

MAG910352

**NOTICE OF INTENT FOR DISCHARGE  
UNDER REMEDIATION GENERAL  
PERMIT MAG910000**

**SHAW'S MARKET  
AT THE  
CHESTNUT HILL SHOPPING CENTER  
CHESTNUT HILL MASSACHUSETTS**





March 7, 2008

Geotechnical Engineers

U.S Environmental Protection Agency  
RGP-NOC Processing Municipal Assistance Unit (CMU)  
1 Congress Street, Suite 1100  
Boston, MA 02114-2023

Attention: RGP-NOC Processing

Massachusetts Department of Environmental Protection  
Division of Watershed Management  
627 Main Street  
Worcester, MA 01608

Attention: Mr. Robert D. Kubit

Reference: Shaw's Market at the Chestnut Hill Shopping Center; Chestnut Hill, Massachusetts  
Notice of Intent for Construction Dewatering Discharge Under RGP MAG9100000

Ladies and Gentlemen:

The purpose of this letter report is to provide a summary of the groundwater quality information and geotechnical engineering input in support of an application for permission from the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) for the temporary discharge of groundwater into Charles River via Hammond Pond and a storm water drainage system during construction at the above referenced 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 February 6, 2008 and the subsequent authorization of Diversified Environmental Corporation. These services are subject to the limitations contained in **Appendix A**.

The required Notice of Intent form and the Massachusetts DEP Transmittal form for Permit Application and Payment; is included in **Appendix B**.

### **Applicant**

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

Supervalu Inc./Shaw's Division  
750 West Center Street  
West Bridgewater, MA 02379

Attention: Mr. Kenneth Mahtesian, Senior Construction Project Manager

Tel: 508-313-4608  
Fax: 508-313-4155



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### **Existing Site Conditions**

Fronting onto Boylston Street to the south, the proposed area of redevelopment is currently occupied by a one-story masonry-block Star Market grocery store and asphalt paved parking lots. The site is part of a larger shopping complex named the Chestnut Hill Shopping Center that contains eight (8) other stores and businesses which are not the subject of the proposed plans for redevelopment. An access road off of Boylston Street and an entrance way connecting to Hammond Street provide access to the site. Remaining portions of the subject site not covered by the building or parking lots include a utility shed, concrete walkways and landscaped margins.

The ground surface across the subject site slopes gradually downward from east to west from about Elevation +176 to +173 based on the 7.5'USGS Digital Elevation Model (DEM).

### **Site History**

The following is a summary of readily available historic information, including data obtained from Sanborn Fire Insurance Maps dated 1910, 1925, 1931, 1950, 1960, 1961, 1963, 1965, and 1969, City of Newton on-line historical maps and permits from the City of Newton Inspectional Services Department.

According to building permits at the City of Newton Inspectional Services, construction of the Star Market building began in 1949. Prior to 1949, Sanborn Maps and the City of Newton historical maps indicate the site to be undeveloped. In 1950, the Sanborn Map shows the completed Chestnut Hill Shopping Center structure including the Star Market building. This Map depicts the Star Market building to be smaller than its current footprint. Between the time period of 1950 to 1969, Sanborn Maps indicate the subject site to have generally remained unchanged.

In 1974, building permits at the City of Newton indicate that renovations had taken place on the Star Market building. These renovations included a new addition to the northern end of the building, interior alterations and the installation of three (3) hydraulic pump motors likely for elevators that were also installed during this time. Excluding minor alterations to the Star Market building facade and interior electrical work, the subject site has generally remained unchanged since the 1974 renovations.

### **Proposed Scope of Site Development**

It is understood that the proposed scope of redevelopment for the subject property involves the demolition of the existing building, the construction of an enlarged two-story building in approximately the same location, and surrounding site improvements which include a storm water management system and utility conduits. The proposed building is understood to consist of a two-story steel-framed structure that will abut the eastern end of the existing shops of the Chestnut Hill Shopping Center. The proposed building will include a below-grade level which is anticipated to occupy less area than that of the current building and an above grade parking garage which will attach to the western end of the grocery store building.

In addition, site redevelopment will include the construction of a below grade detention system for surface storm water and roof drainage with connecting drain lines.



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### **Site Environmental Setting and Regulatory Status**

Based on a review of the DEP Priority Resources Map, the subject site is not located within the boundaries of a Potentially Productive Aquifer, Zone II, or Interim Wellhead Protection Area as defined by the Massachusetts Department of Environmental Protection. Further, there are no public or private 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. There are no water bodies or wetland areas on the subject site. No areas designated as solid waste sites (landfills) are noted as being located within 1,000 feet of the site. The nearest surface water body is the Hammond Pond and surrounding wetland areas which is located adjacent to the northwest of the subject site.

There are no known private or public drinking water supply wells located within the site boundaries, nor within 0.5 miles of the site. As noted above, according to readily available information, the subject site and the surrounding area are serviced by public utilities including water, electricity, surface drainage and sewer. The subject site is located within 500 feet of residential buildings located to the northwest of the Star Market building.

According to the DEP Priority Resources Map, Areas of Protected Spaces are located to the north, east, and west of Hammond Pond. Based on the City of Newton GIS Wetlands Properties, Floodplains, and Conservation Restrictions Map, two areas of conservation restrictions are located along the eastern banks of Hammond Pond north of the subject site. In addition, the map depicts a City of Newton floodplain located north and northeast of Hammond Pond.

### **Subsurface Conditions**

A detailed description of the subsurface conditions encountered at each of the soil borings conducted across the site is documented on the logs contained in **Appendix C**. Following is a discussion of the generalized subsurface conditions across the site which are inferred primarily from the recent and previous explorations, but also from our knowledge of local site geology.

The surface of the project site not covered by the Star Market building consists of either asphalt pavement or concrete, which is approximately 3 to 5 inches in thickness. Underlying the asphalt pavement and/or concrete the subsurface explorations typically encountered granular fill material that generally consists of a loose to very dense, light brown to black, sand with varying amounts gravel and silt and trace asphalt and concrete. In addition, fill material encountered in boring B-5 consists of a dense to very dense blue-gray to gray brown sand with some to trace silt, gravel and ash. The explorations indicated that the fill material varies in thickness from about 3 feet on the northwestern and northeastern portions of the site to approximately 11 feet near the perimeter of the Star Market building.

In general, the fill material overlies a natural deposit of glacial till and/or outwash consisting of a dense to very dense, brown sand, silt and gravel to a sand and gravel with varying amounts of silt. Glacial till was encountered in the borings B-1(ow), B-3, B-8, B-9(ow), B-10, B-11, B-13(ow), and B-14(ow) at a depth ranging from 3 to 16 feet below ground surface. A deposit of glacial outwash was encountered in borings B-4(ow), B-5, B-6(ow), B-9(ow), and B-12(ow) at depths ranging from 6 to 11 feet below ground surface. In exploration B-9 (ow) the glacial outwash was observed to overlies the glacial till which is at a depth of 15 feet below ground surface.



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Split spoon and auger refusal, believed to be representative of the sound bedrock surface, was encountered in boreholes B-1(ow), B-3, B-5, B-7, B-8, B-10, and B-11, at depths ranging from 3.5 to 14 feet below ground surface. Based upon rock out croppings observed along the northern and northeastern boundaries of the Site, the bedrock is anticipated to consist of Roxbury Conglomerate.

The groundwater level at the Site was measured within the observation wells to range from Elevation +166.1 to Elevation +162.3. Groundwater at the site is anticipated to be seasonally perched at shallow depths on the surface of the glacial till deposit or on the surface of the underlying bedrock. Based on an elevation survey of ground surface at the monitoring well locations, groundwater beneath the subject site generally flows in a west-northwesterly direction. It is anticipated that future groundwater levels across the project site may vary from those reported herein based on such factors as normal seasonal changes, runoff during or following periods of heavy precipitation, and alterations to existing drainage patterns. In addition, the groundwater is anticipated to be seasonally present in the fractures and joints of the bedrock. Groundwater monitoring reports are contained in **Appendix D**. A detailed description of the subsurface conditions encountered at each of the completed explorations is presented in the logs of the soil borings contained in **Appendix C**. Based on the subsurface information collected at the site, the following generalized conditions were encountered from the ground surface downward. It should be noted that not all strata, as described above, were encountered at all exploration locations.

### Summary of Soil Chemical Testing

Representative soil samples obtained from the borings within the planned depth of excavation for the proposed area of redevelopment were submitted for chemical analysis. Selection of the specific tests to be performed was determined by generally accepted criteria for detecting documented releases of petroleum contamination on adjacent properties and a broad range of common urban environmental contaminants. Selection of samples to be tested was based upon determining the potential of contamination from adjacent properties to the site area and the depth of excavation anticipated for the proposed scope of site development.

None of the samples indicated the presence of stains or odors indicative of the presence of oil or hazardous materials (OHM). A total of seventy (70) soil samples obtained from the borings performed during the course of our subsurface investigation were screened for the presence of total volatile organic compounds (TVOCs). Headspace screening results are summarized in **Table 1**.

Samples of the fill and naturally underlying material from borings performed within the proposed area of redevelopment were chemically analyzed for the volatile petroleum hydrocarbons (VPHs) and extractable petroleum hydrocarbons (EPHs) with target analytes, RCRA-8 metals which include lead, barium, cadmium, mercury, selenium, silver, arsenic, and chromium, and polychlorinated biphenyls (PCBs). Chemical test results for the soil samples are summarized in **Table 2**.

In general, chemical test results of samples obtained from a majority of the borings indicated concentrations of EPHs and VPHs with target analytes at levels below the laboratory detection limits which are well below the MCP RCS-1 reporting thresholds. However, samples from borings B-4 (ow) and B-13 (ow) obtained at depths of 9 to 11 feet and 1 to 3 feet below ground surface, respectively, exhibited low levels of EPHs with target PAHs at concentrations below the applicable RCS-1 Standard.



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Composite samples of the fill material from borings B-4(ow), B-6(ow), and B-9(ow) were prepared and submitted for chemical analysis for the presence of lead, barium, cadmium, mercury, selenium, silver, arsenic, and chromium (RCRA-8 metals). The results of chemical testing indicated the presence of arsenic, barium, chromium and lead at concentrations below the RCS-1 reporting thresholds. Further, chemical analysis indicated the presence cadmium, mercury, selenium, and silver at levels below the laboratory method detection limits which are well below the applicable RCS-1 standards.

The soil sample obtained from B-12 (ow) was also chemically analyzed for the presence of PCBs in order to assess potential impacts to soil from a transformer contained in a nearby below grade vault. This soil sample exhibited levels of PCBs below the laboratory method detection limits.

Chemical test results for the soil samples obtained during our Phase II subsurface investigation are summarized in **Table 2**.

### Groundwater Chemical Analyses Results

On February 18, 2008, a representative of McPhail Associates, Inc. obtained a groundwater sample from groundwater monitoring well B-12 (OW). The groundwater sample obtained from the monitoring well did not exhibit the presence of a sheen or other visual or olfactory evidence of petroleum contamination. The sample was sent to a certified laboratory and chemically analyzed for the presence of compounds required under the RGP application, including pH, total suspended solids (TSS), total residual chlorine, total petroleum hydrocarbons (TPH), cyanide, volatile organic compounds (VOCs) including total benzene, toluene, ethylbenzene and xylenes (BTEX), poly-aromatic hydrocarbons (PAHs) and semi-volatile organic compounds (SVOCs) including total phenols and total phthalates, Pesticides and PCBs, and total recoverable metals. Previously obtained groundwater samples from monitoring wells B-1(OW), B-4(OW), B-6(OW), B-9(OW), B-12(OW), B-13(OW), and B-14(OW) on December 21, 2007 and January 4, 2008, were submitted for chemical testing for the presence of VPH with target VOCs and EPHs with target PAHs. The locations of the groundwater monitoring wells are shown on **Figure 2**.

Chemical test results are summarized in **Tables 3** and **4**, and laboratory data is included in **Appendix E**. The results of chemical testing indicate the following:

1. **pH:** The tested sample exhibited a level of 6.9 Standard Units (S.U.). The recommended range - for pH discharge into fresh water is 6.5 to 8.3 S.U.
2. **TSS:** Total suspended solids (TSS) were detected in the tested samples at a concentration of 200 milligrams per liter (mg/l). The limit established by the US EPA for discharge into fresh water is 30 mg/l. The detected level of TSS is considered to be attributable to the disturbance of suspended solids in the monitoring well during development of the well and subsequent sampling. However, it should be noted that groundwater will be pre-treated by passing the water through two (2) 5,000 gallon sediment tanks and bag filters in series prior to discharge in order to reduce the concentration of TSS in the effluent.
3. **VOCs:** With the exception of methyl tert butyl ether (MTBE), chemical analysis indicated VOC concentrations at levels below the laboratory detection limits which are below the applicable RCGW-2 thresholds and the allowable RGP effluent limits for fresh water. The laboratory reported the presence MTBE in B-12(ow) and B-9(ow) at concentrations of 9.51 micrograms per



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liter (ug/l) and 12.7 ug/l, respectively, which are below the applicable RCGW-2 thresholds and RGP effluent limits.

4. **TPH:** The results indicated TPH concentrations at a level below the laboratory detection limits which is well below the applicable RCGW-2 threshold and the allowable RGP effluent limits for fresh water.
5. **PAHs/SVOCs:** Chemical analysis indicated the presence of PAHs present only in monitoring well B-12 (ow) during each sampling event. The sample event on January 4, 2008 indicated that PAH compounds namely, Phenanthrene and Flouranthene at concentrations of 1.91 ug/l and 0.471 ug/l which are below the applicable RCGW-2 reporting standards and RGP effluent limits for freshwater. Chemical analysis of the sample obtained on February 18, 2008 detected only Phenanthrene at a concentration of 0.2 ug/l. Chemical test results for the remaining PAH/SVOC compounds indicate concentrations at levels below the laboratory detection limits which are well below the RCGW-2 threshold and the allowable RGP effluent limits.
6. **EPH:** The results indicated the presence of the EPH hydrocarbon fractions at concentrations below the laboratory detection limits and/or below the applicable RCGW-2 thresholds and the allowable RGP effluent limits for fresh water.
7. **PCBs:** The results indicated PCB concentrations at levels below the laboratory detection limits which are below the applicable RCGW-2 threshold and the allowable RGP effluent limits for fresh water.
8. **Total Metals:** The laboratory reported no detectable levels of antimony, mercury, chromium VI and silver. Levels of arsenic, chromium III, nickel, selenium, and zinc were reported at levels of 5.3 micrograms per liter (ug/l), 19.5 ug/l, 5.5 ug/l, 2.0 ug/l, and 16.4 ug/l, respectively. These concentrations are below the applicable RCGW-2 threshold and the RGP effluent limits for fresh water.

Results for cadmium, copper, lead, and iron were 0.2 ug/l, 14.8 ug/l, 3.0 ug/l and 16,000 ug/l respectively. The RGP limits for these compounds are 0.2 ug/l, 5.2 ug/l, 1.3 ug/l and 1,000 ug/l respectively. Therefore, the levels of cadmium, copper, lead and iron are in excess of the allowable RGP limits.

Calculations of the mass of each of the above metals are included in **Table 5**.

Based on calculations of the applicable dilution factor as shown below, iron is the only compound that exceeds the applicable permit limits for total recoverable metals. The results of chemical analysis for the total metals in conjunction with the elevated level of Total Suspended Solids detected in the B-12(OW) sample, suggest that the detected levels of total iron are attributable to the presence of soil particulate in the tested sample. As noted above, TSS reduction measures to the groundwater will be implemented prior to discharge to reduce the concentration TSS and thus the iron concentration in the effluent.



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Dilution Factor Application for Metals

A Dilution Factor (DF) was calculated for the detected levels of total metals pursuant to the procedure contained in MAG910000, Appendix V. The purpose of the DF calculation is to establish Total Recoverable Limits for metals, taking into consideration the anticipated dilution of the detected analytes upon discharge into the Charles River. The calculated DF was then used to find the appropriate Dilution Range Concentrations (DRCs) contained in MAG910000, Appendix IV.

The DF that was utilized in finding the appropriate DRCs was calculated as follows:

$$DF = (Qd + Qs)/Qd$$

Where: Qd is the maximum discharge flow rate of 40 GPM = 0.0892 cubic feet per second (cfs),  
(1 GPM = 0.00223 cfs)

Qs is the receiving water flow rate (minimum for 7 consecutive days with a recurrence interval of 10 years)

The value for Qs used for identifying the DRCs contained in MAG 910000 Appendix IV is based on information provided by the US Geological Survey (USGS) - Massachusetts Stream Flow Data for the Charles River obtained at the nearest USGS gauging station located in Waltham. The Minimum Flow Rate reported by the USGS at the Charles River Gauging Station for 7 consecutive days with a recurrence interval of 10 years (M7D10Y flow) is 21.9 cfs thus resulting in DF = 246.51. According to Appendix IV of the Remediation General Permit, the ceiling limitations for the calculated dilution factor of 246.51 for cadmium, copper, lead, and iron are 20.0 mg/l and 520 mg/l, 132 mg/l and 5,000 mg/l respectively. Thus, detected levels for cadmium, copper, and lead are below the ceiling limitations established in Appendix IV and only iron is in exceedance.

Based on calculations of the applicable dilution factor as shown in below, detected levels of cadmium, copper, and lead do not exceed the applicable permit limits for total recoverable metals. The results of chemical analysis for the total metals in conjunction with level of Total Suspended Solids in the MW-12(OW) tested sample, suggest that the detected levels of total recoverable metals are likely attributable to the presence of particulates in the tested sample. As noted above, TSS reduction measures to the groundwater will be implemented prior to discharge to reduce the concentration TSS and thus the total metal concentrations in the effluent.

**Construction Dewatering**

Based upon the configuration of the proposed new grocery store structure, as well as the conditions encountered in the subsurface explorations, foundation support for the proposed structure will likely be provided by a conventional spread footing foundation system bearing directly on the natural deposits of glacial till, outwash and underlying bedrock, or on structural fill placed over the above described natural deposits.

Excavation within the proposed building footprint may extend to a depth of approximately 2 to 5 feet below the observed groundwater level using an open cut excavation method. Hence, construction dewatering



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will be required to allow the construction of footings, the below-grade portions of the building foundation and the underground detention basin.

Based upon the groundwater levels observed within the explorations, it is anticipated that dewatering will be required for construction of the proposed building and site improvements. In addition, rainwater is anticipated to accumulate within localized trenches after periods of heavy precipitation. It is anticipated that dewatering by means of strategically located sumps and trenches should suffice during foundation construction operations.

It is estimated that the typical continuous groundwater discharge required during the foundation construction will be on the order of 25 to 40 gallons per minute (GPM). This estimate of discharge does not include surface runoff which will be removed from the excavation during the limited duration of a rain storm and shortly thereafter.

Construction dewatering will require the discharge of collected groundwater into the storm drain system under the requested Remediation General Permit. A review of available existing conditions plans prepared for the site in conjunction with plans at the offices of the City of Newton Engineering Department indicate that the storm drain lines located within the Chestnut Hill Shopping Center flow into the Hammond Pond at a location approximately 200 feet northwest of the proposed area for redevelopment. Water from Hammond Pond flows northwest into Hammond Brook which flows into a drain line that flows beneath Walnut Street. The drain line along Walnut Street flows northwest to the Laundry Brook culvert. Flowing northeast beneath the Massachusetts Turnpike and MBTA tracks, the Laundry Brook culvert increases several times to become a 72 x 120 inch box culvert that eventually discharges into the Charles River, a Class B water body. The location of the relevant catch basins with relation to the subject site, discharge location into Hammond Pond, the direction of flow of Hammond Brook to the stormwater drainage system and the eventual water discharge point into the Charles River are indicated on **Figures 3 through 6**.

Based on the results of groundwater chemical analyses discussed below, it is our opinion that no special treatment of the groundwater such as the application of chemicals or carbon filtration prior to discharge is required. However, two (2) sedimentation tanks with a minimum of 5,000 gallons capacity and two (2) bag filters each will be required to settle particulate matter out of the effluent in order to meet allowable discharge limits established by the EPA and Massachusetts DEP. Should the level of particulate matter in the effluent exceed the limit established by the EPA, additional filtration of the effluent will be implemented prior to discharge.

### **Concluding Remarks - Groundwater Chemical Analyses**

The tested sample from monitoring well B-12 (OW) did not exhibit the presence of a sheen or visual and/or olfactory evidence of contamination. In summary, the results of the groundwater chemical analyses indicate none of the analytes were detected at concentrations in excess of the applicable MCP risk-based cleanup standards for groundwater category GW-3 that are protective of surface water and the environment. With regard to the RGP standards, except for iron all total analyzed metals met the applicable dilution range concentrations.

Based on the test results which indicated the presence of total metals in conjunction with the elevated level of Total Suspended Solids in the B-12(OW) tested sample, it is our opinion that the detected levels of total arsenic, cadmium, chromium, copper, lead, nickel, selenium and iron are attributable to the presence



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of soil particles in the tested sample. It is also our opinion that as a result of the implementation of TSS reduction measures during the dewatering operation, as detailed herein, the discharged water will meet the applicable dilution range RGP standards for the above detected metals.

### **Groundwater Treatment**

Based on the results of groundwater chemical analyses, it is our opinion that sedimentation tanks and bag filters will be required to settle particulate matter out of the water to meet allowable total suspended solids (TSS) discharge limits established by the US EPA and Massachusetts DEP prior to discharge. Two sedimentation tanks each 5,000-gallons in capacity and two (2) bag filters will be incorporated into the discharge system in series in order to meet allowable discharge limits for TSS established by the RGP, and also to control levels of total metals in the discharge. As indicated above, it is our opinion that the removal of sediment will also result in a reduction in total metals to levels below the RGP permit limits modified by the dilution range calculations.

To document the effectiveness of the sedimentation system, samples of the discharge water will be obtained and tested for the presence of TSS and total metals prior to the start of discharge into the storm drain system. Should the pre-start up testing indicate that the levels of TSS and/or total metals in the effluent from the settling tanks exceed the limits established under the RGP, additional filtration of the effluent will be implemented prior to initial discharge.

Should the results of testing for total metals continue to indicate an exceedance of the applicable dilution range concentrations appropriate treatment will be implemented to address the metals. In addition, should other contaminants be detected within the discharge water during the construction dewatering phase of the project at levels that exceed the effluent limitations, mitigative measures will be implemented to meet the allowable discharge limits.

### **Summary and Conclusions**

Based on the results of groundwater chemical analyses discussed above, it is our opinion that groundwater quality meets the DEP and the EPA requirements for discharge into a Class B Surface Water Body without any special treatment. In order to ensure that the levels of TSS in the effluent meet the terms of the discharge permit, a dual sedimentation tank system with dual bag filters will be utilized to settle particulate matter out of the water prior to discharge. A sample of the effluent will be obtained prior to discharge to document that the sediment removal system has addressed levels of TSS and total metals. However, should the effluent motoring results indicate a level of TSS in excess of the limits established in the Remediation General Permit, additional filtration will be installed. Based on the above results of the groundwater chemical analyses, other additional effluent filtering is not anticipated.

In conclusion, it is our opinion that groundwater at the project site, based upon the above quality testing results, is acceptable for discharge with minimal treatment into Hammond Pond and ultimately into the Charles River under the U.S. EPA Remediation General Permit. As discussed above, sampling and analyses of the groundwater influent and effluent will be conducted in accordance with the terms of the Remediation General Permit.



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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, INC.



