: N:\Acad\JOBS\6180\DGP\6180-F04.dwg
# TABLE 1
LABORATORY ANALYTICAL RESULTS - GROUNDWATER

Umbrella Community Arts Center
Concord, Massachusetts
Project No. 6180

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>EPA Effluent Limits</th>
<th>B-4 (OW)</th>
<th>B-4(OW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMPLING DATE</td>
<td>5/17/2017</td>
<td>5/17/2017</td>
<td></td>
</tr>
<tr>
<td>LAB SAMPLE ID</td>
<td>L1716141-01</td>
<td>L17132190-01</td>
<td></td>
</tr>
</tbody>
</table>

## General Chemistry

<table>
<thead>
<tr>
<th>Parameter</th>
<th>EPA Limit</th>
<th>5/17/2017</th>
<th>9/12/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.5-8.3</td>
<td>7.0</td>
<td>-</td>
</tr>
<tr>
<td>Solids, Total Suspended (mg/l)</td>
<td>30</td>
<td>ND(5)</td>
<td>-</td>
</tr>
<tr>
<td>TPH, SGT-HEM (mg/l)</td>
<td>5</td>
<td>ND(4.4)</td>
<td>-</td>
</tr>
<tr>
<td>Chloride (mg/l)</td>
<td>-</td>
<td>188</td>
<td>-</td>
</tr>
<tr>
<td>Cyanide, Total (ug/l)</td>
<td>5.2</td>
<td>6</td>
<td>ND(5)</td>
</tr>
<tr>
<td>Chlorine, Total Residual (ug/l)</td>
<td>11</td>
<td>ND(20)</td>
<td>-</td>
</tr>
</tbody>
</table>

## Total Metals (ug/l)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>EPA Limit</th>
<th>5/17/2017</th>
<th>9/12/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony, Total</td>
<td>640</td>
<td>0.53</td>
<td>-</td>
</tr>
<tr>
<td>Arsenic, Total</td>
<td>10</td>
<td>0.17</td>
<td>-</td>
</tr>
<tr>
<td>Cadmium, Total</td>
<td>0.25</td>
<td>0.15</td>
<td>-</td>
</tr>
<tr>
<td>Chromium, Total</td>
<td>74</td>
<td>0.7</td>
<td>-</td>
</tr>
<tr>
<td>Chromium, Hexavalent</td>
<td>11</td>
<td>ND(10)</td>
<td>-</td>
</tr>
<tr>
<td>Copper, Total</td>
<td>9</td>
<td>0.99</td>
<td>-</td>
</tr>
<tr>
<td>Iron, Total</td>
<td>1000</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td>Lead, Total</td>
<td>2.5</td>
<td>ND(0.5)</td>
<td>-</td>
</tr>
<tr>
<td>Mercury, Total</td>
<td>0.77</td>
<td>ND(0.2)</td>
<td>-</td>
</tr>
<tr>
<td>Nickel, Total</td>
<td>52</td>
<td>1.27</td>
<td>-</td>
</tr>
<tr>
<td>Selenium, Total</td>
<td>5</td>
<td>ND(5)</td>
<td>-</td>
</tr>
<tr>
<td>Silver, Total</td>
<td>3.2</td>
<td>ND(1)</td>
<td>-</td>
</tr>
<tr>
<td>Zinc, Total</td>
<td>120</td>
<td>ND(10)</td>
<td>-</td>
</tr>
</tbody>
</table>

ND - Not detected in excess of the reporting limit  
(#) - Detection limit
APPENDIX A:

LIMITATIONS
LIMITATIONS

The purpose of this report is to present a summary of environmental conditions, including the results of testing of groundwater samples obtained from a groundwater monitoring well on the property located at 40 Stow Street in Concord, Massachusetts in support of an application for approval of temporary construction dewatering discharge of groundwater into surface waters of the Commonwealth of Massachusetts under EPA’s Massachusetts Dewatering General Permit MAG070000.

The observations were made under the conditions stated in this report. The conclusions presented above were based on these observations. If variations in the nature and extent of subsurface conditions between the spaced subsurface explorations become evident in the future, it will be necessary to re-evaluate the conclusions presented herein after performing on-site observations and noting the characteristics of any variations.