William J. Burns



Martha L. Zirbel P.E., L.S.P

Enclosures

c: Diversified Environmental Corporation (Mike Tibert)  
Supervalu Inc./Shaw's Division (Ken Mahtesian)

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WJB/mlz

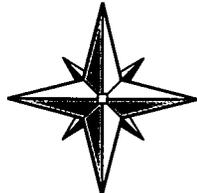
FIGURE 1



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2269 Massachusetts Avenue  
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617/868-1423 (Fax)

N



SCALE 1:25,000

# PROJECT LOCATION PLAN

SHAW'S MARKET

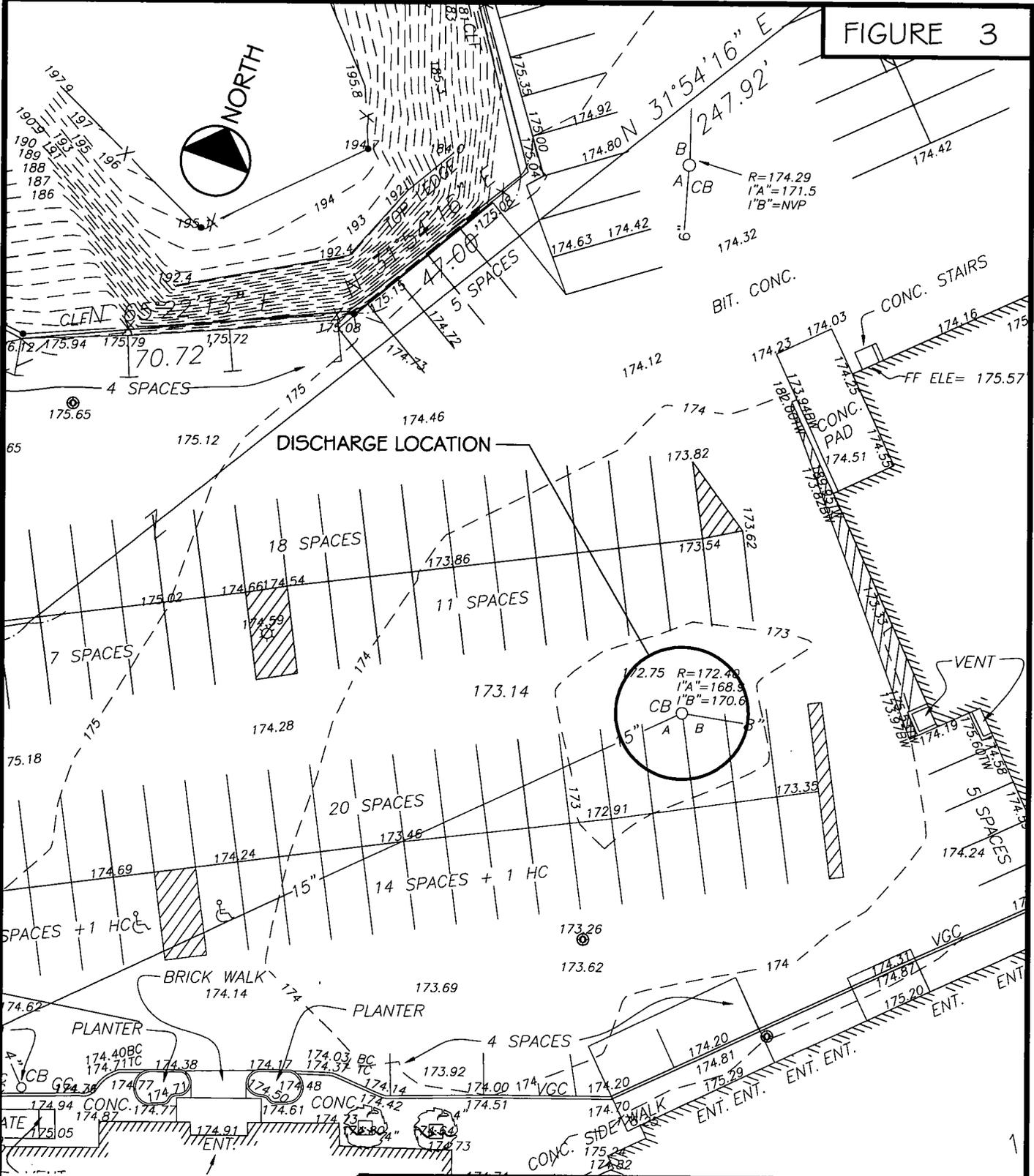
CHESTNUT HILL SHOPPING CENTER

CHESTNUT HILL

MASSACHUSETTS



FIGURE 3



FILE NAME: RGF4753-F03#FO4

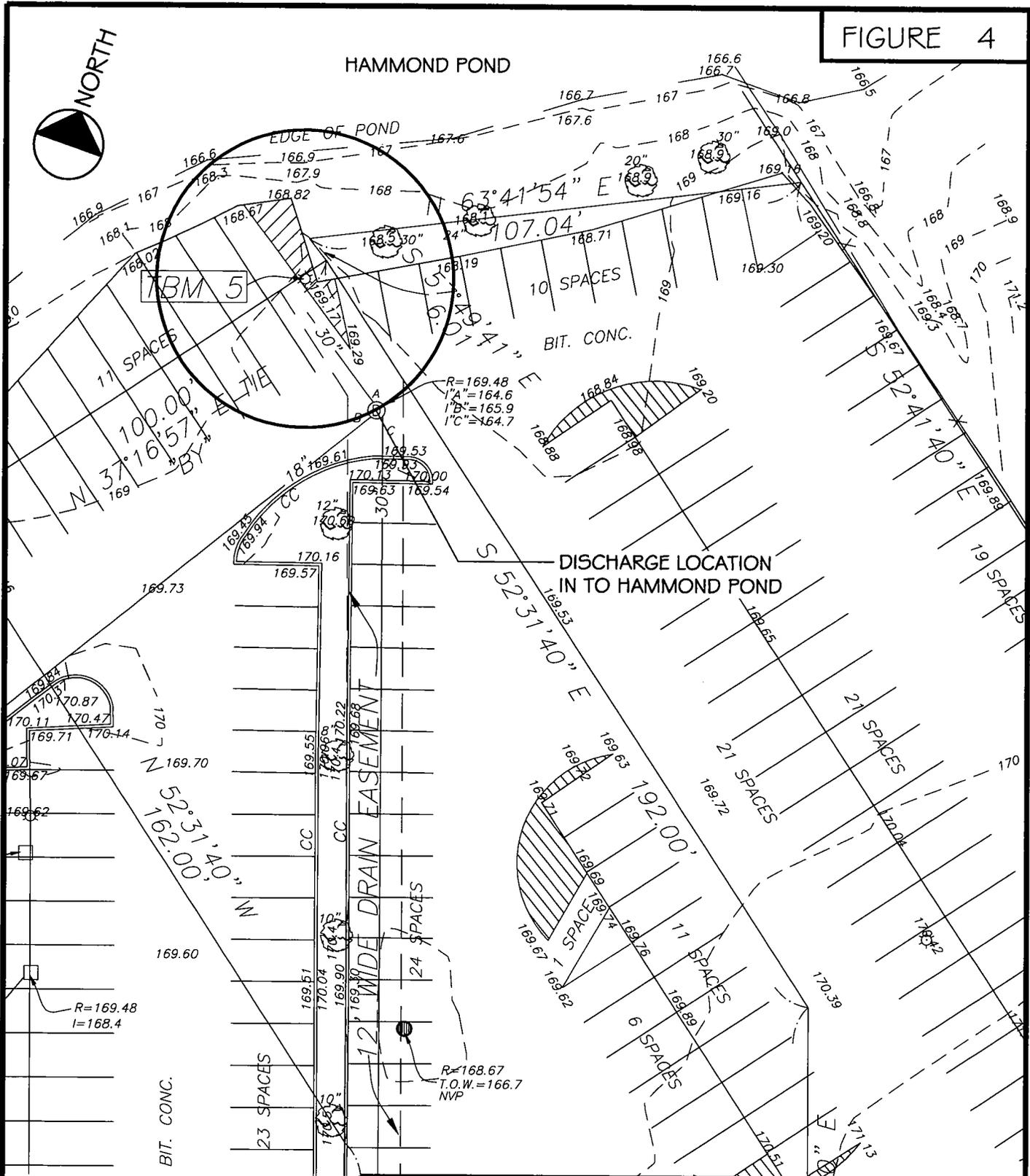
REFERENCE: THIS PLAN WAS PREPARED FROM A DRAWING ENTITLED "TOPOGRAPHIC PLAN OF LAND" REVISED ON SEPTEMBER 9, 2003 BY HARRY R. FIELDMAN, INC.



**McPHAIL ASSOCIATES, INC.**  
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CHESTNUT		MASSACHUSETTS	
DISCHARGE LOCATION PLAN			
FOR			
U.S. ENVIRONMENTAL PROTECTED AGENCY			
BY			
McPHAIL ASSOCIATES, INC.			
CONSULTING GEOTECHNICAL ENGINEERS			
Date:	MARCH 2008	Dwn:	F.G.P.
		Chkd:	W.J.B.
Scale:	1" = 30'		
Project No:	4753		

FIGURE 4



REFERENCE: THIS PLAN WAS PREPARED FROM A DRAWING ENTITLED "TOPOGRAPHIC PLAN OF LAND" REVISED ON SEPTEMBER 9, 2003 BY HARRY R. FIELDMAN, INC.



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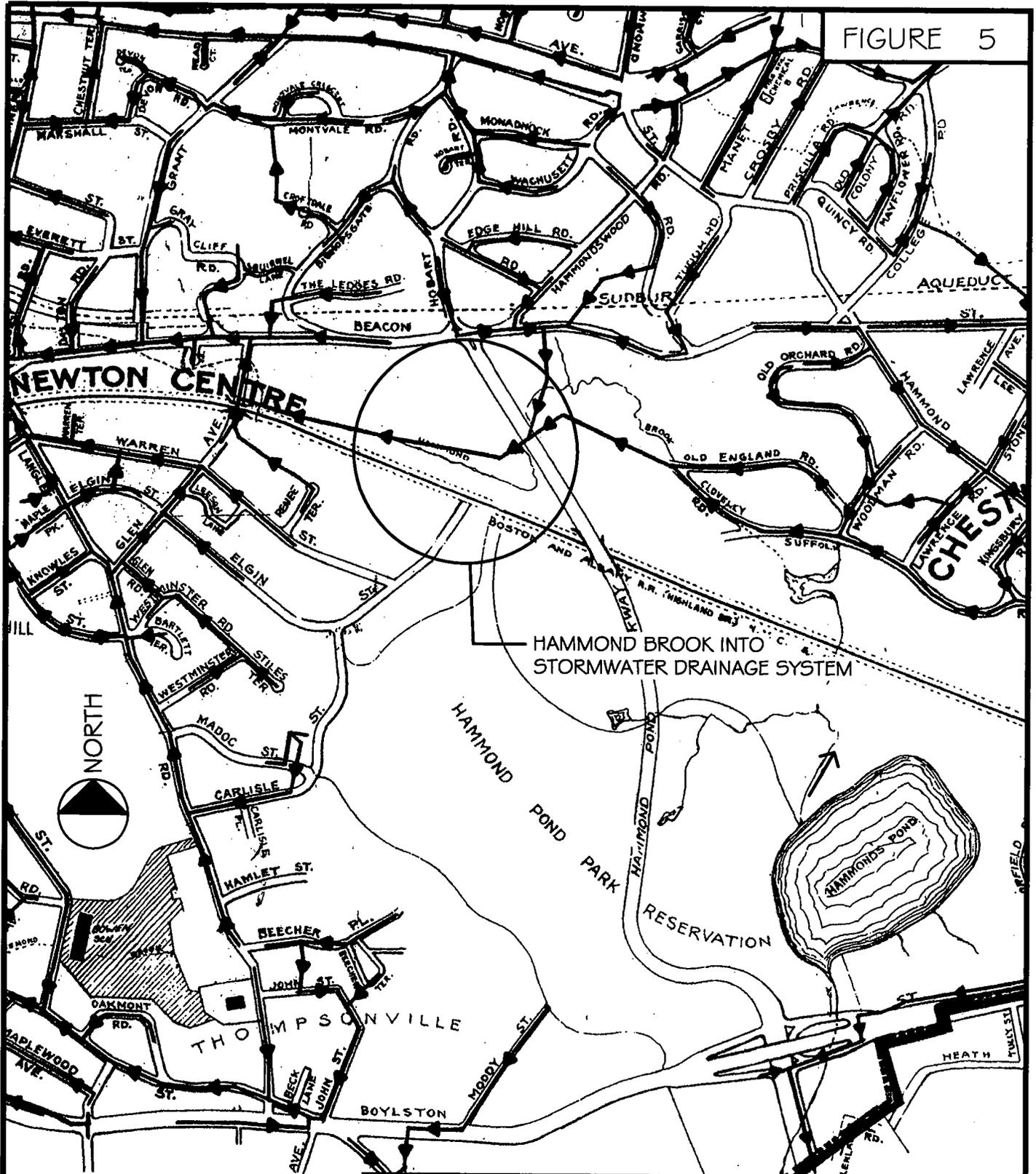
DISCHARGE LOCATION PLAN

FOR  
U.S. ENVIRONMENTAL PROTECTED AGENCY  
BY

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CONSULTING GEOTECHNICAL ENGINEERS

Date: MARCH 2008	Dwn: F.G.P.	Chkd: W.J.B.	Scale: 1" = 30'
Project No: 4753			

FIGURE 5



HAMMOND BROOK INTO STORMWATER DRAINAGE SYSTEM

FILE NAME: RGF4753-F05

REFERENCE: THIS PLAN WAS PREPARED FROM A 800-SCALE DRAWING ENTITLED "DRAIN SYSTEM ATLAS MAP" PREPARED BY THE CITY OF NEWTON



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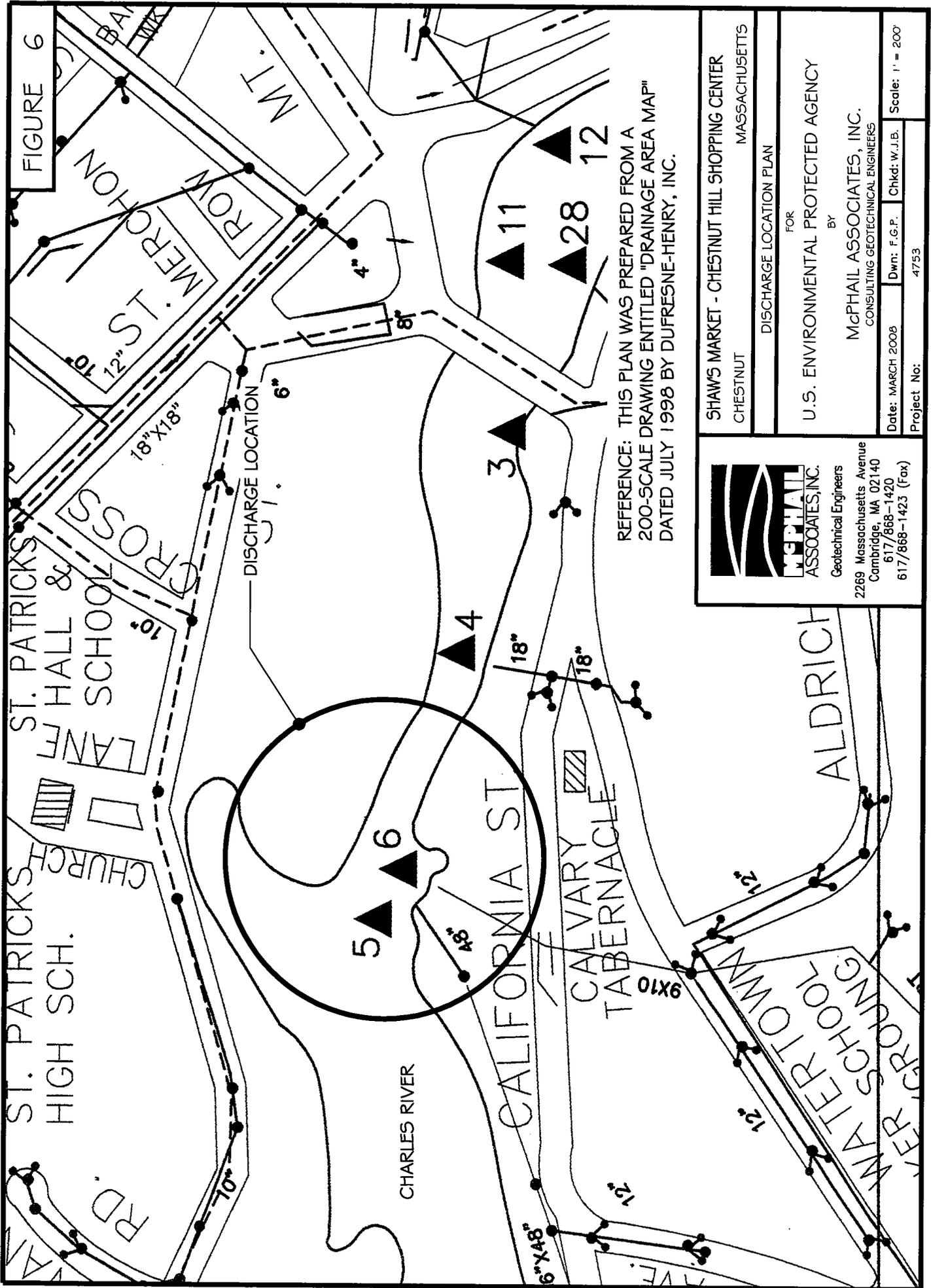
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DISCHARGE LOCATION PLAN

FOR  
U.S. ENVIRONMENTAL PROTECTED AGENCY

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Date: MARCH 2008	Dwn: F.G.P.	Chkd: W.J.B.	Scale: 1" = 800'
Project No: 4753			




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DISCHARGE LOCATION PLAN

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BY

McPHAIL ASSOCIATES, INC.  
CONSULTING GEOTECHNICAL ENGINEERS

Date: MARCH 2008 Dwn: F.G.P. Chkd: W.J.B. Scale: 1" = 200'

Project No: 4753

**TABLE 1**  
**PID Headspace Readings in Sample Jars**  
**Shaw's Market**  
**Chestnut Hill, Massachusetts**  
**Job: 4753**

SAMPLE NO.	SAMPLE NO.	DEPTH FT.	SAMPLE TYPE	BACKGROUND PID READING (ppm)	SAMPLE PID READING (ppm)	REMARKS
B-1 (ow)	s-1	1.0-3.0	Fill	0.0	0.4	
	s-2	3.0-5.0	Glacial Till	0.0	0.8	
	s-3	7.0-8.2	Glacial Till	0.0	0.4	
B-2	s-1	0.0-2.0	Fill	0.0	0.2	
B-3	s-1	1.0-3.0	Fill	0.1	0.3	
	s-2	3.0-5.0	Fill	0.1	0.3	
	s-3	5.0-7.0	Glacial Till	0.1	0.4	
	s-4	7.0-9.0	Glacial Till	0.1	0.3	
	s-5	9.0-9.5	Glacial Till	0.1	0.2	
B-4 (ow)	s-1	1.0-3.0	Fill	0.0	0.2	
	s-2	3.0-5.0	Fill	0.0	3.2	
	s-3	5.0-7.0	Fill	0.0	0.4	
	s-4	7.0-8.2	Fill	0.0	3.0	
	s-5	9.0-11.0	Outwash	0.0	0.2	
	s-6	11.0-13.0	Outwash	0.0	0.2	
	s-7	13.0-15.0	Outwash	0.0	0.7	
	s-8	15.0-17.0	Outwash	0.0	0.2	
	s-9	17.0-19.0	Outwash	0.0	0.2	
B-6 (ow)	s-1	1.0-3.0	Fill	0.1	0.6	
	s-2	3.0-5.0	Fill	0.1	0.7	
	s-3	5.0-7.0	Fill	0.1	0.2	
	s-4	7.0-9.0	Fill	0.1	0.6	
	s-5	9.0-11.0	Fill	0.1	0.2	
	s-6	11.0-13.0	Outwash	0.1	0.4	
	s-7	13.0-15.0	Outwash	0.1	0.2	
	s-8	15.0-17.0	Outwash	0.1	0.4	
	s-9	17.0-19.0	Outwash	0.1	0.4	
B-9 (ow)	s-1	1.0-3.0	Fill	0.0	0.1	
	s-2	3.0-5.0	Fill	0.0	0.1	
	s-3	5.0-7.0	Fill	0.0	0.1	
	s-4	7.0-9.0	Fill	0.0	0.2	
	s-5	9.0-11.0	Fill	0.0	0.2	
	s-6	11.0-13.0	Outwash	0.0	5.0	
	s-7	13.0-15.0	Outwash	0.0	11.3	
	s-8	15.0-15.8	Outwash	0.0	4.1	
B-11 (ow)	s-1	1.0-3.0	Fill	0.0	0.7	
	s-2	3.0-5.0	Fill	0.0	0.5	
	s-3	5.0-7.0	Fill	0.0	0.8	
	s-4	7.0-9.0	Fill	0.0	0.2	
	s-5	9.0-11.0	Glacial Till	0.0	0.4	
	s-6	11.0-13.0	Glacial Till	0.0	0.5	
	s-7	13.0-15.0	Glacial Till	0.0	0.5	
	s-8	15.0-17.0	Glacial Till	0.0	1.1	
	s-9	17.0-19.0	Bedrock	0.0	0.5	
B-12 (ow)	s-1	5.0-7.0	Fill	0.0	0.0	
	s-2	7.0-9.0	Fill	0.0	0.0	
	s-3	9.0-11.0	Fill	0.0	0.0	
	s-4	11.0-13.0	Glacial Till	0.0	0.0	
	s-5	13.0-15.0	Glacial Till	0.0	0.0	
	s-6	15.0-17.0	Glacial Till	0.0	0.0	
	s-7	17.0-19.0	Glacial Till	0.0	0.0	
B-13 (ow)	s-1	1.0-3.0	Fill	0.0	0.7	
	s-2	3.0-5.0	Fill	0.0	0.3	
	s-3	5.0-7.0	Fill	0.0	0.2	
	s-4	7.0-8.0	Fill	0.0	0.3	
	s-4A	8.0-9.0	Glacial Till	0.0	0.1	
	s-5	9.0-11.0	Glacial Till	0.0	0.3	
	s-6	11.0-13.0	Glacial Till	0.0	0.3	
	s-7	13.0-15.0	Glacial Till	0.0	0.5	
	s-8	15.0-17.0	Glacial Till	0.0	0.6	
s-9	17.0-19.0	Glacial Till	0.0	0.3		
B-14 (ow)	s-1	1.0-3.0	Fill	0.0	0.2	
	s-2	3.0-5.0	Fill	0.0	0.3	
	s-3	5.0-7.0	Fill	0.0	0.3	
	s-4	7.0-9.0	Fill	0.0	0.5	
	s-5	9.0-10.0	Organics	0.0	0.6	
	s-5A	10.0-11.0	Glacial Till	0.0	0.3	
	s-6	11.0-13.0	Glacial Till	0.0	0.2	
	s-7	13.0-15.0	Outwash	0.0	0.4	
	s-8	15.0-17.0	Outwash	0.0	0.8	
s-9	17.0-19.0	Outwash	0.0	0.9		