The conclusions submitted in this report are based in part upon laboratory test data obtained from analysis of groundwater samples, and are contingent upon their validity. The data have been reviewed, and interpretations have been made in the text. It should also be noted that fluctuations in the types and levels of contaminants and variations in their flow paths may occur due to changes in seasonal water table, past practices used in disposal and other factors.

Laboratory analyses have been performed for specific constituents during the course of this assessment, as described in the text. However, it should be noted that additional constituents not searched for during the current study may be present in soil and/or groundwater at the site.

This report and application have been prepared on behalf of and for the exclusive use of the Umbrella Community Arts Center. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, other than submission to relevant governmental agencies, nor used in whole or in part by any other party without the prior written consent of McPhail Associates, LLC.
APPENDIX B:

NOTICE OF INTENT TRANSMITTAL FORMS

NPDES DEWATERING GENERAL PERMIT
## II. Suggested Notice of Intent (NOI) Format

1. General facility information. Please provide the following information about the facility.

<table>
<thead>
<tr>
<th>a) Name of facility:</th>
<th>Mailing Address for the Facility:</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 Stow Street</td>
<td>Umbrella Community Arts Center</td>
</tr>
<tr>
<td></td>
<td>40 Stow Street</td>
</tr>
<tr>
<td></td>
<td>Concord, MA 01742</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b) Location Address of the Facility (if different from mailing address):</th>
<th>Facility Location</th>
<th>Type of Business:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>longitude: -71.352878</td>
<td>Construction Site</td>
</tr>
<tr>
<td></td>
<td>latitude: 42.453971</td>
<td>Facility SIC codes:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c) Name of facility owner:</th>
<th>Owner’s email:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umbrella Community Arts Center</td>
<td><a href="mailto:jerry@theumbrellaarts.org">jerry@theumbrellaarts.org</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner’s Tel #:</th>
<th>Owner’s Fax #:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(978) 371-0420</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address of owner (if different from facility address)</th>
<th>Owner is (check one): 1. Federal 2. State 3. Private ✓ 4. Other (describe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as mailing address</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Legal name of Operator, if not owner:</th>
<th>Operator Contact Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.E. Floyd Company, Inc.</td>
<td>Chris Merrick</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operator Tel Number:</th>
<th>Fax Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(781) 271-9006</td>
<td>(781) 271-9045</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operator’s email:</th>
<th>Operator Address (if different from owner)</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="mailto:cmerrick@cefloyd.com">cmerrick@cefloyd.com</a></td>
<td>135 South Road; Bedford, MA 01730</td>
</tr>
</tbody>
</table>

d) Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water. Map attached? ✓

c) Check Yes or No for the following:

1. Has a prior NPDES permit been granted for the discharge? Yes ✓ No  If Yes, Permit Number: ________________________________

2. Is the discharge a “new discharger” as defined by 40 CFR Section 122.2? Yes ✓ No  If Yes, discharger number: ________________________________

3. Is the facility covered by an individual NPDES permit? Yes ✓ No  If Yes, Permit Number: ________________________________

4. Is there a pending application on file with EPA for this discharge? Yes ✓ No  If Yes, date of submittal: ________________________________

Appendix V – NPDES Dewatering General Permit
2. Discharge information. Please provide information about the discharge, (attaching additional sheets as needed)

   a) Name of receiving water into which discharge will occur: MHDRes

   State Water Quality Classification: Class B ______________ Freshwater: Yes __________ Marine Water: No ________________

   b) Describe the discharge activities for which the owner/applicant is seeking coverage:

   ✔ 1. Construction dewatering of groundwater intrusion and/or storm water accumulation.

   2. Short-term or long-term dewatering of foundation sumps.

   3. Other.

   c) Number of outfalls __________

   For each outfall:

   d) Estimate the maximum and average monthly flow of the discharge (in gallons per day – GPD). Max Daily Flow ____________ GPD

   Average Monthly Flow ____________ GPD

   e) What is the maximum and minimum monthly pH of the discharge (in s.u.)? Max pH ____________ Min pH ____________

   f) Identify the source of the discharge (i.e. potable water, surface water, or groundwater). If groundwater, the facility shall submit effluent test results, as required in Section 4.4.5 of the General Permit. Groundwater (see attached report)

   g) What treatment does the wastewater receive prior to discharge? Settling tank and bag filters to remove sediment

   h) Is the discharge continuous? Yes ✔ __________ No ________ If no, is the discharge periodic (P) (occurs regularly, i.e., monthly or seasonally, but is not continuous all year) or intermittent (I) (occurs sometimes but not regularly) or both (B) __________

   If (P), number of days or months per year of the discharge _____ and the specific months of discharge ________________________________ ________

   If (I), number of days/year there is a discharge __________

   Is the discharge temporary? Yes ✔ __________ No ________

   If yes, approximate start date of dewatering ______________________ approximate end date of dewatering ______________________

   i) Latitude and longitude of each discharge within 100 feet (See http://www.epa.gov/tri/report/siting_tool): Outfall 1: long. __________ lat. __________; Outfall 2: long. __________ lat. __________; Outfall 3: long. __________ lat. __________.

   j) If the source of the discharge is potable water, please provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water and attach any calculation sheets used to support stream flow and dilution calculations ________________ cfs

   (See Appendix VIII for equations and additional information)
MASSACHUSETTS FACILITIES: See Section 3.4 and Appendix 1 of the General Permit for more information on Areas of Critical Environmental Concern (ACEC):

k.) Does the discharge occur in an ACEC? Yes _______ No __✓__
If yes, provide the name of the ACEC:

3. Contaminant Information

a) Are any pH neutralization and/or dechlorination chemicals used in the discharge? If so, include the chemical name and manufacturer; maximum and average daily quantity used as well as the maximum and average daily expected concentrations (mg/l) in the discharge, and the vendor’s reported aquatic toxicity (NOAEL and/or LC₅₀ in percent for aquatic organism(s)).
No.

b) Please report any known remediation activities or water-quality issues in the vicinity of the discharge.

4. Determination of Endangered Species Act Eligibility: Provide documentation of ESA eligibility as required at Part 3.4 and Appendix IV. In addition, respond to the following questions:

a) Which of the three eligibility criteria listed in Appendix IV, Criterion (A, B, or C) have you met? ________________

b) Please attach documentation with your NOI supporting your response. Please see Appendix IV for acceptable documentation.

5. Documentation of National Historic Preservation Act requirements: Please respond to the following questions:

a) See Screening Process in Appendix III and respond to questions regarding your site and any historic properties listed or eligible for listing on the National Register of Historic Places. Question 1: Yes _____ No __✓__; Question 2: No __✓__; Yes ______ See attached report.

b) Have any State or Tribal historic preservation officers been consulted in this determination? Yes __✓__; or No _____ If yes, attach the results of consultation(s).

c) Which of the three National Historic Preservation Act eligibility criterion listed in Appendix III, Criterion (A, B, or C) have you met? ________________

d) Is the project located on property of religious or cultural significance to an Indian Tribe? Yes _____ or No __✓__ If yes, provide that name of the Indian Tribe associated with the property. ________________

6. Supplemental Information: Please provide any supplemental information. Attach any analytical data used to support the application. Attach any certification(s) required by the general permit.

7. Signature Requirements: The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22 (see below) including the following certification:

Appendix V – NPDES Dewatering General Permit
I certify under penalty of law that (1) no biocides or other chemical additives except for those used for pH adjustment and/or dechlorination are used in the dewatering system; (2) the discharge consists solely of dewatering and authorized pH adjustment and/or dechlorination chemicals; (3) the discharge does not come in contact with any raw materials, intermediate product, water product or finished product; (4) if the discharge of dewatering subsequently mixes with other permitted wastewater (i.e. stormwater) prior to discharging to the receiving water, any monitoring provided under this permit will be only for dewatering discharge; (5) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act; and (6) this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.

Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, I certify that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I certify that I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Facility Name: 40 Stow Street; Concord, MA
Operator signature: [Signature]
Print Full Name and Title: CHRISS MERRICK, SR. PROJECT MANAGER
Date: 11-27-17

Federal regulations require this application to be signed as follows:
1. For a corporation, by a principal executive officer of at least the level of vice president;
2. For partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.
APPENDIX C:

MASSACHUSETTS PHASE I SITE ASSESSMENT GIS MAP,
IPAC TRUST RESOURCE REPORT,
AND MACRIS REPORT
MassDEP - Bureau of Waste Site Cleanup
Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

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:
http://www.mass.gov/mgis/

Site Information:
UMBRELLA CENTER
45 STOW STREET CONCORD, MA

NAD83 UTM Meters:
4763245mN 305156mE (Zone: 19)

September 8, 2017

http://maps.massgis.state.ma.us/images/dep/mcp/mcp.htm
In Reply Refer To:

Consultation Code: 05E1NE00-2018-SLI-0241
Event Code: 05E1NE00-2018-E-00578
Project Name: 40 Stow Street

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

To Whom It May Concern:

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

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

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

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the
human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

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

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

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:
http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm;
http://www.towerkill.com; and

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
Official Species List

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

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541
Project Summary

Consultation Code: 05E1NE00-2018-SLI-0241
Event Code: 05E1NE00-2018-E-00578
Project Name: 40 Stow Street
Project Type: DEVELOPMENT
Project Description: <1 Acre

Project Location:
Approximate location of the project can be viewed in Google Maps:
https://www.google.com/maps/place/42.4573579662394N71.35284323702119W

Counties: Middlesex, MA
Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

<table>
<thead>
<tr>
<th>NAME</th>
<th>STATUS</th>
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<tbody>
<tr>
<td>Northern Long-eared Bat</td>
<td>Threatened</td>
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<tr>
<td><em>Myotis septentrionalis</em></td>
<td></td>
</tr>
</tbody>
</table>

No critical habitat has been designated for this species.

Species profile: [https://ecos.fws.gov/ecp/species/9045](https://ecos.fws.gov/ecp/species/9045)

Critical habitats

There are no critical habitats within your project area under this office's jurisdiction.
Below are the results of your search, using the following search criteria:
**Town(s):** Concord  
**Street No:** 40  
**Street Name:** Stow  
**Resource Type(s):** Area, Building, Burial Ground, Object, Structure

For more information about this page and how to use it, [click here](#)

<table>
<thead>
<tr>
<th>Inv. No.</th>
<th>Property Name</th>
<th>Street</th>
<th>Town</th>
<th>Year</th>
<th>SR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CON 366</td>
<td>Concord High School</td>
<td>40 Stow St</td>
<td>Concord</td>
<td>1929</td>
<td></td>
</tr>
</tbody>
</table>
Historic Function: Commerce/Trade, Domestic
Historic Sub-function: Business, Secondary Structure, Single Dwelling, Specialty Store
Current Function: Commerce/Trade, Domestic
Current Sub-function: Business, Secondary Structure, Single Dwelling, Specialty Store

**Community Memorial Hospital** (added 2004 - - #04000423)
15 Winthrop Ave., Ayer

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Haynes & Mason
Architectural Style: Colonial Revival
Area of Significance: Health/Medicine, Social History, Architecture
Period of Significance: 1950-1974, 1925-1949
Owner: Private
Historic Function: Health Care
Historic Sub-function: Hospital
Current Function: Vacant/Not In Use

**Company F State Armory** (added 1989 - - #89001571)
Curtis and Sharon Sts., Waltham

Historic Significance: Architecture/Engineering
Architect, builder, or engineer: Hartwell, Richardson & Driver
Architectural Style: No Style Listed
Area of Significance: Architecture
Period of Significance: 1900-1924
Owner: State
Historic Function: Defense
Historic Sub-function: Military Facility
Current Function: Defense
Current Sub-function: Military Facility

**Concord Armory** (added 2007 - - #07000945)
Also known as **Concord Veterans Building**
51 Walden St., Concord

Historic Significance: Event, Architecture/Engineering
Architect, builder, or engineer: Chapman, John; Blackwell, Clarence, Little, Harry
Architectural Style: Queen Anne
Area of Significance: Architecture, Community Planning And Development, Military, Performing Arts
Owner: Local
Historic Function: Defense, Recreation And Culture
Historic Sub-function: Arms Storage, Arms Storage
Current Function: Recreation And Culture
Current Sub-function: Theater

**Concord Monument Square-Lexington Road Historic District** (added 1977 - - #77000172)
Also known as **See Also: Emerson, Ralph Waldo, House; Wright's Tavern**
MA 2A, Concord
<table>
<thead>
<tr>
<th>Concord Square Historic District  (added 1983 - - #83000794)</th>
<th>Park, Concord, and Kendall Sts., and Union Ave. , Framingham</th>
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<tbody>
<tr>
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<td>Architectural Style: Classical Revival</td>
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<tr>
<td>Period of Significance: 1925-1949, 1900-1924, 1875-1899, 1850-1874</td>
<td>Owner: Private , Local</td>
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<tr>
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<td>Historic Function: Commerce/Trade, Domestic, Government,</td>
</tr>
<tr>
<td>Historic Function: Commerce/Trade, Domestic, Government,</td>
<td>Industry/Processing/Extraction</td>
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<tr>
<td>Industry/Processing/Extraction</td>
<td>Historic Sub-function: Business, Financial Institution, Hotel, Manufacturing</td>
</tr>
<tr>
<td>Historic Sub-function: Business, Financial Institution, Hotel, Manufacturing Facility</td>
<td>Current Function: Commerce/Trade, Government, Landscape, Religion</td>
</tr>
<tr>
<td>Current Function: Commerce/Trade, Government, Landscape, Religion</td>
<td>Current Sub-function: Park</td>
</tr>
</tbody>
</table>