TABLE 2  
 CHEMICAL TEST RESULTS--SOIL SAMPLES  
 SHAW'S MARKET  
 PROJECT #4753

Sample Designation	RCS-1 (04/03/06)	RCS-1 (02/14/08)	Method 1 S-1 GW-2/GW-3 (02/14/08)	B-1(OW) S-2	B-3 S-3	B-4(OW) S-2	B-4(OW) S-5	B-6(OW) S-2	B-9(OW) S-7	B-11(OW) S-8	B-13 (OW) S-1	B-14 (OW) S-9	B-12(OW) S-2	B-4 (COMP)	B-6 (COMP)	B-9 (COMP)
Material				Glacial Till	Glacial Till	Fill	Outwash	Fill	Outwash	Glacial Till	Fill	Outwash	Fill	Fill	Fill	Fill
Depth				3-5'	5-7'	3-5'	9-11'	3-5'	13-15'	15-18'	1-3'	17-19'	7-9'	1'-8.25'	1'-11'	1'-11'
Extractable Petroleum																
Hydrocarbons (mg/kg)																
C9-C18 Aliphatics	1,000	1,000	1,000	ND [7.41]	ND [7.09]	ND [7.41]	ND [7.49]	ND [7.41]	ND [7.75]	ND [7.25]	7.6	ND [7.58]	ND [7.49]			
C19-C36 Aliphatics	2,500	3,000	3,000	ND [7.41]	ND [7.09]	ND [7.41]	ND [7.49]	ND [7.41]	ND [7.75]	ND [7.25]	102	ND [7.58]	ND [7.49]			
C1-C22 Aromatics, Adjusted	200	1,000	1,000	ND [7.41]	ND [7.09]	ND [7.41]	12.1	ND [7.41]	ND [7.75]	ND [7.25]	103	ND [7.58]	ND [7.49]			
PAH Targets (mg/kg)																
Acenaphthene	20	4	1,000	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	ND [0.362]	ND [0.379]	ND [0.374]			
2-Chloronaphthalene	N/A	N/A	N/A	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	ND [0.362]	ND [0.379]	ND [0.374]			
Fluoranthene	1,000	1,000	1,000	ND [0.370]	ND [0.355]	ND [0.370]	1.12	ND [0.37]	ND [0.388]	ND [0.362]	1.55	ND [0.379]	ND [0.374]			
Naphthalene	4	4	40/500	ND [0.370]	ND [0.355]	ND [0.370]	0.449	ND [0.37]	ND [0.388]	ND [0.362]	0.694	ND [0.379]	ND [0.374]			
Benzo (a) anthracene	7	7	7	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.671	ND [0.379]	ND [0.374]			
Benzo (a) pyrene	2	2	2	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.548	ND [0.379]	ND [0.374]			
Benzo (b) fluoranthene	7	7	7	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.664	ND [0.379]	ND [0.374]			
Benzo (k) fluoranthene	70	70	70	ND [0.370]	ND [0.355]	ND [0.370]	0.507	ND [0.37]	ND [0.388]	ND [0.362]	0.878	ND [0.379]	ND [0.374]			
Chrysene	7	70	7	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.878	ND [0.379]	ND [0.374]			
Acenaphthylene	100	1	100	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.362	ND [0.379]	ND [0.374]			
Anthracene	1,000	1,000	1,000	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.362	ND [0.379]	ND [0.374]			
Benzo (ghi) perylene	1,000	1,000	1,000	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.431	ND [0.379]	ND [0.374]			
Fluorene	400	1,000	1,000	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.362	ND [0.379]	ND [0.374]			
Phenanthrene	100	10	500	ND [0.370]	ND [0.355]	ND [0.370]	1.3	ND [0.37]	ND [0.388]	ND [0.362]	0.878	ND [0.379]	ND [0.374]			
Dibenz(a,h) anthracene	0.7	0.7	0.7	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	0.442	ND [0.379]	ND [0.374]			
Indeno (1,2,3-cd) Pyrene	7	7	7	ND [0.370]	ND [0.355]	ND [0.370]	0.828	ND [0.37]	ND [0.388]	ND [0.362]	1.36	ND [0.379]	ND [0.374]			
Pyrene	1,000	1,000	1,000	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	ND [0.362]	ND [0.379]	ND [0.374]			
2-Methylnaphthalene	4	0.7	500	ND [0.370]	ND [0.355]	ND [0.370]	ND [0.374]	ND [0.37]	ND [0.388]	ND [0.362]	ND [0.362]	ND [0.379]	ND [0.374]			
Volatle Petroleum																
Hydrocarbons w/ Targets																
(mg/kg)																
C9 - C10 Aromatics	100	100	100	ND [4.11]	ND [4.14]	ND [3.72]		ND [3.7]	ND [4.92]	ND [4.44]	ND [4.06]	ND [3.84]	ND [3.64]			
C5 - C8 Aliphatics, Adjusted	100	100	100	ND [4.11]	ND [4.14]	ND [3.72]		ND [3.7]	ND [4.92]	ND [4.44]	ND [4.06]	ND [3.84]	ND [3.64]			
C9 - C12 Aliphatics, Adjusted	1,000	1,000	1,000	ND [4.11]	ND [4.14]	ND [3.72]		ND [3.7]	ND [4.92]	ND [4.44]	ND [4.06]	ND [3.84]	ND [3.64]			
Benzene	2	2	30	ND [0.164]	ND [0.165]	ND [0.149]		ND [0.148]	ND [0.197]	ND [0.178]	ND [0.163]	ND [0.153]	ND [0.146]			
Toluene	30	30	300/500	ND [0.164]	ND [0.165]	ND [0.149]		ND [0.148]	ND [0.197]	ND [0.178]	ND [0.163]	ND [0.153]	ND [0.146]			
Ethylbenzene	80	40	500	ND [0.164]	ND [0.165]	ND [0.149]		ND [0.148]	ND [0.197]	ND [0.178]	ND [0.163]	ND [0.153]	ND [0.146]			
o-Xylene	500	500	300	ND [0.164]	ND [0.165]	ND [0.149]		ND [0.148]	ND [0.197]	ND [0.178]	ND [0.163]	ND [0.153]	ND [0.146]			
p/m-Xylene	300	300	300	ND [0.164]	ND [0.165]	ND [0.149]		ND [0.148]	ND [0.197]	ND [0.178]	ND [0.163]	ND [0.153]	ND [0.146]			
Naphthalene	4	4	40/500	ND [0.822]	ND [0.827]	ND [0.745]		ND [0.739]	ND [0.984]	ND [0.888]	ND [0.813]	ND [0.776]	ND [0.728]			
Methyl tert butyl ether (MTBE)	0.1	0.1	100	ND [0.082]	ND [0.083]	ND [0.075]		ND [0.074]	ND [0.098]	ND [0.089]	ND [0.081]	ND [0.077]	ND [0.073]			
RCRA-8 Metals (mg/kg)																
Arsenic, Total	20	10	20											2.5	2.4	2.9
Barium, Total	1,000	1,000	1,000											40	21	29
Cadmium, Total	2	2	2											ND [0.53]	ND [0.52]	ND [0.56]
Chromium, Total	30	30	30											13	12	16
Lead, Total	300	300	300											12	4.2	9.7
Mercury, Total	20	20	20											ND [0.09]	ND [0.09]	ND [0.09]
Selenium, Total	400	400	400											ND [2.7]	ND [2.6]	ND [2.8]
Silver, Total	100	100	100											ND [0.53]	ND [0.52]	ND [0.56]
PCBs (mg/kg)	2	2	2											ND [0.0374]		

ND - denotes none detected above laboratory method detection limits  
 NA - denotes not applicable  
 Shading indicates an exceedance of RCS-1 Standard

TABLE 3

CHEMICAL TEST RESULTS--GROUNDWATER SAMPLES

Shaws Market;  
Project Number 4753

Well designation	RCGW-2 (04/03/06)	RCGW-2 (02/14/08)	B-1 (OW)	B-4 (OW)	B-6 (OW)	B-9 (OW)	B-12 (OW)
Date Sampled			12/21/2007	12/21/2007	12/21/2007	12/21/2007	1/4/2008
<b>VPH (ug/l) w/VOC Targets</b> (detected compounds)							
C5-C8 Aliphatics, adjusted	1,000	3,000	ND [50.0]	ND [50.0]	ND [50.0]	ND [50.0]	75.6
C9-12 Aliphatics, adjusted	1,000	5,000	ND [50.0]	ND [50.0]	ND [50.0]	ND [50.0]	ND [50]
C9-C10 Aromatics	4,000	7,000	ND [50.0]	ND [50.0]	ND [50.0]	ND [50.0]	ND [50]
Benzene	2,000	2,000	ND [2.0]				
Toluene	4,000	40,000	ND [2.0]				
Ethylbenzene	4,000	5,000	ND [2.0]				
p/m xylene	6,000	5,000	ND [2.0]				
o-xylene	6,000	5,000	ND [2.0]				
Methyl tert butyl ether (MTBE)	1,000	5,000	ND [3.0]	ND [3.0]	ND [3.0]	12.7	9.51
Naphthalene	1,000	1,000	ND [10.0]				
<b>EPH (ug/l) w/PAH targets</b> (detected compounds)							
C9 - C18 Aliphatics	1,000	5,000	ND [104]	ND [104]	ND [105]	ND [105]	ND [105]
C19 - C36 Aliphatics	20,000	50,000	ND [104]	ND [104]	ND [105]	ND [105]	159
C11 - C22 Aromatics, Adjusted	30,000	5,000	ND [104]	ND [104]	ND [105]	ND [105]	ND [105]
Anthracene	2,000	30	ND [10.4]	ND [10.4]	ND [10.5]	ND [10.5]	ND [0.421]
Phenanthrene	90	10,000	ND [10.4]	ND [10.4]	ND [10.5]	ND [10.5]	1.19
Flouranthene	50	50	ND [10.4]	ND [10.4]	ND [10.5]	ND [10.5]	0.471
Chrysene	2	70	ND [10.4]	ND [10.4]	ND [10.5]	ND [10.5]	ND [0.421]
Pyrene	20	20	ND [10.4]	ND [10.4]	ND [10.5]	ND [10.5]	ND [0.421]
Naphthalene	1000	1,000	ND [10.4]	ND [10.4]	ND [10.5]	ND [10.5]	ND [0.421]

Shading indicates an exceedence of the RCGW-2 Standards  
 ND—not detected above laboratory detection limit  
 Blank - not analyzed

**Table 4**  
**CHEMICAL TEST RESULTS--GROUNDWATER SAMPLES**  
**Shaw's Market-Chestnut Hill Shopping Center**  
**Chestnut Hill, Massachusetts**  
**Project Number 4753**

Well designation	EPA RGP Effluent Limitations	Test Method	B-12 (OW)
Date Sampled			2/18/2008
pH Standard Units	6.5 - 8.3		6.9
Total Suspended Solids (mg/l)	30	254	200
Total Cyanide (mg/l)	0.0052	4500CN	ND [0.005]
Total Residual Chlorine (mg/l)	0.02	4500CL	ND [0.02]
Hexavalent Chromium (mg/l)	11.4	3500CR	ND [0.01]
Total Petroleum Hydrocarbons (mg/l)	5	1664A	ND [4.0]
Total Phenols (ug/l)	300	420.1	ND [30.0]
Total Phthalates(ug/l)	3	8270	ND
Bis (2-Ethylhexyl) Phthalate (ug/l)	6	8270	ND
Total Group I PAH (ug/l)	10	8270	ND
Total Group II PAH (ug/l)	100	8270	0.2
Total VOCs (ug/l)		624	ND
PCBs (Method 608) (ug/l)	0.5	608	ND [0.258]
Pesticides by GC 504 (ug/l)	0.05	504.1	ND [0.019]
Total Metals (mg/l)		6020	
Antimony	0.0056		ND [0.0005]
Arsenic	0.01		0.0053
Cadmium	0.0002		0.0002
Chromium	0.0488		0.0195
Copper	0.0052		0.0148
Lead	0.0013		0.003
Mercury	0.0009		ND [0.0002]
Nickel	0.029		0.0055
Selenium	0.005		0.002
Silver	0.0012		ND [0.0004]
Iron	1		16
Zinc	0.0666		0.0164

ND--not detected above laboratory detection limit  
[0.005] = laboratory method detection limit  
Shading indicates exceedence of RGP effluent limits  
Blank--not analyzed

Table 5

Calculations of Mass of Compounds  
 Shaw's Market Chestnut Hill Shopping Center  
 Newton, Massachusetts  
 McPhail Job No. 4753

Avg flow (GPM) = 25			
Avg Flow (MGD) = 0.036			
Compound #	Max Concentration (ug/l)	Max Concentration (mg/l)	MASS (kg)
TSS	200,000	200	43.671
Antimony	0.5	0.0005	0.0001
Arsenic	5.3	0.0053	0.00116
Cadmium	0.2	0.0002	0.00004
Chromium III	19.5	0.0195	0.00426
Chromium VI	10	0.01	0.00218
Copper	14.80	0.0148	0.00323
Lead	3.0	0.003	0.00066
Mercury	0.2	0.0002	0.00004
Nickel	5.5	0.0055	0.00120
Selenium	2	0.002	0.00044
Silver	0.4	0.0004	0.00009
Zinc	16.4	0.0164	0.00358
Iron	16000	16	3.49370
Phenanthrene	0.2	0.00020	0.00004

GPM = Gallons Per Minute  
 MGD = Million Gallons Per Day  
 ug/l = Micrograms per liter  
 mg/l = Milligrams per liter  
 kg = Kilograms



**MCPHAIL**  
ASSOCIATES, INC.

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## **APPENDIX A**

### **Limitations**



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### Limitations

The purpose of this report is to present a summary of subsurface conditions, including the results of testing of samples of groundwater obtained from monitoring wells on the property identified as Shaw's Market at the Chestnut Hill Shopping Center, 1 Boylston Street in Chestnut Hill, Massachusetts, in support of an application for approval of construction site dewatering discharge into surface waters of the Commonwealth of Massachusetts under EPA's Remediation General Permit MAG910000.

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 widely 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 chemical 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.

Chemical analyses have been performed for specific constituents during the course of this site assessment, as described in the text. However, it should be noted that additional chemical 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 Supervalu Inc./Shaw's Division. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party nor used in whole or in part by any other party without prior written consent of McPhail Associates, Inc.



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**APPENDIX B**

Notice of Intent for Construction Site Dewatering

DEP Form BRP WM 12 -Transmittal for Permit Application and Payment

**B. Suggested Form for Notice of Intent (NOI) for the Remediation General Permit**

**1. General site information.** Please provide the following information about the site:

a) Name of facility/site: Shaw's Market-Chestnut Hill Shopping Center		Facility/site address: 1 Boylston Street, Newton	
Location of facility/site: longitude: 71.16 latitude: 43.32	Facility SIC code(s):		
b) Name of facility/site owner: Supervalu/Shaw's Division		Town: Newton	
Email address of owner: kenneth.mahtesian@shaws.com		State: MA	Zip: 02459
Telephone no. of facility/site owner: (508) 313-4608		County: Middlesex	
Fax no. of facility/site owner: (508) 313-4155		Owner is (check one): 1. Federal ___ 2. State/Tribal ___	
Address of owner (if different from site):			
Street:			
Town:		State:	Zip:
c) Legal name of operator: Supervalu Inc.		Operator telephone no.: (508) 313-4608	County:
Operator contact name and title: Mr. Kenneth Mahtesian - Senior Construction Project Manager		Operator fax no.: (508) 313-4155	Operator email: kenneth.mahtesian@shaws.com

Address of operator (if different from owner):	Street:		
Town:	State:	Zip:	County:
<p>d) Check "yes" or "no" for the following:</p> <p>1. Has a prior NPDES permit exclusion been granted for the discharge? Yes <u>  </u> No <input checked="" type="checkbox"/>, if "yes," number: _____</p> <p>2. Has a prior NPDES application (Form 1 &amp; 2C) ever been filed for the discharge? Yes <u>  </u> No <input checked="" type="checkbox"/>, if "yes," date and tracking #: _____</p> <p>3. Is the discharge a "new discharge" as defined by 40 CFR 122.2? Yes <input checked="" type="checkbox"/> No <u>  </u></p> <p>4. For sites in Massachusetts, is the discharge covered under the MA Contingency Plan (MCP) and exempt from state permitting? Yes <u>  </u> No <input checked="" type="checkbox"/></p>			
<p>e) Is site/facility subject to any State permitting or other action which is causing the generation of discharge? Yes <u>  </u> No <input checked="" type="checkbox"/></p> <p>If "yes," please list:</p> <p>1. site identification # assigned by the state of NH or MA: _____</p> <p>2. permit or license # assigned: _____</p> <p>3. state agency contact information: name, location, and telephone number: _____</p>		<p>f) Is the site/facility covered by any other EPA permit, including:</p> <p>1. multi-sector storm water general permit? Y <u>  </u> N <input checked="" type="checkbox"/>, if Y, number: _____</p> <p>2. phase I or II construction storm water general permit? Y <u>  </u> N <input checked="" type="checkbox"/>, if Y, number: _____</p> <p>3. individual NPDES permit? Y <u>  </u> N <input checked="" type="checkbox"/>, if Y, number: _____</p> <p>4. any other water quality related permit? Y <u>  </u> N <input checked="" type="checkbox"/>, if Y, number: _____</p>	

**2. Discharge information.** Please provide information about the discharge, (attaching additional sheets as needed) including:

a) Describe the discharge activities for which the owner/applicant is seeking coverage:  
 Construction dewatering to be performed concurrently with site excavation for construction of a building with one level below-grade and associated utilities.  
 Excavation and construction will be performed within a open excavaton. See attached report for further detail.

b) Provide the following information about each discharge:	1) Number of discharge points: 1	2) What is the maximum and average flow rate of discharge (in cubic feet per second, ft <sup>3</sup> /s)? Max. flow <u>.089</u> Average flow <u>.056</u> Is maximum flow a design value? Y <u>  </u> N <input checked="" type="checkbox"/> For average flow, include the units and appropriate notation if this value is a design value or estimate if not available. Average Flow = .05575 cfs (25 gpm) (estimated value based on maximum excavation)
3) Latitude and longitude of each discharge within 100 feet: pt.1: long. <u>71.16</u> lat. <u>43.32</u> ; pt.2: long. _____ lat. _____ ; pt.3: long. _____ lat. _____ ; pt.4: long. _____ lat. _____ ; pt.5: long. _____ lat. _____ ; pt.6: long. _____ lat. _____ ; pt.7: long. _____ lat. _____ ; pt.8: long. _____ lat. _____ ; etc.		

4) If hydrostatic testing, total volume of the discharge (gals):	5) Is the discharge intermittent <input checked="" type="checkbox"/> or seasonal <input type="checkbox"/> ? Is discharge ongoing Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> ?
c) Expected dates of discharge (mm/dd/yy): start 07/01/08 end 07/01/09	
d) Please attach a line drawing or flow schematic showing water flow through the facility including: 1. sources of intake water, 2. contributing flow from the operation, 3. treatment units, and 4. discharge points and receiving waters(s).	

3. Contaminant information. In order to complete this section, the applicant will need to take a minimum of one sample of the untreated water and have it analyzed for all of the parameters listed in Appendix III. Historical data, (i.e., data taken no more than 2 years prior to the effective date of the permit) may be used if obtained pursuant to: i. Massachusetts' regulations 310 CMR 40.0000, the Massachusetts Contingency Plan ("Chapter 21E"); ii. New Hampshire's Title 50 RSA 485-A: Water Pollution and Waste Disposal or Title 50 RSA 485-C: Groundwater Protection Act; or iii. an EPA permit exclusion letter issued pursuant to 40 CFR 122.3, provided the data was analyzed with test methods that meet the requirements of this permit. Otherwise, a new sample shall be taken and analyzed.

a) Based on the analysis of the sample(s) of the untreated influent, the applicant must check the box of the sub-categories that the potential discharge falls within.

Gasoline Only	VOC Only	Primarily Metals	Urban Fill Sites	Contaminated Sumps	Mixed Contaminants	Aquifer Testing
Fuel Oils (and Other Oils) only	VOC with Other Contaminants	Petroleum with Other Contaminants	Listed Contaminated Sites	Contaminated Dredge Condensates	Hydrostatic Testing of Pipelines/Tanks	Well Development or Rehabilitation

b) Based on the analysis of the untreated influent, the applicant must indicate whether each listed chemical is believed present or believed absent in the potential discharge. Attach additional sheets as needed.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
1. Total Suspended Solids		✓	1		160.2		20000	87.34		
2. Total Residual Chlorine	✓				330.1	50	ND			
3. Total Petroleum Hydrocarbons	✓				1664	4	ND			
4. Cyanide	✓				335.4	0.5	ND			
5. Benzene	✓				624	1	ND			
6. Toluene	✓				624	1	ND			
7. Ethylbenzene	✓				624	1	ND			
8. (m,p,o) Xylenes	✓				624	2	ND			
9. Total BTEX <sup>4</sup>	✓				624		ND			

<sup>4</sup> BTEX = Sum of Benzene, Toluene, Ethylbenzene, total Xylenes.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
10. Ethylene Dibromide (1,2- Dibromo-methane)	✓				504.1	.019	ND			
11. Methyl-tert-Butyl Ether (MtBE)	✓				624	20	ND			
12. tert-Butyl Alcohol (TBA)	✓				624	100	ND			
13. tert-Amyl Methyl Ether (TAME)	✓				624	20	ND			
14. Naphthalene	✓				624	4.9	ND			
15. Carbon Tetra-chloride	✓				624	1	ND			
16. 1,4 Dichlorobenzene	✓				624	5	ND			
17. 1,2 Dichlorobenzene	✓				624	5	ND			
18. 1,3 Dichlorobenzene	✓				624	5	ND			
19. 1,1 Dichloroethane	✓				624	1.5	ND			
20. 1,2 Dichloroethane	✓				624	1.5	ND			
21. 1,1 Dichloroethylene	✓				624	1	ND			
22. cis-1,2 Dichloro-ethylene	✓				624	1	ND			
23. Dichloromethane (Methylene Chloride)	✓				624	5	ND			
24. Tetrachloroethylene	✓				624	1.5	ND			

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily Value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
25. 1,1,1 Trichloroethane	✓				624	2	ND			
26. 1,1,2 Trichloroethane	✓				624	1.5	ND			
27. Trichloroethylene	✓				624	1	ND			
28. Vinyl Chloride	✓				624	2	ND			
29. Acetone	✓				624	10	ND			
30. 1,4 Dioxane	✓				624	2,000	ND			
31. Total Phenols	✓				420.1		ND			
32. Pentachlorophenol	✓				8270	.78	ND			
33. Total Phthalates <sup>5</sup> (Phthalate esters)	✓				8270		ND			
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	✓				8270	9.8	ND			
35. Total Group I Polycyclic Aromatic Hydrocarbons (PAH)	✓				8270		ND			
a. Benzo(a) Anthracene	✓				8270	.2	ND			
b. Benzo(a) Pyrene	✓				8270	.2	ND			
c. Benzo(b)Fluoranthene	✓				8270	.2	ND			
d. Benzo(k) Fluoranthene	✓				8270	.2	ND			
e. Chrysene	✓				8270	.2	ND			

<sup>5</sup>The sum of individual phthalate compounds.