Conventual Church of St. Mary and St. John  (added 1982 - - #82001933)  
980 Memorial Dr. , Cambridge

Converse Memorial Building  (added 1985 - - #85002014)  
Also known as Malden Public Library;Converse Memorial Library  
36 Salem St. , Malden

Historic Significance: Person, Architecture/Engineering  
Architect, builder, or engineer: Shepley, Rutan & Coolidge, Richardson,H.H.  
Architectural Style: Other, Romanesque  
Historic Person: Converse,Elisha S., et al.
APPENDIX D:

LABORATORY ANALYTICAL DATA
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<th>Lab Number:</th>
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</tr>
<tr>
<td></td>
<td>2269 Massachusetts Avenue</td>
</tr>
<tr>
<td></td>
<td>Cambridge, MA 02140</td>
</tr>
<tr>
<td>ATTN:</td>
<td>Ambrose Donovan</td>
</tr>
<tr>
<td>Phone:</td>
<td>(617) 868-1420</td>
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<tr>
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<td>UMBRELLA CENTER</td>
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<tr>
<td>Project Number:</td>
<td>6180.9.00</td>
</tr>
<tr>
<td>Report Date:</td>
<td>05/23/17</td>
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</table>

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/866), PA (68-03671), RI (LA000065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).
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<td>L1716141-01</td>
<td>B-4 (OW)</td>
<td>WATER</td>
<td>CONCORD, MA</td>
<td>05/17/17 10:45</td>
<td>05/17/17</td>
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</tbody>
</table>
Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.
Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: 

[Signature]

Title: Technical Director/Representative 

Date: 05/23/17
METALS
### SAMPLE RESULTS

**Project Name:** UMBRELLA CENTER  |  **Lab Number:** L1716141  
**Project Number:** 6180.9.00  |  **Report Date:** 05/23/17  
**Lab ID:** L1716141-01  |  **Date Collected:** 05/17/17 10:45  
**Client ID:** B-4 (OW)  |  **Date Received:** 05/17/17  
**Sample Location:** CONCORD, MA  |  **Field Prep:** Not Specified  
**Matrix:** Water

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<th>Prep Method</th>
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**Method Blank Analysis**  
**Batch Quality Control**

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**Prep Information**

Digestion Method: EPA 3005A

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**Project Name:** UMBRELLA CENTER  
**Project Number:** 6180.9.00

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**Date Received:** 05/17/17  
**Field Prep:** Not Specified  
**Report Date:** 05/23/17
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Sample Receipt and Container Information

Were project specific reporting limits specified?  YES

Cooler Information  Custody Seal
Cooler
A  Absent

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*Values in parentheses indicate holding time in days
GLOSSARY

Acronyms

EDL
- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA
- Environmental Protection Agency.

LCS
- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD
- Laboratory Control Sample Duplicate: Refer to LCS.

LFB
- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL
- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS
- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD
- Matrix Spike Sample Duplicate: Refer to MS.

NA
- Not Applicable.

NC
- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA
- N-Nitrosodiphenylamine/Diphenylamine.

NI
- Not Ignitable.

NP
- Non-Plastic; Term is utilized for the analysis of Atterberg Limits in soil.

RL
- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD
- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM
- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP
- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TIC
- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1. The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A
- Spectra identified as "Aldol Condensation Product".

B
- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit.

Report Format: DU Report with 'J' Qualifiers
**Data Qualifiers**

- **C**: Co-elution: The target analyte co-elutes with a known lab standard (i.e., surrogate, internal standards, etc.) for co-extracted analyses.

- **D**: Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

- **E**: Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

- **G**: The concentration may be biased high due to matrix interferences (i.e., co-elution) with non-target compound(s). The result should be considered estimated.