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Average daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
f. Dibenzo(a,h)anthracene	✓				8270	.2	ND			
g. Indeno(1,2,3-cd)Pyrene	✓				8270	.2	ND			
36. Total Group II Polycyclic Aromatic Hydrocarbons (PAH)	✓									
h. Acenaphthene	✓				8270	.2	ND			
i. Acenaphthylene	✓				8270	.2	ND			
j. Anthracene	✓				8270	.2	ND			
k. Benzo(ghi) Perylene	✓				8270	.2	ND			
l. Fluoranthene	✓				8270	.2	ND			
m. Fluorene					8270	.2	ND			
n. Naphthalene-	✓				8270	.2	ND			
o. Phenanthrene		✓			8270	.2	0.20	0.00004		
p. Pyrene	✓				8270	.2	ND			
37. Total Polychlorinated Biphenyls (PCBs)	✓				608	.258	ND			
38. Antimony	✓				6020	.5	ND			
39. Arsenic		✓			6020		5.3	0.00116		
40. Cadmium		✓			6020	.2	0.2	0.00004		
41. Chromium III		✓			6020		19.5	0.00426		
42. Chromium VI	✓				3500C	10	ND			

PARAMETER	Believe Absent	Believe Present	# of Samples (1 minimum)	Type of Sample (e.g., grab)	Analytical Method Used (method #)	Minimum Level (ML) of Test Method	Maximum daily value		Avg. daily value	
							concentration (ug/l)	mass (kg)	concentration (ug/l)	mass (kg)
43. Copper		✓			6020		14.8	0.00323		
44. Lead		✓			6020		3.0	0.00066		
45. Mercury	✓				245.1	0.2	ND			
46. Nickel		✓			6020		5.5	0.00120		
47. Selenium		✓			6020	1	2.0	0.00044		
48. Silver	✓				6020	0.4	ND			
49. Zinc		✓			6020		16.4	0.00358		
50. Iron		✓			200.7		16000	3.4937		
Other (describe):										

c) For discharges where metals are believed present, please fill out the following:

<p><i>Step 1:</i> Do any of the metals in the influent have a <b>reasonable potential</b> to exceed the effluent limits in Appendix III (i.e., the limits set at zero to five dilutions)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/></p>	<p>If yes, which metals? Cadmium, Copper, Lead, Iron</p>
<p><i>Step 2:</i> For any metals which have <b>reasonable potential</b> to exceed the <b>Appendix III</b> limits, calculate the <b>dilution factor (DF)</b> using the formula in Part I.A.3.c) (step 2) of the NOI instructions or as determined by the State prior to the submission of this NOI. What is the dilution factor for applicable metals? Metals: Arsenic, Cadmium, Chromium III, Copper, Lead, Nickel, Selenium, Zinc, Iron DF: &gt;100 _____</p>	<p>Look up the limit calculated at the corresponding dilution factor in <b>Appendix IV</b>. Do any of the metals in the <b>influent</b> have the potential to exceed the corresponding <b>effluent</b> limits in Appendix IV (i.e., is the influent concentration above the limit set at the calculated dilution factor)? Y <input checked="" type="checkbox"/> N <input type="checkbox"/> If "Yes," list which metals: Iron</p>

**4. Treatment system information.** Please describe the treatment system using separate sheets as necessary, including:

a) A description of the treatment system, including a schematic of the proposed or existing treatment system:  
 Two (2) sedimentation tanks with 10,000-gallons capacity and two (2) bag filters in series. A test of the effluent will be completed prior to discharge into the storm drain system, and additional filtration and/or metal treatment will be added to meet permit limits. See attached figure.

b) Identify each applicable treatment unit (check all that apply):	Frac. tank	Air stripper	Oil/water separator	Equalization tanks	Bag filter	GAC filter
	Chlorination	Dechlorination	Other (please describe):	✓	✓	

c) Proposed average and maximum flow rates (gallons per minute) for the discharge and the design flow rate(s) (gallons per minute) of the treatment system:  
 Average flow rate of discharge 25 \_\_\_\_\_ Maximum flow rate of treatment system 40 \_\_\_\_\_ Design flow rate of treatment system NA \_\_\_\_\_

d) A description of chemical additives being used or planned to be used (attach MSDS sheets):  
 None

**5. Receiving surface water(s).** Please provide information about the receiving water(s), using separate sheets as necessary:

a) Identify the discharge pathway:

Direct _____	Within facility _____	Storm drain ✓ _____	River/brook ✓ _____	Wetlands ✓ _____	Other (describe):
--------------	-----------------------	---------------------	---------------------	------------------	-------------------

b) Provide a narrative description of the discharge pathway, including the name(s) of the receiving waters:  
 See Figures 3 & 4 in attached report. The construction dewatering discharge will eventually be received into the Charles River from Hammond Pond, to the Hammond Brook, to storm drains, to the Laundry Brook.

c) Attach a detailed map(s) indicating the site location and location of the outfall to the receiving water:  
 1. For multiple discharges, number the discharges sequentially.  
 2. For indirect dischargers, indicate the location of the discharge to the indirect conveyance and the discharge to surface water  
 The map should also include the location and distance to the nearest sanitary sewer as well as the locus of nearby sensitive receptors (based on USGS topographical mapping), such as surface waters, drinking water supplies, and wetland areas.

d) Provide the state water quality classification of the receiving water B

e) Provide the reported or calculated seven day-ten year low flow (7Q10) of the receiving water 21.9 cfs  
 Please attach any calculation sheets used to support stream flow and dilution calculations.

f) Is the receiving water a listed 303(d) water quality impaired or limited water? Yes     No ✓ If yes, for which pollutant(s)?

Is there a TMDL? Yes     No ✓ If yes, for which pollutant(s)?

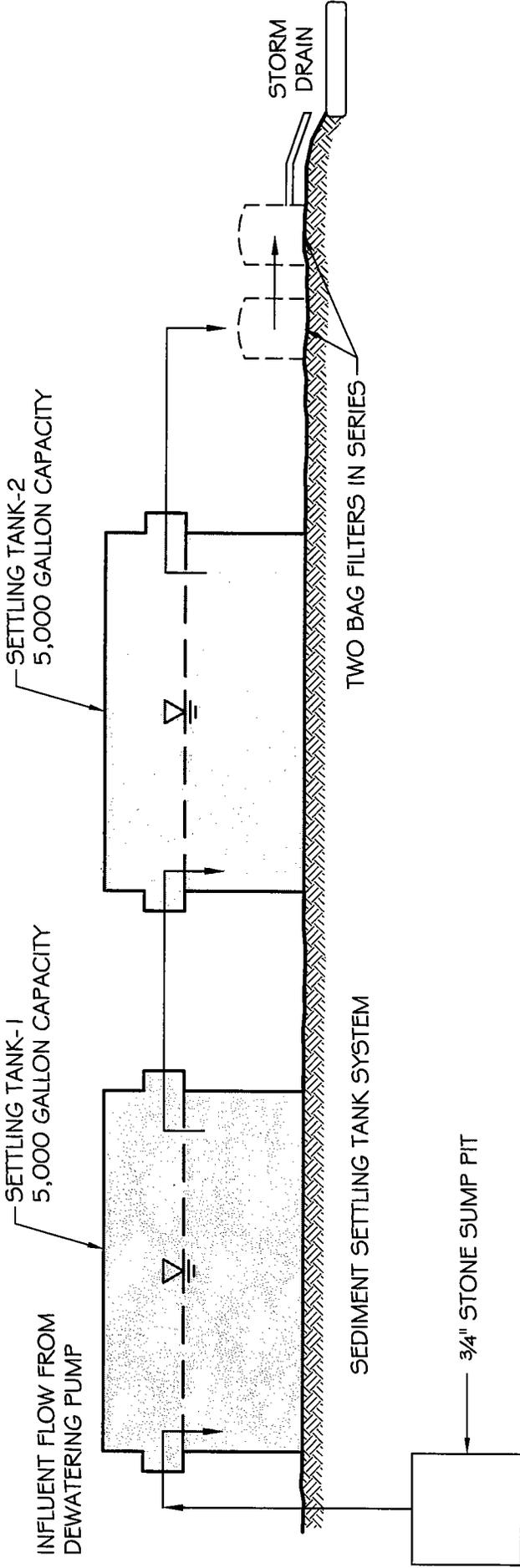
**6. Results of Consultation with Federal Services:** Please provide the following information according to requirements of Part I.B.4 and Appendices II and VII.

a) Are any listed threatened or endangered species, or designated critical habitat, in proximity to the discharge? Yes     No ✓  
 Has any consultation with the federal services been completed? No ✓ or is consultation underway? No ✓  
 What were the results of the consultation with the U.S. Fish and Wildlife Service and/or National Marine Fisheries Service? Yes (check one):  
 a "no jeopardy" opinion?     or written concurrence     on a finding that the discharges are not likely to adversely affect any endangered species or critical habitat?

b) Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility or site or in proximity to the discharge?  
 Yes     No ✓ Have any state or tribal historic preservation officer been consulted in this determination (Massachusetts only)? Yes     No ✓

**7. 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.



 Geotechnical Engineers 2269 Massachusetts Avenue Cambridge, MA 02140 617/868-1420 617/868-1423 (Fax)	SHAW'S MARKET - CHESTNUT HILL SHOPPING CENTER CHESTNUT MASSACHUSETTS		
	SCHEMATIC OF WATER FLOW		
FOR U.S. ENVIRONMENTAL PROTECTED AGENCY			
BY McPHAIL ASSOCIATES, INC. CONSULTING GEOTECHNICAL ENGINEERS			
Date: MARCH 2008	Dwn: F.G.P.	Chkd: W.J.B.	Scale: N.T.S.
Project No: 4753			

**8. Signature Requirements:** The Notice of Intent must be signed by the operator in accordance with the signatory requirements of 40 CFR Section 122.22, including the following certification:

*I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly 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/Site Name:	Shaw's Market-Chestnut Hill Shopping Center
Operator signature:	
Title:	Sh. Project Manager
Date:	3-7-08



Enter your transmittal number

W213452  
Transmittal Number

Your unique Transmittal Number can be accessed online: <http://mass.gov/dep/service/online/trasmfrm.shtml> or call MassDEP's InfoLine at 617-338-2255 or 800-462-0444 (from 508, 781, and 978 area codes).

**Massachusetts Department of Environmental Protection  
Transmittal Form for Permit Application and Payment**

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

**A. Permit Information**

BRP WM 12  
1. Permit Code: 7 or 8 character code from permit instructions  
Excavation for foundations and utility trenches  
3. Type of Project or Activity  
Contaminated Constructions Site Dewatering  
2. Name of Permit Category

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

**B. Applicant Information – Firm or Individual**

Supervalu Inc./Shaw's Division  
1. Name of Firm - Or, if party needing this approval is an individual enter name below:  
2. Last Name of Individual  
750 West Center Street  
5. Street Address  
West Bridgewater  
6. City/Town  
Kenneth J. Mahtesian  
11. Contact Person  
3. First Name of Individual  
4. MI  
7. State  
MA  
8. Zip Code  
02379  
9. Telephone #  
508-313-4608  
10. Ext. #  
Kenneth.Mahtesian@shaws.com  
12. e-mail address (optional)

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. Copy 2 must accompany your fee payment. Copy 3 should be retained for your records

**C. Facility, Site or Individual Requiring Approval**

Shaw's Market at the Chestnut Hill Shopping Center  
1. Name of Facility, Site Or Individual  
1 Boylston Street  
2. Street Address  
Newton  
3. City/Town  
4. State  
MA  
5. Zip Code  
02459  
6. Telephone #  
508-313-4608  
7. Ext. #  
8. DEP Facility Number (if Known)  
9. Federal I.D. Number (if Known)  
10. BWSC Tracking # (if Known)

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP  
P.O. Box 4062  
Boston, MA  
02211

**D. Application Prepared by (if different from Section B)\***

McPhail Associates, Inc  
1. Name of Firm Or Individual  
2269 Massachusetts Avenue  
2. Address  
Cambridge  
3. City/Town  
William J. Burns  
4. State  
MA  
5. Zip Code  
02140  
6. Telephone #  
617-868-1420  
7. Ext. #  
341  
8. Contact Person  
9. LSP Number (BWSC Permits only)

\* Note:  
For BWSC Permits, enter the LSP.

**E. Permit - Project Coordination**

1. Is this project subject to MEPA review?  yes  no  
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

**F. Amount Due**

DEP Use Only

**Special Provisions:**

- 1.  Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).  
*There are no fee exemptions for BWSC permits, regardless of applicant status.*
- 2.  Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
- 3.  Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
- 4.  Homeowner (according to 310 CMR 4.02).

Permit No:

Rec'd Date:

Reviewer:

24000  
Check Number  
775.00  
Dollar Amount  
03-11-08  
Date

24000

**McPHAIL ASSOCIATES, INC.**

2269 MASSACHUSETTS AVENUE  
CAMBRIDGE, MA 02140

**Cambridge Trust Company**<sup>01</sup>  
CAMBRIDGE, MASS.

53-59-113

3/11/2008

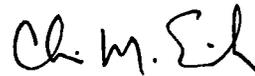
TO THE  
ORDER OF

Commonwealth of Mass

\$ \*\*775.00

Seven Hundred Seventy-Five and 00/100\*\*\*\*\* DOLLARS

Commonwealth of Mass



AUTHORIZED SIGNATURE

MEMO

GW Discharge Permit

⑈024000⑈ ⑆01300595⑆ ⑆50552801⑈

McPHAIL ASSOCIATES, INC.

24000

Commonwealth of Mass

3/11/2008

4753.9.04 Groundwater Discharge Permit Fee

775.00

Cambridge Trust Che GW Discharge Permit

775.00

Security features. Details on back.



**APPENDIX C**

New Hampshire Boring Inc. - Soil Boring Logs

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-1(OW) SHEET 1 OF 1 FILE No. 76881
---	---	--

DRILLER: R. Burne HELPER: S. Shaw INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +170.67 DATUM DATE START 12/20/2007 DATE END 12/20/2007
--	--

SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.	12/20/2007	14:00	13.2'		

DEPTH F T	C B A L S O N G S	SAMPLE				SAMPLE DESCRIPTION	R E M A R K S	STRATUM DESCRIPTION
		NO.	PEN./ REC	DEPTH (Ft.)	BLOWS/6"			
0					5" thickness of asphalt		PAVEMENT	
		S1	24/12	1 - 3	29-30	Very dense, brown, GRAVELLY SAND, trace silt.	FILL 3.0'	
					36-26			
		S2	24/12	3 - 5	21-25	Very dense, gray, SILT, SAND, and GRAVEL.	GLACIAL TILL COBBLE LAYER GLACIAL TILL 8.2'	
5					26-29			
		S3	14/4	7 - 8.2	29-33	Very dense, gray, SILT, SAND, and GRAVEL.	GLACIAL TILL COBBLE LAYER GLACIAL TILL 8.2'	
					100/2"			
					Auger Refusal @ 8.2'			
10					Rollerbit through sound bedrock from 8.2' to 14'		Hard, sound, Roxbury conglomerate. BEDROCK 14'	
					Bottom of Boring @ 14'			
15								
20								
25								
30								

<table border="1"> <tr> <th>GRANULAR SOILS</th> <th>COHESIVE SOILS</th> </tr> <tr> <td>Blows/Ft Density</td> <td>Blows/Ft Density</td> </tr> <tr> <td>0 - 4 V. LOOSE</td> <td>&lt;2 V. SOFT</td> </tr> <tr> <td>4-10 LOOSE</td> <td>2-4 SOFT</td> </tr> <tr> <td>10-30 M. DENSE</td> <td>4-8 M. STIFF</td> </tr> <tr> <td>30-50 DENSE</td> <td>8-15 STIFF</td> </tr> <tr> <td>&gt;50 V. DENSE</td> <td>15-30 V. STIFF</td> </tr> <tr> <td></td> <td>&gt;30 HARD</td> </tr> </table>	GRANULAR SOILS	COHESIVE SOILS	Blows/Ft Density	Blows/Ft Density	0 - 4 V. LOOSE	<2 V. SOFT	4-10 LOOSE	2-4 SOFT	10-30 M. DENSE	4-8 M. STIFF	30-50 DENSE	8-15 STIFF	>50 V. DENSE	15-30 V. STIFF		>30 HARD	REMARKS: 1. Auger Refusal at 5' - Moved hole ~ 2' West 2. Auger Refusal again at 2' - Moved hole ~ 2' West 3. Advanced third hole by wet rotary drilling with NW casing 4. Drove NW casing to refusal @ 8' and continued to rollerbit through sound bedrock from 8.2' to 14'.
GRANULAR SOILS	COHESIVE SOILS																
Blows/Ft Density	Blows/Ft Density																
0 - 4 V. LOOSE	<2 V. SOFT																
4-10 LOOSE	2-4 SOFT																
10-30 M. DENSE	4-8 M. STIFF																
30-50 DENSE	8-15 STIFF																
>50 V. DENSE	15-30 V. STIFF																
	>30 HARD																

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

<b>NEW HAMPSHIRE BORING, INC.</b> 3 Liberty Drive., Londonderry, NH 03053				<b>PROJECT</b> 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.			REPORT OF BORING No. B-2 SHEET 1 OF 1 FILE No. 76881		
DRILLER: M. D'Ambrosio HELPER: A. Ford INSPECTOR: T. Cormican				BORING LOCATION Chestnut Hill, Star Market GROUND SURFACE ELEVATION +175.39 DATUM DATE START 12/18/2007 DATE END 12/18/2007					
SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.				GROUNDWATER READINGS					
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.				DATE	TIME	WATER	CASING	STABILIZATION TIME	
CASING SIZE: OTHER: 4 1/4" H.S.A.									
DEPTH	C B A L S O N W S	SAMPLE			SAMPLE DESCRIPTION			R E M A R K S	STRATUM DESCRIPTION
		NO.	PEN/ REC	DEPTH (Ft)	BLOWS/6"				
0		S1	24/6	0 - 2	No Blow Counts	3" Spoon, 300lb Hammer, no blows taken. Compact, orange, brown, SAND and SILT, trace gravel.			3"  2'
5						Split Spoon Refusal @ 2'			
10									
15									
20									
25									
30									
GRANULAR SOILS		COHESIVE SOILS		REMARKS: Ground water was not observed.					
Blows/Ft Density		Blows/Ft Density							
0 - 4	V. LOOSE	<2	V. SOFT						
4-10	LOOSE	2-4	SOFT						
10-30	M. DENSE	4-8	M. STIFF						
30-50	DENSE	8-15	STIFF						
>50	V. DENSE	15-30	V. STIFF						
NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL. 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE									

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-3 SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: J. Lefebvre INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +175.47 DATUM DATE START 12/18/2007 DATE END 12/18/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.	GROUNDWATER READINGS				
	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.					
CASING SIZE: OTHER: 4 1/4" H.S.A.					

DEPTH IN FEET	C A S I N G S	SAMPLE				SAMPLE DESCRIPTION	R E M A R K S	STRATUM DESCRIPTION
		NO.	PEN./ REC	DEPTH (Ft)	BLOWS/6"			
0						4" thickness of asphalt		PAVEMENT
		S1	24/12	1 - 3	12-9	Compact, yellow-brown, SILT and SAND, some gravel.		
					8-6			
		S2	24/12	3 - 5	12-23	Very dense, light gray-brown, SILT and SAND, some gravel.		FILL
					33-34			
5		S3	24/20	5 - 7	19-18	Dense, light gray, brown, GRAVELLY SILT and SAND.		
					23-28			
		S4	24/16	7 - 9	30-32	Very dense, light gray-brown, GRAVELLY SILT and SAND.		
					49-40			
10		S5	6/4	9 - 9.5	60-100/0"	Very dense, light gray, GRAVELLY SILT and SAND.		GLACIAL TILL
		S6	0/0	10-10	100/0"	No Penetration.		10'
						Auger Refusal @ 10'		
15								
20								
25								
30								

GRANULAR SOILS Blows/Ft Density	COHESIVE SOILS Blows/Ft Density	REMARKS: Groundwater was not observed.
0 - 4 V. LOOSE	<2 V. SOFT	
4-10 LOOSE	2-4 SOFT	
10-30 M. DENSE	4-8 M. STIFF	
30-50 DENSE	8-15 STIFF	
>50 V. DENSE	15-30 V. STIFF	
	>30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-4(OW) SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: J. Lefebvre INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +174.62 DATUM DATE START 12/19/2007 DATE END 12/19/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.					

DEPTH G S	C B A L S O N W G S	SAMPLE				SAMPLE DESCRIPTION	RE M K S	STRATUM DESCRIPTION
		NO.	PEN./ REC	DEPTH (Ft)	BLOWS/6"			
0								PAVEMENT
		S1	24/16	1 - 3	30-27	Very dense, brown, SAND and GRAVEL and gray SILT and SAND, some gravel.		
					32-32			
		S2	24/18	3 - 5	18-33	Very dense, gray, GRAVELLY SILT and SAND.		
					31-22			
5		S3	24/13	5 - 7	8-7	Compact, gray-brown, SILT and SAND, some gravel, with pavement.		
					6-5			
		S4	14/5	7 - 8.2	14-22	Very dense, black, SAND and GRAVEL and PAVEMENT.		FILL
					100/2"			
10		S5	24/11	9 - 11	17-20	Very dense, gray, fine sandy SILT and SILTY fine SAND, trace gravel.		
					37-21			
		S6	24/20	11 - 13	27-20	Dense, gray, fine sandy SILT and SILT fine SAND, trace gravel.		OUTWASH
					15-12			
		S7	24/18	13 - 15	7-17	Dense, gray, stratified FINE SAND and FINE TO MEDIUM SAND.		
					18-16			
15		S8	24/14	15 - 17	17-28	Very dense, gray, SILT, some sand, trace gravel.		
					30-22			
		S9	24/12	17 - 19	25-28	Very dense, gray, silty SAND and GRAVEL.		19' OUTWASH
					31-75			
20						Bottom of Boring @ 19'		
25								
30								

GRANULAR SOILS Blows/Ft Density	COHESIVE SOILS Blows/Ft Density	REMARKS: 2" observation well installed @ 18.6'
0 - 4 V. LOOSE	<2 V. SOFT	
4-10 LOOSE	2-4 SOFT	
10-30 M. DENSE	4-8 M. STIFF	
30-50 DENSE	8-15 STIFF	
>50 V. DENSE	15-30 V. STIFF	
	>30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

<b>NEW HAMPSHIRE BORING, INC.</b> 3 Liberty Drive., Londonderry, NH 03053	<b>PROJECT</b> 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-5 SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: J. Lefebvre INSPECTOR: T. Cormican	<b>BORING LOCATION</b> GROUND SURFACE ELEVATION +174.2 DATUM DATE START 12/19/2007 DATE END 12/19/2007
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<b>SAMPLER:</b> UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.  <b>CASING:</b> UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.  <b>CASING SIZE:</b> OTHER: 4 1/4" H.S.A.	<b>GROUNDWATER READINGS</b>				
	DATE	TIME	WATER	CASING	STABILIZATION TIME
	12/19/2007		12.5'	Out	Upon Completion

DEPTH	C.B.S.O.N.W.G.S.	SAMPLE				SAMPLE DESCRIPTION	REMARKS	STRATUM DESCRIPTION
		NO.	PEN./REC	DEPTH (Ft)	BLOWS/6"			
0						3" thickness of asphalt		PAVEMENT
		S1	24/10	2 - 4	12-15	Dense, blue-gray, FINE TO COARSE SAND, trace silt, gravel.		
					20-18			
		S2	12/10	5	28-26	Very dense, gray-brown, FINE TO COARSE SAND, trace to some silt, gravel, with ash.		
5								FILL
		S2A	12/10	5 - 6	27-31	Very dense, blue-gray-brown, SAND, trace silt, gravel.		
		S3	24/18	6 - 8	25-38	Very dense, gray, GRAVELLY SAND, trace to some silt.		
					36-48			
10		S4	24/14	8 - 10	45-67	Very dense, light brown and gray, GRAVELLY SAND, trace to some silt.		
		S5	24/18	10 - 12	19-34	Very dense, light brown, SAND and GRAVEL, some silt.		
					16-16			
		S6	24/10	12 - 14	23-28	Very dense, light brown, SAND and GRAVEL, some silt.		OUTWASH
15					29-100			14'
						Auger Refusal @ 14'		
20								
25								
30								

<b>GRANULAR SOILS</b> Blows/Ft Density	<b>COHESIVE SOILS</b> Blows/Ft Density	<b>REMARKS:</b>
0 - 4 V. LOOSE 4-10 LOOSE 10-30 M. DENSE 30-50 DENSE >50 V. DENSE	<2 V. SOFT 2-4 SOFT 4-8 M. STIFF 8-15 STIFF 15-30 V. STIFF >30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-6(OW) SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: J. Lefebvre INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +172.25 DATUM DATE START 12/19/2007 DATE END 12/19/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.	12/19/2007		8.1'		

DEPTH	C B A L S O N W S	SAMPLE				SAMPLE DESCRIPTION	REMARKS	STRATUM DESCRIPTION
		NO.	PEN./REC	DEPTH (Ft)	BLOWS/6"			
0								PAVEMENT
		S1	24/12	1 - 3	4-8	Compact, gray, SILT and SAND, some gravel.		
					6-8			
		S2	24/14	3 - 5	11-14	Dense, gray, SILT and SAND, some gravel.		
5					20-16			
		S3	24/16	5 - 7	14-18	Dense, gray, SILT and SAND, some gravel.		
					14-16			
		S4	24/8	7 - 9	14-20	Dense, gray, SILT and SAND, some gravel.		
					22-18			
10		S5	24/6	9 - 11	14-15	Dense, mottled gray, brown and gray, SILT and SAND, some gravel.		FILL
					18-22			
		S6	24/20	11 - 13	31-23	Dense, brown, SAND and GRAVEL, trace silt.		
					21-15			
		S7	24/14	13 - 15	20-26	Dense, brown, SAND and GRAVEL, some silt.		
15					21-17			
		S8	24/14	15 - 17	25-30	Very dense, gray-brown, silty SAND and GRAVEL.		
					42-40			
		S9	24/12	17 - 19	26-25	Dense, gray-brown, silty SAND and GRAVEL.		OUTWASH 19'
					20-22			
20						Bottom of Boring @ 19'		
25								
30								

GRANULAR SOILS Blows/Ft Density	COHESIVE SOILS Blows/Ft Density	REMARKS: 2" observation well installed @ 19.5'
0 - 4 V. LOOSE	<2 V. SOFT	
4-10 LOOSE	2-4 SOFT	
10-30 M. DENSE	4-8 M. STIFF	
30-50 DENSE	8-15 STIFF	
>50 V. DENSE	15-30 V. STIFF	
	>30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE



NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-8 SHEET 1 OF 1 FILE No. 76881
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DRILLER: M. D'Ambrosio HELPER: A. Ford INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +175.79 DATUM DATE START 12/18/2007 DATE END 12/18/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.					