- **H**: The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

- **I**: The lower value for the two columns has been reported due to obvious interference.

- **M**: Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

- **NJ**: Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

- **P**: The RPD between the results for the two columns exceeds the method-specified criteria.

- **Q**: The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

- **R**: Analytical results are from sample re-analysis.

- **RE**: Analytical results are from sample re-extraction.

- **S**: Analytical results are from modified screening analysis.

- **J**: Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

- **ND**: Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
REFERENCES


44. Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.

74. Method 1664,Revision A: N-Hexane Extractable Material (HEM; Oil & Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Material) by Extraction and Gravimetry, EPA-821-R-98-002, February 1999.


LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.
The following analytes are not included in our Primary NELAP Scope of Accreditation:

**Westborough Facility**

EPA 624: m/p-xylene, o-xylene  
EPA 8260C: **NPW**: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; **SCM**: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.  
EPA 8270D: **NPW**: Dimethylnaphthalene,1,4-Diphenylhydrazine; **SCM**: Dimethylnaphthalene,1,4-Diphenylhydrazine.  
EPA 300: **DW**: Bromide  
EPA 6860: **NPW and SCM**: Perchlorate  
EPA 9010: **NPW and SCM**: Amenable Cyanide Distillation  
EPA 9012B: **NPW**: Total Cyanide  
EPA 9050A: **NPW**: Specific Conductance  
SM3500: **NPW**: Ferrous Iron  
SM4500: **NPW**: Amenable Cyanide, Dissolved Oxygen; **SCM**: Total Phosphorus, TKN, NO2, NO3.  
SM5310C: **DW**: Dissolved Organic Carbon

**Mansfield Facility**

SM 2540D: **TSS**  
EPA 3005A **NPW**  
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.  
**Biological Tissue Matrix**: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

**Westborough Facility**

**Drinking Water**

EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.  
Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.  

**Non-Potable Water**

EPA 624: Volatile Halocarbons & Aromatics,  
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs  
Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E.  

**Mansfield Facility**

**Drinking Water**

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8**: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.  

**Non-Potable Water**

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.  
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.  
EPA 245.1 Hg.  
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.
**CHAIN OF CUSTODY**

**Serial No:** 05231716:40

**ALPHA Job #:** 1716141

**Project Information**
- **Project Name:** Umbrella Center
- **Project Location:** Concord, MA
- **Project #:** 618-0,9100
- **Project Manager:** Ben Downing
- **ALPHA Quote #:**

**Client Information**
- **Client:** Michal Associates, LLC
- **Address:** 3264 Massachusetts Ave
  Cambridge, MA 02140
- **Phone:** 617-986-1420
- **Email:** downing@microgeo.com

**Additional Project Information:**

**Turn-Around Time**
- **Standard**
- **RUSH** (only confirmed if pre-approved)
- **Date Due:**

**ALPHA Lab ID** (Lab Use Only)

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**Container Type**

- **Preservative**
  - A = None
  - B = HCl
  - C = HNO3
  - D = H2SO4
  - E = NaOH
  - F = MeOH
  - G = NaI
  - H = Na2S2O3
  - I = Ascorbic Acid
  - J = NH4Cl
  - K = Zn Acetate
  - L = Other

**Preservatives**

- **Container Type**
  - AP
  - BC
  - AE

**Relinquished By:**
- **Date/Time:** 5-17-17 11:40

**Received By:**
- **Date/Time:** 5-17-17 11:50

---

**Analysis**

**Sample Info**

- **Filtration**
  - Field
  - Lab to do
- **Preservation**
  - Field
  - Lab to do

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-March-2012)
The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).
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Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an “R” or “RE”, respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEX data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.
Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  
Kelly Stenstrom

Title: Technical Director/Representative  
Date: 09/15/17
INORGANICS
&
MISCELLANEOUS
**SAMPLE RESULTS**

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</tbody>
</table>

Project Name: UMBRELLA CENTER  
Project Number: 6180.9.00  
Lab ID: L1732190-01  
Client ID: B-4(OW)  
Sample Location: CONCORD, MA  
Matrix: Water  
Date Collected: 09/12/17 11:35  
Date Received: 09/12/17  
Field Prep: Not Specified  
Report Date: 09/15/17
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Result</th>
<th>Qualifier</th>
<th>Units</th>
<th>RL</th>
<th>MDL</th>
<th>Dilution Factor</th>
<th>Date Prepared</th>
<th>Date Analyzed</th>
<th>Analytical Method</th>
<th>Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyanide, Total</td>
<td>ND</td>
<td></td>
<td>mg/l</td>
<td>0.005</td>
<td>0.001</td>
<td>1</td>
<td>09/14/17 11:25</td>
<td>09/14/17 13:50</td>
<td>121,450CN-CE</td>
<td>LH</td>
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</tbody>
</table>