DEPTH IN FEET	CORRECTION NO.	SAMPLE			SAMPLE DESCRIPTION	REMARKS	STRATUM DESCRIPTION
		PEN./ REC	DEPTH (Ft)	BLOWS/6"			
0					5" thickness of asphalt		PAVEMENT
	S1	24/16	2 - 4	72-100 43-34	Very dense, gray-brown, SAND and GRAVEL, some silt.		FILL
5	S2	24/22	4 - 6	64-72 54-64	Very dense, light gray-brown, GRAVELLY SILT and SAND.		GLACIAL TILL 6.5'
	S3	6/6	6 - 6.5	77-100/0"	Very dense, light gray-brown, SILT and SAND, some gravel.		
10					Auger Refusal @ 6.5'		
15							
20							
25							
30							

<table border="1"> <tr> <th>GRANULAR SOILS</th> <th>COHESIVE SOILS</th> </tr> <tr> <td>Blows/Ft Density</td> <td>Blows/Ft Density</td> </tr> <tr> <td>0 - 4 V. LOOSE</td> <td>&lt;2 V. SOFT</td> </tr> <tr> <td>4-10 LOOSE</td> <td>2-4 SOFT</td> </tr> <tr> <td>10-30 M. DENSE</td> <td>4-8 M. STIFF</td> </tr> <tr> <td>30-50 DENSE</td> <td>8-15 STIFF</td> </tr> <tr> <td>&gt;50 V. DENSE</td> <td>15-30 V. STIFF</td> </tr> <tr> <td></td> <td>&gt;30 HARD</td> </tr> </table>	GRANULAR SOILS	COHESIVE SOILS	Blows/Ft Density	Blows/Ft Density	0 - 4 V. LOOSE	<2 V. SOFT	4-10 LOOSE	2-4 SOFT	10-30 M. DENSE	4-8 M. STIFF	30-50 DENSE	8-15 STIFF	>50 V. DENSE	15-30 V. STIFF		>30 HARD	REMARKS: Groundwater not observed in boring.
GRANULAR SOILS	COHESIVE SOILS																
Blows/Ft Density	Blows/Ft Density																
0 - 4 V. LOOSE	<2 V. SOFT																
4-10 LOOSE	2-4 SOFT																
10-30 M. DENSE	4-8 M. STIFF																
30-50 DENSE	8-15 STIFF																
>50 V. DENSE	15-30 V. STIFF																
	>30 HARD																

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-9(OW) SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: J. Lefebvre INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +174.28 DATUM DATE START 12/19/2007 DATE END 12/19/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.	12/19/2007	10:30	18.0'		

DEPTH F T	C A S I N G S	SAMPLE				SAMPLE DESCRIPTION	R E M A R K S	STRATUM DESCRIPTION
		NO.	PEN./ REC	DEPTH (Ft.)	BLOWS/6"			
0						5" thickness of asphalt	PAVEMENT	
		S1	24/10	1 - 3	17-19 9-11	Compact, gray-brown, SILT, SAND, and GRAVEL.		
		S2	24/12	3 - 5	9-10 12-11			
5		S3	24/6	5 - 7	5-5 5-5	Loose to compact, gray-brown, GRAVELLY SILT and SAND.		
		S4	24/10	7 - 9	3-3 2-3			
10		S5	24/12	9 - 11	2-1 1-4	Very loose, gray-brown, SILT and SAND, some organics.	11' FILL	
		S6	24/8	11 - 13	9-8 4-6			
15		S7	24/14	13 - 15	17-19 22-20	Dense, gray, SILTY SAND and GRAVEL.	OUTWASH 16'	
		S8	8/5	15 - 15.8	55-100/2"			
						Advanced H.S.A very slowly to 19'.	19'	
20						Bottom of Boring @ 19'		
25								
30								

GRANULAR SOILS Blows/Ft Density	COHESIVE SOILS Blows/Ft Density	REMARKS: 2" observation well installed @ 18.8'
0 - 4 V. LOOSE 4-10 LOOSE 10-30 M. DENSE 30-50 DENSE >50 V. DENSE	<2 V. SOFT 2-4 SOFT 4-8 M. STIFF 8-15 STIFF 15-30 V. STIFF >30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

<b>NEW HAMPSHIRE BORING, INC.</b> 3 Liberty Drive., Londonderry, NH 03053	<b>PROJECT</b> 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-10 SHEET 1 OF 1 FILE No. 76881
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DRILLER: M. D'Ambrosio HELPER: A. Ford INSPECTOR: T. Cormican	<b>BORING LOCATION</b> GROUND SURFACE ELEVATION +175.37 DATUM DATE START 12/18/2007 DATE END 12/18/2007
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<b>SAMPLER:</b> UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.  <b>CASING:</b> UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.  <b>CASING SIZE:</b> OTHER: 4 1/4" H.S.A.	GROUNDWATER READINGS				
	DATE	TIME	WATER	CASING	STABILIZATION TIME
	12/18/2007		9'		

DEPTH F T	C B L S O N W G S	SAMPLE				SAMPLE DESCRIPTION	R E M A R K S	STRATUM DESCRIPTION
		NO.	PEN./ REC	DEPTH (Ft)	BLOWS/6"			
0		S1	24/22	0 - 2	20-29	Very dense, gray-brown, SILTY SAND and GRAVEL.		
					21-23			
		S2	24/18	2 - 4	33-31	Very dense, mottled orange-brown and light gray, SILT and SAND, trace gravel.		
					32-44			
5		S3	24/20	6 - 8	41-36	Very dense, brown, stratified FINE SAND, some silt.		
					39-53			
		S4	24/15	8 - 10	42-38	Very dense, light gray, well graded SILT, SAND, and GRAVEL.		8' FILL
					36-29			
10		S5	24/24	10 - 12	28-24	Dense, light gray, SILT, SAND, and GRAVEL.		GLACIAL TILL
					16-16			
15						Auger Refusal @ 13'		13'
20								
25								
30								

<b>GRANULAR SOILS</b> Blows/Ft Density	<b>COHESIVE SOILS</b> Blows/Ft Density	<b>REMARKS:</b>
0 - 4 V. LOOSE 4-10 LOOSE 10-30 M. DENSE 30-50 DENSE >50 V. DENSE	<2 V. SOFT 2-4 SOFT 4-8 M. STIFF 8-15 STIFF 15-30 V. STIFF >30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-11 SHEET 1 OF 1 FILE No. 76881
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DRILLER: R. Burne HELPER: S. Shaw INSPECTOR: T. Cormican	BORING LOCATION GROUND SURFACE ELEVATION +174.94 DATUM DATE START 12/20/2007 DATE END 12/20/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.	12/20/2007		9'		

DEPTH FTH	C A S I N G S	SAMPLE				SAMPLE DESCRIPTION	RE M A R K S	STRATUM DESCRIPTION
		NO.	PEN./ REC	DEPTH (Ft.)	BLOWS/6"			
0						5" thickness of asphalt		PAVEMENT
		S1	24/17	1 - 3	20-21 30-31	Very dense, gray-brown, SILTY SAND and GRAVEL.		
		S2	24/14	3 - 5	9-18 21-22			
5		S3	24/17	5 - 7	3-7 9-7	Compact, brown, SILT and SAND, some gravel, some black organic silt.		9' FILL
		S4	24/12	7 - 9	17-16 15-15			
10		S5	24/14	9 - 11	11-12 12-13	Compact, gray, SILT, SAND, and GRAVEL.		
		S6	24/16	11 - 13	18-18 13-15			
		S7	24/13	13 - 15	12-26 23-30	Dense, gray, SILT, SAND, and GRAVEL.		
15		S8	24/18	15 - 17	30-31 31-35			
		S9	24/12	17 - 19	39-51 54-69	Very dense, WEATHERED CONGLOMERATE.		GLACIAL TILL 17'
								CONGLOMERATE BEDROCK 19'
20						Bottom of Boring @ 19'		
25								
30								

GRANULAR SOILS Blows/Ft Density	COHESIVE SOILS Blows/Ft Density	REMARKS:
0 - 4 V. LOOSE	<2 V. SOFT	
4-10 LOOSE	2-4 SOFT	
10-30 M. DENSE	4-8 M. STIFF	
30-50 DENSE	8-15 STIFF	
>50 V. DENSE	15-30 V. STIFF >30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

<b>NEW HAMPSHIRE BORING, INC.</b> 3 Liberty Drive., Londonderry, NH 03053	<b>PROJECT</b> 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-12(ow) SHEET 1 OF 1 FILE No. 76881
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DRILLER: K. Smith HELPER: J. Garside INSPECTOR: J. Polmateer	<b>BORING LOCATION</b> GROUND SURFACE ELEVATION +174.96 DATUM DATE START 12/28/2007 DATE END 12/28/2007
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<b>SAMPLER:</b> UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.	GROUNDWATER READINGS				
<b>CASING:</b> UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.	DATE	TIME	WATER	CASING	STABILIZATION TIME
<b>CASING SIZE:</b> OTHER: 4 1/4" H.S.A.	12/28/2007		11'		

DEPTH	C B A L S O N W S G S	SAMPLE				SAMPLE DESCRIPTION	REMARKS	STRATUM DESCRIPTION
		NO.	PEN/REC	DEPTH (Ft.)	BLOWS/6"			
0						No Recovery		
5		S1	24/12	5 - 7	3-7	Compact, moist, brown, SILTY SAND, no odor.		5'
					7-11			
		S2	24/12	7 - 9	17-23	Very dense, dry, light brown, MEDIUM TO COARSE SAND, some gravel, no odor.		FILL
					37-37			
		S3	24/20	9 - 11	14-20	Dense, dry, gray-brown, MEDIUM TO COARSE SAND, some gravel, no odor.		
10					18-18			
		S4	24/20	11 - 13	18-20	Dense, wet, gray, SILTY SAND, some coarse sand,		11'
					25-29	trace gravel, no odor.		
		S5	24/18	13 - 15	25-29	Dense, wet, gray-brown, FINE TO COARSE SAND and GRAVEL, no odor.		
					35-42			
15		S6	24/14	16 - 18	21-23	Dense, wet, gray-brown, FINE TO COARSE SAND and GRAVEL, no odor.		OUTWASH
					20-24			
		S7	24/20	18 - 20	24-20	Very dense, wet, gray-brown, FINE TO COARSE SAND and GRAVEL, no odor.		
					62-74			
20						Bottom of Boring @ 20'		20'
25								
30								

<b>GRANULAR SOILS</b> Blows/Ft Density	<b>COHESIVE SOILS</b> Blows/Ft Density	REMARKS: 2" observation well installed @ 20'.
0 - 4 V. LOOSE 4-10 LOOSE 10-30 M. DENSE 30-50 DENSE >50 V. DENSE	<2 V. SOFT 2-4 SOFT 4-8 M. STIFF 8-15 STIFF 15-30 V. STIFF >30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
 2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-13(OW) SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: S. Shaw INSPECTOR: J. Mayotte	BORING LOCATION GROUND SURFACE ELEVATION +177.98 DATUM DATE START 12/20/2007 DATE END 12/20/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 In.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 In.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.					

DEPTH	C.B.S.O.N.W.G.S.	SAMPLE				SAMPLE DESCRIPTION	REMARKS	STRATUM DESCRIPTION
		NO.	PEN./REC	DEPTH (Ft.)	BLOWS/6"			
0						3" thickness of asphalt		PAVEMENT
		S1	24/10	1 - 3	27-34	Very dense, (frozen) dark brown, SILTY SAND and GRAVEL with crushed concrete pieces.		
		S2	24/4	3 - 5	12-12	Compact, brown, SAND and GRAVEL, some silt.		
5					9-11			
		S3	24/5	5 - 7	4-2	Loose, brown, FINE TO MEDIUM SAND, some gravel and silt.		
					3-4			
		S4	12/8	7 - 8	8-6	Compact, brown, SAND and GRAVEL, some silt, with concrete pieces.		8' FILL
10		S4A	12/6	8 - 9	14-26	Compact, light brown/gray, SILTY SAND and GRAVEL and dark brown organics.		
		S5	24/16	9 - 11	25-28	Very dense, light brown/gray, SILTY FINE SAND and GRAVEL with occasional orange sand lines.		
					32-32			
		S6	24/10	11 - 13	41-35	Very dense, brown to orange, SILTY FINE SAND and GRAVEL.		GLACIAL TILL
15					32-31			
		S7	24/15	13 - 15	30-30	Very dense, gray to light brown, SILTY FINE TO COARSE SAND and GRAVEL with fractured rock.		
					24-17			
		S8	24/12	15 - 17	15-17	Dense, gray to orange brown, SILTY VERY FINE TO COARSE SAND and GRAVEL with fractured rock.		
					30-17			
20		S9		17 - 19	14-11	Compact, gray to light brown, SILTY VERY FINE TO COARSE SAND and GRAVEL.		19'
					12-13			
						Bottom of Boring @ 19'		
25								
30								

GRANULAR SOILS Blows/Ft Density	COHESIVE SOILS Blows/Ft Density	REMARKS: Advanced 19' w/ H.S.A. Installed 2" observation well @ 18.5'.
0 - 4 V. LOOSE	<2 V. SOFT	
4-10 LOOSE	2-4 SOFT	
10-30 M. DENSE	4-8 M. STIFF	
30-50 DENSE	8-15 STIFF	
>50 V. DENSE	15-30 V. STIFF	
	>30 HARD	

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE

NEW HAMPSHIRE BORING, INC. 3 Liberty Drive., Londonderry, NH 03053	PROJECT 1 Boylston Street - Rte. 9 Newton, MA McPhail Associates, Inc.	REPORT OF BORING No. B-14(OW) SHEET 1 OF 1 FILE No. 76881
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DRILLER: J. Garside HELPER: S. Shaw INSPECTOR: J. Mayotte	BORING LOCATION GROUND SURFACE ELEVATION +178.1 DATUM DATE START 12/20/2007 DATE END 12/20/2007
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SAMPLER: UNLESS OTHERWISE NOTED, SAMPLER CONSISTS OF A 2" SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in.	GROUNDWATER READINGS				
CASING: UNLESS OTHERWISE NOTED, CASING DRIVEN USING A 300 lb. HAMMER FALLING 24 in.	DATE	TIME	WATER	CASING	STABILIZATION TIME
CASING SIZE: OTHER: 4 1/4" H.S.A.					

DEPTH	CORRECTIONS	SAMPLE				SAMPLE DESCRIPTION	REMARKS	STRATUM DESCRIPTION
		NO.	PEN./REC	DEPTH (Ft.)	BLOWS/6"			
0						3" thickness of asphalt		PAVEMENT
		S1	24/10	1 - 3	11-21	Compact, brown, COARSE TO MEDIUM SAND and GRAVEL, trace silt.		and some silt, (FILL).
		S2	24/6	3 - 5	6-10	Compact, brown to dark brown, MEDIUM SAND, with some gravel, trace silt and dark brown, sand, gravel,		
5		S3	24/6	5 - 7	4-3	Loose, gray to brown, MEDIUM SAND, some gravel and silt with brick, wood.		
		S4	24/8	7 - 9	11-11	Compact, gray/brown, SAND and GRAVEL, some silt, with red brick.		
10		S5	12/4	9 - 10	14-16	Compact, light gray, FINE SAND and some silt and gravel, with organic silt.		10' ORGANICS
		S5A	12/8	10 - 11	13-19	Compact to dense, gray, VERY FINE TO FINE SILTY SAND, some gravel.		GLACIAL TILL
		S6	24/14	11 - 13	24-18	Dense, gray/light brown, VERY FINE SILTY SAND.		
15		S7	24/12	13 - 15	17-18	Dense, brown, VERY FINE TO FINE SILTY SAND.		
					22-35			
		S8	24/8	15 - 17	18-21	Dense, brown, VERY FINE TO MEDIUM SILTY SAND and GRAVEL, fractured rock.		
20		S9	24/6	17 - 19	20-26	Very dense, light brown, FINE TO COARSE SILTY SAND and GRAVEL, with fractured rock.		
					25-23			
						Bottom of Boring @ 19'		
25								
30								

<table border="1"> <tr> <th>GRANULAR SOILS</th> <th>COHESIVE SOILS</th> </tr> <tr> <td>Blows/Ft Density</td> <td>Blows/Ft Density</td> </tr> <tr> <td>0 - 4 V. LOOSE</td> <td>&lt;2 V. SOFT</td> </tr> <tr> <td>4-10 LOOSE</td> <td>2-4 SOFT</td> </tr> <tr> <td>10-30 M. DENSE</td> <td>4-8 M. STIFF</td> </tr> <tr> <td>30-50 DENSE</td> <td>8-15 STIFF</td> </tr> <tr> <td>&gt;50 V. DENSE</td> <td>15-30 V. STIFF</td> </tr> <tr> <td></td> <td>&gt;30 HARD</td> </tr> </table>	GRANULAR SOILS	COHESIVE SOILS	Blows/Ft Density	Blows/Ft Density	0 - 4 V. LOOSE	<2 V. SOFT	4-10 LOOSE	2-4 SOFT	10-30 M. DENSE	4-8 M. STIFF	30-50 DENSE	8-15 STIFF	>50 V. DENSE	15-30 V. STIFF		>30 HARD	REMARKS: Upon completion of drilling, install 18.5' 2" diameter PVC OW with well sand and road box with concrete
GRANULAR SOILS	COHESIVE SOILS																
Blows/Ft Density	Blows/Ft Density																
0 - 4 V. LOOSE	<2 V. SOFT																
4-10 LOOSE	2-4 SOFT																
10-30 M. DENSE	4-8 M. STIFF																
30-50 DENSE	8-15 STIFF																
>50 V. DENSE	15-30 V. STIFF																
	>30 HARD																

NOTES: 1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.  
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE



Geotechnical Engineers

## **APPENDIX D**

McPhail Associates Inc. - Groundwater Monitoring Reports















**McPHAIL**  
ASSOCIATES, INC.

Geotechnical Engineers

## **APPENDIX E**

Laboratory Data - Groundwater Testing

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive  
Westborough, Massachusetts 01581-1019  
(508) 898-9220 www.alphalab.com  
MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: McPhail Associates Laboratory Job Number: L0719026  
Address: 2269 Massachusetts Avenue Date Received: 21-DEC-2007  
Cambridge, MA 02140 Date Reported: 31-DEC-2007  
Attn: Mr. Ambrose Donovan Delivery Method: Client  
Project Number: 4753.9.00 Site: SHAWS MARKET

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The following questions pertain only to MCP Analytical Methods

An affirmative response to questions A,B,C & D is required for "Presumptive Certainty" status

- A. Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set? YES
- B. Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines? YES
- C. Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? YES
- D. **VPH and EPH methods only:** Was the VPH or EPH method run without significant modifications, as specified in Section 11.3? YES

A response to questions E and F is required for "Presumptive Certainty" status

- E. Were all QC performance standards and recommendations for the specified method(s) achieved? NO
- F. Were results for all analyte-list compounds/elements for the specified method(s) reported? YES

Any answers of NO to the above questions are addressed in the case narrative.

---

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

---

Authorized by: Michelle M. Morris

Technical Representative

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0719026  
Date Reported: 31-DEC-2007

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ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0719026-01	B-14 (OW)	CHESTNUT HILL, MA
L0719026-02	B-6 (OW)	CHESTNUT HILL, MA
L0719026-03	B-9 (OW)	CHESTNUT HILL, MA
L0719026-04	B-4 (OW)	CHESTNUT HILL, MA
L0719026-05	B-1 (OW)	CHESTNUT HILL, MA
L0719026-06	B-13 (OW)	CHESTNUT HILL, MA

ALPHA ANALYTICAL LABORATORIES  
NARRATIVE REPORT

Laboratory Job Number: L0719026

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The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

MCP Related Narratives

EPH

Extraction method: 3510C

In reference to question E:

The WG306881-2/3 LCS/LCSD % RPDs for Nonane and Decane are above acceptance criteria for the method.



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0719026-01  
B-14 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP    ANAL	ID
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Extractable Petroleum Hydrocarbons				61 EPH-04-1	1226 13:15 1227 14:48 AJ	
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Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	105
C19-C36 Aliphatics	ND	ug/l	105
C11-C22 Aromatics	ND	ug/l	105
C11-C22 Aromatics, Adjusted	ND	ug/l	105
Naphthalene	ND	ug/l	10.5
2-Methylnaphthalene	ND	ug/l	10.5
Acenaphthylene	ND	ug/l	10.5
Acenaphthene	ND	ug/l	10.5
Fluorene	ND	ug/l	10.5
Phenanthrene	ND	ug/l	10.5
Anthracene	ND	ug/l	10.5
Fluoranthene	ND	ug/l	10.5
Pyrene	ND	ug/l	10.5
Benzo (a) anthracene	ND	ug/l	10.5
Chrysene	ND	ug/l	10.5
Benzo (b) fluoranthene	ND	ug/l	10.5
Benzo (k) fluoranthene	ND	ug/l	10.5
Benzo (a) pyrene	ND	ug/l	10.5
Indeno (1,2,3-cd) Pyrene	ND	ug/l	10.5
Dibenzo (a,h) anthracene	ND	ug/l	10.5
Benzo (ghi) perylene	ND	ug/l	10.5

Surrogate (s)	Recovery		QC Criteria
Chloro-Octadecane	47.0	%	40-140
o-Terphenyl	65.0	%	40-140
2-Fluorobiphenyl	73.0	%	40-140
2-Bromonaphthalene	71.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0719026-02  
B-6 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

Extractable Petroleum Hydrocarbons 61 EPH-04-1      1226 13:15 1227 15:22 AJ

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	105
C19-C36 Aliphatics	ND	ug/l	105
C11-C22 Aromatics	ND	ug/l	105
C11-C22 Aromatics, Adjusted	ND	ug/l	105
Naphthalene	ND	ug/l	10.5
2-Methylnaphthalene	ND	ug/l	10.5
Acenaphthylene	ND	ug/l	10.5
Acenaphthene	ND	ug/l	10.5
Fluorene	ND	ug/l	10.5
Phenanthrene	ND	ug/l	10.5
Anthracene	ND	ug/l	10.5
Fluoranthene	ND	ug/l	10.5
Pyrene	ND	ug/l	10.5
Benzo (a) anthracene	ND	ug/l	10.5
Chrysene	ND	ug/l	10.5
Benzo (b) fluoranthene	ND	ug/l	10.5
Benzo (k) fluoranthene	ND	ug/l	10.5
Benzo (a) pyrene	ND	ug/l	10.5
Indeno (1,2,3-cd) Pyrene	ND	ug/l	10.5
Dibenzo (a,h) anthracene	ND	ug/l	10.5
Benzo (ghi) perylene	ND	ug/l	10.5

Surrogate (s)	Recovery		QC Criteria
Chloro-Octadecane	54.0	%	40-140
o-Terphenyl	66.0	%	40-140
2-Fluorobiphenyl	76.0	%	40-140
2-Bromonaphthalene	74.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0719026-03  
B-9 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

Extractable Petroleum Hydrocarbons				61 EPH-04-1	1226 13:15	1227 15:57	AJ
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Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	105
C19-C36 Aliphatics	ND	ug/l	105
C11-C22 Aromatics	ND	ug/l	105
C11-C22 Aromatics, Adjusted	ND	ug/l	105
Naphthalene	ND	ug/l	10.5
2-Methylnaphthalene	ND	ug/l	10.5
Acenaphthylene	ND	ug/l	10.5
Acenaphthene	ND	ug/l	10.5
Fluorene	ND	ug/l	10.5
Phenanthrene	ND	ug/l	10.5
Anthracene	ND	ug/l	10.5
Fluoranthene	ND	ug/l	10.5
Pyrene	ND	ug/l	10.5
Benzo (a) anthracene	ND	ug/l	10.5
Chrysene	ND	ug/l	10.5
Benzo (b) fluoranthene	ND	ug/l	10.5
Benzo (k) fluoranthene	ND	ug/l	10.5
Benzo (a) pyrene	ND	ug/l	10.5
Indeno (1, 2, 3 -cd) Pyrene	ND	ug/l	10.5
Dibenzo (a, h) anthracene	ND	ug/l	10.5
Benzo (ghi) perylene	ND	ug/l	10.5

Surrogate (s)	Recovery		QC Criteria
Chloro-Octadecane	48.0	%	40-140
o-Terphenyl	69.0	%	40-140
2-Fluorobiphenyl	89.0	%	40-140
2-Bromonaphthalene	87.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0719026-04  
B-4 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP    ANAL	ID
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Extractable Petroleum Hydrocarbons				61 EPH-04-1	1226 13:15 1227 16:31 AJ	
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Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	104
C19-C36 Aliphatics	ND	ug/l	104
C11-C22 Aromatics	ND	ug/l	104
C11-C22 Aromatics, Adjusted	ND	ug/l	104
Naphthalene	ND	ug/l	10.4
2-Methylnaphthalene	ND	ug/l	10.4
Acenaphthylene	ND	ug/l	10.4
Acenaphthene	ND	ug/l	10.4
Fluorene	ND	ug/l	10.4
Phenanthrene	ND	ug/l	10.4
Anthracene	ND	ug/l	10.4
Fluoranthene	ND	ug/l	10.4
Pyrene	ND	ug/l	10.4
Benzo (a) anthracene	ND	ug/l	10.4
Chrysene	ND	ug/l	10.4
Benzo (b) fluoranthene	ND	ug/l	10.4
Benzo (k) fluoranthene	ND	ug/l	10.4
Benzo (a) pyrene	ND	ug/l	10.4
Indeno (1, 2, 3 -cd) Pyrene	ND	ug/l	10.4
Dibenzo (a, h) anthracene	ND	ug/l	10.4
Benzo (ghi) perylene	ND	ug/l	10.4

Surrogate (s)	Recovery		QC Criteria
Chloro-Octadecane	51.0	%	40-140
o-Terphenyl	69.0	%	40-140
2-Fluorobiphenyl	88.0	%	40-140
2-Bromonaphthalene	85.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0719026-05  
B-1 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

Extractable Petroleum Hydrocarbons	61 EPH-04-1				1226 13:15 1228 09:19 AJ	
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Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	104
C19-C36 Aliphatics	ND	ug/l	104
C11-C22 Aromatics	ND	ug/l	104
C11-C22 Aromatics, Adjusted	ND	ug/l	104
Naphthalene	ND	ug/l	10.4
2-Methylnaphthalene	ND	ug/l	10.4
Acenaphthylene	ND	ug/l	10.4
Acenaphthene	ND	ug/l	10.4
Fluorene	ND	ug/l	10.4
Phenanthrene	ND	ug/l	10.4
Anthracene	ND	ug/l	10.4
Fluoranthene	ND	ug/l	10.4
Pyrene	ND	ug/l	10.4
Benzo (a) anthracene	ND	ug/l	10.4
Chrysene	ND	ug/l	10.4
Benzo (b) fluoranthene	ND	ug/l	10.4
Benzo (k) fluoranthene	ND	ug/l	10.4
Benzo (a) pyrene	ND	ug/l	10.4
Indeno (1, 2, 3-cd) Pyrene	ND	ug/l	10.4
Dibenzo (a, h) anthracene	ND	ug/l	10.4
Benzo (ghi) perylene	ND	ug/l	10.4
Surrogate (s)	Recovery		QC Criteria
Chloro-Octadecane	45.0	%	40-140
o-Terphenyl	71.0	%	40-140
2-Fluorobiphenyl	82.0	%	40-140
2-Bromonaphthalene	78.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0719026-06  
B-13 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP    ANAL	ID
-----------	--------	-------	-----	------------	----------------------	----

Extractable Petroleum Hydrocarbons				61 EPH-04-1	1226 13:15 1227 17:05 AJ	
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Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	105	
C19-C36 Aliphatics	ND	ug/l	105	
C11-C22 Aromatics	ND	ug/l	105	
C11-C22 Aromatics, Adjusted	ND	ug/l	105	
Naphthalene	ND	ug/l	10.5	
2-Methylnaphthalene	ND	ug/l	10.5	
Acenaphthylene	ND	ug/l	10.5	
Acenaphthene	ND	ug/l	10.5	
Fluorene	ND	ug/l	10.5	
Phenanthrene	ND	ug/l	10.5	
Anthracene	ND	ug/l	10.5	
Fluoranthene	ND	ug/l	10.5	
Pyrene	ND	ug/l	10.5	
Benzo (a) anthracene	ND	ug/l	10.5	
Chrysene	ND	ug/l	10.5	
Benzo (b) fluoranthene	ND	ug/l	10.5	
Benzo (k) fluoranthene	ND	ug/l	10.5	
Benzo (a) pyrene	ND	ug/l	10.5	
Indeno (1, 2, 3 -cd) Pyrene	ND	ug/l	10.5	
Dibenzo (a, h) anthracene	ND	ug/l	10.5	
Benzo (ghi) perylene	ND	ug/l	10.5	
Surrogate (s)	Recovery		QC Criteria	
Chloro-Octadecane	41.0	%	40-140	
o-Terphenyl	63.0	%	40-140	
2-Fluorobiphenyl	83.0	%	40-140	
2-Bromonaphthalene	79.0	%	40-140	

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0719026

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Petroleum Hydrocarbons for sample(s) 01-06 (WG306827-1, WG306827-2)					
C5-C8 Aliphatics	98	100	3	25	70-130
C9-C12 Aliphatics	98	98	0	25	70-130
C9-C10 Aromatics	101	102	1	25	70-130
Benzene	92	93	1	25	70-130
Toluene	102	102	0	25	70-130
Ethylbenzene	106	106	0	25	70-130
p/m-Xylene	107	106	1	25	70-130
o-Xylene	107	107	0	25	70-130
Methyl tert butyl ether	97	95	2	25	70-130
Naphthalene	110	110	0	25	70-130
1,2,4-Trimethylbenzene	102	103	1	25	70-130
Pentane	89	89	0	25	70-130
2-Methylpentane	87	89	3	25	70-130
2,2,4-Trimethylpentane	96	98	2	25	70-130
n-Nonane	102	104	2	25	30-130
n-Decane	101	101	0	25	70-130
n-Butylcyclohexane	96	96	0	25	70-130
Surrogate(s)					
2,5-Dibromotoluene-PID	112	110	2		70-130
2,5-Dibromotoluene-FID	110	113	3		70-130
Extractable Petroleum Hydrocarbons for sample(s) 01-06 (WG306881-2, WG306881-3)					
C9-C18 Aliphatics	58	49	17	25	40-140
C19-C36 Aliphatics	76	62	20	25	40-140
C11-C22 Aromatics	78	76	3	25	40-140
Naphthalene	71	70	1	25	40-140
2-Methylnaphthalene	67	66	2	25	40-140
Acenaphthylene	66	67	2	25	40-140
Acenaphthene	70	72	3	25	40-140
Fluorene	73	74	1	25	40-140
Phenanthrene	81	81	0	25	40-140
Anthracene	81	78	4	25	40-140
Fluoranthene	81	78	4	25	40-140
Pyrene	82	79	4	25	40-140
Benzo(a)anthracene	79	76	4	25	40-140
Chrysene	81	77	5	25	40-140
Benzo(b)fluoranthene	82	80	2	25	40-140
Benzo(k)fluoranthene	80	77	4	25	40-140
Benzo(a)pyrene	74	71	4	25	40-140
Indeno(1,2,3-cd)Pyrene	75	70	7	25	40-140
Dibenzo(a,h)anthracene	76	72	5	25	40-140
Benzo(ghi)perylene	78	74	5	25	40-140
Nonane (C9)	46	35	27	25	30-140
Decane (C10)	53	41	26	25	40-140
Dodecane (C12)	59	46	25	25	40-140
Tetradecane (C14)	59	52	13	25	40-140
Hexadecane (C16)	62	59	5	25	40-140

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0719026

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Extractable Petroleum Hydrocarbons for sample(s) 01-06 (WG306881-2, WG306881-3)					
Octadecane (C18)	69	59	16	25	40-140
Nonadecane (C19)	72	59	20	25	40-140
Eicosane (C20)	75	60	22	25	40-140
Docosane (C22)	77	61	23	25	40-140
Tetracosane (C24)	82	65	23	25	40-140
Hexacosane (C26)	79	64	21	25	40-140
Octacosane (C28)	80	66	19	25	40-140
Triacontane (C30)	80	67	18	25	40-140
Hexatriacontane (C36)	82	71	14	25	40-140
Surrogate(s)					
Chloro-Octadecane	70	57	20		40-140
o-Terphenyl	80	80	0		40-140
2-Fluorobiphenyl	91	95	4		40-140
2-Bromonaphthalene	91	94	3		40-140
% Naphthalene Breakthrough	0	0	NC		
% 2-Methylnaphthalene Breakthrough	0	0	NC		

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE FRACTIONATION CHECK

Laboratory Job Number: L0719026

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Parameter	% Recovery	QC Criteria
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Fractionation Check Standard Recoveries for Lot FISH061149

C9-C18 Aliphatics	60	40-140
C19-C36 Aliphatics	72	40-140
C11-C22 Aromatics	83	40-140
Naphthalene	77	40-140
2-Methylnaphthalene	72	40-140
Acenaphthylene	72	40-140
Acenaphthene	74	40-140
Fluorene	74	40-140
Phenanthrene	77	40-140
Anthracene	72	40-140
Fluoranthene	82	40-140
Pyrene	82	40-140
Benzo(a)anthracene	82	40-140
Chrysene	82	40-140
Benzo(b)fluoranthene	81	40-140
Benzo(k)fluoranthene	84	40-140
Benzo(a)pyrene	76	40-140
Indeno(1,2,3-cd)Pyrene	76	40-140
Dibenzo(a,h)anthracene	80	40-140
Benzo(ghi)perylene	80	40-140
Nonane (C9)	54	30-140
Decane (C10)	58	40-140
Dodecane (C12)	62	40-140
Tetradecane (C14)	62	40-140
Hexadecane (C16)	63	40-140
Octadecane (C18)	64	40-140
Nonadecane (C19)	64	40-140
Eicosane (C20)	66	40-140
Docosane (C22)	70	40-140
Tetracosane (C24)	73	40-140
Hexacosane (C26)	76	40-140
Octacosane (C28)	77	40-140
Triacontane (C30)	78	40-140
Hexatriacontane (C36)	82	40-140
Surrogate(s)		
Chloro-Octadecane	52	40-140
o-Terphenyl	77	40-140
2-Fluorobiphenyl	76	40-140
2-Bromonaphthalene	76	40-140

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0719026

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01-06 (WG306827-3)							
Volatile Petroleum Hydrocarbons				59 VPH-04-1.1		1226 09:05	TT
C5-C8 Aliphatics	ND	ug/l	50.0				
C9-C12 Aliphatics	ND	ug/l	50.0				
C9-C10 Aromatics	ND	ug/l	50.0				
C5-C8 Aliphatics, Adjusted	ND	ug/l	50.0				
C9-C12 Aliphatics, Adjusted	ND	ug/l	50.0				
Benzene	ND	ug/l	2.00				
Toluene	ND	ug/l	2.00				
Ethylbenzene	ND	ug/l	2.00				
p/m-Xylene	ND	ug/l	2.00				
o-Xylene	ND	ug/l	2.00				
Methyl tert butyl ether	ND	ug/l	3.00				
Naphthalene	ND	ug/l	10.0				
Surrogate(s)	Recovery		QC Criteria				
2,5-Dibromotoluene-PID	107	%	70-130				
2,5-Dibromotoluene-FID	103	%	70-130				
Blank Analysis for sample(s) 01-06 (WG306881-1)							
Extractable Petroleum Hydrocarbons				61 EPH-04-1		1226 13:15	1227 11:44 AJ
C9-C18 Aliphatics	ND	ug/l	100				
C19-C36 Aliphatics	ND	ug/l	100				
C11-C22 Aromatics	ND	ug/l	100				
C11-C22 Aromatics, Adjusted	ND	ug/l	100				
Naphthalene	ND	ug/l	10.0				
2-Methylnaphthalene	ND	ug/l	10.0				
Acenaphthylene	ND	ug/l	10.0				
Acenaphthene	ND	ug/l	10.0				
Fluorene	ND	ug/l	10.0				
Phenanthrene	ND	ug/l	10.0				
Anthracene	ND	ug/l	10.0				
Fluoranthene	ND	ug/l	10.0				
Pyrene	ND	ug/l	10.0				
Benzo(a)anthracene	ND	ug/l	10.0				
Chrysene	ND	ug/l	10.0				
Benzo(b)fluoranthene	ND	ug/l	10.0				
Benzo(k)fluoranthene	ND	ug/l	10.0				
Benzo(a)pyrene	ND	ug/l	10.0				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	10.0				
Dibenzo(a,h)anthracene	ND	ug/l	10.0				
Benzo(ghi)perylene	ND	ug/l	10.0				
Surrogate(s)	Recovery		QC Criteria				
Chloro-Octadecane	55.0	%	40-140				
o-Terphenyl	61.0	%	40-140				
2-Fluorobiphenyl	86.0	%	40-140				
2-Bromonaphthalene	83.0	%	40-140				

ALPHA ANALYTICAL LABORATORIES  
ADDENDUM I

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REFERENCES

59. Method for the Determination of Volatile Petroleum Hydrocarbons (VPH).  
Massachusetts Department of Environmental Protection, DEA/ORS/BWSC. May 2004,  
Revision 1.1.
61. Method for the Determination of Extractable Petroleum Hydrocarbons (EPH).  
Massachusetts Department of Environmental Protection, DEA/ORS/BWSC. May 2004,  
Revision 1.1.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
ug/cart	Micrograms per Cartridge.
H	The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. 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, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. 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, Inc.

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

**ALPHA ANALYTICAL LABORATORIES  
LOGIN SPECIFIC INFORMATION**

Laboratory Job Number: L0719026

Were project specific reporting limits specified? YES

**Cooler Information**

Cooler	Custody Seal
A	Absent

**Container Information**

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0719026-01A	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-01B	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-01C	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-01D	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-02A	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-02B	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-02C	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-02D	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-03A	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-03B	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-03C	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-03D	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-04A	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-04B	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-04C	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-04D	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-05A	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-05B	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-05C	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-05D	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-06A	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-06B	Vial HCl preserved	A	N/A	6C	Y	Absent	VPH-DELUX-04
L0719026-06C	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04
L0719026-06D	Amber 1000ml HCl preserved	A	<2	6C	Y	Absent	EPH-DELUX-04

**Container Comments**

Container ID	Comments
L0719026-01A	Temp Probe
L0719026-01B	Temp Probe
L0719026-01C	Temp Probe
L0719026-01D	Temp Probe
L0719026-02A	Temp Probe
L0719026-02B	Temp Probe
L0719026-02C	Temp Probe
L0719026-02D	Temp Probe
L0719026-03A	Temp Probe
L0719026-03B	Temp Probe
L0719026-03C	Temp Probe

ALPHA ANALYTICAL LABORATORIES  
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0719026

Continued

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Container ID    Comments

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L0719026-03D	Temp Probe
L0719026-04A	Temp Probe
L0719026-04B	Temp Probe
L0719026-04C	Temp Probe
L0719026-04D	Temp Probe
L0719026-05A	Temp Probe
L0719026-05B	Temp Probe
L0719026-05C	Temp Probe
L0719026-05D	Temp Probe
L0719026-06A	Temp Probe
L0719026-06B	Temp Probe
L0719026-06C	Temp Probe
L0719026-06D	Temp Probe

# CHAIN OF CUSTODY

PAGE 1 OF 1



WESTBORO, MA  
 TEL: 508-898-9220  
 FAX: 508-898-9193

MANSFIELD, MA  
 TEL: 508-822-9310  
 FAX: 508-822-3238

### Client Information

Client: Michael Assoc Inc  
 Address: 2269 MASS Ave  
 Cambridge, MA  
 Phone: 617-868-1420  
 Fax: 617-868-1423

### Project Information

Project Name: Shaws Market  
 Project Location: Chestnut Ave, MA  
 Project #: 4753.9.00  
 Project Manager: WJB  
 ALPHA Quote #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)

Date Due: 1/2/08  
 Time: am

Email: wbruce@phdgeo.com  
 These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 12/21/07

ALPHA Job #: 10719026

### Report Information - Data Deliverables

FAX  EMAIL  Same as Client info  PO #:

ADEX  Add'l Deliverables

### Regulatory Requirements/Report Limits

State/Fed Program: MA  
 Criteria: RCGR

### MA/MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS	DATE	TIME	SAMPLE MATRIX	SAMPLER'S INITIALS	CONTAINER TYPE	DATE/TIME	RECEIVED BY
22	12/21/07	1420	HP2	TM	Preservative	12/21/07 1800	PLUG
22		1430					
22		1515					
22		1545					
22		1600					
22		1630					

**SAMPLE HANDLING**  
 Filtration  
 Done  
 Not needed  
 Lab to do  
 Preservation  
 Lab to do  
 (Please specify below)

Sample Specific Comments

TOTAL # BOTTLES
44
44
44
44
44
44

### PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT  
 MA MCP or CT RCP?

Container Type  
 Preservative

Relinquished By:

Date/Time

Received By:

Date/Time

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive  
Westborough, Massachusetts 01581-1019  
(508) 898-9220 www.alphalab.com  
MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: McPhail Associates Laboratory Job Number: L0800140  
Address: 2269 Massachusetts Avenue Date Received: 04-JAN-2008  
Cambridge, MA 02140 Date Reported: 11-JAN-2008  
Attn: Mr. Ambrose Donovan Delivery Method: Alpha  
Project Number: 4753.9.02 Site: SHAW'S MARKET

The following questions pertain only to MCP Analytical Methods

An affirmative response to questions A,B,C & D is required for "Presumptive Certainty" status

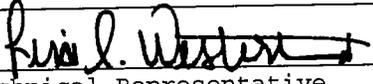
- A. Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set? YES
- B. Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines? YES
- C. Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? YES
- D. VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3? YES

A response to questions E and F is required for "Presumptive Certainty" status

- E. Were all QC performance standards and recommendations for the specified method(s) achieved? NO
- F. Were results for all analyte-list compounds/elements for the specified method(s) reported? YES

Any answers of NO to the above questions are addressed in the case narrative.

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

Authorized by:   
Technical Representative

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0800140  
Date Reported: 11-JAN-2008

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ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0800140-01	B-12 (OW)	CHESTNUT HILL, MA

ALPHA ANALYTICAL LABORATORIES  
NARRATIVE REPORT

Laboratory Job Number: L0800140

---

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

EPH

Extraction method: 3510C

In reference to question E:

L0800140-01 has low surrogate recovery for Chloro-octadecane. L0800140-01 was re-extracted and re-analyzed with recoveries confirming possible sample matrix interference. The results of both analyses are reported.

The WG307832-2/-3 LCS/LCSD % RPDs for Benzo(b)fluoranthene and Benzo(k)fluoranthene are above the method acceptance criteria.



ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0800140-01  
B-12 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

EPH with MS Targets 61 EPH-04-1      0107 12:00 0109 17:27 RT

Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	105
C19-C36 Aliphatics	159	ug/l	105
C11-C22 Aromatics	ND	ug/l	105
C11-C22 Aromatics, Adjusted	ND	ug/l	105
Naphthalene	ND	ug/l	0.421
2-Methylnaphthalene	ND	ug/l	0.421
Acenaphthylene	ND	ug/l	0.421
Acenaphthene	ND	ug/l	0.421
Fluorene	ND	ug/l	0.421
Phenanthrene	1.19	ug/l	0.421
Anthracene	ND	ug/l	0.421
Fluoranthene	0.471	ug/l	0.421
Pyrene	ND	ug/l	0.421
Benzo(a)anthracene	ND	ug/l	0.421
Chrysene	ND	ug/l	0.421
Benzo(b)fluoranthene	ND	ug/l	0.421
Benzo(k)fluoranthene	ND	ug/l	0.421
Benzo(a)pyrene	ND	ug/l	0.200
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.421
Dibenzo(a,h)anthracene	ND	ug/l	0.421
Benzo(ghi)perylene	ND	ug/l	0.421
Surrogate(s)	Recovery		QC Criteria
Chloro-Octadecane	24.0	%	40-140
o-Terphenyl	72.0	%	40-140
2-Fluorobiphenyl	83.0	%	40-140
2-Bromonaphthalene	79.0	%	40-140
O-Terphenyl-MS	99.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0800140-01  
B-12 (OW)

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

EPH with MS Targets				61 EPH-04-1	0110 13:00	0111 12:18	RT
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Quality Control Information

Condition of sample received:	Satisfactory
Aqueous preservative:	Laboratory Provided Preserved Container
Sample temperature upon receipt:	Received on Ice
Sample extraction method:	Extracted Per the Method

C9-C18 Aliphatics	ND	ug/l	111
C19-C36 Aliphatics	ND	ug/l	111
C11-C22 Aromatics	ND	ug/l	111
C11-C22 Aromatics, Adjusted	ND	ug/l	111
Naphthalene	ND	ug/l	0.444
2-Methylnaphthalene	ND	ug/l	0.444
Acenaphthylene	ND	ug/l	0.444
Acenaphthene	ND	ug/l	0.444
Fluorene	ND	ug/l	0.444
Phenanthrene	0.551	ug/l	0.444
Anthracene	ND	ug/l	0.444
Fluoranthene	ND	ug/l	0.444
Pyrene	ND	ug/l	0.444
Benzo (a) anthracene	ND	ug/l	0.444
Chrysene	ND	ug/l	0.444
Benzo (b) fluoranthene	ND	ug/l	0.444
Benzo (k) fluoranthene	ND	ug/l	0.444
Benzo (a) pyrene	ND	ug/l	0.200
Indeno (1, 2, 3-cd) Pyrene	ND	ug/l	0.444
Dibenzo (a, h) anthracene	ND	ug/l	0.444
Benzo (ghi) perylene	ND	ug/l	0.444

Surrogate (s)	Recovery		QC Criteria
Chloro-Octadecane	27.0	%	40-140
o-Terphenyl	72.0	%	40-140
2-Fluorobiphenyl	87.0	%	40-140
2-Bromonaphthalene	88.0	%	40-140
O-Terphenyl-MS	64.0	%	40-140

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0800140

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Volatile Petroleum Hydrocarbons for sample(s) 01 (WG307788-1, WG307788-2)					
C5-C8 Aliphatics	84	93	9	25	70-130
C9-C12 Aliphatics	95	99	4	25	70-130
C9-C10 Aromatics	88	100	12	25	70-130
Benzene	84	86	2	25	70-130
Toluene	94	99	5	25	70-130
Ethylbenzene	95	104	9	25	70-130
p/m-Xylene	96	106	10	25	70-130
o-Xylene	96	105	9	25	70-130
Methyl tert butyl ether	89	91	3	25	70-130
Naphthalene	93	107	14	25	70-130
1,2,4-Trimethylbenzene	89	102	13	25	70-130
Pentane	77	86	11	25	70-130
2-Methylpentane	72	82	13	25	70-130
2,2,4-Trimethylpentane	85	93	8	25	70-130
n-Nonane	98	104	6	25	30-130
n-Decane	98	102	4	25	70-130
n-Butylcyclohexane	93	97	4	25	70-130
Surrogate(s)					
2,5-Dibromotoluene-PID	90	107	17		70-130
2,5-Dibromotoluene-FID	91	107	16		70-130
EPH with MS Targets for sample(s) 01 (WG307832-2, WG307832-3)					
C9-C18 Aliphatics	67	62	8	25	40-140
C19-C36 Aliphatics	72	64	12	25	40-140
C11-C22 Aromatics	97	90	7	25	40-140
Naphthalene	68	66	3	25	40-140
2-Methylnaphthalene	74	70	6	25	40-140
Acenaphthylene	86	79	8	25	40-140
Acenaphthene	81	74	9	25	40-140
Fluorene	89	81	9	25	40-140
Phenanthrene	87	79	10	25	40-140
Anthracene	97	88	10	25	40-140
Fluoranthene	114	105	8	25	40-140
Pyrene	107	95	12	25	40-140
Benzo(a)anthracene	119	113	5	25	40-140
Chrysene	99	93	6	25	40-140
Benzo(b)fluoranthene	134	82	48	25	40-140
Benzo(k)fluoranthene	84	112	29	25	40-140
Benzo(a)pyrene	101	93	8	25	40-140
Indeno(1,2,3-cd)Pyrene	108	99	9	25	40-140
Dibenzo(a,h)anthracene	110	101	9	25	40-140
Benzo(ghi)perylene	108	99	9	25	40-140
Nonane (C9)	56	54	4	25	30-140
Decane (C10)	65	62	5	25	40-140
Dodecane (C12)	71	66	7	25	40-140
Tetradecane (C14)	70	64	9	25	40-140
Hexadecane (C16)	72	64	12	25	40-140

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0800140

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
EPH with MS Targets for sample(s) 01 (WG307832-2, WG307832-3)					
Octadecane (C18)	72	64	12	25	40-140
Nonadecane (C19)	72	64	12	25	40-140
Eicosane (C20)	73	65	12	25	40-140
Docosane (C22)	73	64	13	25	40-140
Tetracosane (C24)	76	68	11	25	40-140
Hexacosane (C26)	73	65	12	25	40-140
Octacosane (C28)	73	66	10	25	40-140
Triacontane (C30)	73	65	12	25	40-140
Hexatriacontane (C36)	75	68	10	25	40-140
Surrogate(s)					
Chloro-Octadecane	71	63	12		40-140
o-Terphenyl	107	103	4		40-140
2-Fluorobiphenyl	91	89	2		40-140
2-Bromonaphthalene	90	87	3		40-140
O-Terphenyl-MS	112	101	10		40-140
% Naphthalene Breakthrough	0	0	NC		
% 2-Methylnaphthalene Breakthrough	0	0	NC		

ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE FRACTIONATION CHECK

Laboratory Job Number: L0800140

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Parameter	% Recovery	QC Criteria
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Fractionation Check Standard Recoveries for Lot FISH061149

C9-C18 Aliphatics	60	40-140
C19-C36 Aliphatics	72	40-140
C11-C22 Aromatics	83	40-140
Naphthalene	77	40-140
2-Methylnaphthalene	72	40-140
Acenaphthylene	72	40-140
Acenaphthene	74	40-140
Fluorene	74	40-140
Phenanthrene	77	40-140
Anthracene	72	40-140
Fluoranthene	82	40-140
Pyrene	82	40-140
Benzo(a)anthracene	82	40-140
Chrysene	82	40-140
Benzo(b)fluoranthene	81	40-140
Benzo(k)fluoranthene	84	40-140
Benzo(a)pyrene	76	40-140
Indeno(1,2,3-cd)Pyrene	76	40-140
Dibenzo(a,h)anthracene	80	40-140
Benzo(ghi)perylene	80	40-140
Nonane (C9)	54	30-140
Decane (C10)	58	40-140
Dodecane (C12)	62	40-140
Tetradecane (C14)	62	40-140
Hexadecane (C16)	63	40-140
Octadecane (C18)	64	40-140
Nonadecane (C19)	64	40-140
Eicosane (C20)	66	40-140
Docosane (C22)	70	40-140
Tetracosane (C24)	73	40-140
Hexacosane (C26)	76	40-140
Octacosane (C28)	77	40-140
Triacosane (C30)	78	40-140
Hexatriacontane (C36)	82	40-140
Surrogate(s)		
Chloro-Octadecane	52	40-140
o-Terphenyl	77	40-140
2-Fluorobiphenyl	76	40-140
2-Bromonaphthalene	76	40-140

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ALPHA ANALYTICAL LABORATORIES  
 QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0800140

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG307788-3)							
Volatile Petroleum Hydrocarbons				59 VPH-04-1.1	0107 09:29 TT		
C5-C8 Aliphatics	ND	ug/l	50.0				
C9-C12 Aliphatics	ND	ug/l	50.0				
C9-C10 Aromatics	ND	ug/l	50.0				
C5-C8 Aliphatics, Adjusted	ND	ug/l	50.0				
C9-C12 Aliphatics, Adjusted	ND	ug/l	50.0				
Benzene	ND	ug/l	2.00				
Toluene	ND	ug/l	2.00				
Ethylbenzene	ND	ug/l	2.00				
p/m-Xylene	ND	ug/l	2.00				
o-Xylene	ND	ug/l	2.00				
Methyl tert butyl ether	ND	ug/l	3.00				
Naphthalene	ND	ug/l	10.0				
Surrogate (s)	Recovery			QC Criteria			
2,5-Dibromotoluene-PID	96.0	%		70-130			
2,5-Dibromotoluene-FID	98.0	%		70-130			
Blank Analysis for sample(s) 01 (WG307832-1)							
EPH with MS Targets				61 EPH-04-1	0107 12:00 0109 10:23 RT		
C9-C18 Aliphatics	ND	ug/l	100				
C19-C36 Aliphatics	ND	ug/l	100				
C11-C22 Aromatics	ND	ug/l	100				
C11-C22 Aromatics, Adjusted	ND	ug/l	100				
Naphthalene	ND	ug/l	0.400				
2-Methylnaphthalene	ND	ug/l	0.400				
Acenaphthylene	ND	ug/l	0.400				
Acenaphthene	ND	ug/l	0.400				
Fluorene	ND	ug/l	0.400				
Phenanthrene	ND	ug/l	0.400				
Anthracene	ND	ug/l	0.400				
Fluoranthene	ND	ug/l	0.400				
Pyrene	ND	ug/l	0.400				
Benzo(a)anthracene	ND	ug/l	0.400				
Chrysene	ND	ug/l	0.400				
Benzo(b)fluoranthene	ND	ug/l	0.400				
Benzo(k)fluoranthene	ND	ug/l	0.400				
Benzo(a)pyrene	ND	ug/l	0.200				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.400				
Dibenzo(a,h)anthracene	ND	ug/l	0.400				
Benzo(ghi)perylene	ND	ug/l	0.400				
Surrogate (s)	Recovery			QC Criteria			
Chloro-Octadecane	72.0	%		40-140			
o-Terphenyl	88.0	%		40-140			
2-Fluorobiphenyl	96.0	%		40-140			
2-Bromonaphthalene	91.0	%		40-140			

ALPHA ANALYTICAL LABORATORIES  
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0800140

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

Blank Analysis for sample(s) 01 (WG307832-1)

EPH with MS Targets cont'd				61 EPH-04-1	0107 12:00	0109 10:23	RT
O-Terphenyl-MS	107	%	40-140				

ALPHA ANALYTICAL LABORATORIES  
ADDENDUM I

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REFERENCES

59. Method for the Determination of Volatile Petroleum Hydrocarbons (VPH).  
Massachusetts Department of Environmental Protection, DEA/ORS/BWSC. May 2004,  
Revision 1.1.
61. Method for the Determination of Extractable Petroleum Hydrocarbons (EPH).  
Massachusetts Department of Environmental Protection, DEA/ORS/BWSC. May 2004,  
Revision 1.1.

GLOSSARY OF TERMS AND SYMBOLS

REF Reference number in which test method may be found.  
METHOD Method number by which analysis was performed.  
ID Initials of the analyst.  
ND Not detected in comparison to the reported detection limit.  
NI Not Ignitable.  
ug/cart Micrograms per Cartridge.  
H The analysis of pH was performed beyond the regulatory-required holding  
time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. 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, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. 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, Inc.

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

ALPHA ANALYTICAL LABORATORIES  
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0800140

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Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0800140-01A	Amber 1000ml HCl preserved	A	<2	2.8C	Y	Absent	EPH-MS, EPHD-GC-04
L0800140-01B	Amber 1000ml HCl preserved	A	<2	2.8C	Y	Absent	EPH-MS, EPHD-GC-04
L0800140-01C	Vial HCl preserved	A	N/A	2.8C	Y	Absent	VPH-DELUX-04
L0800140-01D	Vial HCl preserved	A	N/A	2.8C	Y	Absent	VPH-DELUX-04

Container Comments

Container ID	Comments
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ALPHA ANALYTICAL

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MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: McPhail Associates Laboratory Job Number: L0802256  
Address: 2269 Massachusetts Avenue Date Received: 18-FEB-2008  
Cambridge, MA 02140 Date Reported: 25-FEB-2008  
Attn: Mr. Ambrose Donovan Delivery Method: Alpha  
Project Number: 4753.9.04 Site: SHAW'S MARKET

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ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0802256-01	B-12 (OW) DISCHARGE	CHESTNUT HILL, MA
L0802256-02	TRIP BLANK	CHESTNUT HILL, MA

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

---

Authorized by: *Frank L. Weston*  
Technical Representative

ALPHA ANALYTICAL  
NARRATIVE REPORT

Laboratory Job Number: L0802256

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The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Sample Receipt

A Trip Blank was supplied to the laboratory but not listed on the Chain of Custody. At the client's request, the Trip Blank was not analyzed.

TSS

L0802256-01 has an elevated detection limit due to the 2x dilution required for analysis of higher TSS concentrations.

Hexavalent Chromium

The MS % recovery for Hexavalent Chromium is outside the acceptance criteria for the method due to sample matrix. A post analytical spike was performed on a 5x diluted sample with recovery of 78%. Sample was analyzed for Total Chromium with result less than 0.01 mg/l.



ALPHA ANALYTICAL  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0802256-01  
B-12 (OW) DISCHARGE

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Volatile Organics by GC/MS 624 cont'd				5 624		0220 12:13 MM	
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Surrogate (s)	Recovery			QC Criteria			
Pentafluorobenzene	112	%		80-120			
Fluorobenzene	111	%		80-120			
4-Bromofluorobenzene	100	%		80-120			
Semivolatile Organics by EPA 8270C				1 8270C		0219 16:00 0220 15:01 HL	
Acenaphthene	ND	ug/l	5.0				
Benzidine	ND	ug/l	50.				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0802256-01  
B-12 (OW) DISCHARGE

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Semivolatile Organics by EPA 8270C cont'd				1 8270C	0219 16:00	0220 15:01	HL
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl) ether	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	50.				
2,4-Dinitrotoluene	ND	ug/l	6.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Chlorophenyl phenyl ether	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl) ether	ND	ug/l	5.0				
Bis(2-chloroethoxy) methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachlorocyclopentadiene	ND	ug/l	30.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
NitrosoDiPhenylAmine (NDPA) /DPA	ND	ug/l	15.				
Bis(2-Ethylhexyl) phthalate	ND	ug/l	5.0				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a) anthracene	ND	ug/l	5.0				
Benzo(a) pyrene	ND	ug/l	5.0				
Benzo(b) fluoranthene	ND	ug/l	5.0				
Benzo(k) fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi) perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a, h) anthracene	ND	ug/l	5.0				
Indeno(1, 2, 3-cd) Pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
Aniline	ND	ug/l	20.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	ND	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
2-Methylnaphthalene	ND	ug/l	5.0				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0802256-01  
B-12 (OW) DISCHARGE

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Semivolatle Organics by EPA 8270C cont'd				1	8270C	0219 16:00	0220 15:01 HL
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
P-Chloro-M-Cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	30.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	10.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
Surrogate (s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	21-120				
Phenol-d6	28.0	%	10-120				
Nitrobenzene-d5	78.0	%	23-120				
2-Fluorobiphenyl	73.0	%	43-120				
2,4,6-Tribromophenol	92.0	%	10-120				
4-Terphenyl-d14	82.0	%	33-120				
Semivolatle Organics by EPA 8270C-SIM				1	8270C	0219 16:00	0220 14:21 HL
Acenaphthene	ND	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	ND	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	0.20				
Benzo(a)anthracene	ND	ug/l	0.20				
Benzo(a)pyrene	ND	ug/l	0.20				
Benzo(b)fluoranthene	ND	ug/l	0.20				
Benzo(k)fluoranthene	ND	ug/l	0.20				
Chrysene	ND	ug/l	0.20				
Acenaphthylene	ND	ug/l	0.20				
Anthracene	ND	ug/l	0.20				
Benzo(ghi)perylene	ND	ug/l	0.20				
Fluorene	ND	ug/l	0.20				
Phenanthrene	0.20	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20				
Pyrene	ND	ug/l	0.20				
1-Methylnaphthalene	ND	ug/l	0.20				
2-Methylnaphthalene	ND	ug/l	0.20				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL  
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0802256-01  
B-12 (OW) DISCHARGE

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Semivolatile Organics by EPA 8270C-SIM cont'd				1	8270C	0219 16:00	0220 14:21 HL
Pentachlorophenol	ND	ug/l	0.80				
Hexachlorobenzene	ND	ug/l	0.80				
Hexachloroethane	ND	ug/l	0.80				
Surrogate(s)	Recovery						QC Criteria
2-Fluorophenol	29.0	%					21-120
Phenol-d6	23.0	%					10-120
Nitrobenzene-d5	63.0	%					23-120
2-Fluorobiphenyl	63.0	%					43-120
2,4,6-Tribromophenol	73.0	%					10-120
4-Terphenyl-d14	76.0	%					33-120
Polychlorinated Biphenyls				5	608	0220 08:15	0221 22:44 SS
Aroclor 1016	ND	ug/l	0.258				
Aroclor 1221	ND	ug/l	0.258				
Aroclor 1232	ND	ug/l	0.258				
Aroclor 1242	ND	ug/l	0.258				
Aroclor 1248	ND	ug/l	0.258				
Aroclor 1254	ND	ug/l	0.258				
Aroclor 1260	ND	ug/l	0.258				
Surrogate(s)	Recovery						QC Criteria
2,4,5,6-Tetrachloro-m-xylene	74.0	%					30-150
Decachlorobiphenyl	79.0	%					30-150

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL  
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0802256-02  
TRIP BLANK  
Sample Matrix: WATER

Date Collected: 15-FEB-2008 10:00  
Date Received : 18-FEB-2008  
Date Reported : 25-FEB-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 3-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	

\*\*\*\*\* THIS SAMPLE IS ON HOLD \*\*\*\*\*

Comments: Complete list of References and Glossary of Terms found in Addendum I

**ALPHA ANALYTICAL**  
**QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS**

Laboratory Job Number: L0802256

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Solids, Total Suspended for sample(s) 01 (L0802211-01, WG311989-2)					
Solids, Total Suspended	48	50	mg/l	4	32
Cyanide, Total for sample(s) 01 (L0802249-01, WG312076-4)					
Cyanide, Total	0.005	0.005	mg/l	2	
Chlorine, Total Residual for sample(s) 01 (L0802256-01, WG311960-1)					
Chlorine, Total Residual	ND	ND	mg/l	NC	
pH for sample(s) 01 (L0802256-01, WG311957-1)					
pH	6.9	6.9	SU	0	5
TPH for sample(s) 01 (L0801464-43, WG312081-1)					
TPH	ND	ND	mg/l	NC	34
Phenolics, Total for sample(s) 01 (L0802256-01, WG312110-4)					
Phenolics, Total	ND	ND	mg/l	NC	12
Chromium, Hexavalent for sample(s) 01 (L0802256-01, WG312463-4)					
Chromium, Hexavalent	ND	ND	mg/l	NC	20
Total Metals for sample(s) 01 (L0802256-01, WG312234-1)					
Iron, Total	16	16	mg/l	0	
Total Metals for sample(s) 01 (L0802256-01, WG312233-1)					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	0.0053	0.0052	mg/l	2	20
Cadmium, Total	0.0002	0.0002	mg/l	9	20
Chromium, Total	0.0195	0.0194	mg/l	0	20
Copper, Total	0.0148	0.0155	mg/l	5	20
Lead, Total	0.0030	0.0032	mg/l	5	20
Nickel, Total	0.0055	0.0055	mg/l	0	20
Selenium, Total	0.002	0.002	mg/l	1	20
Silver, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.0164	0.0186	mg/l	12	20
Total Metals for sample(s) 01 (L0802055-01, WG312249-3)					
Mercury, Total	ND	ND	mg/l	NC	
Volatile Organics by GC/MS 624 for sample(s) 01 (L0802254-02, WG312171-2)					
Methylene chloride	ND	ND	ug/l	NC	30
1,1-Dichloroethane	ND	ND	ug/l	NC	30
Chloroform	ND	ND	ug/l	NC	30
Carbon tetrachloride	ND	ND	ug/l	NC	30
1,2-Dichloropropane	ND	ND	ug/l	NC	30
Dibromochloromethane	ND	ND	ug/l	NC	30
1,1,2-Trichloroethane	ND	ND	ug/l	NC	30
2-Chloroethylvinyl ether	ND	ND	ug/l	NC	30
Tetrachloroethene	ND	ND	ug/l	NC	30

ALPHA ANALYTICAL  
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0802256

Continued

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Volatile Organics by GC/MS 624 for sample(s) 01 (L0802254-02, WG312171-2)					
Chlorobenzene	ND	ND	ug/l	NC	30
Trichlorofluoromethane	ND	ND	ug/l	NC	30
1,2-Dichloroethane	ND	ND	ug/l	NC	30
1,1,1-Trichloroethane	ND	ND	ug/l	NC	30
Bromodichloromethane	ND	ND	ug/l	NC	30
trans-1,3-Dichloropropene	ND	ND	ug/l	NC	30
cis-1,3-Dichloropropene	ND	ND	ug/l	NC	30
Bromoform	ND	ND	ug/l	NC	30
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC	30
Benzene	ND	ND	ug/l	NC	30
Toluene	ND	ND	ug/l	NC	30
Ethylbenzene	ND	ND	ug/l	NC	30
Chloromethane	ND	ND	ug/l	NC	30
Bromomethane	ND	ND	ug/l	NC	30
Vinyl chloride	ND	ND	ug/l	NC	30
Chloroethane	ND	ND	ug/l	NC	30
1,1-Dichloroethene	ND	ND	ug/l	NC	30
trans-1,2-Dichloroethene	ND	ND	ug/l	NC	30
cis-1,2-Dichloroethene	ND	ND	ug/l	NC	30
Trichloroethene	ND	ND	ug/l	NC	30
1,2-Dichlorobenzene	ND	ND	ug/l	NC	30
1,3-Dichlorobenzene	ND	ND	ug/l	NC	30
1,4-Dichlorobenzene	ND	ND	ug/l	NC	30
p/m-Xylene	ND	ND	ug/l	NC	30
o-xylene	ND	ND	ug/l	NC	30
Xylene (Total)	ND	ND	ug/l	NC	30
Styrene	ND	ND	ug/l	NC	30
Acetone	ND	ND	ug/l	NC	30
Carbon disulfide	ND	ND	ug/l	NC	30
2-Butanone	ND	ND	ug/l	NC	30
Vinyl acetate	ND	ND	ug/l	NC	30
4-Methyl-2-pentanone	ND	ND	ug/l	NC	30
2-Hexanone	ND	ND	ug/l	NC	30
Acrolein	ND	ND	ug/l	NC	30
Acrylonitrile	ND	ND	ug/l	NC	30
Surrogate (s)	Recovery			QC Criteria	
Pentafluorobenzene	104	111	%	80-120	
Fluorobenzene	107	113	%	80-120	
4-Bromofluorobenzene	97.0	100	%	80-120	

Polychlorinated Biphenyls for sample(s) 01 (L0802256-01, WG312156-4)

Aroclor 1016	ND	ND	ug/l	NC	30
Aroclor 1221	ND	ND	ug/l	NC	30
Aroclor 1232	ND	ND	ug/l	NC	30
Aroclor 1242	ND	ND	ug/l	NC	30
Aroclor 1248	ND	ND	ug/l	NC	30
Aroclor 1254	ND	ND	ug/l	NC	30

ALPHA ANALYTICAL  
 QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0802256

Continued

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Polychlorinated Biphenyls for sample(s) 01 (L0802256-01, WG312156-4)					
Aroclor 1260	ND	ND	ug/l	NC	30
Surrogate(s)	Recovery				QC Criteria
2,4,5,6-Tetrachloro-m-xylene	74.0	79.0	%		30-150
Decachlorobiphenyl	79.0	84.0	%		30-150