General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1041650-1
## Lab Control Sample Analysis

### Batch Quality Control

<table>
<thead>
<tr>
<th>Parameter</th>
<th>LCS %Recovery</th>
<th>Qual</th>
<th>LCSD %Recovery</th>
<th>Qual</th>
<th>%Recovery Limits</th>
<th>RPD</th>
<th>Qual</th>
<th>RPD Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Chemistry - Westborough Lab  Associated sample(s): 01 Batch: WG1041650-2</td>
<td></td>
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</tr>
<tr>
<td>Cyanide, Total</td>
<td>98</td>
<td></td>
<td>-</td>
<td></td>
<td>90-110</td>
<td></td>
<td></td>
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</tbody>
</table>

Project Name: UMBRELLA CENTER
Project Number: 6180.9.00

Lab Number: L1732190
Report Date: 09/15/17
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Native Sample</th>
<th>MS Added</th>
<th>MS Found</th>
<th>MS % Recovery</th>
<th>Qual</th>
<th>MSD Found</th>
<th>MSD % Recovery</th>
<th>Qual</th>
<th>Recovery Limits</th>
<th>RPD</th>
<th>RPD Limits</th>
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</thead>
<tbody>
<tr>
<td>Cyanide, Total</td>
<td>ND</td>
<td>0.2</td>
<td>0.204</td>
<td>102</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>90-110</td>
<td>-</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Native Sample</td>
<td>Duplicate Sample</td>
<td>Units</td>
<td>RPD</td>
<td>Qual</td>
<td>RPD Limits</td>
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<td></td>
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<tr>
<td>--------------------</td>
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<tr>
<td>General Chemistry - Westborough Lab</td>
<td>01 QC Batch ID: WG1041650-3 QC Sample: L1732153-02 Client ID: DUP Sample</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Cyanide, Total</td>
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<td>0.027</td>
<td>mg/l</td>
<td>4</td>
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<td>30</td>
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</tbody>
</table>
**Sample Receipt and Container Information**

Were project specific reporting limits specified?

**YES**

<table>
<thead>
<tr>
<th>Cooler Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooler</td>
</tr>
<tr>
<td>A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Container Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container ID</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>L1732190-01A</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cooler</th>
<th>Initial pH</th>
<th>Final pH</th>
<th>Temp (deg C)</th>
<th>Pres</th>
<th>Seal</th>
<th>Frozen Date/Time</th>
<th>Analysis(*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&gt;12</td>
<td>&gt;12</td>
<td>5.1</td>
<td>Y</td>
<td>Absent</td>
<td></td>
<td>TCN-4500(14)</td>
</tr>
</tbody>
</table>

*Values in parentheses indicate holding time in days*
GLOSSARY

Acronyms

EDL  - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA  - Environmental Protection Agency.

LCS  - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD  - Laboratory Control Sample Duplicate: Refer to LCS.

LFB  - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL  - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS  - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD  - Matrix Spike Sample Duplicate: Refer to MS.

NA  - Not Applicable.

NC  - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA  - N-Nitrosodiphenylamine/Diphenylamine.

NI  - Not Ignitable.

NP  - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL  - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD  - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM  - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP  - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TIC  - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1  - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A  - Spectra identified as "Aldol Condensation Product".

B  - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related
Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C  - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
D  - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
E  - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
G  - The concentration may be biased high due to matrix interferences (i.e., co-elution) with non-target compound(s). The result should be considered estimated.
H  - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
I  - The lower value for the two columns has been reported due to obvious interference.
M  - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
P  - The RPD between the results for the two columns exceeds the method-specified criteria.
Q  - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
R  - Analytical results are from sample re-analysis.
RE - Analytical results are from sample re-extraction.
S  - Analytical results are from modified screening analysis.
J  - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at its own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.
Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS
EPA 3005A NPW
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.
Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D.

Non-Potable Water

EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlorordan, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E.

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. EPA 200.8: Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. EPA 245.1 Hg.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.