ALPHA ANALYTICAL  
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0802256

Parameter	% Recovery	QC Criteria
Cyanide, Total LCS for sample(s) 01 (WG312076-2)		
Cyanide, Total	100	
Chlorine, Total Residual LCS for sample(s) 01 (WG311960-3)		
Chlorine, Total Residual	101	
pH LCS for sample(s) 01 (WG311957-2)		
pH	100	99-101
TPH LCS for sample(s) 01 (WG312081-3)		
TPH	80	64-132
Phenolics, Total LCS for sample(s) 01 (WG312110-2)		
Phenolics, Total	104	82-111
Chromium, Hexavalent LCS for sample(s) 01 (WG312463-2)		
Chromium, Hexavalent	100	85-115
Total Metals LCS for sample(s) 01 (WG312234-4)		
Iron, Total	94	
Total Metals LCS for sample(s) 01 (WG312233-4)		
Antimony, Total	93	80-120
Arsenic, Total	94	80-120
Cadmium, Total	100	80-120
Chromium, Total	96	80-120
Copper, Total	97	80-120
Lead, Total	98	80-120
Nickel, Total	94	80-120
Selenium, Total	94	80-120
Silver, Total	95	80-120
Zinc, Total	99	80-120
Total Metals LCS for sample(s) 01 (WG312249-1)		
Mercury, Total	99	
Pesticides by GC 504 LCS for sample(s) 01 (WG312612-2)		
1,2-Dibromoethane	90	70-130
1,2-Dibromo-3-chloropropane	90	70-130
Volatile Organics by GC/MS 624 LCS for sample(s) 01 (WG312171-5)		
Methylene chloride	125	1-221
1,1-Dichloroethane	109	59-155
Chloroform	114	51-138
Carbon tetrachloride	137	70-140
1,2-Dichloropropane	112	1-210
Dibromochloromethane	115	53-149
1,1,2-Trichloroethane	101	52-150
2-Chloroethylvinyl ether	101	1-305

ALPHA ANALYTICAL  
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0802256

Continued

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Parameter	% Recovery	QC Criteria
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Volatile Organics by GC/MS 624 LCS for sample(s) 01 (WG312171-5)

Tetrachloroethene	103	64-148
Chlorobenzene	112	37-160
Trichlorofluoromethane	104	17-181
1,2-Dichloroethane	111	49-155
1,1,1-Trichloroethane	122	52-162
Bromodichloromethane	115	35-155
trans-1,3-Dichloropropene	102	17-183
cis-1,3-Dichloropropene	100	1-227
Bromoform	121	45-169
1,1,2,2-Tetrachloroethane	109	46-157
Benzene	111	37-151
Toluene	103	47-150
Ethylbenzene	114	37-162
Chloromethane	93	1-273
Bromomethane	92	1-242
Vinyl chloride	88	1-251
Chloroethane	97	14-230
1,1-Dichloroethene	109	1-234
trans-1,2-Dichloroethene	129	54-156
cis-1,2-Dichloroethene	113	60-140
Trichloroethene	112	71-157
1,2-Dichlorobenzene	113	18-190
1,3-Dichlorobenzene	112	59-156
1,4-Dichlorobenzene	113	18-190
p/m-Xylene	114	40-160
o-Xylene	111	40-160
XYLENE (TOTAL)	113	40-160
Styrene	125	40-160
Acetone	82	40-160
Carbon disulfide	126	40-160
2-Butanone	84	40-160
Vinyl acetate	98	40-160
4-Methyl-2-pentanone	84	40-160
2-Hexanone	79	40-160
Acrolein	113	40-160
Acrylonitrile	109	40-160
Surrogate(s)		
Pentafluorobenzene	108	80-120
Fluorobenzene	107	80-120
4-Bromofluorobenzene	104	80-120

Semivolatile Organics by EPA 8270C LCS for sample(s) 01 (WG312084-2)

Acenaphthene	64	46-118
1,2,4-Trichlorobenzene	54	39-98
2-Chloronaphthalene	60	40-140
1,2-Dichlorobenzene	51	40-140
1,4-Dichlorobenzene	51	36-97

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ALPHA ANALYTICAL  
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0802256

Continued

Parameter	% Recovery	QC Criteria
Semivolatiles Organics by EPA 8270C LCS for sample(s) 01 (WG312084-2)		
2,4-Dinitrotoluene	94	24-96
2,6-Dinitrotoluene	91	40-140
Fluoranthene	81	40-140
4-Chlorophenyl phenyl ether	81	40-140
n-Nitrosodi-n-propylamine	53	41-116
Butyl benzyl phthalate	92	40-140
Anthracene	76	40-140
Pyrene	80	26-127
P-Chloro-M-Cresol	59	23-97
2-Chlorophenol	42	27-123
2-Nitrophenol	57	30-130
4-Nitrophenol	41	10-80
2,4-Dinitrophenol	84	30-130
Pentachlorophenol	80	9-103
Phenol	16	12-110
Surrogate (s)		
2-Fluorophenol	30	21-120
Phenol-d6	25	10-120
Nitrobenzene-d5	64	23-120
2-Fluorobiphenyl	65	43-120
2,4,6-Tribromophenol	92	10-120
4-Terphenyl-d14	92	33-120
Semivolatiles Organics by EPA 8270C-SIM LCS for sample(s) 01 (WG312085-2)		
Acenaphthene	43	40-140
2-Chloronaphthalene	43	40-140
Fluoranthene	73	40-140
Anthracene	63	40-140
Pyrene	60	40-140
Pentachlorophenol	60	30-130
Surrogate (s)		
2-Fluorophenol	28	21-120
Phenol-d6	22	10-120
Nitrobenzene-d5	52	23-120
2-Fluorobiphenyl	49	43-120
2,4,6-Tribromophenol	64	10-120
4-Terphenyl-d14	77	33-120
Polychlorinated Biphenyls LCS for sample(s) 01 (WG312156-2)		
Aroclor 1016	67	40-126
Aroclor 1260	61	40-127
Surrogate (s)		
2,4,5,6-Tetrachloro-m-xylene	80	30-150
Decachlorobiphenyl	71	30-150

ALPHA ANALYTICAL  
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0802256

Continued

Parameter	% Recovery	QC Criteria
Cyanide, Total SPIKE for sample(s) 01 (L0802256-01, WG312076-3)		
Cyanide, Total	97	
TPH SPIKE for sample(s) 01 (L0801464-44, WG312081-2)		
TPH	108	64-132
Phenolics, Total SPIKE for sample(s) 01 (L0802256-01, WG312110-3)		
Phenolics, Total	99	77-124
Chromium, Hexavalent SPIKE for sample(s) 01 (L0802256-01, WG312463-3)		
Chromium, Hexavalent	74	85-115
Total Metals SPIKE for sample(s) 01 (L0802256-01, WG312234-2)		
Iron, Total	100	
Total Metals SPIKE for sample(s) 01 (L0802256-01, WG312233-2)		
Antimony, Total	88	80-120
Arsenic, Total	99	80-120
Cadmium, Total	105	80-120
Chromium, Total	97	80-120
Copper, Total	100	80-120
Lead, Total	103	80-120
Nickel, Total	96	80-120
Selenium, Total	93	80-120
Silver, Total	97	80-120
Zinc, Total	99	80-120
Total Metals SPIKE for sample(s) 01 (L0802055-01, WG312249-2)		
Mercury, Total	116	
Pesticides by GC 504 SPIKE for sample(s) 01 (L0802256-01, WG312612-3)		
1,2-Dibromoethane	95	
1,2-Dibromo-3-chloropropane	90	
Volatile Organics by GC/MS 624 SPIKE for sample(s) 01 (L0802254-02, WG312171-1)		
Methylene chloride	118	1-221
1,1-Dichloroethane	115	59-155
Chloroform	116	51-138
Carbon tetrachloride	131	70-140
1,2-Dichloropropane	119	1-210
Dibromochloromethane	110	53-149
1,1,2-Trichloroethane	104	52-150
2-Chloroethylvinyl ether	103	1-305
Tetrachloroethene	107	64-148
Chlorobenzene	113	37-160
Trichlorofluoromethane	114	17-181
1,2-Dichloroethane	115	49-155
1,1,1-Trichloroethane	128	52-162
Bromodichloromethane	114	35-155

ALPHA ANALYTICAL  
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0802256

Continued

Parameter	% Recovery	QC Criteria
Volatile Organics by GC/MS 624 SPIKE for sample(s) 01 (L0802254-02, WG312171-1)		
trans-1,3-Dichloropropene	96	17-183
cis-1,3-Dichloropropene	92	1-227
Bromoform	113	45-169
1,1,2,2-Tetrachloroethane	112	46-157
Benzene	118	35-151
Toluene	105	47-150
Ethylbenzene	115	37-162
Chloromethane	93	1-273
Bromomethane	29	1-242
Vinyl chloride	103	1-251
Chloroethane	43	14-230
1,1-Dichloroethene	128	1-234
trans-1,2-Dichloroethene	134	54-156
cis-1,2-Dichloroethene	116	60-140
Trichloroethene	120	71-157
1,2-Dichlorobenzene	112	18-190
1,3-Dichlorobenzene	111	59-156
1,4-Dichlorobenzene	112	18-190
p/m-Xylene	114	40-160
o-Xylene	112	40-160
XYLENE (TOTAL)	113	40-160
Styrene	122	40-160
Acetone	92	40-160
Carbon disulfide	112	40-160
2-Butanone	93	40-160
Vinyl acetate	101	40-160
4-Methyl-2-pentanone	86	40-160
2-Hexanone	78	40-160
Acrolein	124	40-160
Acrylonitrile	104	40-160
Surrogate(s)		
Pentafluorobenzene	110	80-120
Fluorobenzene	110	80-120
4-Bromofluorobenzene	101	80-120
Polychlorinated Biphenyls SPIKE for sample(s) 01 (L0802256-01, WG312156-3)		
Aroclor 1016	58	40-126
Aroclor 1260	59	40-127
Surrogate(s)		
2,4,5,6-Tetrachloro-m-xylene	77	30-150
Decachlorobiphenyl	77	30-150

ALPHA ANALYTICAL  
 QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0802256

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
Semivolatile Organics by EPA 8270C for sample(s) 01 (L0802256-01, WG312084-4)					
Acenaphthene	60	70	15	30	46-118
1,2,4-Trichlorobenzene	50	55	10	30	39-98
2-Chloronaphthalene	55	65	17	30	40-140
1,2-Dichlorobenzene	47	50	6	30	40-140
1,4-Dichlorobenzene	47	50	6	30	36-97
2,4-Dinitrotoluene	85	95	11	30	24-96
2,6-Dinitrotoluene	85	95	11	30	40-140
Fluoranthene	70	80	13	30	40-140
4-Chlorophenyl phenyl ether	75	85	13	30	40-140
n-Nitrosodi-n-propylamine	49	55	12	30	41-116
Butyl benzyl phthalate	80	85	6	30	40-140
Anthracene	65	70	7	30	40-140
Pyrene	70	75	7	30	26-127
P-Chloro-M-Cresol	60	68	13	30	23-97
2-Chlorophenol	40	43	7	30	27-123
2-Nitrophenol	53	55	4	30	30-130
4-Nitrophenol	58	63	8	30	10-80
2,4-Dinitrophenol	90	95	5	30	30-130
Pentachlorophenol	75	80	6	30	9-103
Phenol	23	25	8	30	12-110
Surrogate(s)					
2-Fluorophenol	33	37	11		21-120
Phenol-d6	32	37	14		10-120
Nitrobenzene-d5	57	61	7		23-120
2-Fluorobiphenyl	60	68	13		43-120
2,4,6-Tribromophenol	81	86	6		10-120
4-Terphenyl-d14	79	83	5		33-120
Semivolatile Organics by EPA 8270C-SIM for sample(s) 01 (L0802256-01, WG312085-4)					
Acenaphthene	55	60	9	40	40-140
2-Chloronaphthalene	50	55	10	40	40-140
Fluoranthene	75	80	6	40	40-140
Anthracene	65	65	0	40	40-140
Pyrene	65	65	0	40	40-140
Pentachlorophenol	63	65	3	40	30-130
Surrogate(s)					
2-Fluorophenol	37	40	8		21-120
Phenol-d6	35	39	11		10-120
Nitrobenzene-d5	52	55	6		23-120
2-Fluorobiphenyl	54	62	14		43-120
2,4,6-Tribromophenol	76	78	3		10-120
4-Terphenyl-d14	75	78	4		33-120

ALPHA ANALYTICAL  
 QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0802256

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG311989-1)							
Solids, Total Suspended	ND	mg/l	5.0	30 2540D		0219 11:15	DW
Blank Analysis for sample(s) 01 (WG312076-1)							
Cyanide, Total	ND	mg/l	0.005	30 4500CN-CE	0219 17:30	0219 22:50	DD
Blank Analysis for sample(s) 01 (WG311960-2)							
Chlorine, Total Residual	ND	mg/l	0.02	30 4500CL-D		0218 22:30	JO
Blank Analysis for sample(s) 01 (WG312081-4)							
TPH	ND	mg/l	4.00	74 1664A	0219 18:00	0220 21:45	JO
Blank Analysis for sample(s) 01 (WG312110-1)							
Phenolics, Total	ND	mg/l	0.03	4 420.1		0219 17:45	TH
Blank Analysis for sample(s) 01 (WG312463-1)							
Chromium, Hexavalent	ND	mg/l	0.010	30 3500CR-D	0218 21:30	0218 21:30	DD
Blank Analysis for sample(s) 01 (WG312234-3)							
Total Metals				19 200.7			
Blank Analysis for sample(s) 01 (WG312233-3)							
Iron, Total	ND	mg/l	0.05	19 200.7	0220 16:00	0225 10:13	AI
Blank Analysis for sample(s) 01 (WG312233-3)							
Total Metals							
Antimony, Total	ND	mg/l	0.0005	1 6020	0220 16:00	0221 18:35	BM
Arsenic, Total	ND	mg/l	0.0005	1 6020	0220 16:00	0221 18:35	BM
Cadmium, Total	ND	mg/l	0.0002	1 6020	0220 16:00	0221 18:35	BM
Chromium, Total	ND	mg/l	0.0005	1 6020	0220 16:00	0221 18:35	BM
Copper, Total	ND	mg/l	0.0005	1 6020	0220 16:00	0221 18:35	BM
Lead, Total	ND	mg/l	0.0005	1 6020	0220 16:00	0221 18:35	BM
Nickel, Total	ND	mg/l	0.0005	1 6020	0220 16:00	0221 18:35	BM
Selenium, Total	ND	mg/l	0.001	1 6020	0220 16:00	0221 18:35	BM
Silver, Total	ND	mg/l	0.0004	1 6020	0220 16:00	0221 18:35	BM
Zinc, Total	ND	mg/l	0.0050	1 6020	0220 16:00	0221 18:35	BM

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 QUALITY ASSURANCE BATCH BLANK ANALYSIS

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PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG312249-4)							
Total Metals							
Mercury, Total	ND	mg/l	0.0002	3 245.1	0220 18:00	0221 13:51	RC
Blank Analysis for sample(s) 01 (WG312612-1)							
Pesticides by GC 504							
1,2-Dibromoethane	ND	ug/l	0.020	14 504.1	0225 10:30	0225 11:35	JB
1,2-Dibromo-3-chloropropane	ND	ug/l	0.020				
Blank Analysis for sample(s) 01 (WG312171-6)							
Volatile Organics by GC/MS 624							
Methylene chloride	ND	ug/l	5.0	5 624	0220 10:29		MM
1,1-Dichloroethane	ND	ug/l	1.5				
Chloroform	ND	ug/l	1.5				
Carbon tetrachloride	ND	ug/l	1.0				
1,2-Dichloropropane	ND	ug/l	3.5				
Dibromochloromethane	ND	ug/l	1.0				
1,1,2-Trichloroethane	ND	ug/l	1.5				
2-Chloroethylvinyl ether	ND	ug/l	10.				
Tetrachloroethene	ND	ug/l	1.5				
Chlorobenzene	ND	ug/l	3.5				
Trichlorofluoromethane	ND	ug/l	5.0				
1,2-Dichloroethane	ND	ug/l	1.5				
1,1,1-Trichloroethane	ND	ug/l	2.0				
Bromodichloromethane	ND	ug/l	1.0				
trans-1,3-Dichloropropene	ND	ug/l	1.5				
cis-1,3-Dichloropropene	ND	ug/l	1.5				
Bromoform	ND	ug/l	1.0				
1,1,2,2-Tetrachloroethane	ND	ug/l	1.0				
Benzene	ND	ug/l	1.0				
Toluene	ND	ug/l	1.0				
Ethylbenzene	ND	ug/l	1.0				
Chloromethane	ND	ug/l	10.				
Bromomethane	ND	ug/l	5.0				
Vinyl chloride	ND	ug/l	2.0				
Chloroethane	ND	ug/l	2.0				
1,1-Dichloroethene	ND	ug/l	1.0				
trans-1,2-Dichloroethene	ND	ug/l	1.5				
cis-1,2-Dichloroethene	ND	ug/l	1.0				
Trichloroethene	ND	ug/l	1.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
p/m-Xylene	ND	ug/l	2.0				
o-xylene	ND	ug/l	1.0				
Xylene (Total)	ND	ug/l	2.0				
Styrene	ND	ug/l	1.0				

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PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG312171-6)							
Volatile Organics by GC/MS 624 cont'd				5 624		0220 10:29 MM	
Acetone	ND	ug/l	10.				
Carbon disulfide	ND	ug/l	5.0				
2-Butanone	ND	ug/l	10.				
Vinyl acetate	ND	ug/l	20.				
4-Methyl-2-pentanone	ND	ug/l	10.				
2-Hexanone	ND	ug/l	10.				
Acrolein	ND	ug/l	8.0				
Acrylonitrile	ND	ug/l	10.				
Surrogate(s)	Recovery		QC Criteria				
Pentafluorobenzene	107	%	80-120				
Fluorobenzene	108	%	80-120				
4-Bromofluorobenzene	100	%	80-120				
Blank Analysis for sample(s) 01 (WG312084-1)							
Semivolatile Organics by EPA 8270C				1 8270C		0219 16:00 0220 12:59 HL	
Acenaphthene	ND	ug/l	5.0				
Benzidine	ND	ug/l	50.				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl) ether	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	6.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	50.				
2,4-Dinitrotoluene	ND	ug/l	6.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Chlorophenyl phenyl ether	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl) ether	ND	ug/l	5.0				
Bis(2-chloroethoxy) methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachlorocyclopentadiene	ND	ug/l	30.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
NitrosoDiPhenylAmine (NDPA) /DPA	ND	ug/l	15.				
Bis(2-Ethylhexyl) phthalate	ND	ug/l	5.0				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				

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PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG312084-1)							
Semivolatile Organics by EPA 8270C cont'd				1 8270C	0219 16:00	0220 12:59	HL
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	7.0				
Pyrene	ND	ug/l	5.0				
Aniline	ND	ug/l	20.				
4-Chloroaniline	ND	ug/l	5.0				
1-Methylnaphthalene	ND	ug/l	5.0				
2-Nitroaniline	ND	ug/l	5.0				
3-Nitroaniline	ND	ug/l	5.0				
4-Nitroaniline	ND	ug/l	7.0				
Dibenzofuran	ND	ug/l	5.0				
2-Methylnaphthalene	ND	ug/l	5.0				
n-Nitrosodimethylamine	ND	ug/l	50.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
p-Chloro-M-Cresol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	10.				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	30.				
4,6-Dinitro-o-cresol	ND	ug/l	20.				
Pentachlorophenol	ND	ug/l	10.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
Benzoic Acid	ND	ug/l	50.				
Benzyl Alcohol	ND	ug/l	10.				
Carbazole	ND	ug/l	5.0				
Pyridine	ND	ug/l	50.				
Surrogate(s)	Recovery			QC Criteria			
2-Fluorophenol	32.0	%		21-120			
Phenol-d6	27.0	%		10-120			
Nitrobenzene-d5	72.0	%		23-120			

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					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG312084-1)							
Semivolatiles Organics by EPA 8270C cont'd				1 8270C	0219 16:00	0220 12:59	HL
2-Fluorobiphenyl	65.0	%	43-120				
2,4,6-Tribromophenol	81.0	%	10-120				
4-Terphenyl-d14	83.0	%	33-120				
Blank Analysis for sample(s) 01 (WG312085-1)							
Semivolatiles Organics by EPA 8270C-SIM				1 8270C	0219 16:00	0220 11:15	HL
Acenaphthene	ND	ug/l	0.20				
2-Chloronaphthalene	ND	ug/l	0.20				
Fluoranthene	ND	ug/l	0.20				
Hexachlorobutadiene	ND	ug/l	0.50				
Naphthalene	ND	ug/l	0.20				
Benzo(a)anthracene	ND	ug/l	0.20				
Benzo(a)pyrene	ND	ug/l	0.20				
Benzo(b)fluoranthene	ND	ug/l	0.20				
Benzo(k)fluoranthene	ND	ug/l	0.20				
Chrysene	ND	ug/l	0.20				
Acenaphthylene	ND	ug/l	0.20				
Anthracene	ND	ug/l	0.20				
Benzo(ghi)perylene	ND	ug/l	0.20				
Fluorene	ND	ug/l	0.20				
Phenanthrene	ND	ug/l	0.20				
Dibenzo(a,h)anthracene	ND	ug/l	0.20				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	0.20				
Pyrene	ND	ug/l	0.20				
1-Methylnaphthalene	ND	ug/l	0.20				
2-Methylnaphthalene	ND	ug/l	0.20				
Pentachlorophenol	ND	ug/l	0.80				
Hexachlorobenzene	ND	ug/l	0.80				
Hexachloroethane	ND	ug/l	0.80				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	27.0	%	21-120				
Phenol-d6	21.0	%	10-120				
Nitrobenzene-d5	53.0	%	23-120				
2-Fluorobiphenyl	49.0	%	43-120				
2,4,6-Tribromophenol	57.0	%	10-120				
4-Terphenyl-d14	64.0	%	33-120				
Blank Analysis for sample(s) 01 (WG312156-1)							
Polychlorinated Biphenyls				5 608	0220 08:15	0221 20:50	SS
Aroclor 1016	ND	ug/l	0.250				
Aroclor 1221	ND	ug/l	0.250				
Aroclor 1232	ND	ug/l	0.250				
Aroclor 1242	ND	ug/l	0.250				
Aroclor 1248	ND	ug/l	0.250				
Aroclor 1254	ND	ug/l	0.250				

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PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE		ID
					PREP	ANAL	
Blank Analysis for sample(s) 01 (WG312156-1)							
Polychlorinated Biphenyls cont'd				5 608	0220 08:15	0221 20:50	SS
Aroclor 1260	ND	ug/l	0.250				
Surrogate(s)	Recovery			QC Criteria			
2,4,5,6-Tetrachloro-m-xylene	67.0	%		30-150			
Decachlorobiphenyl	71.0	%		30-150			

ALPHA ANALYTICAL  
ADDENDUM I

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ADDENDUM I**

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**REFERENCES**

**GLOSSARY OF TERMS AND SYMBOLS**

REF Reference number in which test method may be found.  
METHOD Method number by which analysis was performed.  
ID Initials of the analyst.  
ND Not detected in comparison to the reported detection limit.  
NI Not Ignitable.  
ug/cart Micrograms per Cartridge.  
H The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

**LIMITATION OF LIABILITIES**

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